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In-Law Resources, Parental Resources and Distribution within Marriage

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Introduction

There has been increased attention in recent years to decision-making within the context of multi-member households in which individual members differ in their preferences. Two implications of various alternative specifications of the non-unitary household framework that highlight optimization by individuals have received particular attention and have important implications for the design and consequences of programs that seek to influence resource allocations via income transfers. The first is that the distribution of resources within the household may depend on who in the household receives income transfers. Recent changes in family welfare rules in England, which mandated a shift in the payments of family allowances to married couples from husbands to wives, is an example of a social policy attentive to the proposition that households engage in non-unitary decision-making (Lundberg, Pollak and Wales (1997)).

A number of studies have attempted to test income pooling by examining how the earnings or non-earnings income of individual marital partners affect household consumption allocations. These studies yield results inconsistent with household income pooling that is implied by models that assume that household members have common preferences, but they also can be accounted for by richer specifications of such household models. Lundberg et al. (1997) provide an excellent discussion of the problems with existing income-pooling studies, a principal one being that labor earnings and earnings from assets reflect either current or past labor supply decisions. Non-separability between leisure and all consumption goods in the household as well as preference heterogeneity across households can thus account for why the earnings of marital partners are correlated differentially with consumption goods. Lundberg et al. avoid this problem by examining the consequences of the English-law change in the assignment of welfare payments. However, as in almost all studies that attempt to assess the effects of changes in national programs, the causal inferences made from the observed correlations between the program changes and changes in household allocations must assume that over the same period none of

the other multiple changes in governmental tax laws and other social and investment policies also affected household decisions.

A second implication of the collective household framework is that differences in partner-specific opportunities outside of the marriage that do not otherwise affect household resources will have direct effects on the allocations of resources within marriage. One important but less well-recognized example of a potential partner-specific "extra environmental parameter" (McElroy (1990)) was the AFDC program in the United States, which provided income transfers only to women (with children) who were not married. This program thus improved prospects outside of marriage for (relatively poor) women but not at all for men and did not directly affect the budgets of married couples. If decision-making in households is collective and women have stronger preferences for allocating resources to children (Thomas, 1990), then the AFDC program should have increased resource allocations to the children of married as well as non-married mothers. Evaluations of the consequences of the AFDC program that restrict attention only to the children of unmarried women who actually receive AFDC transfers (Currie and Cole, 1992) thus may understate considerably the impact of the AFDC program.

Testing directly how variations in AFDC generosity affected the resource allocations of the households of married women as a means of assessing both the efficacy of the program and the relevance of collective household models is fraught with pitfalls associated with the potential correlation of changes in such public programs with other unmeasured changes and by the facts that AFDC benefit variation is limited and AFDC benefits are sufficiently low that they represent viable support alternatives for only that subset of the population that has low earnings endowments and poor marital prospects. These identification problems have at least in part led to the lack of conclusiveness in the literature examining the moral hazard effects of the AFDC program, those on nonmarital fertility (Moffitt, 1998). Many have recognized, however, that parental resources play a similar role as AFDC in providing a potential source of support for adult children if they leave a marriage or choose not to enter into one

(Rosenzweig and Wolpin (1994), Rosenzweig, 1998). The resources of the parents of marital partners could thus have important effects on the distribution of resources within marriage. Moreover, the resources of parents vary substantially and, given imperfect assortative mating, there is variation in the relative extent to which each partner in a marriage can rely on parental support outside of marriage.

In this paper, we use newly-available data on parent and parent-in-law characteristics,[1] transfers and bequests and visits by couples with parents and in-laws to assess within the context of a "collective" household framework (Chiappori, 1988, 1992) whether and how variations across the resources of parents and in-laws affect decisions made within marriage. A key distinction for assessing the nature of collective decision-making is that between parental resources that could be used to support adult children outside of marriage, and thus affect the reservation utilities of the marital partners but not budget constraints within marriage, and actual transfers to the children made while the children are still married. We use information on the bequests made by deceased parents to their adult children to measure the potential for surviving parents and in-laws to provide support to children and actual bequests/transfers made by surviving parents and in-laws to assess if (i) variation in the relative capacities of parents and in-laws to provide post-marriage support and (ii) who receives a bequest (the "nominal" beneficiary) within a marriage matters for the observed allocation of marital resources, a distinction that parallels that between the consequences of payoffs from insurance programs and having insurance.

The framework we adopt assumes that the allocation of resources within the household is efficient and that each marital partner acts selfishly. We treat visits with parents and in-laws as household public goods for which each partner has different preferences. In particular, we assume that at least some visits with parents and in-laws are jointly made and that on average each partner prefers visits with

[1]Hereafter we use "in-law" as shorthand for "parents-in-law."

his/her parents to visits with his/her in-laws.[2] The model is used to demonstrate that the potential capacities of parents and in-laws to provide support to their offspring will affect the division of the couple's time between visiting with in-laws and parents if there is collective decision-making. The model also shows, however, that whether or not a couple pools income transfers made to one of the marital partners depends on rules governing post-divorce settlements. If such settlements divide household resources equally, for example, then the household will pool income even though preferences are not uniform because transfers in that case do not differentially affect post-marriage reservation utilities. Given that many U.S. states have laws that tend to equalize the post-marriage resources of marital partners (Grey, 1998), tests of the income pooling will not be conclusive about the nature of household decision-making, and efforts to influence household resource allocations by altering the identity of the recipients of transfers will be ineffective, compared with changing relative post-marriage alternatives.

Our empirical results are consistent with the collective household framework - partners within a marriage spend more time with those sets of parents or in-laws who have the greater capacity to provide support and less time with those with less resources. Thus, resource allocations within marriage favor the partner with the wealthier parents. We also find that these same couples, residing principally in states with equitable divorce laws, pool transfer incomes - who receives a bequest or transfer does not affect the division of the couple's time between visits with parents and in-laws or savings. In these states, programs that affect non-marital alternatives and that discriminate by individual characteristics may thus affect within-marriage distributions, while such discrimination applied to payments made to married couples will be ineffective.

We also consider alternative explanation for our results. Some of the implications of the model

[2]We believe that this is a less controversial preference assumption than has been used in other studies adopting non-unitary household models, including that women prefer to allocate more resources to children than do men (Thomas, 1990) and that a marital partner is completely indifferent to how his/her partner dresses as long as it makes his/her partner happy (Browning, Bourguignon, Chiappori, and Lechene, 1994).

and our empirical findings are consistent with the strategic-bequest model of parent-child contacts of Bernheim, Schleifer and Summers (1985). We thus examine our data, which contains information on twins, to assess to what extent a model that highlights competition among siblings for parental bequests accounts for the observed relationships we find between parental wealth, in-law wealth and visits with children. Our data indicate that differences in actual bequests do not differ significantly across siblings despite significant inter-sibling differences in visits with parents, that differences in the characteristics of siblings affect differences in visits but not differences in bequests, and that although visits by a sibling with his/her parents depend on own-parent characteristics, own characteristics, spouse characteristics, and in-law characteristics, they do not depend on sibling characteristics. Variation in intergenerational visits thus appear to be more the outcome of a game between marital partners than between siblings and their parents.

I. A Theoretical Framework

The theoretical framework that we adopt assumes a two-person household in which each individual (partner) i, i=H,W, maximizes his/her own utility and in which resources are allocated efficiently. Each partner in the marriage consumes a private good C_i and spends time visiting both own parents and his/her partner's parents and working in the labor market at wage rate w_i. We adopt two key assumptions: (i) the couple jointly visits parents and in-laws at least some of the time and (ii) each partner prefers visiting with his or her parents to visiting with in-laws. In particular, the utility functions for the two marital partners are:

(1) $U(C_H, Z_H, Z_W) = \ln(C_H) + \eta_{HH}Z_H + \eta_{HW}Z_W$ and $U(C_W, Z_W, Z_H) = \ln(C_W) + \eta_{WW}Z_W + \eta_{WH}Z_H$

where Z_i is the amount of time spent by both partners jointly visiting the parents of partner i and the η_{ik}, i,k=H,W are parameters characterizing the preferences for parent (i=k) and in-law ($i \neq k$) visits. If t_{Hi} and t_{Wi} are the amounts of time spent (jointly with k) by partner i with parents and in-laws, respectively, then $Z_i = t_{Hi} + t_{Wi}$ with $t_{Hi} = t_{Wi}$ and the opportunity cost of a joint visit is $\omega = w_H + w_W$.

We can define the allocation of resources at any given point on the household efficiency frontier by the programming problem: partner i, say H, maximizes his utility subject to constraints on the allocation of time of each partner and a money budget, and subject to the requirement that the other partner in the household receives some given "reservation" utility V*, where V* is the utility that partner could obtain outside of the marriage. With Ω the total amount of time available to the couple and C^*_W the amount of consumption that must be provided to partner W for any given allocation of the Z_i in order to meet the reservation utility requirement, the full-income budget constraint is

(2) $\quad C^*_W(V^*_W, Z_H, Z_W) + C_H + \omega(Z_H + Z_W) + p_{ZW}Z_W + p_{ZH}Z_H = R + \omega(\Omega)$,

where R=non-earnings income and the p_{Zi} are parent- and in-law-specific visit costs (e.g., travel costs). Partner H then maximizes (1) subject to (2) and the reservation utility requirement.

To further simplify, we assume that preferences are identical and symmetric across partners, so that $\eta_{WW}=\eta_{HH}=\eta_P$, $\eta_{WH}=\eta_{HW}=\eta_I$, but $\eta_P>\eta_I$. That is, each partner has the same preferences for visiting his\her parents or in-laws as his\her partner, but both prefer visits with own parents over visits with in-laws. The necessary first-order condition for the amount of joint time spent with in-laws or parents is

(3) $\quad \eta_k = \lambda[\omega + p_{Zk} - C^*_W \eta_n]$, k,n=P,I, $k \neq n$,

where λ=marginal utility of income. Expression (3) indicates that the shadow price of a joint visit by H to parents or in-laws is not just the opportunity cost of the joint time allocated to the visit and travel costs. There is also an offset term that arises from the fact that the partner values the visit as well, albeit differentially, and as a consequence less resources need be allocated to that partner's consumption in order to meet the reservation utility requirement. Given that the partner prefers visiting her parents more than H's parents, this offset or subsidy is greater for visits with H's in-laws than it is for visits with H's parents. Visits by H with in-laws and own parents thus tend to be equalized despite H's preference for visits with his own parents due to the reservation utility requirement.

a. <u>Parental Resources and Visits with Parents</u>

The model indicates how visits with in-laws and parents change, at any given point on the household resource frontier, if there is an increase in the reservation utility of one of the partners. Let B_i be resources, in money units, provided to partner i if the marriage is dissolved but that are not available to either partner while married or to i's partner after the dissolution of the marriage. Important examples are governmental assistance plans that provide support only to non-married mothers (AFDC) and own-parental transfers provided to i to assist her in her post-marriage state. An increase in potential post-marriage transfers B_i then increases the reservation utility of i, which will necessitate the reallocation of resources in the marriage given differential preferences for the joint visit activities. In particular, the effect of an increase in extra-marital resources for W B_W leads to more (joint) visits with W's parents, as:

$$(4) \qquad \frac{\partial Z_W}{\partial B_W} = \left(\frac{\partial Z_W}{\partial V_W^*}\right)\left(\frac{\partial V_W^*}{\partial B_W}\right) = -\left[\frac{\rho(\eta_P^2-\eta_I^2)(\rho\eta_I+\eta_P)}{\rho\eta_I^2+\eta_P^2}\right]\left(\frac{dZ_W}{dp_{z_W}}\right)^c > 0,$$

where $\rho=C_W/C_H$ and $(dZ_W/dp_{ZW})^c$ is the compensated own price effect on Z_W. As long as all individuals prefer visiting their parents to visiting their in-laws ($\eta_P - \eta_I > 0$) the model of within-marriage allocation yields the same implication as the Bernheim et al. (1985) sibling competition model with respect to the relationship between visits with parents and parental resources potentially expendable on offspring. Our model also indicates, however, that an adult child's visits with his/her parents also depends (negatively) on his/her in-law's current resources - an increase in B_W results in less visits with H's parents:

$$(5) \qquad \frac{\partial Z_H}{\partial B_W} = \left[\frac{\rho(\eta_P^2-\eta_I^2)(\rho\eta_P+\eta_I)}{\rho\eta_I^2+\eta_P^2}\right]\left(\frac{dZ_W}{dp_{z_W}}\right)^c < 0.$$

The allocation of the couple's time to visiting with in-laws and parents thus depends on the opportunity-time costs of the visits ω, visit-specific costs (e.g., distance), marital resources R, and parental resources for each partner:

(6) $Z_i = Z(\omega, p_{ZW}, p_{ZH}, R, B_W, B_H)$.

More generally, how well an individual fares in a marriage depends at any moment in time on his or her parent's contemporaneous resources and those of his/her spouse. Bernheim et al. (1985) find empirically a positive contemporaneous relationship between parents' wealth and parents' visits with offspring but do not include in-law wealth or visits with in-laws in their analysis. Given that in-law and parental wealth have opposite effects on visits with own parents, if there is positive assortative mating with respect to parental resources of marital partners, the omission of in-law resources from estimating equations describing the relationship between visits with parents by (married) offspring and parental resources results in a downward bias in the estimated relationship.[3] Thus, Bernheim et al.'s finding of a positive contemporaneous relationship between parental bequeathable wealth - wealth that could be used to finance either post-marriage transfers or bequests at the death of the parents - and a child's visits with parents, despite the exclusion of in-law wealth, is strong evidence that parental resources affect behavior within marriage. However, the absence of any significant relationship between parental wealth and visits with offspring in the study by Perozek (1998) is not conclusive evidence against either model, since those results are also downward biased due to the exclusion of in-law wealth in the specifications used.

The Bernheim et al. model of sibling competition for parental bequests could probably be extended to accommodate the possibility that both partners in a marriage are potentially competing with their own siblings for parental bequests to obtain a negative in-law wealth effect on visits with own parents. What differentiates that model from the collective household model is that in the world of Bernheim et al. one should observe a positive relationship between actual bequests to i and his/her (past) visits, if visit histories differ among siblings. In the model here, however, individual bequests need not

[3]In our data, the correlation between the schooling attainment of fathers and fathers-in-law is 0.33; that between a weighted average of the schooling and occupational incomes of the fathers and fathers-in-law, where the weights are regression coefficients from bequest estimates (see below), is 0.35.

depend on visits with individual offspring or even need differ among siblings.[4] Rather, what should be observed is parents while alive transferring resources in support of non-married offspring - positive relationships between the likelihood (and amount) of *inter vivos* parental transfers to i, the wealth of i's parents and whether i is single.

b. Non-Earnings Income, Income Pooling and Within-Marriage Allocations

A number of studies testing the unitary household model have searched for differences in the effects of variations in partner-specific non-earnings income on partner-specific goods. In the non-unitary model here, however, the effects of person-specific non-earnings income variation will depend on the rules governing the disposition of the income after marriage. Consider a transfer R from, say, H's parents to H while H is still married to W. If the increase in R does not affect the reservation utility of W because it does not have to be shared with the spouse after the marriage ends, then resources will be redistributed across the partners in favor of H, with in this case visits with H's parents increasing and visits with W's parents decreasing:

$$(7) \qquad \frac{\partial Z_W}{\partial R} = \eta_I\left[\frac{\rho(\eta_P^2-\eta_I^2)}{\rho\eta_I^2+\eta_P^2}\right]\left(\frac{dZ_W}{dp_{z_W}}\right)^c < 0$$

$$(8) \qquad \frac{\partial Z_H}{\partial R} = -\eta_P\left[\frac{\rho(\eta_P^2-\eta_I^2)}{\rho\eta_I^2+\eta_P^2}\right]\left(\frac{dZ_W}{dp_{z_W}}\right)^c > 0$$

Visits with H's parents increase because in this specification of the preference function, visits are a normal good. Visits with H's in-laws decline because of the reservation utility property of the model and because W values joint visits with H's parents. An increase in visits with H's parents would raise the utility of the spouse above the reservation utility level; by decreasing visits with W's parents (his in-

[4]Average (across offspring) visits with parents and average bequests will be positively related across families if children like visiting with their parents because offspring with wealthier parents will have more "bargaining power" within their marriages.

laws), the less-preferred commodity for H, the spouse' utility is brought back to V^*_W and there still is a utility gain for H.

This non-neutrality result, given differential preferences for joint activities, is altered, however, if all income that accrues to the couple during the marriage, whatever its source, must be shared equally when the marriage ends, the rule applied in many U.S. states (Grey, 1998) and for most of the sample that we use.[5] In that case an increase in non-earnings income going to H while still married also raises the reservation utility of the spouse. Indeed, with equal post-marital resource pooling, the effect of any partner-specific increase in non-earnings income on joint couple visits with parents and with in-laws is neutral despite differential preferences for the two joint activities.

To see this neutrality, consider changes in couple visits with parents Z_H and in-laws Z_W at the point on the marital efficiency frontier in which there is complete equality, where $\rho=1$ and λ is the marginal utility of income for both partners. The effect of an increase in the spouse's expected post-marital income on the difference, while married, between the number of visits with the spouse's parents and with H's parents, from (3) and (4), is

$$(9) \qquad \frac{\partial(Z_W - Z_H)}{\partial B_W} = -2\left[\frac{(\eta_I^2 - \eta_P^2)(\eta_I + \eta_P)}{\eta_I^2 + \eta_P^2}\right]\left(\frac{dZ_W}{dp_{z_W}}\right)^c > 0.$$

An increase in the spouse's reservation utility always induces an increase in his/her preferred joint activity relative to that of the principal. An increase in R for H while married, if it did not alter the reservation utility of the spouse because that increase did not have to be shared after marriage, increases the visit differential in favor of H's preferred activity, and is given by

[5]Less than 4% of the sample of Minnesota-born respondents that constitute our sample resided in states at the time of the survey in which divorce settlements do not use the principle of equity or equality ("common property") (Grey, 1998).

$$(10) \qquad \frac{\partial(Z_W - Z_H)}{\partial R} = \left[\frac{(\eta_I^2 - \eta_P^2)(\eta_I + \eta_P)}{\eta_I^2 + \eta_P^2}\right]\left(\frac{dZ_W}{dp_{z_W}}\right)^c < 0.$$

However, the effect of an increase in non-earnings income R on the visit differential is neutralized if one half of the R increase must be provided to the spouse post-marriage. The spouse's reservation utility then rises by $1/2\lambda$, or ½ of expression (9). The total effect on the visit differential of any increase in non-earnings income of either marital partner is the sum of (10) and ½ of (9), which is identically zero.

The key distinction between B_i and R is due to the rules governing post-marital property rights - the B_i represent post-marital income prospects that are not shared by the former spouse unless the parents (in-laws) die while the partners are still married, while R is income that accrues during the marriage that is likely to be shared post-marriage. Income pooling within marriage thus can occur even if the partners act selfishly or "collectively." Differences in who receives transfers within a marriage will not always yield differences in partner-specific resource allocations even if preferences differ across partners and decisions are collective rather than unitary, as here; it is the difference in post-marriage entitlements that affect how within-marriage partner-specific transfers change inter-partner distributions.

The sharing rules within and post-marriage also suggest that the expected direct return to an individual with poor parents from marrying a spouse with wealthy parents is relatively low net of resources (R) that such a spouse brings directly to the marriage and that are shared within the marriage: bequests from a spouse's parents generally are made when both parents are deceased and will only be shared by the marital partner if he or she is still married. The expected benefit at the time of the marriage is thus one-half times the present discounted value of the bequests to the spouse, with discounting by the probabilities of joint in-law and marriage survival as well as the real rate of interest. In contrast, the spouse with wealthy parents is able to consume within the marriage relatively more of the goods he or she prefers at the expense of the poorer marital partner from the start of the marriage until his/her parents' deaths because of his/her parent's relative great capacities to provide resources should the

marriage dissolve.

Finally, the effect of an increase in either partner's wage rate is given by:

$$(11) \qquad \frac{\partial(Z_W - Z_H)}{\partial \omega} = \frac{\partial(Z_W - Z_H)}{\partial w_i} = \left[\frac{(\eta_I^2 - \eta_P^2)(1-\rho)}{\rho\eta_I^2 + \eta_P^2}\right]\left(\frac{dZ_W}{dp_{z_W}}\right)^c + (\Omega - Z_W - Z_H)\left(\frac{\partial(Z_W - Z_H)}{\partial R}\right)$$

As can be seen, if consumption is approximately equal across the marital partners (ρ=1) and income must be pooled at the break-up of the marriage and after so that income effects are neutralized, variations in either partner's wage rate will have no effect on the distribution of visits across parents and in-laws despite differential partner preferences for joint activities, although total visits with the two sets of parents will decline.

II. Data

a. The Minnesota Twins Survey

The model suggests that tests of the collective household model can be usefully carried out by looking at the time allocated by couples to visits with parents and in-laws. Such tests, however, require information not only on intergenerational personal contacts but on intergenerational financial flows and on the characteristics of the parents of each marital partner. We use data from a new survey of a subset of twins from the Minnesota Twin Registry (MTR) based on a survey instrument designed by Paul Taubman and us in collaboration with the Temple University Institute of Survey Research. The MTR is the largest birth-record-based twins registry in the United States, assembled over the 1983-90 period starting with birth records on all twins (both monozygotic and dizygotic) born in Minnesota in 1936-55. Details of the MTR are in Lykken *et al*. (1990).

The survey instrument was mailed out in May 1994 to the 5862 members of same-sex pairs for whom the MTR had current addresses. An additional 776 members of same-sex pairs for whom updated addresses had been located between May and September 1994 were sent questionnaires in November

1994. 3682 twins returned a completed questionnaire, for a response rate of surviving twins of over 60%.[6]

b. Couples with Surviving Parents and In-laws

The estimates in this paper are based principally on a subset of the returned questionnaires describing 710 married couples for which each partner had at least at least one surviving parent at the time of the survey.[7] Key information provided in the data describing couples with surviving parents and in-laws for the purpose of examining couple interactions and visits with parents include (i) the numbers of days in the past year each respondent spent with parents and with in-laws, (ii) past bequests and contemporaneous financial transfers to individual respondents and spouses from both parents and in-laws, (iii) the earnings, schooling, and non-earnings income (by source) of individual respondents and spouses, and (iv) characteristics of respondents, their spouses, their parents and their in-laws, including their location (town and state). The location information reported for each parent and in-law and for each couple were used to compute the time-minimizing driving distance between every couple and each of the sets of parents of the two partners using software that provides distances between any two locations in the continental United States based on geo-coded road maps.[8]

Table 1 provides descriptive statistics for the sample of 710 married couples with at least one surviving parent and in-law. Although our primary reason for examining visits-with-parents and visits-

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[6] The item response on returned questionnaires is very high, exceeding that on recent Current Population Surveys and the 1990 Census. For example, only 9% of ever employed workers in our sample did not answer the questions on earnings or self employment income; on the CPS more than 20% do not.

[7] 12 couples were also excluded because either the in-laws or parents resided outside the United States.

[8] Distances between parents and offspring in the data set used by Perozek (1998) to test the Bernheim et al. (1985) model are based on estimates by respondents. It is not known how accurately individuals are able to gage distances or whether such accuracy depends on the number of visits. The software we used is Street Atlas USA by Delorme, Version 5.0. The program also computes travel time. Distance and travel time are highly correlated ($r>.97$) and our results using distances are not changed when travel times between couples' and parents, or in-laws' residences are used instead.

with-in-laws behavior is that such visits provide a way to assess household decision-making with respect to joint activities, the data reveal that visits with parents and visits with in-laws are not a trivial component of family resource use. The average number of days in which the respondent visited with either parents or in-laws, excluding those respondents who worked on a regular basis with their parents or in-laws, was 69.7, with the average couple residing about 280 miles from parents and in-laws. Almost half of the sample respondents lived less than one hour's driving time from parents.[9] The data also indicate that approximately half of the sample respondents or spouses with at least one surviving parent had already lost a parent, and 9.9% of the couples had already received a bequest. Interestingly, about 7-12% of the value of parental bequests are provided to daughters-in-law or sons-in-law. The existence of bequests provided prior to the deaths of both parents and the ability to assign bequests to individual marital partners are important features of the data that enable a test of whether or not the couple pools incomes received while married.

c. The Orphan Sample: Bequests

A shortcoming of the data set is that there is no information on the wealth position of surviving parents or in-laws, a variable that could be a significant determinant of post-marital assistance for each marital partner and thus according to the model a key determinant of resource distribution in marriage in the model. However, we use the information on parental bequests from the subsample of twins both of whose parents had died to estimate the relationship between parental characteristics and bequests. These estimates from the "orphan" twins sample are used to characterize the capacity of surviving parents of any given age to provide support, if needed, to an individual son or daughter based on information on the surviving parents' and in-laws' schooling, age and principal occupation. In particular, the estimates are used to predict the amount of the per-child bequest from each surviving set of parents and in-laws if that

[9]35.5% of the couples lived in the same town or city as either the parents or in-laws. Only five of the couples actually co-resided with parents or in-laws. They are excluded from the sample.

bequest were made at the time of the survey. This predicted bequest variable represents each child's expectation of his/her parent's contemporaneous bequeathable wealth position that we show below is an important determinant of each individual's welfare outside the marriage.

We also use the orphan twins sample, exploiting the fact that we have data on siblings, to investigate whether any relationships we find between visits with parents and visits with in-laws and expected bequests are likely to be due to strategic behavior by parents and children, as emphasized by Bernheim et al.(1985). There are two key features of the orphan sample of twins that permit an examination of whether visits with parents are responsive to the parental threats of disinheritance. First, we have reports of actual bequests for two siblings so that it is possible to see to what extent actual bequests in fact differ across siblings for a sample of respondents without extraordinary family wealth.[10,11] Second, information is provided by each respondent on his or her own bequest and on his/her twins' bequest. We thus have, for "intact" twin pairs, two reports on each individual bequest so that an evaluation can be carried out of the extent to which measurement errors in self reports affects inferences about sib differences in bequests. The twins-based sampling frame also enables us to assess to what extent siblings with at least one surviving parent differ in the number of visits they have with parents in order to contrast sibling visit behavior with sibling differences in actual bequests.

820 twins reported that both parents had already died by the time of the survey with 758 providing information on their inheritance and the dates of death for each parent. In addition, for 265 twin pairs we have both own and cross reports for each twin in the pair. The first column of Table 2

[10]Previous studies of bequest patterns among children have focused on the upper tail of the wealth distribution because of the availability of accurate bequest data for decedents for whom estate taxes are relevant (e.g., Menchik 1980, Wilhelm 1996).

[11]The characteristics of the intact twin pairs, the characteristics of the sample of twins in which only one twin responded to the survey, and the population of individuals residing in Minnesota in 1990 from the same birth cohorts, as reported in the 5% sample of the U.S. Census, are quite similar (Behrman and Rosenzweig, 1998). Thus, the sample of twins respondents appears to be reasonably representative of all individuals born in Minnesota between 1936 and 1955.

provides information on the inheritances for all orphan twins reporting inheritances (including 35% who reported receiving no bequest). All bequest amounts were converted to 1993 dollars based on the date of death of the last surviving parent. The data indicate that the average inheritance reported by the orphaned twins was $17,314 1993 dollars, about one-half of current full-time earnings, and was received at age 42 by these twins.

Based on the twins' reports of what they and their twin received as inheritances, it appears that in fact few siblings received different bequests - 92.1% reported that their sibling received the same amount, and the average reported difference in bequests was less than $2,000. However, among the 530 (265 pairs) respondents for which we have reports from both twins on their own and their twin's inheritances (column 2), we see that the cross-sibling difference in inheritances based on own reports is over $9,000. This discrepancy between what the twins say their twin received and what each twin says he or she received suggests that there is considerable measurement error in the reporting of inheritances.[12]

In Appendix A we consider the question of whether the differences in reported inheritances between twins reflects measurement error or true inter-sibling differences in bequests and whether it is likely that visit behavior reflects strategic responses among siblings to direct bequest incentives.[13] The results strongly indicate that bequests do not importantly differ across twin siblings, although twin siblings differ significantly in the amounts of visits each makes with the parents. This is in contrast to the likelihood and amount of parental financial assistance in the year preceding the survey, which, as

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[12]On average for the sample, the inheritance was received 9 years prior to the survey, with half of the sample reporting inheritances received more than 7 years before the survey date.

[13]Menchik (1988) investigated the hypothesis that a significant component of intersibling differences in self-reported bequests are noise by comparing true sibling differences as observed in a random sample of Cleveland probate records with differences reported using survey methods for a comparable sample, as reported in Tomes (1981). He found that self-reports significantly overstate within-family bequest differences, and concludes that for his sample equal division of estates dominated as the inheritance rule. In only five of the total 269 cases (18 with unequal bequests), bequests differed because one child was more "attentive", but in three of those cases the favored sibling either lived with the parents or provided actual assistance in the form of a house or financial support.

discussed below, differs across siblings[14] and, in particular, differs according to the marital status of the child, with non-married adult children being more than twice as likely to receive parental aid. While only 5.3% of currently married sample respondents with a surviving parent received financial assistance from parents in the year preceding the survey, 11.1% of respondents who were not married received aid from parents, with the aid amounts averaging $3,200 for married children and $4600 for those not married.

III. Bequests, Parental Wealth and Parental Assistance

To characterize the contemporaneous capacity of surviving parents to provide financial assistance to their adult offspring at any given life-cycle point, we use information on the bequests made by parents at death and their socioeconomic characteristics to estimate the determinants of bequests. The appendix results, as noted, indicate that bequest reports from both twins in an intact twin pair essentially provide one observation per twin's family on per-child parental bequests. There is also survey information, however, on bequests made by spouses' parents to spouses. Assuming that parental bequest behavior does not differ for parents of twins and non-twins, we can stack single observations from twin pairs (averaging the reports on bequests) and observations on spouses both of whose parents had died to obtain an augmented sample of orphans. This results in a sample of 596 potential bequest beneficiaries, including 547 individuals who are also married partners, for which we have information on the dates of birth and death of the last surviving parent and on parental occupation and schooling.

To convert the occupation information for respondent and spouse fathers into a singulate measure of lifetime earnings, we used information from the 6% sample from the 1990 Census on all men aged 40 through 59 who worked in 1989 and resided in the states of Minnesota and Wisconsin, reflecting the principal residence states of the parents.[15] The occupational earnings equation we estimated

[14]In only 24 of the 280 intact twin-pairs in which at least one twin received parental aid did both twins receive aid.

[15]74.9% of the surviving parents of the respondents resided in Minnesota and Wisconsin at the time of the survey. The next most represented state (California) was the residence of only 3.2% of

(n=19,183) was of the following form:

(12) $$\ln y_{ik} = \beta_{ok} + \Sigma_k \beta_{1k} O_k + \Sigma_k \beta_{2k} O_k age_i + \beta_{3k} age_i,$$

where $\ln y_{ik}$=wage and salary plus self-employment earnings for individual i in occupation k and O_k=indicator for occupation k. Based on these estimates and the information on the principal occupation and schooling attainment of each father or father-in-law available in the data, we computed the occupational earnings of each male parent (or in-law) at age 50.[16]

The estimates of the determinants of per-child bequest estimates obtained from the sample of orphaned respondents and orphaned spouses, which include as regressors the father's occupational earnings, a dummy for whether or not the father was a farmer, the father's potential years in the labor force (age at death - number of years of completed schooling - 6), and the mother's schooling, are presented in Table 3. Both generalized least squares and random-effects Tobit estimators were employed to take into account any common error term among couples and the censoring of bequests at zero. For both estimation procedures we include alternative estimates with birth year used instead of potential experience, which increases the sample from 596 to 657 but does not substantially affect the estimates. As can be seen, both estimation procedures yield similar results (less than 30% of potential beneficiaries did not receive a bequest in this sample) and the couple-specific error component (σ_u^2) is not statistically significant. We discuss the GLS results, which are simpler to interpret.

The GLS estimates indicate that the set of parental characteristics explains almost 20% of the variation in per-child bequests across families, with each parental characteristic statistically significant. The point estimates in the first column indicate that a dollar increase in annual occupational earnings leads to a $1.64 increase in the per-child bequest, while each grade of maternal schooling adds almost $2,700 to the bequest amount. If the father was a farmer, bequests averaged almost $44,000 more.

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parents.

[16]The estimates are available on request from the authors.

Additional years of potential work experience by the father due to longevity also add to bequest amounts, up to almost 60 years of work experience. Given that the average schooling attainment for the fathers in the sample was 13 years, this suggests that on average bequests are reduced if fathers live beyond age 79.

The GLS estimates reported in Table 3 were used to compute for each sample respondent or spouse with a surviving parent the expected bequest that could be provided to the respondent or spouse from his or her parents at the time of the survey - a measure of "capacity to provide bequests" or current parental bequeathable wealth per child. As noted, an important reason why parental resources affect intramarriage distributions for adult offspring is that such resources affect the support an individual receives if the marriage dissolves. The bequest capacity variable, reflecting the parents current bequeatheable wealth position, does appear to be an important predictor of the amount and incidence of financial assistance provided by parents to their adult children while they are alive - parental bequeathable wealth affects both what children may expect to receive when parents die as well as what support they may obtain while parents are still living.

The first two columns of Table 4 report random-effects Probit and Tobit estimates of the probability of any sample respondent receiving financial assistance from a parent in the year preceding the survey (1993) and the amount of such aid, respectively, as a function of the parental bequest capacity variable, the computed distance of the respondent from his or her parents, the respondent's full time earnings in the past year, a variable indicating whether or not the respondent is married, and respondent age and gender. As 72% of the families have two siblings represented in the sample, the estimation procedure takes into account the potential existence of a family-based error term.

The estimates of the determinants of both parental aid incidence and aid amounts indicate that among adult children with similar earnings and marital status and with at least one surviving parent, those whose parents have a higher expected bequest capacity are significantly more likely to receive financial assistance and to receive more assistance. The point estimate suggests that a $10,000 increase in

parental per-child bequeathable wealth increases the probability of financial aid assistance to an adult child by 17% and the amount of aid by 20%. The aid estimates in the first two columns also indicate that assistance by parents is significantly higher and more likely for non-married adult children. The estimates reported in columns three and four, based on the sample of non-married respondents, indicate that for this group as well, having parents with higher bequeathable wealth leads to greater financial support, for given respondent earnings. These results thus suggest that parents' capacity to make per-child bequests is a significant determinant of the support adult children can expect to receive when they are not married and while their parents are still alive.[17] Distance to parents (an important determinant of visits), however, has no discernible effect on parent financial support.

IV. Visits with Parents and Visits with In-Laws

We now investigate the relationships between the capacities of parents and in-laws to provide support to their adult children and the allocation of a couple's time to visiting with them based on the sample of couples in which each marital partner has at least one surviving parent and for which we have information on both parental and in-law characteristics. The specification we use is a linear approximation to the visits equation (6) from the model. For couple j:

$$(13) \qquad V_{ij} = \gamma_{iB}B_{ij} + \gamma_{kB}B_{kj} + \gamma_{i\omega}\omega_{ij} + \gamma_{k\omega}\omega_{kj} + \gamma_{iR}R_{ij} + \gamma_{kR}R_{kj} + \gamma_{ip}p_{ij} + \gamma_{kp}p_{kj} + u_j + e_{ij},$$

where V_{ij}=visits by partner i in couple j with own parents; B_{ij} and B_{kj}=the expected bequest variables for i's parents and i's spouse's (k's) parents, respectively; ω_{ij} and ω_{kj} and R_{ij} and R_{kj} =the full-time earnings (annual wage) of and actual bequests made to each marital partner; p_{ij} and p_{kj}= the computed trip distances in miles to each set of parents; u_j=couple-specific error term and e_{ij}=partner-specific error term, and the γ are coefficients to be estimated. In addition, we include in the specification indicator variables

[17]The estimates also suggest that respondents with higher earnings, for given parental resources, are less likely to receive assistance and receive less assistance, although the estimates are not very precise. This findings and the absence of a distance effect would appear not to provide support for models that suggest that transfers from parents to adult children are payments for services.

for whether any parent had died for each marital partner. The collective household model implies that $\gamma_{iB}>0$ and $\gamma_{kB}<0$, $\gamma_{ip}<0$ and $\gamma_{kp}>0$, $\gamma_{i\omega}=\gamma_{k\omega}<0$, and that $\gamma_{iR}=\gamma_{kR}$ if transfers received during marriage do not affect reservation utilities.

Each couple in the sample potentially provides two observations, one for each partner, on visits with own parents, the only distinction being that respondents are twins while almost all spouses are not and the respondent reports the information on spouse characteristics and on visits with both his/her own parents and to in-laws. We tested, based on seemingly-unrelated regression (SUR) estimates, whether the parameter estimates of the own-parent visit equation differed across respondents and spouses and could not reject the null. The SUR estimates are reported in Appendix Table A3. Accordingly, we stack the spouse and respondent own-parent visit observations to create a set of "child" observations and correct the coefficient standard errors for the presence of the common couple error term u_i.

The estimates of the own-parent visit equation are reported in Table 5. In the first-column specification, both the partner's wages are entered separately along with the parental and in-law bequeathable wealth variables. The estimates are in accord with the reservation-utility model of partially selfish couple decisions, with own-parental and in-law variables having statistically significant and opposite effects on the amount of visits by each child with own parents. The set of in-law and the set of own-parent variables are each jointly significant - $F(3, 695)=5.87$ for the set of own-parent variables and $F(3, 695)=2.36$ for the in-law variables. The estimates indicate in particular that visits by a child with his or her own parents are increased if the parents have greater expected spendable wealth, while visits with own parents are lower if in-laws' wealth is greater, for given parental capacity to provide support. The coefficients of the expected own-parent and in-law support variables, γ_{iB} and γ_{kB}, are also statistically significantly different ($F(1, 695)=10.7$). The point estimates suggest that a $10,000 increase in expected capacity of parents to provide aid increases visits with own parents by 2.25 days, or 5%. A similar increase in the in-laws capacity to provide support reduces the couple's visits with the parents by 0.86

days. Distance to parents and in-laws also matter, with an increase of 100 miles in own-parent-couple distance reducing visits with the child's own parents by 2.3 days and a similar increase in distance to in-laws increasing visits with own parents by 0.5 days.

In contrast to the opposite-sign effects of the own-parent and in-law expected support variables, increases in either partner's wage lowers visits with the child's parents, with the coefficients of the partner wages, $\gamma_{i\omega}$ and $\gamma_{k\omega}$, not statistically significantly different from each other ($F(1, 695)=0.25$). In the second column of Table 5 we report estimates of the visit equation with the partner wages combined. The point estimate indicates that an increase in either partner's annual wage by $10,000 lowers joint visits with parents (in-laws) by 0.54 days, a figure lower in absolute value than a similar change in the expected capacity to provide aid of either parents or in-laws. The negative sign for the summed wage variable is consistent with an interpretation of that variable as the opportunity cost of the couple's time. That the partner wage effects are not different is further consistent with visits with parents and visits with in-laws being made jointly by the partners and with partner income being pooled.

We further test whether partner incomes affect their reservation utilities by making use of the information on actual bequests made by surviving parents and in-laws to the marital partner As noted, almost 10 percent of the couples in the sample in which each partner has at least one surviving parent received a bequest from a parent or in-law, and the survey provides information on both the source of the bequest (parent or in-law) and on its assignment to each of the partners. As indicated by the model, however, if incomes received during the marriage do not affect the reservation utility of either partner, the effects of these bequests on joint visits with own parents should be the same independent of which partner received the bequest. The third column of Table 5 reports estimates of the visits-with-parents equation that include the partner-specific bequest variables. Consistent with income pooling, each coefficient has the same sign and the coefficients are not statistically significantly different from each other ($F(1, 695)=0.59$). In the fourth column, we report the statistically-preferred estimates in which

bequests are summed. The point estimate of the in-marriage bequest variable indicates that a $10,000 increase in bequests made to the couple while married, for given capacities of the couple's surviving parents and in-laws to provide future support, reduces the time spent visiting with parents by about half a day, suggesting that visits with parents are an inferior good.

To further test the hypothesis that differences in partner-specific opportunities for support outside marriage affect couple behavior, while differences in partner-specific incomes, earnings and other characteristics do not, we estimate the visit equation (13) using a within-couple estimator, differencing the respondent and spouse variables for all couples with complete information for each partner. The advantages of this procedure are that any couple-specific unobservables impounded in u_j that jointly affect visits with parents and visits with in-laws, such as a joint preference for family activities, and that may be correlated with the observed variables are swept out and partner-specific coefficient differences are directly estimated. The differenced form of (13) is:

$$(14) \qquad \Delta V_j = (\gamma_{iB} - \gamma_{kB})\Delta B_j + (\gamma_{i\omega} - \gamma_{k\omega})\,\Delta\omega_j + (\gamma_{iR} - \gamma_{kR})\Delta R_j + (\gamma_{ip} - \gamma_{kp})\Delta p_j + \Delta e_{ij},$$

where $\Delta x_j = x_{ij} - x_{kj}$. The model implies that $\gamma_{iB} - \gamma_{kB} > 0$, $\gamma_{ip} - \gamma_{kp} < 0$, and $\gamma_{i\omega} - \gamma_{k\omega} = \gamma_{iR} - \gamma_{kR} = 0$ if partner-specific earning and incomes do not affect reservation utilities.

Table 6 reports the estimates of (14), with the addition of the parental survival control variable. In the first column we omit all of the differenced couple variables that the estimates in Table 5 suggest have no effect on the difference between joint visits with parents and visits with in-laws. The estimates are consistent with those of Table 5 and support the hypothesis that parental wealth affects the reservation utility of a married adult child - an increase in the relative wealth position of partner i's parents compared with that of his/her in-laws increases the couple's visits with his/her parents relative to the couple's visits with in-laws. In addition, increases in the distance to parents relative to in-laws decreases visits with parents relative to visits with in-laws. However, as displayed in columns two through four in Table 6, neither differences in the partners' schooling attainment, in full-time earnings or

in partner-specific bequests received, jointly[18] or individually, affect the differences between joint visits with parents and with in-laws.

V. Other Evidence

We have used information on visits with parents and visits with in-laws as a method of drawing inferences about the nature of household decisions. The two main findings are that (i) the resources of parents and in-laws affect the distribution of visits between the parents of the marital partners, consistent with a model in which parental and in-law resources affect the reservation utilities of the two partners and thus affect the relative welfare positions of the marital partners and (ii) any transfers to each partner that occur while the partners are married do not affect their relative standing, evidently because they do not affect their post-marriage relative opportunities. In this section we first provide more direct evidence on income pooling. We then consider evidence on alternative explanations for the relationships between the distribution of couple visits between in-laws and parents and parental and in-law wealth positions.

a. Nonearnings income and partner-specific transfers

We can test more directly the finding that partner-specific transfers are pooled by looking at the relationships between the incomes from partner-specific assets at the time of the survey and prior partner-specific bequests received from parents and in-laws. As noted, the survey elicited information on the income of each respondent and the respondent's spouse from rents, interest and dividends in the year preceding the survey (1993) as well as on prior bequests received from parents. Stacking all observations on respondents and on spouses with valid information for both set of variables, regardless of the survival status of in-laws or parents, yields a sample of 3,423 individuals in 1165 households. In this sample, 36% of the partners (47% of the couples) reported some nonearnings income; the average amount of nonearnings income for this group was $3,384. 22% of the couples had received a bequest sometime

[18]The joint F-statistic for the set of partner-specific coefficient differences is F(3, 1222)=0.77 (P=.51).

prior to the survey from either parents or in-laws, with average bequest amounts approximately $36,829 for those couples receiving a bequest.

The first column of Table 7 provides descriptive statistics for the sample; columns two and three reports random-effects Tobit estimates of the determinants of partner-specific non-earnings income. We include as regressors own and spouse bequests in 1993 dollars as well as the age and schooling of the two partners and variables indicating the survival status of the parents and in-laws. The specification in the first column assumes that the effect of schooling attainment on non-earnings income does not differ by sex; the column-three specification relaxes that assumption. The estimates in both column two and three are consistent with the finding obtained using information on intergenerational visits that the identity of the recipient of income in a marriage does not affect the reservation utilities of the two partners differentially, so that such incomes are pooled. Bequests made to either marital partner increase own nonearnings income significantly, and the effects of a dollar increase in the bequest to a marital partner from his/her own parents and a dollar increase in the bequest to his/her spouse from in-laws on that partner's nonearnings income are identical ($F(1, 3415)=0.54$). Moreover, in the specification that allows the effects of schooling on asset accumulation to differ by sex, as the estimates suggest is necessary, we cannot reject the hypothesis that own schooling and spouse's schooling (net of gender differences) have the same effects on own nonearnings income.[19] The point estimate for own schooling for a male (female) is 1428 (788), that for a male (female) spouse is 1344 (872).

b. Alternative interpretations

[19]That the schooling of men has a greater effect on non-earnings income than the schooling of women is consistent with the significantly lower work experience of women compared with men. In our sample, the average number of years of full-time work experience for male respondents is 26.5 years; that for female respondents is 17.5 years. The average age difference between male and female respondents is less than one-third of a year. The dependence of partner-specific non-earnings income on his or her prior work history suggests that assessing household decision-making on the basis of the differential effects of variation in partner-specific non-earnings income on household decisions could provide misleading results to the extent that labor supply is a choice variable even when pension income is excluded from nonearnings income, as here.

Finally, we consider two alternative interpretations of our finding that couples spend more time with the set of parents having greater resources. We have already discussed that these results, consistent with the model of collective intracouple decision-making, are also consistent with the Bernheim et al. (1985) model of intergenerational strategic bequests (suitably modified to recognize the existence of couples), although we have shown evidence that the "rewards" for visits with parents assumed in that model - parental bequests - do not differ significantly among siblings despite significant inter-sibling visit differentials. Another implication of the model of competition among siblings for parental bequests and a potential source of misspecification error for our results, however, is that a sibling's parental visit behavior should depend on the visit behavior of his siblings. If visits with parents are a rivalrous game among siblings, then the characteristics of siblings should be included in any equation describing the visits of any one sibling with his/her parents.[20]

We can again exploit the sibling-based sampling frame of the survey to test the hypothesis that siblings interact importantly in parental visit decisions. We specify a reduced-form visit equation for a sibling as a function of his/her own household characteristics, his/her parents' household characteristics, and his/her twin's household characteristics. The first column of Table 8 reports estimates of the determinants of visits with parents for all twins in intact twin-pairs with at least one surviving parent based on a specification including household characteristics for the parents and the twin. In this specification, the set of twin-specific characteristics - own schooling, own distance from parents, own number of children, total annual household earnings, and marital status - and the set of parental characteristics - father and mother schooling level, total number of children of the parents, and survival status - are each jointly statistically significant determinants of visits of each twin with parents. In the

[20]Perozek's test (1998) of the Bernheim et al. (1985) model based on data from the adult-children sample in the National Survey of Families and Households fails to include the characteristics of siblings in the specification of the visits-with-parents equations. The data used by Bernheim et al. did not include any information on siblings.

second column, estimates are reported from the specification that adds the household characteristics of the twin sibling. The set of "cross" effects associated with the sibling's characteristics is not statistically significant, while both the own and parental characteristics retain their statistical significance. There does not appear to be any significant interaction between siblings in observed parental visit behavior as implied by the inter-sibling model of strategic bequests.[21]

A final alternative interpretation of the finding that parental wealth and in-law wealth affect the relative visits of couples with parents and in-laws is that such wealth is correlated with goods or assets that make visits more pleasant, such as a vacation home, with jointly-maximizing couples simply visiting more often the set of parents with the superior consumption bundle. There are two implications of a framework in which parental resources simply reflect the quality or desirability of visits with parents. The first is that an increase in the resources of any set of parents would then increase total visits with parents and visits with in-laws (consumption of the parent goods), since it increases the relative attractiveness of visits or average visit quality.[22] In the model here in which parental or in-law resources only affect the reservation utility of each partner, however, the effect of an increase in either parental or in-law resources on total joint visits with in-laws and parents is zero, as can be seen by adding expressions (4) and (5) at the equal-consumption point on the efficiency frontier (ρ=1).

Summing equation (13) over the two partners yields a specification for total visit time. Table 9 reports estimates of the determinants of the total number of days visiting with parents and with in-laws for the married couples with at least one surviving in-law and parent based on the summed specification. As can be seen, increases in the opportunity cost of visits, as measured by the sum of the partners annual

[21]Another way to specify this test is to estimate directly the effects of a twin's sibling's visits with the parents on the amount of his/her own visits using the twin's siblings unique characteristics as instruments. Not surprisingly, given the estimates in Table 8, the two-stage least squares estimate of the cross-sibling visit effect is not statistically significant.

[22]This is equivalent in the model to an increase for both marital partners in preferences η_k for visits with the parents of k or to a decrease in the price of visits p_k.

wages and the sum of the distances between the couple and the in-laws and the parents, reduce the total time spent by the couple with their parents and in-laws, as do increases in the total of actual bequests they have received. However, an increase in the total bequeathable resources of parents and in-laws has no statistically significant effect on the total amount of time a couple spends with parents and in-laws. This latter result is inconsistent with a model in which parental resources are measures of the quality of visit goods. The set of results, however, is consistent with the model in which the resources of parents are determinants of the individual welfare of the marital partners outside the marriage and thus their relative position inside the marriage.

A second implication of the alternative view that parental resources represent the quality of visits with parents so that each partner benefits from either parental set having more resources is that an increase in the resources of either set of parents would make marital break-up less likely. That is, having wealthier in-laws or parents and thus more pleasant visits increases marital surplus. If, however, as highlighted in our analysis, parental resources reflect the capacity of parents to provide a post-marriage income cushion - an improved non-marital alternative - for one partner only, then an important additional implication of the model that emphasizes the role of parental resources in affecting reservation utilities is that increases in parental resources should increase the probability of marital break-up. It is easy to show that with unanticipated stochastic shocks to the gains from marriage, those individuals with better non-marital alternatives should be more likely to leave their marriages when subject to adverse marriage-specific shocks. We have seen in Table 4 that higher levels of parental bequeathable wealth are positively associated with transfers to adult children who are unmarried. We now inquire as to whether there is a higher incidence of marital break-up among the children of parents with higher levels of bequeathable resources.

26.2% of the sample respondents who had ever married (93% of the sample) had divorced at least once by the time of the survey (15.4% of those currently married). Table 10 reports probit and

random-effects probit estimates of the determinants of ever-married respondents ever divorcing by the time of the survey as a function of their schooling at the date of their first marriage, their current age and their parent's ages and expected bequeathable wealth-per child when the respondent was age 30. The estimates indicate that those respondents with parents having greater expected capacity to provide intergenerational support were significantly more likely to have divorced. The point estimate indicates that a $10,000 increase in the parental transferrable resources per-child when the child is age 30 increases the likelihood of ever divorcing by 5%. The estimates in Tables 9 and 10, thus, provide no evidence that having wealthier parents or in-laws benefits both marital partners, which is consistent with the collective household model.

VI. Conclusion

In this paper, we have shown that a significant set of joint activities over which marital partners plausibly have differing preferences is influenced by the relative wealth standing of the parents and in-laws in a way consistent with collective household decision-making. We also have found that such couples appear to pool their incomes. But we have demonstrated that such income pooling is not inconsistent with a collective model of the household, but is rather an implication of it in an environment in which post-marriage settlement rules favor equal or equitable division. These results thus imply that laws regulating divorce settlements and providing income maintenance for the non-married have significant effects on the way in which resources are distributed within marriage. They also imply that the gains to an individual from marrying someone from a wealthy family are less than would appear. The risk of marital break-up not only reduces prospects of actually sharing in a rich spouse's bequests, but is the reason why more resources in the marriage must be provided to the richer spouse while his/her parents are alive.

Our findings, which also indicate that parents tend to leave equal bequests but to favor, while alive, their non-married (and lower-income) offspring, appear to be inconsistent with a framework in

which parents use threats of disinheritance to elicit more visits with their children. Indeed, that the support provided to a child by parents while alive does not reduce that child's eventual inheritance reinforces the saliency of parental wealth as an indicator of potential support for a married child. For if parents decreased bequests dollar-for-dollar with inter-vivos transfers, the insurance value of parental wealth for an individual child would be substantially reduced. Why parents do not increase bequests for those to whom they also provide support remains a puzzle, however.

Finally, we have used information on visits with parents and visits with in-laws as a means of investigating how family decisions are affected by outside-marriage alternatives. While such visits evidently absorb a great deal of family resources, evidence on whether differing outside-marriage alternatives across marital partners affected resource allocations to other activities, in particular children, would be useful although they may provide less conclusive tests of family decision-making. Our results, imply, however, that to the extent that marital partners differ over their preferences for resources allocated to children, studies of child investments among married couples that are inattentive to parental and in-law wealth positions, to rules governing divorce settlements and to gender-biased income maintenance programs may provide at best incomplete results.

Appendix A

Do Bequests Differ Across Siblings?

We use the information on own and twins' "cross" reports on their twin's inheritance from the sample of twins pairs to test the hypothesis that the observed inter-twin differences in reported own inheritances solely reflect measurement error.[23] Consider the following modified measurement model for twin pairs:

$$I_{11} = \mu + \epsilon_1 + e_{11}$$

$$(1A) \quad I_{12} = \mu + \epsilon_1 + e_{12}$$

$$I_{22} = \mu + \epsilon_2 + e_{22}$$

$$I_{21} = \mu + \epsilon_2 + e_{21},$$

where I_{ij}, i,j=1,2 and i=j, is twin i's report of his own inheritance, I_{ij}, $i \neq j$, is the report by i's twin of twin i's inheritance, e_{ij}, i=j, is the measurement error in twin i's own inheritance report, e_{ij}, $i \neq j$, is the measurement error in twin i's report on his twin's inheritance, μ is the common component to the twin's true inheritances, and the ϵ_i are the twin-specific components of the twin's inheritances. The hypothesis that we want to test is that $\epsilon_i=\epsilon_j=0$, that the true inheritances are the same. As in the usual measurement error models, we assume that the measurement errors are uncorrelated with both of the orthogonal (common and twin-specific) components of the true inheritances. We also assume that the measurement errors in the twin's own reports are uncorrelated and that the variances of the own and cross reports are the same across twins. However, we allow the measurement error in the report of any twin i on his own inheritance to be correlated with his report on his twin's inheritance and the variances in own and cross errors to differ.

The first column of Table A1 reports the estimates of the measurement model applied to

[23]Comparisons of columns 2 and 3 in Table 2 suggest that the subsample of 265 intact twin-pair twins for which we have both an own report and a report on the inheritance of the twin's twin are not especially different from all twins whose parents had died by the time of the survey.

inheritances from the 265 twin-pairs whose parents had both died. The estimates of both the measurement error variances and the common components of the twins' inheritances are statistically significantly different from zero. Not surprisingly, measurement error is high, with errors in measurement making up almost 25% of the total variance in inheritances. Moreover, the errors in the twins' own reports and their reports of their twin's inheritance are highly correlated. In contrast to the significance of the measurement error, the sibling-specific component of the total variance in inheritances is not significantly different from zero, with the point estimate indicating that the specific component is an economically trivial 0.6% of the total variance. Almost all of the sib differences in inheritances thus appears to be noise.

For comparison, we estimate the same measurement model for the same sample but applied to the twin's schooling attainment, for which we also have own and cross reports. Unlike for inheritances, there is little discrepancy between what the twins report to be the within-twin differences in schooling and what the own reports by each twin reveal - the average sib difference in grades of schooling completed reported by each twin is 1.30 years (sd=1.64), about 10% of average schooling levels, while the average difference in own reports is 1.28 years (sd=1.66). Consistent with this, the estimates from the measurement model applied to the schooling reports, provided in the second column of Table 3, indicate that the measurement errors in schooling are relatively low - less than 10% of the total variance in schooling is evidently measurement error. Moreover, in contrast to the reports of inheritances, there appear to be true differences across twins in schooling, with the statistically significant sib-specific component accounting for more than a third of the total variance in schooling (over 37% of the "true" variance).

On possible reason that bequests do not differ significantly across the siblings in our sample is that the siblings, who are twins, may behave quite similarly. If all twins visited their parents equally, it would not contradict the strategic bequest model that bequests were also allocated equally. We have

seen, however, in Table A1 that the twins are not identical with respect to schooling differences. We now examine whether sib differences in schooling and other characteristics affect sib differences in visits with parents. The first column of Table A2 reports for the orphaned twins sample a regression of the differences in reported bequests across the twins on the differences in their schooling, the highest wage in their family and their number of children. Not surprisingly, given the prior results on the significance of sib-differences in bequests, the differences in sib characteristics account for none of the variation in bequest differences.[24] In contrast, the same specification applied to visits with parents across twins with at least one surviving parent explains a statistically significant proportion of the variance in differences in visits - evidently twins do not visit with their parents equally, but they receive equal bequests. Threats of disinheritance, if they are ever made, are not credible and are not likely to be the source of any observed relationships between the allocation of resources within marriage and parent's wealth position.

[24]The absence of a significant association between sib differences in bequests and sib differences in schooling also is not consistent with the "wealth model" of Becker and Tomes (1976) and Becker (1991) in which altruistic parents invest in schooling of children until the rates of return on schooling investments equal the rate of return on financial assets (which results in differential schooling because of differential abilities) and then compensate with bequest differentials to equalize wealth among their children.

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Table 1
Sample Means and Standard Deviations: Married Couples with at Least One Surviving Parent and Parent In-Law

	Respondent	Spouse
Expected per-child bequeathable wealth of parents in 1993	18,693 (25,077)	17,962 (25,260)
Distance in miles between twin and parents' residence (shortest route)	258.6 (479.1)	285.1 (534.5)
Actual bequests to date from parents of respondent, as assigned	1140 (9,584)	130.6 (2,437)
Actual bequests to date from in-laws of respondent, as assigned	71.9 (1703)	962.9 (9658)
Earnings	30,196 (21,874)	36,927 (46,207)
Non-earnings income	952.3 (3,973)	1,076 (8,009)
Schooling level in grades completed	14.1 (2.22)	14.0 (2.36)
One parent dead	0.54	0.45
Female	0.61	0.39
Number of households	710	

Standard deviations are in parentheses. All dollar amounts are in 1993 $ with the CPI used for adjustments for amounts reported for earlier years.

Table 2
Means and Standard Deviations: Parental Inheritances of Twins for Orphaned Twins

	All Sample twins	Both Twins Reporting
Average inheritance	$17,314 (36,125)	$16,316 (31,278)
Percentage with no inheritance	35.1	35.1
Average age in years at death of last surviving parent	75.5 (10.5)	75.8 (10.6)
Average age in years of twin at death of last surviving parent	42.0 (9.46)	42.2 (9.61)
Average reported difference between twins	$1,942 (10,623)	$1,408 (7,883)
Average difference in own reports	-	$9,204 (20,449)
Number of twins	758	530

Samples include only twins both of whose parents had died by the time of the survey. Standard errors are in parentheses. All dollar amounts are in 1993 $ with the CPI used for adjustments for amounts reported for earlier years.

Table 3
Actual Per-Child Bequests (1993 $) and Parental Characteristics

Variable	GLS		Random-Effects Tobit	
Father's occupational income (1993 $)	1.64 (3.45)[a]	1.58 (3.93)	1.87 (12.2)	1.80 (12.7)
Father a farmer	43,782 (3.87)	41,209 (4.19)	53,510 (6.47)	48,729 (6.31)
Mother's schooling in grades	2,663 (2.94)	2,408 (2.92)	3.816 (3.15)	3,350 (3.12)
Father's potential work experience in years	2,428 (4.38)	-	3,518 (2.55)	-
(Father's potential work experience in years)^2	-20.6 (3.96)	-	-29.2 (2.21)	-
Father's birth year	-	85,132 (2.34)	-	155,069 (1.50)
(Father's birth year)^2	-	-22.0 (2.35)	-	-40.8 (1.50)
Constant	-117423 (4.72)	-8091538 (2.33)	-184232 (5.01)	147455288 (1.49)
R^2	.191	.194	-	-
σ_v^2	-	-	58388 (47.6)	56623 (56.9)
σ_u^2	-	-	5839 (0.41)	5662 (0.41)
Number of potential beneficiaries	596	657	596	657
Number of nuclear families	547	607	547	607

a. Absolute values of asymptotic t-ratios are in parentheses.

Table 4
Random-Effects Probit and Tobit Estimates: Expected Per-Child Parental Bequeathable Wealth in 1993 and the Probability of Aid Receipt and Amount of Aid in 1993

Sample:	All Respondents		Non-married Respondents	
Variable:	Any Aid	Aid Amount	Any Aid	Aid Amount
Expected parental bequeathable wealth ($x10^{-4}$)	.0712 (4.74)[a]	1291 (3.57)	.0593 (1.94)	493 (1.80)
Distance to parent(s) in miles	-.0000362 (0.39)	-.0611 (0.03)	-.000160 (0.78)	-1.39 (0.68)
Respondent's earnings ($x10^{-4}$)	-.0453 (1.69)	-743 (1.18)	-.170 (2.31)	-1221 (1.74)
Respondent not married	.485 (4.31)	9269 (3.42)	-	-
Respondent female	-.178 (1.61)	-2758 (1.13)	.0362 (0.19)	-1560 (0.87)
Respondent's age in years	.0259 (2.63)	-510 (2.29)	-.0149 (0.83)	-160 (0.89)
Constant	-.613 (1.38)	-16790 (1.65)	-.359 (0.41)	-1260 (0.15)
σ_v^2	-	24852 (76.1)	-	9614 (5.91)
σ_u^2	-	2379 (0.22)	-	4624 (1.40)
$\sigma_u^2 / (\sigma_v^2 + \sigma_u^2)$	.265 (2.60)	-	.260 (1.35)	-
Number of respondents	2291	2291	446	446
Number of parent households	1469	1469	270	270

All dollar amounts are in 1993 $, with the CPI used to adjust reports from earlier years.
a. Absolute values of asymptotic t-ratios are in parentheses.

Table 5
Family and Household Determinants of Days Visiting with Parents

	(1)	(2)	(3)	(4)
Expected current per-child parent wealth ($x10^{-4}$)	2.25 (2.56)[a]	2.01 (2.35)	2.01 (2.36)	2.00 (2.35)
Expected current per-child in-law wealth ($x10^{-4}$)	-.860 (1.43)	-.894 (1.52)	-.899 (1.53)	-.896 (1.53)
Distance to parents in miles	-.0232 (8.52)	-.0228 (8.67)	-.0228 (8.67)	-.0228 (8.66)
Distance to in-laws in miles	.00480 (1.45)	.00411 (1.30)	.00412 (1.30)	.00410 (1.29)
One parent dead	8.58 (3.10)	8.01 (2.93)	8.19 (2.98)	8.22 (2.99)
One in-law dead	-4.60 (1.71)	-5.28 (1.98)	-5.03 (1.87)	-5.06 (1.88)
Annualized earnings of child ($x10^{-2}$)	-.00663 (1.41)	-	-	-
Annualized earnings of child's spouse ($x10^{-2}$)	-.00481 (2.01)	-	-	-
Total annualized earnings of couple ($x10^{-2}$)	-	-.00543 (1.88)	-.00526 (1.85)	-.00526 (1.85)
Actual bequest received from parents ($x10^{-4}$)	-	-	-.339 (1.02)	-
Actual bequest received from in-laws ($x10^{-4}$)	-	-	-.719 (1.92)	-
Actual bequests of both spouses combined ($x10^{-2}$)	-	-	-	-.533 (2.09)
Constant	39.4 (9.6)	40.7 (10.4)	40.5 (10.4)	40.5 (10.4)
R^2	.060	.057	.058	.058
Number of observations	1314	1387	1387	1387
Number of households	696	736	736	736

a. Absolute values of asymptotic t-ratios in parentheses. All dollar amounts are in 1993 $.

Table 6
Spouse-Difference Estimates: Determinants of Days Visiting with Parents

	(1)	(2)	(3)	(4)	(5)
ΔExpected current per-child parental wealth ($x10^{-4}$)	2.71 (2.84)[a]	2.35 (2.77)	2.40 (2.84)	2.85 (2.88)	2.89 (2.92)
ΔDistance to parents in miles	-.0270 (5.00)	-.0242 (5.93)	-.0228 (5.79)	-.0286 (5.21)	-.0287 (5.05)
ΔOne parent dead	13.5 (3.88)	9.74 (3.05)	9.40 (2.20)	13.1 (3.73)	12.5 (3.50)
ΔActual bequest ($x10^{-4}$)	-	-1.39 (0.71)	-.0985 (0.21)	-	-
ΔSchooling level in grades completed	-	1.17 (1.29)	-	.304 (0.31)	-
ΔEarnings ($x10^{-2}$)	-	-.00035 (0.11)	-	-	-.000489 (0.16)

Number of marital partners=1226. Number of partners who are twins=508. All dollar amounts are in 1993 $.
a. Absolute values of asymptotic t-ratios are in parentheses.

Table 7
Parental Bequests and Household Income Pooling:
Random-Effects Tobit Estimates of the Determinants of Person-Specific Nonearnings Income

Variable	Sample Mean	Coefficient	Coefficient
Own bequest from parent	5,383 (45,801)[a]	.0263 (4.74)[b]	.0264 (4.84)
Bequest to spouse from his/her parent	4,982 (36,470)	.0206 (2.41)	.0211 (2.29)
Own schooling in grades	13.8 (2.36)	1439 (7.33)	1428 (7.11)
Own schooling x respondent is female	-	-643 (2.45)	-640 (2.41)
Spouse's schooling in grades	13.8 (2.36)	824 (0.39)	872 (0.41)
Spouse's schooling x spouse is male	-	474 (1.73)	472 (1.71)
Own age in years	47.0 (6.24)	497 (6.67)	509 (6.40)
Age of spouse in years	47.0 (6.24)	-288 (3.70)	-273 (3.21)
Both parents dead	.139	-	75.6 (0.06)
Both of spouse's parents dead	.139	-	-85.3 (0.07)
One parent dead	.557	-	-526 (0.75)
One of spouse's parents dead	.557	-	-.513 (0.79)
Constant	-	-34926 (12.6)	-35373 (12.3)
σ_v^2	-	12.3 (288.8)	12.3 (275.1)
σ_u^2	-	1.21 (1.70)	1.21 (1.54)
χ^2(d.f.)	-	245.9(8) p=.0000	247.7(12) p=.0000

F(1, d.f.) Test of equality of person-specific bequest effects	0.54(1, 3415) p=.46	0.46(1, 3411) p=.50
Number of individuals	3423	
Number of households	1165	

Sample mean nonearnings income=1217.0, with 2192 of 3423 observations at zero. All dollar amounts are in 1993 $.

a. Standard deviations are in parentheses.

b. Absolute values of asymptotic t-ratios in parentheses.

Table 8
Are Parental Visits a Game Among Siblings?
Own, Parental and Twins' Determinants of Days Visiting with Parents

	(1)	(2)
Own schooling level in grades completed	-4.63 (4.33)[a]	-4.22 (3.20)
Own distance from parents in miles	-.0368 (11.7)	-.0358 (10.1)
Total annualized earnings in own family ($x10^{-2}$)	-.00644 (1.67)	-.00818 (1.96)
Own number of children	-.680 (0.36)	-1.35 (0.71)
Not married	17.1 (1.83)	13.7 (1.51)
Age of both twins in years	-14.2 (1.62)	-15.7 (1.73)
Age squared	.149 (1.61)	.162 (1.68)
Both twins female	5.51 (1.01)	4.14 (0.75)
Total number of parents' children	-4.65 (3.04)	-4.65 (3.05)
Fathers' schooling level in grades completed	2.62 (2.52)	2.65 (2.49)
Mother's schooling level in grades completed	-.670 (0.52)	-.309 (0.24)
One parent died	13.4 (2.41)	14.1 (2.53)
Twin's schooling level in grades completed	-	.0603 (0.04)
Twin's distance from parents in miles	-	-.00210 (0.44)
Total annualized earnings in twin's family ($x10^{-2}$)	-	-.00449 (0.72)
Twin's number of children	-	1.68 (0.90)
Twin not married	-	.132 (0.02)
Constant	412.1 (1.99)	437.8 (2.04)

R^2	.118	.117
F-statistic: own effect (d.f., d.f.)		21.5 (5, 836)
P-value		.0000
F-statistic: parent effect (d.f., d.f.)		3.97 (3, 836)
P-value		.0080
F-statistic: twin (cross) effect (d.f., d.f.)		0.36 (5, 836)
P-value		.877

a. Absolute values of t-ratios are in parentheses. All dollar amounts are in 1993 $.

Table 9
Family and Household Determinants of Total Days Visiting Parents and In-laws

	(4)
Total current per-child parental and in-law bequeathable wealth ($x10^{-4}$)	.209 (0.28)
Total distance to parents and in-laws in miles)	-.0209 (7.70)
Total annualized earnings of couple ($x10^{-2}$)	-.0118 (2.32)
Total of actual bequests received from parents and in-laws ($x10^{-4}$)	-3.90 (2.83)
Total number of parents and in-laws dead	9.46 (2.10)
Constant	85.0 (11.5)
R^2	.056
Number of observations	956

a. Absolute values of asymptotic t-ratios in parentheses. All dollar amounts are in 1993 $.

Table 10
Expected Parental Per-Child Bequeathable Wealth When Respondent was Age 30
and the Probability of Ever-Divorcing

	Probit	Random-Effects Probit
Expected parental wealth at age 30 ($x10^{-4}$)	.0355 (2.72)[a]	.0423 (2.67)
Age of father in years	-.00461 (1.64)	-.564 (1.55)
Age of mother in years	-.00338 (1.05)	-.00391 (0.88)
Respondent's completed grade level at time of first marriage	-.103 (6.03)	-.115 (5.58)
Age in years	.462 (4.53)	.540 (4.18)
Age squared	-.00477 (4.43)	-.00557 (4.08)
Constant	-9.97 (4.20)	-11.7 (3.93)
$\sigma_u^2 / (\sigma_v^2 + \sigma_u^2)$	-	.280 (4.81)
Number of respondents	2286	2286
Number of households	1250	1250

a. Absolute values of asymptotic t-ratios are in parentheses. Expected parental wealth in 1993 $.

Table A1
Variance Estimates: Test of Equality of Sibling Inheritances and Schooling

	Inheritance ($x10^{-8}$)		Schooling	
Variance component	Variance Estimate	Percent	Variance Estimate	Percent
Common (μ)	7.31 (3.40)	74.5	2.84 (7.81)	56.6
Sib-specific (ϵ)	.0611 (1.03)	0.62	1.70 (6.50)	33.9
Measurement error - own (e_i)	2.44 (3.56)	24.9	0.48 (4.53)	9.56
Measurement error - twin (e_{-i})	2.83 (3.84)	-	0.53 (4.73)	-
ρ_e	.90 (3.41)	-	.024 (0.36)	-

Number of twins=530. Absolute values of asymptotic t-ratios are in parentheses. Inheritance is measured in 1993 $. Schooling is completed grades of schooling.

Table A2
Determinants of Inheritances and Parental Visits: Estimates Based on Sib-Differences

Sib characteristics	Reported Amount of Parental Bequest (1993 $): "Orphan" Sample	Reported Number of Days Visited with Parents in 1993: Sample with at Least One Live Parent
Schooling level (completed grade)	-713 (0.97)[a]	-2.91 (1.91)
Wage of highest earner in sib's family ($x10^{-2}$)	-.0352 (0.89)	-.108 (2.61)
Number of sib's children	-844 (1.17)	-2.01 (1.23)
F (d.f, d.f.) P-level	0.90 (3, 239) .443	3.95 (3, 951) .0082
Number of siblings	320	1708

a. Absolute values of t-ratios in parentheses.

Table A3
Test of Symmetry: SUR Estimates of the Determinants of Visits to In-Laws and Parents

	Days with Parents	Days with In-Laws
Expected current parental wealth ($x10^{-4}$)	3.17 (3.39)[a]	-.255 (0.34)
Expected current in-law wealth ($x10^{-4}$)	-.791 (0.90)	1.35 (1.92)
Distance to parents in miles	-.0289 (5.04)	.00593 (1.29)
Distance to in-laws in miles	.00458 (0.92)	-.0175 (4.36)
One parent dead	12.3 (2.92)	-4.63 (1.38)
One in-law dead	-3.50 (0.82)	3.16 (0.92)
Total annualized earnings of couple ($x10^{-2}$)	-.00857 (2.04)	-.00338 (1.07)
Constant	41.8 (8.83)	34.5 (9.09)
F (d.f., d.f.) P-value	7.66 (8, 645) .0000	3.60 (8, 645) .0008
F (d.f., d.f.) , symmetry test P-value	1.55 (6, 645) .1590	

a. Absolute values of asymptotic t-ratios are in parentheses. Number of households=653. All dollar amounts are in 1993 $.