Who Cares for *Which* Elderly Parents?
Intersections of Race and Gender in Care Provision for the Elderly

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We examine the roles of race and gender in care provision for the elderly. Specifically, we address two research questions: How does the role of child gender in parental care provision vary by race and ethnicity? How do patterns of care provision for mothers relative to fathers vary by race and ethnicity? Distinguishing among continued independence, care provided exclusively by a spouse, care provided by an adult child, formal home health care, and institutional care, our analysis focuses on families' selection of the primary caregiver for an elderly individual across several time periods. We estimate our dynamic model with data from five waves of AHEAD and test whether the role of child or parent gender varies by race and ethnicity, after controlling for demographic characteristics and activity limitations.

1. Introduction

Increased life expectancies have contributed to worldwide population aging (Butler, 1997). In the United States, the elderly population, defined as individuals aged 65 years and older, increased from 4.1 percent of the total population in 1900 to 12.4 percent in 2000, and demographers predict that the overall elderly population of the United States will approach 20 percent by the year 2030. However, these figures vary by race and ethnicity due to differences in life expectancy, fertility rates, and immigration patterns (He, Sengupta, Velkoff and DeBarros, 2005). For example, in the year 2000, 4.9 percent of the Hispanic population was elderly, compared to 8.1 percent of non-Hispanic blacks and 15.0 percent of non-Hispanic whites (U.S. Census Bureau, 2001). Moreover, as a result of differences in mortality rates by sex, the elderly population is disproportionately female (He, Sengupta, Velkoff and DeBarros, 2005). Based on data

from the year 2000, women comprise 58.8 percent of the elderly population in the United States, but this figure varies by race and ethnicity ranging from 55.1 percent among Native Hawaiian and other Pacific Islanders to 61.9 percent among Black or African Americans (U.S. Census Bureau, 2001).

The elderly population faces high rates of disability. For example, data from the 1993 National Mortality Followback Survey indicate that roughly 81 percent of individuals experience physical disability, problems with activities or instrumental activities of daily life, difficulty with mobility, or cognitive impairment for at least part of their old age (Spillman and Murtaugh, 2005). However, evidence suggests that disability rates among the elderly have declined in recent years (Manton and Gu, 2001; Freedman et al., 2004; Freedman, Schoeni, Martin and Cornman, 2007). Gender and racial gaps in elderly disability rates have also declined. While women have experienced lower rates of disability relative to men since the mid-1980s (Crimmins and Saito, 2000; Freedman, Schoeni, Martin and Cornman, 2007), blacks have experienced lower rates of disability relative to nonblacks since 1989 (Manton and Gu, 2001).

In light of population aging and high disability rates among the elderly, many families face decisions concerning care arrangements for elderly, disabled relatives. Data from the Assets and Health Dynamics Among the Oldest Old (AHEAD) survey suggest that, in 1993, 72 percent of individuals providing care for noninstitutionalized, disabled individuals aged 70 years and older were family members, most notably adult children and spouses (Shirey and Summer, 2000). Other caregivers for this population include formal home health care providers and friends. Data from the National Long-Term Care Survey (NLTCS) indicate that under eight percent of disabled elderly individuals living

in the community relied exclusively on formal home health care in 1999, and 28 percent of these individuals used both formal and informal home health care (Mack and Thompson, 2005). Although many elderly, disabled individuals remain in the community, population aging has coincided with increased reliance on institutional care. For example, by 1990, about 25 percent of the oldest old lived in institutions compared to 7 percent in 1940 (Kotlikoff and Morris, 1990).

Patterns of care provision vary by race and ethnicity. A comparison of non-Hispanic white, non-Hispanic black, and Hispanic elderly care recipients living in the community reveals several notable differences. Hispanics are the most likely to receive care from their adult children, non-Hispanic blacks are the most likely to receive care from an adult grandchild or from an unrelated caregiver, and non-Hispanic whites are the most likely to rely on care from a spouse (Shirey and Summer, 2000). Among all elderly individuals living in the community with or without care, racial differences are particularly striking. For example, data from the 1993 wave of AHEAD indicate that over 15 percent of black parents receive informal care from children and/or children-in-law compared to less than 3 percent of white parents, a difference that is highly statistically significant (Byrne, Goeree, Hiedemann and Stern, forthcoming).

Gender also plays a role in elder care provision. Daughters are more likely than sons to provide care for elderly parents. For example, data from the 1999 NLTCS and the linked Informal Care Survey indicate that roughly 73 percent of children serving as primary informal caregivers for chronically, disabled elderly parents are daughters (Wolff and Kasper, 2006). Moreover, patterns of care provision differ for elderly men and women. According to Katz, Kabeto, and Langa (2000), disabled elderly men receive

more informal care than do disabled elderly women. This difference is particularly pronounced for married men and women. While wives provide most informal care for elderly men, adult children provide most informal care for elderly women (Katz, Kabeto and Langa, 2000; He, Sengupta, Velkoff and DeBarros, 2005).

The role of child gender in elder care provision – a traditionally feminine task (Folbre and Nelson, 2000) – may vary by race and ethnicity. Cultures with relatively traditional gender role ideology may rely more heavily on daughters than sons for this role, while those with relatively egalitarian attitudes may demonstrate more gender neutrality. Thus, evidence, albeit mixed, of differences in gender role ideology across white, black, and Hispanic families (e.g., Kane, 2000) highlights the importance of examining whether the role of child gender in informal care provision for the elderly varies by race and ethnicity.

Moreover, differences in family structure may contribute to differences in care provision for mothers relative to fathers across racial and ethnic lines. Despite increased rates of single parenthood among white, black, and Hispanic families over the past several decades, two-parent households have remained most prevalent among white families and least prevalent among black families (U.S. Census Bureau, 2007). In light of differences in family structure by race and ethnicity, patterns of care provision for mothers relative to fathers may vary across white, black, and Hispanic families.

Care arrangements for the elderly have profound economic, social, and psychological implications. The Congressional Budget Office (2004) forecasted total long-term care expenditures of approximately $15,000 per impaired elderly individual for the year 2004. According to the same report, 60 percent of long-term care expenses are

covered by Medicare and Medicaid, 33 percent are borne by elderly individuals and their families, and four percent are covered by private insurance. Care provided by family members typically does not impose explicit financial costs, but the opportunity costs in terms of foregone earnings, household production, and leisure can be substantial. While institutional care typically entails social and psychological costs for elderly individuals (Macken, 1986), the provision of informal care can be psychologically burdensome for caregivers (Martin, 2000; Byrne, Goeree, Hiedemann and Stern, forthcoming).

The development of appropriate public policies concerning elder care provision (e.g., subsidies for informal care provided by a child, formal home health care, or institutional care) requires an understanding of decision making within *and* across families. Considering differences in gender role ideology and family structure by race and ethnicity, we examine whether 1) the role of child gender in parental care provision and 2) patterns of care provision for mothers relative to fathers vary by race and ethnicity. Distinguishing among continued independence, care provided exclusively by a spouse, care provided by an adult child, formal home health care, and institutional care, our analysis focuses on families' selection of the primary non-spousal caregiver for an elderly individual across several time periods. With data from five waves of AHEAD collected between 1995 and 2004, we estimate separate econometric models by race and ethnicity and test whether the roles of parent and child gender vary by race and ethnicity, after controlling for economic and demographic characteristics and activity limitations. The AHEAD data permit us to examine care decisions in non-Hispanic white, non-Hispanic black, and Hispanic families. Thus, our work contributes to the literature by providing insight on the roles of race/ethnicity, gender, and their intersections in families' care

provision for the elderly. In addition, our dynamic framework sheds light on the intertemporal dimensions of care.

2. Literature Review

2.1 Formal Economic Models

Although predominantly empirical, the literature on elder care provision offers several formal economic models. Given the complexities inherent in families' elder care decisions, none of these models captures all dimensions of decision making within families. Most notably, these models vary with respect to the assumptions concerning preferences of family members, the number of children participating in the decision-making process, and the scope of care decisions considered.

Allowing for the possibility that preferences vary across family members, several papers present game-theoretic models (Sloan, Picone and Hoerger, 1997; Hiedemann and Stern, 1999; Pezzin and Schone, 1999a; Checkovich and Stern, 2002; Engers and Stern, 2002; Brown, 2006; Pezzin, Pollak and Schone, 2007; Byrne, Goeree, Hiedemann and Stern, forthcoming). Other models are based on the assumption of common preferences; for example, Hoerger, Picone, and Sloan (1996) and Stabile, Laporte, and Coyte (2006) rely on the assumption of a single family utility function. In Kotlikoff and Morris (1990), parent and child solve separate maximization problems if they live separately but maximize a weighted average of their individual utility functions subject to their pooled budget constraint if they live together.

Similarly several models accommodate all adult children in the decision making process (Hiedemann and Stern, 1999; Checkovich and Stern, 2002; Engers and Stern, 2002; Van Houtven and Norton, 2004; Brown, 2006; Byrne, Goeree, Hiedemann and

Stern, forthcoming). Others simplify modeling and/or estimation by focusing on families that include only one (Kotlikoff and Morris, 1990) or two adult children (Pezzin, Pollak and Schone, 2007) or by assuming that only one child participates in the family's elder care decisions (Sloan, Picone and Hoerger, 1997; Pezzin and Schone, 1999a).

The models in this literature also vary with respect to the scope of care decisions. Models presented in Hiedemann and Stern (1999) and Engers and Stern (2002) focus on the family's selection of the primary care arrangement including informal care provided by an adult child, institutional care, or continued independence. Checkovich and Stern (2002) and Brown (2006) model the quantity of informal care provided by each adult child. Similarly, Sloan, Picone, and Hoerger (1997), Pezzin and Schone (1999a), Stabile, Laporte, and Coyte (2006), and Byrne, Goeree, Hiedemann and Stern (forthcoming) model the provision of informal care and formal home health care. Stabile, Laporte, and Coyte's (2006) model distinguishes between publicly and privately financed home health care. Van Houtven and Norton (2004) model children's provision of informal care and parent's use of formal care, defined broadly as nursing home care, home health care, hospital care, physician visits, and outpatient surgery. Hoerger, Picone, and Sloan (1996) and Pezzin, Pollak, and Schone (2007) focus on living arrangements of the sick or disabled elderly (e.g., independent living in the community, residence in an intergenerational household, or residence in a nursing home).

2.2 Dynamic Dimension of Care

Although the provision of care for the elderly is an inherently dynamic process, most of the literature abstracts from the intertemporal dimensions of care. Exceptions include the work of Boersch-Supan, Kotlikoff, and Morris (1988), Garber and MaCurdy

(1990), Dostie and Léger (2005), and Heitmueller and Michaud (2006). While only the last of these focuses directly on elder care, the first three explore a related issue, namely living arrangements of the elderly. Garber and MaCurdy (1990) model transition probabilities involving residence in the community, nursing home residence, and death. Boersch-Supan, Kotlikoff, and Morris (1988) and Dostie and Léger (2005) distinguish among independent living, cohabitation, and nursing home residence. In particular, Boersch-Supan, Kotlikoff, and Morris (1988) examine transition probabilities, while Dostie and Léger (2005) model the duration in a particular living arrangement. Finally, Heitmueller and Michaud (2006) explore the causal links between employment and informal care of sick, disabled, or elderly individuals over time.

2.3 Empirical Evidence Concerning the Roles of Race and Gender

Empirical studies of elder care provision offer extensive evidence concerning the separate roles of race/ethnicity and gender, after controlling for relevant economic and demographic characteristics as well as activity limitations. However, this literature provides relatively little evidence concerning differences in the role of child or parent gender by race/ethnicity. The discussion below summarizes the available evidence concerning the role of child gender in elder care provision, differences in care provision for elderly men and women, racial and ethnic differences in patterns of care, and differences in the role of gender by race and ethnicity. Given cultural differences in gender roles and our data limitations, the discussion focuses on evidence concerning white, black, and Hispanic families in the United States.

The literature on parental care provision sheds light on the effects of child gender on the probability that a child provides informal care, the quantity of care provided, the

quality of care provided, and the burden experienced in the provision of care. Several studies present evidence that daughters are significantly more likely than sons to provide care for elderly parents, even after controlling for relevant characteristics (e.g., Sloan, Picone and Hoerger, 1997; Wolf, Freedman and Soldo, 1997; Checkovich and Stern, 2002; Engers and Stern, 2002; Koh and MacDonald, 2006). Among lone parents, evidence suggests that the number of daughters is positively associated with the probability of informal care receipt, while the number of sons is positively associated with the probability of coresidence (Pezzin and Schone, 1999b). Similarly, McGarry (1998) reports a negative relationship between a son's probability of providing care and the number of sisters in the family; interestingly, however, among only children, sons are no less likely to provide care than are daughters.

The literature offers mixed evidence concerning the relationship between child gender and the quantity of care provided. According to Wolf, Freedman, and Soldo (1997), expectations for daughters are much greater than those for sons, all else equal. Consistent with these expectations, their results indicate that the quantity of care provided by an adult child depends negatively on the number of sisters. Similarly, Pezzin and Schone (1999b) report that conditional hours of informal care received by lone parents depend positively on the number of daughters. However, Sloan, Picone, and Hoerger (1997) find that sons provide significantly more care than do daughters.

Other gender differences concern the quality of care and the burden experienced in its provision. Hiedemann and Stern's (1999) results indicate that family members value daughters more highly than sons in the caregiving role. Similarly, results presented in Byrne, Goeree, Hiedemann, and Stern (forthcoming) suggest that daughters provide

higher quality care than do sons. Moreover, Byrne, Goeree, Hiedemann, and Stern's (forthcoming) results suggest that daughters find care provision less burdensome than do sons.

With regard to gender differences among actual or potential care recipients, the literature provides evidence concerning comparable dimensions of care: the probability of receiving care, the quantity of care received, the quality of care received, and the burden experienced in its provision. According to McGarry (1998) and Checkovich and Stern (2002), adult children are more likely to provide care for elderly mothers than for elderly fathers, all else equal. Among lone elderly parents, Pezzin and Schone (1999b) report that mothers are significantly more likely than fathers to receive care from adult children, while Van Houtven and Norton (2004) report that mothers are significantly more likely than fathers to use formal home health care. In terms of the quantity of care received, Pezzin and Schone (1999b) find that lone fathers receive fewer hours of care than do lone mothers, conditional on the receipt of informal care. The results of one structural game-theoretic model suggest that families value informal care provided by children more highly for mothers than for fathers (Hiedemann and Stern, 1999). The results of another suggest that care provided to mothers is less burdensome but also less effective than care provided to fathers (Byrne, Goeree, Hiedemann and Stern, forthcoming).

Turning to differences in care patterns by race and ethnicity, the literature provides evidence concerning the probabilities of relying on various modes of care, the quantity of care received, and caregiving preferences. According to McGarry (1998), nonwhites are significantly less likely than are whites to receive care from an adult child. Similarly, Pezzin and Schone (1999b) report that lone black parents are significantly less

likely to receive informal care than are lone white parents. But lone black and Hispanic parents are more likely than their white counterparts to coreside with adult children. Several studies report evidence that blacks are significantly less likely than whites to rely on formal home health care or other in-home care services, after controlling for activity limitations and cognitive status as well as economic and demographic characteristics (Kemper, 1992; Mui and Burnette, 1994; Cagney and Agree, 2005). Kemper (1992) also finds that Hispanics are less likely than non-Hispanic whites to rely on formal home health services. Similarly, several studies provide evidence that non-Hispanic blacks and Hispanics display significantly lower propensities than non-Hispanic whites to rely on nursing home care (e.g., Mui and Burnette, 1994; Wallace, Levy-Storms, Kington, and Andersen, 1998; Cagney and Agree, 1999; Van Houtven and Norton, 2004; Cagney and Agree, 2005; Charles and Sevak, 2005).

Several studies present evidence concerning differences between white and black elders in terms of the quantity of care received. For example, according to Martin (2000), among informal primary caregivers, African Americans spend significantly more time providing care than do whites. Similarly, Chadiha et al. (1995) report that chronically ill African Americans rely more heavily on informal care from their primary caregivers and less heavily on formal care following hospitalization than do their white counterparts. Miner's (1995) results indicate that black respondents rely insignificantly more frequently on relatives but use significantly more formal care services than do white respondents. In addition, Miner's separate analyses by race indicate that white elders tend to treat informal and formal care as substitutes for one another, while black elders tend to treat the two forms of care as complementary.

The literature provides scant evidence concerning comparable differences between Hispanic and non-Hispanic elders. According to Pezzin and Schone (1999b), conditional on receiving informal care, lone Hispanic parents use fewer hours than do lone white parents.

Caregiving preferences may vary by race and ethnicity. Controlling for demographic characteristics, health conditions, socioeconomic status, and other relevant factors, Sudha and Mutran's results (1999) reveal a greater tendency among African Americans than whites to express a preference for care provided by family members. Relative to their African American counterparts, their results also suggest that white elderly individuals express significantly greater aversion to rest homes (also known as adult care homes) but a greater willingness to consider rest home placement.

Despite extensive evidence concerning the separate roles of race and gender in families' decisions concerning informal care, formal home health care, and institutional care, evidence concerning their intersections is relatively sparse. The extant literature provides insight concerning intersections of race and gender in intergenerational relationships, the use of informal and formal health care and related services, and caregiving burden. Unfortunately, to the best of our knowledge, this literature addresses differences between white and black families but neglects Hispanic families.

Several studies examine differences between mothers and fathers or between daughters and sons by race. In a sample of black individuals aged 55 years and over, Chatters, Taylor, and Jackson (1986) find that men are significantly less likely than women to select a daughter as part of their informal helper network. According to Cagney and Agree (1999), the number of sons influences the risk that an elderly white or

black parent uses a skilled nursing facility, but the direction of the effect differs by race. Specifically, after the first son, each additional son decreases white parents' risk but increases black parents' risk. In contrast, Mutran's (1985) results reveal similar patterns among black and white elderly individuals; within each race, women are more likely than men to receive assistance from children.

With regard to the use of informal and formal health care and related services, Miner's (1995) results indicate that white women rely more frequently on informal support and use more formal services than do white men; while black women use more formal services than black men, there is no significant gender difference among black elders in terms of frequency of informal support. Although White-Means and Rubin (2004) find that white women are significantly more likely than white men to receive formal home health care, they find no significant gender difference for blacks. Johnson and Wolinsky's (1996) findings indicate that the use of in-home health services depends on different activity limitations for white men and women compared to black women. Lun (2004) examines the separate and joint effects of race and gender on the use of in-home and community-based services such as personal care or nursing. In his analysis, personal care/nursing is not significantly related to race (white versus black), gender, or their interaction.

Finally, one study examines differences in caregiving burden by race and gender. Controlling for the amount and type of care provided, Martin's (2000) results suggest that African American women experience relatively little burden in the caregiving role, while white women and African American men experience relatively heavy burden.

3. Theoretical Underpinnings

As discussed earlier, patterns of care provision vary across white, black, and Hispanic families. These differences may stem at least partly from cultural differences by race and ethnicity (e.g., Wallace, Levy-Storms, Kington and Andersen, 1998). Moreover, the role of child gender in elder care provision may vary across white, black, and Hispanic families given differences in gender role ideology. Finally, differences in family structure may contribute to differences in care provision for mothers relative to fathers across these three groups.[1] As discussed in detail below, differences in gender role ideology and family structure across white, black, and Hispanic families highlight the importance of examining the roles of child and parent gender separately by race and ethnicity.

Differences in caregiving patterns by race are often attributed to cultural differences (Wallace, 1990; Miner, 1995). For example, Lee, Peek, and Coward (1998) present evidence that elderly black parents display greater filial responsibility expectations than do white elderly parents, controlling for economic and demographic characteristics, health quality, and activity limitations. Although the authors recognize the possibility of omitted variable bias, their findings suggest that elderly blacks "regard assistance from children as more normative" than do elderly whites (p. 411). Similarly, Dilworth-Anderson et al. (2005) report differences between black and white caregivers, with African Americans expressing "stronger cultural reasons for providing care" than whites, controlling for economic and demographic characteristics (p. 261). Moreover,

[1] Some scholars argue that discrimination may partly explain racial differences in elder care (see, for example, Miner, 1995 and Wallace, 1990). Given our focus on the role of child gender and differential treatment of mothers versus fathers, our discussion concentrates on the roles of culture – most notably, gender role ideology – and family structure.

Martin (2000) interprets her result that African American women experience relatively little burden in the caregiving role as further evidence that "African American families provide more normative support for caregiving" than do white families (p. 1002). Although the elder care literature provides limited evidence concerning Hispanic families, available evidence suggests that "…Hispanic elderly maintain stronger cultural ties to traditional values than do black elderly…" (Choi, p. 44).

Not only may motivations for providing care for elderly parents differ by race and ethnicity, but the role of child gender in elder care provision may differ across white, black, and Hispanic families as a result of differences in gender role ideology. According to Kane (2000), the literature on racial and ethnic variations in gender-related attitudes provides mixed evidence concerning differences between black and white Americans. In particular, several studies (e.g., Harris and Firestone, 1998) suggest that African Americans display more egalitarian attitudes toward gender than do whites, while other studies report more traditional attitudes among African Americans, particularly among African American men. For example, Blee and Tickamyer (1995) find support for the hypothesis that African American men hold more traditional views concerning the division of labor within the household than do white men. However, Kane (2000) notes further that many scholars find no significant attitudinal differences between black and white Americans with regard to gender.

With regard to behavioral differences by race, Hill and Sprague (1999) report more egalitarian gender roles in African American families than in white families. But here, too, the literature provides mixed evidence. Other scholars argue that "racial discrimination has sometimes encouraged a compensatory emphasis on masculine

dominance among men of color" such as "a reassertion of African-American masculinity" (Kane, 2000).

Relative to whites and African Americans, extant studies suggest that traditional gender role ideology is more prevalent among Hispanics, including Hispanic women (Harris and Firestone, 1998; Kane, 2000). However, the literature provides conflicting evidence concerning actual gender roles within Hispanic families. According to Kane's (2000) review, several scholars suggest that gender roles in Hispanic families are at least as egalitarian as those in white families, but others argue that "traditional machismo" sometimes compensates for discrimination experienced by Hispanic men.

Collectively, this body of literature reveals a complex relationship between gender role ideology and race or ethnicity. Thus, the role of child gender in care provision for the elderly – a traditionally feminine task (Folbre and Nelson, 2000) – may vary across white, black, and Hispanic families. Families with relatively traditional gender role ideology may rely more heavily on daughters than sons for this role, while those with relatively egalitarian attitudes may demonstrate more gender neutrality. Moreover, differences in gender roles, coupled with cultural differences concerning elder care, may contribute to different patterns by race and ethnicity. As Martin (2000) notes in her study of racial and gender differences in caregiving burden, "If African Americans as a cultural group are more involved in social support across the generations, but primarily women identify with the caregiving role, it is conceivable that any effect of gender may vary by race, with White men being more agreeable in assuming this work than are Black men" (p. 991). Thus, evidence, albeit mixed, of differences in gender role ideology across white, black, and Hispanic families highlights the importance of

examining whether the role of child gender in informal care provision for the elderly varies by race and ethnicity.

Differences in family structure by race and ethnicity also contribute to differences in caregiving patterns (Cagney and Agree, 2005). Regardless of marital status, Hispanic elders are more likely than their black counterparts to live in extended family households (Choi, 1999). In turn, African American elders are more likely than their white counterparts to live in extended family households, regardless of socioeconomic and marital status (e.g., Miller, McFall and Campbell, 1994). These differences partly explain differences in intergenerational care provision across white, black, and Hispanic families. As discussed earlier, among elderly care recipients living in the community, Hispanics are the most likely to receive care from their adult children, while non-Hispanic blacks are the most likely to receive care from an adult grandchild or from an unrelated caregiver.

More importantly, for the purposes of this study, differences in past family structure may contribute to differences in elder care provision by race and ethnicity. Despite increased rates of single parenthood among white, black, and Hispanic families over the past several decades, two-parent households have remained most prevalent among white families and least prevalent among black families (U.S. Census Bureau, 2007). Thus, African American children have consistently faced greater probabilities than their white and Hispanic counterparts of residing with a single mother. Consider, for example, data for the year 1960, when the average white child in our sample was almost 15 years old and the average black or Hispanic child in our sample was between 13 and 14 years old. At this time, approximately 91 percent of white children in the United

States lived with two parents, six percent lived only with their mothers, and one percent lived only with their fathers; comparable figures for African American children were 67 percent, 20 percent, and two percent, respectively.[2]

Arguably, adult children's desire or obligation to provide care for elderly parents depends on the presence of the parent in the child's formative years. Along these lines, Pezzin and Schone (1999b) report evidence that divorced elderly fathers receive significantly less informal care from their adult children and display significantly lower probabilities of coresidence with their adult children than do their widowed counterparts. Thus, they conclude that "divorced men are particularly vulnerable in later life due to weaker ties with their children" (p. 294). Presumably, elderly fathers who never lived with their children would be particularly vulnerable in old age. In light of differences in family structure by race and ethnicity, patterns of care provision for mothers relative to fathers may vary across white, black, and Hispanic families. Relative to fathers, black mothers may be the most likely and white mothers the least likely to receive care from adult children, even after controlling for economic and demographic characteristics of adult children and elderly parents. Thus, in the absence of detailed marital and family histories, differences in family structure by race and ethnicity provide further motivation for separate analyses by race and ethnicity.

4. Economic Model

We model families' selection of the primary non-spousal caregiver for an elderly individual. Our model distinguishes among several possible care arrangements: institutional care, formal home health care, and informal care provided by a child; our model also allows for the possibility that an elderly individual receives care exclusively

[2]The U.S. Census Bureau does not report comparable figures for Hispanic children for years prior to 1970.

from her spouse as well as the possibility that she receives no formal or informal care.[3] Given our focus on the role of child gender in elder care provision and on children's motivations to provide care, we classify the adult child (or formal care provider) who spends the most time providing care as the primary caregiver even if the elderly individual receives more care from his or her spouse. Thus, we classify the spouse as the primary caregiver only in the case where the spouse is the only caregiver.

The family selects the optimal primary care arrangement for each elderly individual taking into account the characteristics of the potential care recipient as well as the potential caregivers. An elderly individual's optimal primary care arrangement may change over time if, for example, her health improves or deteriorates, the health of her primary caregiver changes, her spouse dies, or formal home health care becomes more expensive. In addition, adult children may rotate the role of primary caregiver as a way to share the burden (for a discussion of the burden associated with elder care, see Byrne, Goeree, Hiedemann and Stern, forthcoming) or as the caregiver experiences burnout. Thus, in contrast to our previous work (e.g., Hiedemann and Stern, 1999; Engers and Stern, 2002; Byrne, Goeree, Hiedemann and Stern, forthcoming), we abstract from the possibility that family members have different preferences concerning the optimal care arrangement in order to focus on the dynamic dimension of care.

More formally, consider family i at time t with one or two elderly individuals indexed by $k = 1, 2$. Let J_i represent the number of children ever born, $\alpha_{ijt} = 1$ if child j is alive at time t, and F_{ikt} represent family i's set of potential primary care arrangements for elderly individual k at time t where F_{ikt} consists of no formal or informal care ($j = 0$), care provided exclusively by the spouse ($j = -1$), formal home health care ($j = -2$), institutional

[3] Throughout the paper, we treat the feminine pronouns "she" and "her" as generic pronouns.

care (j = -3), and care provided by child j (j € J_i and α_{ijt}= 1). Finally, let y_{ijkt}^* represent family i's utility associated with primary care arrangement j for elderly individual k at time t. From the set of potential primary care arrangements, F_{ikt}, family i selects the arrangement j that maximizes y_{ijkt}^*.

More technical details of the model are available upon request. These will be added soon.

5. Data

To examine whether the role of child gender in parental care provision and patterns of care provision for mothers relative to fathers vary by race and ethnicity, we use data from the 1995, 1998, 2000, 2002, and 2004 waves of the Assets and Health Dynamics Among the Oldest Old (AHEAD) survey. With an emphasis on the joint dynamics of health, demographic characteristics, income, and wealth, this nationally representative longitudinal survey provides a particularly rich source of information on families' care provision for the elderly.

Selection criteria for the initial AHEAD survey, conducted in 1993, include age and living arrangements. In particular, this initial wave contains 6047 households with noninstitutionalized individuals aged 70 years or older. However, subsequent waves retain all living respondents, thus enabling the study of elderly individuals in the community as well as nursing home residents. Also, spouses of respondents are also respondents even if they would not otherwise qualify on the basis of their own age, thus increasing the sample size for the initial wave to 8222 respondents. Although the AHEAD survey oversamples Florida residents, this oversampling introduces no estimation bias assuming that residential location is exogenous. AHEAD also

oversamples black and Hispanic households, thus facilitating separate analyses by race and ethnicity.

We restrict our attention to non-Hispanic white, non-Hispanic black, and Hispanic families, because the survey does not allow us to distinguish among other racial or ethnic groups. **More details on our selected sample will be added soon.**

Descriptive statistics (tables and discussion) will be added soon.

6. Empirical Model

As discussed above, we model families' selection of the primary non-spousal caregiver for an elderly individual. Possible care arrangements include institutional care, formal home health care, and informal care provided by a child; the model also distinguishes between care provided exclusively by a spouse and no formal or informal care. The family selects the optimal primary care arrangement for each elderly individual in a particular time period taking into account the characteristics of the potential or actual care recipient, characteristics of the potential or actual caregivers, and the primary care arrangement selected the previous period.

In addition to a dummy variable distinguishing between fathers and mothers, the model includes characteristics that influence an elderly parent's caregiving needs and opportunities. While the need for care may increase with age and activity limitations, the ability to purchase care may reduce the dependence on family members. Accordingly, the model controls for the parent's age, the number of problems with activities of daily life, and education, a proxy for income.

The model includes characteristics of each adult child in the family, since each represents an actual or potential caregiver. In addition to child gender, the model

includes characteristics that reflect the child's opportunity costs of time, effectiveness in the caregiving role, and/or burden associated with caregiving. While wages measure an adult child's opportunity cost of time, demographic characteristics may reflect the child's effectiveness and burden in the caregiving role. For example, Byrne, Goeree, Hiedemann, and Stern's (forthcoming) results suggest that, controlling for age, oldest children provide more effective care but experience greater burden than their siblings. Thus, the model includes the child's imputed wage rate, years of education, marital status, own family size (number of children), age, and birth order (whether the oldest child).

While the model focuses on the selection of the primary non-spousal caregiver, the spouse is classified as the primary caregiver in the absence of other care arrangements. Accordingly, the model includes characteristics of the spouse that influence her effectiveness and/or burden in the caregiving role. In particular, the model includes the spouse's age and activity limitations.

Finally, the model includes characteristics of formal care arrangements, namely formal home health care and institutional care. Unlike characteristics of spouses and adult children, which are observed regardless of the families' selected care arrangements, characteristics of formal home health care or institutional care are observable only if the family relies on this mode of care. Moreover, characteristics of the selected formal home health care provider or nursing home are endogenous. Thus, we include measures of price and quality in the local market for formal care. In particular, the model includes two price levels, the average prices of home health care and nursing home care in the

parent's state of residence, as well as two measures of nursing home quality, the average number of beds and the average number of ADL problems experienced by its residents.

7. Results

Results (tables and discussion) will be available soon.

8. Conclusions

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