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Childlessness and the Economic Well-Being of Elders

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Abstract

Using the Health and Retirement Survey, this study examines the relationship between childlessness and four indicators of elders' economic well-being: income, receipt of disability and income-tested benefits, and wealth. The study estimates separate models for currently married persons, currently single women, and currently single men using standard OLS and logit, quantile regression, linear and logit random effects, and two propensity score models. Compared to married parents, childless married couples tend to have slightly more income and about 5 percent more wealth. Unmarried childless men enjoy no income advantage over unmarried fathers, but have 24–35 percent more wealth. Childlessness has the strongest relationship with unmarried women's economic well-being. Compared to elderly unmarried mothers, unmarried childless women have, on average, 13–31 percent more income and about 35 percent more wealth. The strength of these relationships tends to increase as one moves up the distribution of income or wealth, especially for unmarried women. Childless unmarried men are more likely to use income-tested benefits while childless unmarried women are less likely to do so.

Key words: elderly, economic well-being, childlessness, Health and Retirement Survey

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INTRODUCTION

A substantial and increasing proportion of American adults have no children by choice or because of infertility problems. In 2002, 17.9 percent of women age 40–44 were childless, compared to 10.2 percent in 1976 (U.S. Census Bureau, 2003, Table 2). For at least the next few decades, rising childlessness will be one factor that helps increase the ratio of elders to working age adults. As this ratio rises, either the working age population will need to pay a larger portion of their income to support Social Security and health care for the elderly, or funding for those purposes will need to be reduced. Thus, childlessness is one contributor to the long-term financial pressures on Social Security, public health care programs, and the health care system. These macro impacts of falling fertility have received and continue to receive broad attention from researchers and policymakers (Lee and Skinner, 1999; Shoven, Topper, and Wise, 1994; National Research Council, 2001; Feldstein, 2005).

In addition to its contribution to the macro impacts, childlessness—whether voluntary or not—may have important effects at the individual level for elders. In the domain of economic status, for example, childless adults may save more and retire with more assets because they do not incur the costs of raising children. Greater assets, in turn, would increase retirement income and lower the likelihood of needing income-tested benefits. Conversely, childless adults may save less because they have lower incentives to leave a bequest.

Similarly, being childless may affect health status when elderly via several mechanisms. For example, if childless elders enjoy higher personal consumption, including health care, when younger because a significant portion of their income was not devoted to supporting children, they may in better health. Conversely, to the extent that children monitor their parents' health conditions and identify problems while they are still minor and can be treated more easily and at less cost, elderly parents will have better health.

The policy implications of such individual effects may be significant. Suppose childless elders, on average, have poorer economic and health status than parents and cannot find alternative private sources for the kinds of assistance that many older parents receive from their adult children. Then they are likely to require greater income support, health care, and social services from public and nonprofit agencies compared to parents. If childlessness continues to increase, therefore, financial pressures on public programs that provide income support, health care (including nursing home care), and social services for the elderly will be even larger than the rising ratio of elders to working age adults alone would imply. (Wolf, 1999, makes a similar observation.) Among the most important of such programs are Medicaid, Medicare, Supplemental Security Income (SSI), public housing, and social services provided by the Older Americans Act. Innovative public programs and private initiatives may need to be developed to address childless elders' needs.[1]

Alternatively, childless elders may place fewer demands on public programs. This could occur if childless elders have more assets, which would reduce their need for income assistance and let them pay out-of-pocket for some health and social services that otherwise would be publicly financed. It might also occur if childless adults enter their older years in better health because they were more able to afford health care in middle age.

It is also possible that elders' demands for income support, health care, and social services are independent of their choices about parenthood. In this case, changes in the prevalence of childlessness would not affect programs' costs and caseloads.

Despite the potential importance for public policy of these micro effects of childlessness, there is almost no evidence on how childlessness is related to the economic status of elders in the United States.[2] The sparse literature on the consequences of childlessness for elders mainly examines psychological well-

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[1]An example of a private initiative is elders choosing to live in cooperative arrangements to provide social support to each other (Bach, 2006).

[2]Indicative of the neglect of this issue is that the National Research Council's (2001) major discussion of the research agenda for an aging world mentioned childlessness merely three times in passing.

being or the availability and provision of instrumental support and care (e.g., Allen et al., 2000; Bachrach, 1980; Hogan and Eggebeen, 1995; Koropeckyj-Cox 1998, 2002; McGarry, 1998; Zhang and Hayward, 2001). A few studies examine relationships among family structure, social support, and elders' use of nursing home services and selected other health and social services (Freedman, 1996; Choi, 1994; Aykan, 2003; Lakdawalla et al., 2003).

Though one may expect childlessness to be related to economic outcomes, a literature search uncovered no studies of childlessness' relationship to major, conventional indicators of economic well-being such as wealth, income, or poverty. The one study of retirement that examines childlessness (Szinovacz et al., 2001) finds mixed relationships with the likelihood of retiring for Americans aged 55–75. The one study that examines a financial outcome focuses narrowly on long-term-care insurance and finds that the presence of children and other potential informal caregivers is unrelated to buying or intending to buy insurance (Mellor 2001).

Research on the effects of childlessness for elders in other countries is similarly sparse. It, too, mainly addresses psychological well-being or instrumental support (Larsson and Silverstein, 2004; Wu and Pollard, 1998; Wu and Hart, 2002a, b; Jeffries and Konnert, 2002; Chou and Chi, 2004; Cwikel et al., 2006). Analyses of economic outcomes are rare (Rempel, 1985, for Canada, Hank, 2004, for Germany).

Some otherwise informative studies of the relationship between an economic or health outcome and characteristics of elders' families use samples restricted to either childless elders or to elders with children. Either choice precludes comparison of these two groups of elders. For example, the studies of social support and mental health by Wu and Pollard (1998) and Wu and Hart (2002a) restrict the samples to childless elders. Examples of research that excludes childless persons include Sasso and Johnson (2002) on whether informal care from adult children reduces elders' nursing home admissions, Borsch-Supan et al. (1992) and Silverstein et al. (1995) on elders' social support, Stern (1995) on child characteristics and elders' long-term-care arrangements, Checkovich and Stern (2002) on child characteristics and caregiving of elders, and Bethencourt and Rios-Bull (2005) on widows' living arrangements. Of course, the literature on intergenerational financial transfers (recent examples include

Caputo, 2005; Fritzell and Lennartsson, 2005; and Norton and Van Houten, 2006) does not analyze childless elders.

In sum, there is virtually no research evidence on how childlessness is related to the economic status of elders. To address this question this study first presents a simple two-period model of work effort, savings for old age, and the choice to become a parent that helps clarify the possible relationships between childlessness and economic well-being and the mechanisms that may generate such relationships. It then provides descriptive data on observed differences between elders with and without children in four indicators of economic status. To determine whether there are statistically significant associations between childlessness and the indicators, the paper estimates a series of multivariate models for all sample members and separately for married persons, single women, and single men.

CONCEPTUAL FRAMEWORK

A simple two-period model of work effort, savings for old age, and the choice to become a parent can help clarify the possible relationships between childlessness and economic well-being and the mechanisms that may generate such relationships. Assume a heterosexual couple cooperatively maximizes utility over two periods—early and late adulthood. Assume it decides whether to have a child at the start of period one and, if so, that it bears all the time and money costs of child raising in period one. The utility function is:

$$U = U_1(C_1, L_1, KQ) + \rho\, U_2(C_2, L_2, KQ).$$

Period two utility is discounted at rate ρ. C is consumption, L is leisure, and K = 1 if the couple has a child and zero if not. If K = 1, utility also depends on child quality, Q. The total time available to the couple in period one (T_1) is allocated among leisure (L_1), work (H_1) and parental childcare (D). Let w_1 = the wage rate and, for simplicity, assume it is the same for both persons. Assuming all income in period one derives from work and no borrowing against late adulthood income is possible, then consumption in period one equals earnings (w_1H_1) minus the portion of earnings spent on the child (t) and the amount saved for period two (S). Thus the constraints are:

$$T_1 = L_1 + H_1 + D$$

$$C_1 = w_1H_1 - Ktw_1H_1 - S$$

Child quality is a function of the time and money devoted to raising the child:

$$Q = Q(D, tw_1H_1)$$

In period two, time is allocated between leisure and work. Consumption depends on earnings in period two, past savings, the cash equivalent value of services provided by the child, and cash transfers from the child (which may be negative). Assuming the value of services is a linear function of Q:

$$T_2 = L_2 + H_2$$

$$C_2 = w_2H_2 + KRQ + KFQ + (1 + i)S - B(K)$$

where $R(F)$ is the dollar value of services (transfers) provided by a child with $Q = 1$, i is the return on savings from period 1, and B is a bequest, where $B(0) < B(1)$. Last, w_2 depends on w_1 and the return (r) on work experience in period 1, with experience measured as the fraction of total available time allocated to work: $w_2 = w_1(1 + [r H_1 / T_1])$.

To maximize utility the couple chooses K aware of the implications for its other choices in both periods. To do so, the couple first assumes $K = 1$ and optimally allocates time in both periods and, in period one, allocates its income among consumption, child raising, and savings. It repeats the exercise assuming $K = 0$, then chooses $K = 0$ or 1 depending on which yields higher utility.

The model suggests several routes through which being childless may affect economic status when elderly. Consider possible positive effects. Because not having children means not spending on their living expenses (including higher education), childless adults may save more when working and reach old age with more assets. Because not having children means not having one or both parents taking time off from work, childless adults may earn more during their working years by working longer work hours, and, again, save more (Smith and Ward, 1980). Greater assets, in turn, would increase income when elderly and lower the likelihood of being poor or needing income-tested transfers. Among elders who work, the childless may earn more than parents because of the returns to greater work experience when younger. And childless elders can neither volunteer nor be asked to give cash transfers to their children.

Now consider possible negative effects. Childless adults, with fewer financial demands, may decide to work less or choose jobs that trade lower compensation for higher nonfinancial rewards (e.g., pursuing an career in the arts instead of in the civil service) and thereby have less income. Such choices could reduce their savings as well. Childless adults cannot receive cash transfers from their children. Children may help their parents manage their financial affairs better and generate more investment income than childless elders with the same wealth. Childless adults may have less desire to leave bequests and thereby save less.

Though theory does not yield a clear prediction of the direction of effect, intuition and casual polling suggests that childless elders are likely to be financially better off. This would seem especially likely for wealth because, even if a childless couple chose to earn less, if the lifetime reduction in earnings was less than what the couple would have spent on raising children, its savings could well be higher. That is, the couple could enjoy more leisure, more non-pecuniary rewards, or both, and still accumulate more wealth.

DATA AND ANALYTIC PROCEDURES

The Health and Retirement Survey (HRS) provides the data. The HRS is a federally funded, ongoing panel study that started in 1992. It re-interviews subjects biannually, with proxy interviews after death. Hispanics, blacks, and Florida residents are oversampled.

Initially the HRS only included persons born during the 1931–1941 period (and their spouses, if married, regardless of age). In 1993 the AHEAD (Assets and Health Dynamics among the Oldest Old) survey started collecting data on persons born in 1923 or earlier. In 1998 HRS and AHEAD data were merged with a single interview schedule and two complementary samples were added. The War Baby (WB) sample includes persons born between 1942 and 1947. The Children of the Depression (CODA) sample includes persons born between 1924 and 1930. The expanded HRS is representative of all persons over 50 years of age in the United States in 1998 and includes more than 26,000 persons.

This study uses data from the 2002 wave of the HRS. The sample includes all respondents and their spouses, if present, who have information that establishes whether they were "never a parent," as defined below. The sample size is 15,334. Except for figure 1, all estimates use unweighted data.

Indicators of Economic Well-Being

The study examines two principal indicators of economic well-being: income and wealth. Total household income in the HRS is the pre-tax sum (in 2002 dollars) of household earnings, capital income, pension income, Social Security retirement and disability income, SSI, unemployment insurance, other government cash transfers, and food stamps. This measure is similar to the standard cash income measure used by the Bureau of the Census, except for the inclusion of food stamps.[3]

Household net wealth equals the sum (again in 2002 dollars) of all wealth components reported in the HRS, less all debt including mortgages. The components include primary residence, other real estate, vehicles, private businesses, checking, savings and money market accounts, certificates of deposit, government savings bonds, Treasury bills, IRAs and Keough accounts, stocks and mutual funds, bonds and bond funds, and miscellaneous other assets such as jewelry or rights in a trust. Because the wealth distribution is highly skewed, the analysis also gauges wealth using three dummy variables: wealth of at least $25,000, $100,000, and $500,000. These represent approximately the 15th, 40th and 80th percentiles, respectively, of the 2002 wealth distribution in the HRS.

The analysis also examines two dummy variable indicators of economic distress in 2002. The first equals to one for cases that received SSI or disability income from Social Security. The second equals one for cases that received income-tested transfers (welfare, food stamps, and veteran's income).

[3]The HRS total household income measure also adds miscellaneous other income, which may include lump sums from insurance, pension and inheritance, as well as alimony and any other atypical source of income. Because lump sums, being one-time events rather than flows, are conceptually different from the other components of total income, the measure used here excludes miscellaneous other income from total household income.

Measuring Childlessness

A straightforward definition of a "childless" person is someone who was *never a biological parent*. A reasonable alternative is someone who has *no living biological children*. Because of child mortality before respondents joined the HRS, the alternative definition will yield more childless adults.

For understanding the relationship between childlessness and current economic status of elders, both the "never a parent" and the "no living children" approaches have shortcomings. To see this, first consider a woman whose only biological child dies before age five. The short and long run financial costs of having raised a child for only five years are likely to be relatively small. The "never a parent" definition classifies her as a parent, though she essentially was childless from a financial point of view. Classifying her as a parent would make it harder to detect a financial impact of childlessness. In cases like this, the "no living children" definition is likely to yield more accurate economic comparisons between parents and the childless.

Now consider a father whose only biological child dies in adulthood. He will have incurred the full costs of raising a child. If the death occurs before the father enters the HRS, the "no living children" definition classifies him as childless, though he really was a parent from a financial (and any other) point of view. Classifying him as childless would make it harder to detect a financial impact of childlessness. In cases like this, the "never a parent" definition is likely to produce a more accurate difference between parents and the childless.

I use the HRS question about the number of biological children a respondent ever had to create a dummy variable equal to one if the person reports "never a biological parent," and zero otherwise. The information about living biological children allows construction of a dummy variable equal to one if the person reports "no living children," and zero otherwise. Preliminary work indicated that the two measures

yield similar results. Because the "never a parent" measure has more valid responses, I use it to maximize sample size.[4]

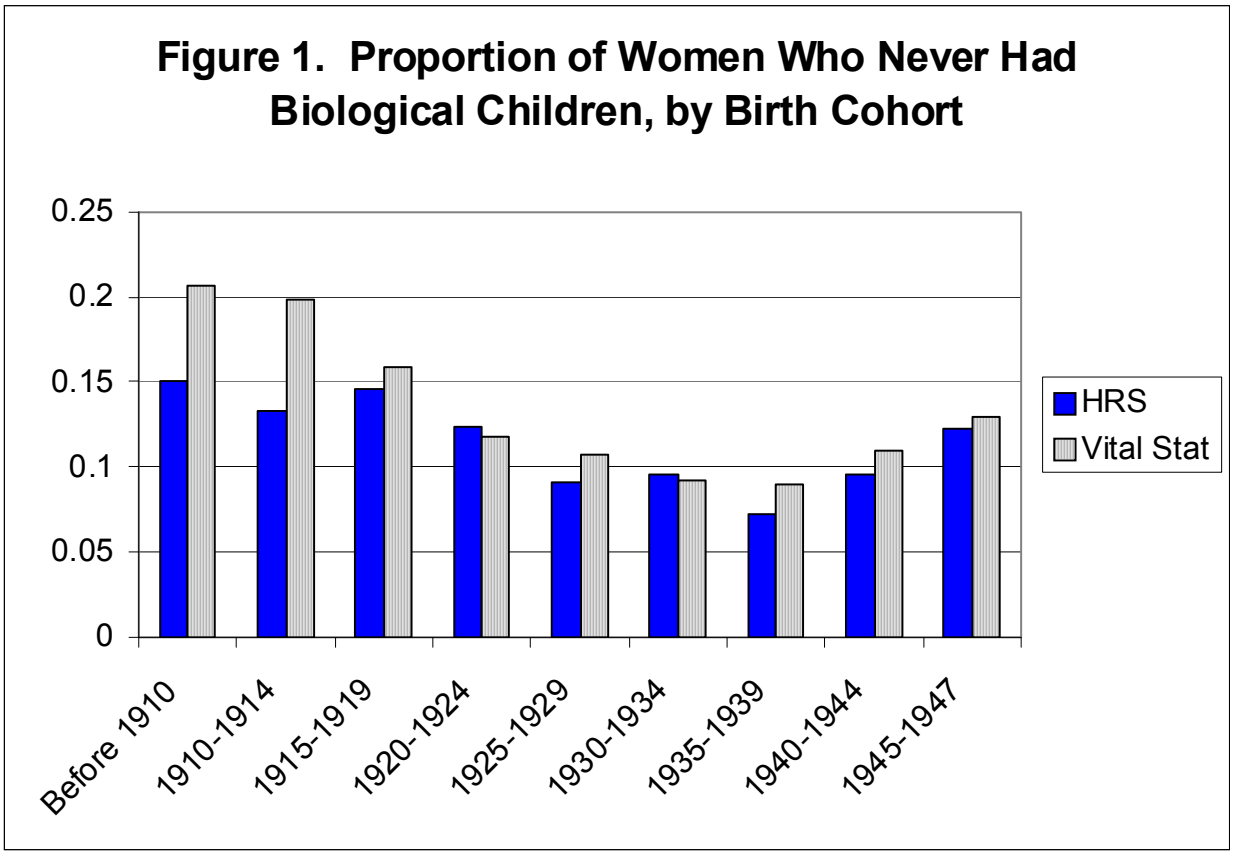
Figure 1 compares HRS and Vital Statistics data on childlessness. The HRS columns show the proportion of childless women by birth cohort using weighted observations. The national Vital Statistics figures show the proportion of women in the cohort who reported having no biological children when surveyed at age 40–44. The two series match fairly well except for the two oldest cohorts. The columns are not fully comparable because some women age 40–44 when included in Vital Statistics data would have died by 1998.[5] That the Vital Statistics values are larger for all but one cohort suggests that women who were childless at age 40–44 had higher mortality than mothers.

Other Explanatory Variables

The regression models include available information on exogenous personal and family background characteristics likely to be associated with the outcomes. The dummy variable for gender equals one for females. There are race and ethnicity dummies for black, white Hispanic, and non-white Hispanic, with other race/ethnicity as the omitted category. Age is captured by eight dummy variables for the birth cohorts 1910–14, 1915–19, 1920–24, …, 1940–44, and 1945–47. (The last birth year in the War Baby cohort is 1947.) The omitted category is born before 1910. The dummies for religious affiliation are Protestant, Catholic, Jewish, and other, with no religion as the omitted category. There are dummy variables for being born outside the U.S., English not being the first language, and veteran status. Health status as a child is self-assessed retrospectively using the standard one to five scale, with larger values

[4]The economic effects of having young adopted children are likely similar to those of having biological children. Given the relatively few numbers of adopted children, defining childlessness as having no biological or adopted children is likely to have little effect on the findings.

[5]For example, a woman born in 1915 could have been in the Vital Statistics survey during 1955–1959 and may well have died by 1993, the first year when persons born in 1915 were surveyed by the AHEAD.



Vital Statistics data are from the table in U.S. National Center on Health Statistics (n.d). For cohorts before 1940, the data are reported for birth years 1906–10, 1911–15, 1916–20, etc. I weighted the figure for 1906–10 by .2 and the figure for 1911–15 by .8 to obtain the result displayed for 1910–1914, and did similar weighting for the other cohorts. For the before 1910 cohort, I used the mean value of the figures reported for the 1906–10, 1901–05 and 1896–1900 cohorts.

indicating worse health: excellent, very good, good, fair, and poor. Most models include years of education and a dummy variable for having never married.[6]

The family background characteristics are number of living siblings and a set of dummy variables for the economic status of the family of origin, as perceived by the respondent. The categories are "well off," "average," and "poor," with "varied" as the reference group.

Estimation Methods

The study first estimates OLS models for income, wealth, and their logarithms, and logit models for the other outcomes. These models take the form:

$$y_i = \alpha + \beta X_i + \gamma C_i + \varepsilon_i$$

where y is the outcome, X is a vector of personal and family background characteristics, and C is the dummy variable for being childless.

Because the distributions of income and wealth are highly skewed and the relationship between childlessness and these outcomes may well vary across the distributions, the study also presents findings from quantile regressions for the linear income and wealth measures and compares them to the OLS results. The quantile and OLS regressions include the same explanatory variables.

If the consequences of childlessness depend on observed individual characteristics or elders with and without children have significantly different characteristics, simple linear OLS and logit models may be biased. The coefficient on C (the "treatment" indicator) cannot be interpreted independently of a case's X, and its estimate may be sensitive to the specification and pick up nonlinear effects of the variables in X (Levine and Painter, 2003; Saiz, 2005).

Though the simple OLS and logit models include many controls, the estimates may also be biased because of selection.[7] For example, suppose persons who highly value financial success chose not to have

[6]Initial models also included mother's and father's education. Because neither was significant in the models and many respondents do not report one or both parents' education, to increase sample size I dropped both variables.

children and focused their efforts on monetary rewards. Then an unobserved factor—attitude towards financial success—would likely be responsible for part or possibly all of any observed association between childlessness and wealth.

Biological childlessness was involuntary for some elders because of genetic endowments or health conditions that prevented or greatly impeded successful pregnancy and gestation. If most childlessness were involuntary, endogenous selection would be minor and likely to have little effect on the estimates. However, the distinction between voluntary and involuntary childlessness is not at all clear. Consider a couple that agreed early on to never have children, changed their mind in their early 30s, but then were unable to conceive. Was this voluntary childlessness or not? Similarly, if a woman delayed marriage and childbearing until age 35 and then was unable to conceive and carry a pregnancy to term, was her childlessness involuntary? What if a woman desired marriage and children but never found an acceptable mate? The HRS, in any case, lacks information to distinguish persons who did not want children from those who were unable to be biological parents.

In the case at hand, it is obviously impossible to ever obtain experimental data to generate an estimate of γ—the effect of the "treatment" of being childless—that is unbiased by self-selection. Lacking experimental data, a common approach to address selection is to include person or family fixed effects. This approach is also infeasible here because childlessness is time invariant for each person and the HRS does not contain sibling data. An alternative way to take selection into account is to estimate random effects models. I do so using the first six waves of the HRS, which provide multiple observations for most sample members.

Propensity score models (Rosenbaum and Rubin, 1983) also are a means to address selection in the absence of experimental data. Moreover, because such nonparametric models do not impose strong restrictions on the functional form of the relationship between childlessness and the outcomes, I also use

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[7]With the exception of Bachrach (1980), no prior study recognizes that childlessness poses a selection issue that may bias OLS estimates. Neither Bachrach (1980) nor other studies address this possibility in their empirical work.

them to explore the results' sensitivity to the linearity assumption. While propensity score models have most often been used to estimate treatment effects of labor market and other social policy interventions (e.g., Larsson, 2003; Bratberg, Holmas and Thogerson, 2004;O'Keefe, 2004; Sianesi, 2004; Gibson-Davis and Foster, 2006), studies of the consequences of demographic outcomes (Levine and Painter, 2003; Chevalier and Viitanen, 2003; Gertler, Levine and Ames, 2004) have also taken this approach to estimate the impact of the "treatment on the treated."

In this context the propensity score is the probability of being childless (that is, of being in the treatment group), conditional on a set of independent variables. I estimate the score using a logistic regression that includes the explanatory variables described above, except for education and the dummy for having never married, which are likely to have been endogenously determined with fertility decisions. These variables are representative of those used to model other fertility choices such as nonmarital childbearing (Huang, 2002; Dyer and Fairlie, 2004; Plotnick et al., 2007). This specification passes the balancing test (Smith and Todd, 2005) for the three sub-samples analyzed separately in most of the empirical analysis: married persons, unmarried men, and unmarried women. The distribution of propensity scores for childless elders and those who are parents closely overlap within the region of common support (data available upon request). This indicates that there are an ample number of cases with parents (the controls) that are well matched with each childless case.

The average treatment impact is estimated with two alternative matching procedures carried out on cases within the region of common support.[8] Using radius matching, a childless case is matched with all cases with children that have propensity scores within a radius of .0005 of the childless case's score. When multiple control cases fall within the radius, their average outcome is compared to the childless case's outcome. With Epanechnikov kernel matching, a childless case is matched with all cases with

[8]I used STATA's pscore, attr and attk routines to check for balance and to compute the average difference in outcome between treatment and control cases and the standard errors.

children that have propensity scores within the specified bandwidth of the kernel.[9] When multiple control cases fall within the bandwidth, their kernel-weighted average outcome is compared to the childless case's outcome. Standard errors are bootstrapped.

I also transformed the propensity scores to create weights for OLS and logit regressions (Imbens, 2004, citing Robins and Ritov, 1997). These "doubly robust" models include both *X* and *C*. Because the estimates closely resemble those from simple OLS and logit, the tables do not include them. They are available upon request.

Propensity score methods rely on the "conditional independence assumption": all factors related to receiving a treatment are observed and measured (Black and Smith, 2004). Then, conditional on those factors, the choice between treatment and control status is not influenced by the actual outcomes resulting from the choice. If this assumption fails and unobserved characteristics influence both being childless and an outcome, the treatment and control groups may differ in unobserved ways, and between-group differences may reflect those differences rather than the treatment.[10]

FINDINGS

Sample Characteristics

Table 1 reports means and standard deviations for the explanatory variables. Overall, 9.8 percent (1,507 cases) of elders reported never being a biological parent. As one expects for an older sample, women compose more than half the cases (57 percent) and the proportion of cases in each cohort generally rises with birth year. The lower proportions for the two most recent cohorts appear because the

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[9]For married cases, the bandwidth is .01. For the unmarried samples, the bandwidth was set at .06 because a bandwidth of .01 significantly reduced the number of matches and hence, overall sample size.

[10]Use of instrumental variables is another option for addressing selection on unobservables. The challenge of doing so is finding variables that help capture factors that affect childbearing decisions over a long period—roughly age 18 to 40—but are not controlled by respondents and unlikely to have directly affected economic status. In the public use files of the HRS I was unable to find variables that both explain a significant amount of variation of the probability of being childless and are theoretically plausible instruments.

Table 1
Descriptive Statistics for Explanatory Variables, Full Sample, Parents and Childless Persons

	Full Sample		Was a Biological Parent		Never was a Biological Parent	
Explanatory variable:	Mean	Std Dev	Mean	SE	Mean	SE
Never a biological parent	.098	.298	—	—	—	—
Female	.571	.495	.571	.004	.575	.013
Race/ethnicity:						
African American	.121	.326	.121	.003	.122	.009
White, Hispanic	.054	.227	**.056****	.002	**.039**	.005
White, non-Hispanic	.805	.396	.804	.003	.815	.010
Birth cohort:						
1910–1914	.035	.184	**.032****	.002	**.067**	.006
1915–1919	.071	.256	**.076****	.002	**.099**	.008
1920–1924	.114	.318	.113	.003	.124	.008
1925–1929	.137	.344	.138	.003	.123	.008
1930–1934	.170	.376	**.173***	.003	**.149**	.009
1935–1939	.200	.400	**.205****	.003	**.153**	.009
1940–1944	.179	.383	.179	.003	.176	.010
1945–1947	.081	.274	.080	.002	.091	.007
Foreign born	.082	.274	.083	.002	.072	.007
English not first language	.054	.225	**.056****	.002	**.035**	.005
Religion:						
Protestant	.645	.479	**.647***	.004	**.621**	.013
Catholic	.269	.444	.270	.004	.266	.011
Jewish	.023	.151	.023	.001	.022	.004
Other religion	.012	.109	**.011****	.001	**.021**	.004
Number of living siblings	2.75	2.36	**2.77****	.020	**2.51**	.057
Self-rated health as a child (1=exc; 5=poor)	1.82	.978	1.82	.008	1.86	.026
Family of origin economic status:						
Well off as a child	.059	.236	**.057***	.002	**.073**	.007
Average as a child	.612	.487	.613	.004	.605	.123
Poor as a child	.318	.466	.319	.004	.312	.012
Veteran	.257	.437	.256	.004	.261	.011
Years of education	12.23	3.177	**12.18****	.027	**12.71**	.084
Never married	.024	.153	**.005****	.001	**.198**	.010
Number of cases	15,334		13,827		1,507	

* difference with childless significant, $p < .05$.
** difference with childless significant, $p < .01$.

sample size for the War Baby cohort (born 1942–47) is much smaller than for the original HRS sample (born 1931–41).

Columns 2 and 3 of Table 1 show descriptive statistics separately for parents and childless elders. Simple comparisons of means tests indicate that childless elders are less likely to be Hispanic and more likely to be born early in the twentieth century. The childless are less likely not to have English as their first language, less likely to be Protestant, have fewer siblings, and report better economic status as a child. Childless elders average 0.5 years more education. Being female, being foreign born, being a veteran, and self-rated child health show no relationship to childlessness.

Table 2 presents descriptive data for the outcome variables in 2002. Mean income is $45,114; the median is $31,860. About six percent of respondents received disability benefits. Seven percent received income-tested benefits. Mean and median wealth equal $314,100 and $116,100, respectively. Most respondents have net wealth of $25,000 or more; 64 percent have at least $100,000, and 19 percent have at least $500,000.

Simple comparisons of means indicate that childless elders do not differ from parents in mean income and the likelihood of receiving disability or income-tested benefits. Childless elders appear to have slightly more net wealth. Though the average difference of $15,000 is not statistically significant, childless elders are significantly less likely to report net wealth under $25,000 and more likely to report having at least $500,000.

Full Sample Regression Results

Table 3 presents four nested models for all outcomes using the full sample. Model A simply includes gender, race/ethnicity, birth cohort, and wave. Model B adds all other exogenous background characteristics. Model C then adds years of education.[11] Model D also includes a dummy variable for having never married. Since childlessness, education, and marital status are mutually endogenous, the

[11]It also adds veteran status since this, too, is a choice variable for women and some of the men.

Table 2
Descriptive Statistics for Income and Wealth Variables (in $2002) for Full Sample, Childless Persons, and Parents

	Full Sample		Was a Biological Parent		Never was a Biological Parent	
Outcome:	Mean	Std Dev	Mean	SE	Mean	SE
Income	45,114	41,923	45,194	354	44,378	1,145
Median income	31,860		32,040		30,176	
Log (income)	10.302	1.167	**10.308***	.010	**10.245**	.030
Any SSI or Soc Sec DI	.064	.256	.064	.002	.067	.006
Any veteran's benefits, welfare or food stamps	.072	.258	.072	.002	.072	.007
Net wealth (1,000's)	314.1	409.14	312.6	3.5	327.8	10.9
Median net wealth	166.1		165.1		177.0	
Log (net wealth)	11.692	1.857	11.699	.016	11.628	.052
Net wealth ≥ $25,000	.860	.347	**.863****	.003	**.835**	.010
Net wealth ≥ $100,000	.637	.481	.638	.004	.636	.012
Net wealth ≥ $500,000	.194	.396	**.192#**	.004	**.210**	.011
Number of cases	15,334		13,827		1,507	

difference with childless significant, $p < .10$;
* difference with childless significant, $p < .05$;
** difference with childless significant, $p < .01$.

Table 3
Estimated Coefficient for the Childless Dummy Variable, Full Sample, Alternative Specifications

Specification	A. Race/ethnicity, gender and cohort		B. All exogenous characteristics[a]		C. Model B + education[b]		D. Model C + never married	
Outcome	β	SE	β	SE	β	SE	β	SE
1. Income	145	1,060	230	1,066	-1,552	1,024	**2,444***	1,103
2. Log (income)	-.038	.030	-.036	.030	**-.080****	.029	.053	.031
3. Pr (SSI or Soc Sec DI)	.105	.114	.125	.117	**.230#**	.121	.040	.133
4. Pr (Veteran's benefits, welfare or food stamps)	-.004	.108	-.027	.111	-.115	.113	-.070	.122
5. Net wealth (1,000s)	**18.4#**	10.9	**18.8#**	11.0	2.9	10.7	**28.4***	11.6
6. Log (net wealth)	-.041	.048	-.037	.048	**-.120****	.047	.054	.050
Number of cases	15,102		14,485		14,460		14,451	

= significant at $p < .10$, * = significant at $p < .05$, ** = significant at $p < .01$
Rows 1, 2, 5 and 6 estimated with OLS. Other rows estimated with logit. Samples sizes reflect omission of cases with missing values.
[a]Adds dummies for being foreign born, not speaking English as the first language, religion, economic status as a child, number of siblings and self-rated health as a child. The categories for the dummy variables are as in Table 1.
[b]Years of education. Also includes veteran status dummy.

results in models C and D and in later tables are correlative, not causal. This table, as well as others discussed below, omits results for the three dummy variables for wealth because they are fully consistent with results from the linear models. Those results are available upon request.[12]

Model A suggests childlessness is not associated with income or receipt of specific transfer benefits. Childlessness shows a marginally positive association with net wealth. Model B, which includes the full set of exogenous characteristics, yields virtually identical findings.

Augmenting the model with education (model C) changes the picture to one in which childless elders appear to be worse off. The coefficients on the childless dummy are negative for income (with one significant at $p = .01$). The childless are marginally more likely to receive disability benefits. Childlessness is now associated with having less wealth. The results of models A and B appear to reflect the economic advantages of childless elders' greater schooling (as shown in Table 1) rather than childlessness per se.

Childless elders are far more likely to have never married (19.8 percent versus less than one percent for parents (Table 1). Because never-married elders lacked the financial advantages of having lived in a two adult household, model C's negative associations between childlessness and the outcomes may be biased by ignoring this distinction in marital status.[13]

Model D confirms this reasoning. Net of schooling and being ever married or not, childlessness is associated with greater income and wealth. Further, model C's positive relationship between childlessness and disability benefits disappears. The point estimates imply that on average childless elders have about 5 percent more income and 9 percent more wealth.

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[12]Adjusted R-squared and log-likelihood statistics for the models in Tables 3–6 are also available upon request.

[13]Some never married elders will have lived with relatives or unrelated adults, but such arrangements would have been less conducive to wealth accumulation than living with a spouse.

Results for Subgroups Based on Marital Status and Gender

Because of the strong relationship between income and wealth and both marital status and gender, Tables 4–6 present separate findings for currently married persons, currently unmarried women, and currently unmarried men using four estimators—simple OLS/logit, two propensity score estimators, and random effects.[14] For the two currently unmarried samples the models include a dummy variable to distinguish the widowed and divorced from those who had never married and, consequently, had no opportunity to accumulate wealth while part of a married couple.[15]

The subsample results exhibit important differences in the patterns and magnitudes of the relationships between childlessness and economic status. Those differences are masked in model D's full sample estimates.

Childlessness among married persons is consistently associated with greater income. The OLS coefficient is not significant, but the two propensity score estimators yield substantively large and strongly significant income differences. (The difference of $5,023 produced using Epanechnikov kernel matching is nine percent of this subsample's mean income.) The random effects specification also shows a significant relationship between childlessness and income. The larger sample appears to be responsible for this difference with the OLS result because the magnitude of the coefficient is actually 17 percent smaller, but the standard error fell by 33 percent. The coefficient in the weighted regression (not shown) falls nearly midway between the OLS and random effects estimates and is significant at $p > .05$. The log(income) results are all positive but only the propensity score models yield significant estimates.

Childlessness is associated with greater wealth and log(wealth) in all models as well. Significant estimates appear only for the propensity score models, and two of them are marginally significant at $p >$

[14]For married persons, unmarried men, and unmarried women, respectively, mean income is $55,552, $31,901, and $22,749; mean wealth is $380,800, $215,700, and $181,600; and percent childless is 7.2, 20.6, and 12.8.

[15]Because of the ambiguous meaning of cohabitation in the U.S., cohabiters are excluded from this set of models.

Table 4
Estimated Coefficient for the Childless Dummy Variable for Married Persons Using Different Estimators

	OLS or Logit		Epanechnikov Kernel Matching[a]		Radius Matching[a]		Random Effects	
Outcome	β	SE	β	SE	β	SE	β	SE
Income	2,532	1,576	**5,023****	1,890	**7,513****	2,226	**2,095***	1,053
Log (income)	.033	.035	**.071****	.025	**.095****	.030	.017	.021
Pr (SSI or Soc Sec DI)	.026	.207	.001	.007	-.003	.008	.036	.185
Pr (Veteran's benefits, welfare or food stamps)	-.014	.184	-.003	.008	-.002	.009	-.100	.179
Net wealth (1,000s)	15.2	16.9	**30.6***	13.6	**31.0#**	17.3	16.8	11.5
Log (net wealth)	.027	.052	**.074#**	.044	.064	.054	.013	.039
Number of cases	9,255		9,255		9,255		58,091	

= significant at $p < .10$, * = significant at $p < .05$, ** = significant at $p < .01$
Specifications are identical to those in Table 3, model D.
[a]Bootstrapped standard errors.

Table 5
Estimated Coefficient for the Childless Dummy Variable for Single Men Using Different Estimators

	OLS or Logit		Epanechnikov Kernel Matching[a]		Radius Matching[a]		Random Effects	
Outcome	β	SE	β	SE	β	SE	β	SE
Income	656	2,122	-1,424	2,660	493	2,552	1,717	1,828
Log (income)	-.006	.115	-.056	.114	-.096	.100	.041	.076
Pr (SSI or Soc Sec DI)	-.068	.369	-.001	.017	.006	.018	.068	.366
Pr (Veteran's benefits, welfare or food stamps)[b]	**.518#** [.067]	.270	**.050***	.024	.041	.027	**.812***	.322
Net wealth (1,000s)	**51.3#**	27.3	**63.7****	22.1	**71.0****	26.2	**53.9****	18.9
Log (net wealth)	.157	.175	.109	.173	.183	.171	**.284***	.122
Number of cases	1,167		1,167		1,167		5,927	

= significant at $p < .10$, * = significant at $p < .05$, ** = significant at $p < .01$
Specifications are identical to those in Table 3, model D, except no dummy for gender.
[a]Bootstrapped standard errors.
[b]Number in brackets is the change in probability at the mean.

Table 6
Estimated Coefficient for the Childless Dummy Variable for Single Women Using Different Estimators

	OLS or Logit		Epanechnikov Kernel Matching[a]		Radius Matching[a]		Random Effects	
Outcome	β	SE	β	SE	β	SE	β	SE
Income	**6,243****	1,241	**5,408****	1,249	**7,153****	1,384	**3,938****	722
Log (income)	**.152***	.063	**.128***	.059	**.191****	.078	**.116****	.044
Pr (SSI or Soc Sec DI)	.068	.226	.006	.011	-.000	.013	-.073	.237
Pr (Veteran's benefits, welfare or food stamps)[b]	**-.490*** [-.035]	.232	**-.040****	.009	**-.046****	.012	**-.632****	.216
Net wealth (1,000s)	**68.6****	14.7	**51.3****	17.9	**78.4****	20.7	**36.2****	9.7
Log (net wealth)	.167	.115	.104	.099	**.245***	.119	.122	.080
Number of cases	3,770		3,770		3,770		18,604	

= significant at $p < .10$, * = significant at $p < .05$, ** = significant at $p < .01$
Specifications are identical to those in Table 3, model D, except no dummy for gender.
[a]Bootstrapped standard errors.
[b]Number in brackets is the change in probability at the mean.

.10. No estimator shows a significant relationship between childlessness and the likelihood of receiving either disability or income-tested income.

For unmarried men, childlessness is not related to income or the likelihood of receiving disability income. It is, though, positively related to the chances of receiving income-tested income and to wealth and log(wealth), with most of the estimates statistically significant. Since income-tested benefits also are asset-tested, these results would seem inconsistent. This puzzle is addressed in the discussion of Table 7.

The magnitudes of the significant relationships are large. The coefficient in the logit model of income-tested benefits implies a difference in probability of .067 relative to the mean of .121. The corresponding estimates from the matching models directly indicate the difference in the probability. Both are smaller than the change implied by the logit model. A predicted wealth difference of $51,300 ($71,000) equals 24 (35) percent of this group's mean wealth.

Unmarried women's economic status is most strongly related to childlessness. All estimators predict large, strongly significant income differences. The range of $3,938 to $7,135 equals 17 to 31 percent of this group's mean income. The logarithmic estimates imply an income difference of between 13 and 21 percent. In contrast to unmarried men, childless unmarried women are much less likely to receive income-tested benefits. The simple and random effects logit coefficients imply a difference in probability of -.035 and -.043 relative to the mean of .096. The propensity score results are similar. The predicted wealth differences range from $36,200 to $78,400 and all are significant at $p < .01$. A middle range estimate of $60,000 is 35 percent of this group's mean wealth. Most of the log(wealth) results, though, are not statistically significant.

Quantile regression estimates

Because the distributions of income and wealth are highly skewed and the relationship between childlessness and these outcomes may differ at different positions within each distribution, Table 7 presents findings from quantile regressions for the continuous income and wealth measures (Buchinsky, 1998; Gale and Pence, 2006; and Song and Manchester, 2007, are recent applications). Column one

Table 7
Estimated Coefficient for the Childless Dummy Variable on Income and Wealth, Quantile Compared to OLS Regression

	OLS (from Tables 4–6)		Quantile, 10th percentile		Quantile, 25th percentile		Quantile, median		Quantile, 75th percentile		Quantile, 90th percentile	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Married persons												
Income	2,532	1,576	82	859	**1,465#**	855	986	1,186	3,108	2,201	**11,520****	3,904
Log (income)	.033	.035	-.013	.043	.022	.031	.015	.031	.005	.028	.022	.043
Net wealth (1,000s)	15.2	16.9	3.2	4.5	-2.5	6.7	14.0	10.3	27.5	22.0	56.0	43.4
Log (net wealth)	.027	.052	.020	.108	-.030	.056	.049	.049	.063	.050	.082	.060
Unmarried men												
Income	656	2,122	527	1,014	833	1,172	-484	1,831	1,087	2,757	1,356	5,112
Log (income)	-.006	.115	.079	.114	.041	.088	-.047	.077	-.015	.098	.028	.126
Net wealth (1,000s)	**51.3#**	27.3	1.5	2.5	8.3	7.4	**29.7#**	16.5	**67.4***	32.8	41.4	74.2
Log (net wealth)	.157	.175	.281	.435	.133	.371	.132	.162	**.234***	.107	.020	.138
Unmarried women												
Income	**6,243****	1,241	649	410	**675#**	397	**2,769****	896	**6,351****	1,101	**12,845****	2,856
Log (income)	**.152***	.063	.039	.071	**.062#**	.036	**.184****	.048	**.228****	.039	**.230****	.062
Net wealth (1,000s)	**68.6****	14.7	0.5	1.2	**8.7#**	4.6	**21.7****	8.0	**48.6****	15.4	**151.9****	37.2
Log (net wealth)	.167	.115	-.147	.335	.152	.192	**.210***	.099	**.186***	.088	**.393****	.109

= significant at $p < .10$, * = significant at $p < .05$, ** = significant at $p < .01$
Specification and sample sizes are identical to column 1 in tables 4–6.

shows the corresponding OLS results from Tables 4–6 for convenience. The remaining columns show the coefficient on the childless dummy at the 10^{th}, 25^{th}, 50^{th}, 75^{th} and 90^{th} percentiles.

Among married persons the quantile estimates show little difference from the insignificant OLS results. One of the 20 quantile coefficients is significant at the five percent level, or about what one would expect at random. If there is a positive relationship between income and childlessness, it is only in the upper tail of the distribution.

For unmarried men the quantile estimates confirm the absence of a significant relationship between childlessness and income. Quantile estimates indicate that the positive relationship between childlessness and wealth exists largely in the middle and upper middle part of the wealth distribution. When we recognize that it is the men with low assets who receive income-tested benefits, and that their wealth does not appear to be related to childlessness, we reconcile Table 5's findings of a positive relationship between childlessness and both wealth and receipt of income-tested benefits. The positive average relationship with wealth in Table 5 masked large differences in the strength of this relationship across the wealth distribution.

For unmarried women the OLS estimates hide substantial differences across the income and wealth distributions in the relationship between childlessness and economic status. Quantile models suggest that childlessness has no relationship with income and wealth in the bottom tail of either distribution. The relationship becomes marginally significant at the 25^{th} percentile and strongly significant in the middle and upper end of each distribution. The magnitudes of the relationship also steadily increase as one moves up each distribution, with the minor exception for the 75^{th} percentile of the log(wealth) distribution, and become substantively large.

DISCUSSION AND CONCLUSION

Despite the increasing prevalence of childlessness and the potential importance for public policy of its effects on elders' economic well-being, there is little research on the existence of these effects and their magnitudes. This paper provides the first evidence on the relationship between childlessness and

several important indicators of economic well-being: current income, receipt of disability and income-tested benefits, and wealth.

Being childless is related to each indicator except receipt of disability benefits for one or more of the three groups of elders analyzed: married persons, unmarried women, and unmarried men. Compared to married parents, childless married couples tend to have slightly more income and about 5 percent more wealth. Both positive relationships are concentrated towards the tops of the distributions.

Unmarried childless men enjoy no income advantage over unmarried fathers, are more likely to rely on income-tested transfers, but on average have 24–35 percent more wealth. There is a stronger relationship between childlessness and wealth in the upper tail of the wealth distribution.

Childlessness has the strongest relationship with unmarried women's economic well-being. Compared to elderly unmarried mothers, unmarried childless women have, on average, 13–31 percent more income and about 35 percent more wealth. The strength of these relationships is positively related to a childless woman's position in the income or wealth distribution. Unmarried childless women are also less likely to use income-tested benefits.

The theoretical framework is ambiguous about whether childless elders will tend to be financially better off than their counterparts who raised children. The empirical evidence resolves this ambiguity in favor of the childless, with the important exception that unmarried childless men more heavily use income-tested benefits.

The OLS models predict that, on average, currently unmarried childless persons have $51,000 to $69,000 more wealth. How does this compare to the average lifetime cost of raising a child to age 18? Espenshade (1984) estimates this cost was $206,000 in 1981 (in 2002 dollars). Because the average age of this study's sample in 1981 was about 50, Espenshade's figure may be a plausible indicator of how much the typical HRS parent spent to raise a child. Under this assumption, a childless person who might otherwise have raised one child devoted 25 to 33 percent of the cost savings to building assets and,

conversely, 67 to 75 percent to greater consumption. This suggests that childless elders implicitly tended to regard children much more like consumption goods than investments.[16]

One might also ask how the same predicted difference in wealth compares to the returns to a year of education. The coefficient on years of education in the OLS wealth regression is 22,100 for unmarried men and 22,000 for unmarried women, and both are significant at $p < .001$. This means that the greater wealth associated with childlessness is equivalent to having 2.3 to 3.1 more years of education. A similar exercise reveals that for unmarried women the predicted difference in income of $6,243 associated with childlessness equals the predicted increase in income associated with 2.9 years more education.

The findings are subject to several limitations. Though the broad agreement in findings across the simple regression, propensity score, and random effects models suggests that selection may be minor, it certainly is not conclusive.[17] The reduced form models that were analyzed do not shed light on the behavioral mechanisms that underlay differences in economic status. For instance, to what degree is the greater wealth of childless unmarried elders attributable to differences over the life course in earnings, savings (controlling for earnings) and marriage histories? If earnings were greater, what share of the difference is attributable to differences in schooling and in work hours?

The information in this study is but a starting point for researchers, policymakers, and other stakeholders concerned about the determinants of childless elders' well-being as well as the long-run financial demands on public programs. To develop more definitive evidence on these matters will require extending the research presented here in several important substantive directions as well as more complete consideration of selection into childlessness.

The HRS provides data on more economic outcomes than analyzed here. Future research can fruitfully examine relationships between being childless and poverty status, participation in Medicaid,

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[16]Even if Espenshade's estimate were $155,000 (25 percent lower), this would suggest childless individuals still devoted the bulk (55 to 67 percent) of the cost savings to greater consumption.

[17]It is worth observing that even if the estimates do not adequately correct for selection, the regression adjusted differences in economic status between childless elders and elders with children remain of interest.

long-term earnings, presence and amount of specific kinds of assets (e.g. home equity, IRAs), purchase of long term care insurance, transfers to nieces and nephews, and timing of partial and full retirement. Research on the relationship of childlessness to health status and use of health care services would provide evidence on other important aspects of elders' well-being. Detailed analysis of the relationships among persons' marital histories, earnings histories, childlessness, and their economic and health outcomes is needed.

This study determined childlessness based on respondents' own biological children. In view of the importance of blended families, it would be useful to know whether stepchildren affect elders' economic status and, if so, whether such effects differ from the effects of own or adopted children. Does raising stepchildren during early and middle adulthood have similar long run economic effects as raising one's own children? It might if parents invest similarly in their children and stepchildren, but there are reasons to question this (Case, Lin and McLanahan, 2000). Do stepchildren transfer income or provide services to their needy parents but stop doing so when their own parent biological dies? The economic impact of raising stepchildren also would probably depend on their ages when they join or leave the stepparent's family. The older the stepchildren are when they join, and the younger they are when they leave (if the marriage ends), the smaller the financial consequences for the stepparent. Currently there is no evidence on these questions.

Would other data sets produce results similar to those reported here? The Wisconsin Longitudinal Survey and the Panel Survey of Income Dynamics may allow investigation of the issues raised in this study. The English Longitudinal Survey of the Aged (ELSA) and the Survey of Health, Ageing and Retirement in Europe (SHARE), both patterned after the HRS, may allow cross-national comparisons of the consequences of childlessness.

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