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## **Family Caregiving at Older Ages: Implications for Adult Children by Race and Ethnicity**

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## Abstract

As the demography ages, the demand for family care is expected to rise rapidly in the United States. Due to lower access to quality formal care and differences in norms and traditions, minority populations rely more heavily on family care than non-minority populations do. Despite the growing diversity in the demography of the older population and their family caregivers, we know very little about the racial and ethnic differences in family care patterns over time and their impact on the economic outcomes of caregivers. My study intends to fill this gap in two parts. First, using the 1998–2019 Health and Retirement Study (HRS), I provide a descriptive analysis documenting the disability and family care trajectories of elderly individuals aged 50 and over. Second, I examine the effect of family care on employment for adult children of elderly individuals across racial and ethnic groups. I uncover that non-Hispanic Black and Hispanic elderly individuals have higher levels of disability and rely more on family care provision over their lifespans, compared to non-Hispanic Whites. Family care lowers adult children's employment by 5 to 9 percentage points depending on care type. This effect is 3.3 to 8.4 percentage points for non-Hispanic Whites and 11 to 13 percentage points for non-Hispanic Blacks. These effects are stronger for adult children with non-married parents and those aged less than 40.

Keywords: Caregiving, Employment, Racial and Ethnic Disparities, Aging  
JEL Classification Codes: I14, J14, J15, J22

## 1. Introduction

The US elderly population is rapidly growing and becoming more racially and ethnically diverse. Long-term care needs and unpaid family care are more prevalent among minority populations than non-minority populations due to existing racial and ethnic disparities in health outcomes, access to formal care services, and differences in cultural norms and traditions (Rote and Moon 2018). Longer life expectancy with extended periods of disability puts economically vulnerable families at significant financial risk, contributing to racial and ethnic disparities in economic outcomes.<sup>1</sup> Despite its importance, little is known about how growing disability needs and demand for family care differentially affect older people and their families by racial and ethnic groups.

Family care is defined as unpaid care provided by family, friends, and relatives of the elderly who need assistance with basic daily activities such as dressing, bathing, making meals, and grocery shopping. Due to the emotional, physical, and financial strains related to intense, prolonged care, family caregivers face worse health outcomes, income insecurity, interruptions or withdrawal in employment, lower asset growth, and reduced Social Security benefits, as compared to non-caregivers (Butrica and Karamcheva 2018; O’Rand and Landerman 1984; Willert and Minnotte 2021). Given the higher levels of disability and family care among minority populations, these impacts are likely worse for racial and ethnic minorities.

Using the 1998–2019 Health and Retirement Study (HRS), I investigate how disability and family care differ across racial and ethnic groups. In addition, I examine how family care affects labor market outcomes of family caregivers and compare these effects across race and ethnicity. My sample focuses on adult children aged 21 and over as the source of family care for the elderly aged 50 and over. The largest source of family care comes from adult children, and they are most likely to be still in the labor force among family caregivers (AARP 2020), making them ideal for my analysis to estimate the effect of family care on employment.

My analysis has two parts. First, I provide descriptive evidence on the disability and family care trajectories over the lifespans of the elderly across race and ethnicity.<sup>2</sup> Second, I examine the effect of family care on labor force participation across racial and ethnic groups using a recursive

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<sup>1</sup> See Crimmins et al. (2016) for findings that support the argument that longer life expectancy is associated with a protracted period of disability for the elderly.

<sup>2</sup> I disaggregate race and ethnicity as non-Hispanic Whites, non-Hispanic Blacks, and Hispanics. The HRS has a fourth race category as “Other”; however, due to noise in the data and for interpretability, I drop the Other category in my analysis.

bivariate probit model with an instrumental variable. Specifically, to causally identify the effect of family care on employment, I use the measurement of elderly parents' disability level as an instrument for whether adult children provide care to their parents.<sup>3</sup> Lastly, I explore the effects of family care on adult children's employment across two dimensions: the marital status of their elderly parents and whether the adult child is a younger or an older worker.

My results are as follows. First, I document that elderly non-Hispanic Blacks and Hispanics have significantly higher limitations to performing Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs) compared to non-Hispanic Whites.<sup>4</sup> This difference is observed at age 50 when individuals first enter the HRS and persist for the rest of their lifespans. Similarly, the share of elderly individuals receiving care and the number of hours of care from their adult children is higher for non-Hispanic Blacks and Hispanics than non-Hispanic Whites.

The effect of family care on employment is as follows. Helping a parent with a disability lowers adult children's employment by 5 percentage points overall. Disaggregating the effects by race and ethnicity, I find that this effect is 3.3 percentage points for non-Hispanic Whites, while it is 11 percentage points for non-Hispanic Blacks. I further investigate the effect of family on employment by whether the elderly parent has a source of family care from their spouse. Helping a single parent with a disability lowers adult children's employment by 7.5 percentage points, 50 percent higher than the overall effect that includes adult children with both married and single parents. Helping a single non-Hispanic White parent lowers adult children's employment by 5.5 percentage points. For non-Hispanic Blacks, the marital status of elderly parents does not significantly change the overall effect, as it stands at 12 percentage points. Additionally, helping a parent with a disability lowers employment more significantly among adult children under age 40 compared to those between 40 and 65 for non-Hispanic Whites and non-Hispanic Blacks. The effects of family care on employment do not show statistical significance among Hispanic adult children across all care types and heterogeneous groups.

The paper is organized as follows. In Section 2, I discuss literature review to provide background on long-term care needs, family caregiving, and their effects on employment by race

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<sup>3</sup> See Butrica and Karamcheva (2018) and Van Houtven et al. (2013) for similar applications of the instrument using a linear probability model.

<sup>4</sup> In the HRS, ADLs refer to a set of six activities: walking across the room, dressing, bathing, eating, toileting, and getting out of bed; and IADLs refer to a set of five activities: managing money, using the phone, taking medications, making meals, and grocery shopping.

and ethnicity. Section 3 provides data and variable descriptions in addition to summary statistics. Section 4 discusses identification and methods used in the analysis. Section 5 presents descriptive results on disability and family care, and Section 6 reports results on family care and employment. Section 7 discusses policy implications. Section 8 concludes.

## **2. Background**

Approximately a quarter of people aged 65 and over are racial and ethnic minorities, and this share of the population is expected to double over the next two decades (U.S. Department of Health and Human Services 2022). Given the racial disparities in health and economic outcomes, rapid aging and increased demand for long-term care have differential impacts on racial and ethnic groups. Thus, it's crucial to understand how aging affects racial and ethnic groups differently regarding the long-term care needs of the elderly and their families. In addition, the effect of caregiving on the labor supply of family caregivers, particularly that of caregivers in their prime working years, is likely to be heterogeneous across race and ethnicity.

### **2.1. Racial and Ethnic Disparities in Life Expectancy and Disability**

Hispanics have higher life expectancy than non-Hispanic Whites and non-Hispanic Blacks (Dwyer-Lindgren et al. 2022; Kochanek et al. 2019; Xu et al. 2014). A higher life expectancy among Hispanics despite low socioeconomic position is known as “the Latino health paradox” in the public health literature (Markides and Eschbach 2005; Ruiz et al. 2013).<sup>5</sup> On the other hand, non-Hispanic Blacks have the lowest life expectancy compared to non-Hispanic Whites and Hispanics. The low life expectancy among non-Hispanic Blacks persists despite the fact that life expectancy increased the most for non-Hispanic Blacks over the last 20 years compared to any other racial and ethnic group (Harper et al. 2014; Harper et al. 2012; Kochanek et al. 2019). Using country-level data between 2000

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<sup>5</sup> According to the literature, there are several factors explaining “the Latino health paradox.” These include positive emigration (in terms of health), lower rates of smoking among Hispanics, and returning to their country of origin in old age (Riosmena et al. 2017; Riosmena 2013; Turra and Elo 2008). In addition, Hispanics are not a monolithic group in that, depending on nativity, Hispanics have a varied life expectancy and health profiles. For example, US-born Hispanics have a similar life expectancy to non-Hispanic Whites. In contrast, foreign-born Hispanics have the mortality advantage compared to their US-born counterparts and non-Hispanic Whites (Arias et al. 2020; Hummer et al. 2000).

and 2019, Dwyer-Lindgren et al. (2022) report that life expectancy increased by 3.9 years for Blacks (from 71.4 to 75.3) in comparison to 2.7 years for Hispanics (from 79.5 to 82.2) and 1.7 years for Whites (from 77.3 to 78.9). Despite the higher growth in life expectancy among minority populations, the systemic disparities in access to healthcare coupled with lower socioeconomic profiles continue to put vulnerable populations at health risks. For example, the provisional life expectancy estimates for 2020 show that non-Hispanic Blacks and Hispanics had the highest mortality rates during the COVID-19 pandemic, which erased the gains in life expectancy made during the two previous decades (Arias et al. 2021).

In addition to racial differences in mortality, health outcomes in old age also show varied experiences across racial and ethnic groups. In terms of facing old age–related disability, Hispanics and non-Hispanic Blacks live with physically debilitating conditions longer than non-Hispanic Whites in old age. For Hispanics, who live longer than non-Hispanic Whites, living longer with a disability is somewhat expected. For non-Hispanic Blacks, however, worse health outcomes and the early onset of disability put them in prolonged disability compared to non-Hispanic Whites. Using the longitudinal Duke Established Populations for Epidemiological Studies of the Elderly, Taylor (2008) finds that non-Hispanic Blacks are 15 percent more likely to have an early onset of disability than non-Hispanic Whites at comparable levels of socioeconomic status. In addition to living longer with a disability, non-Hispanic Blacks and Hispanics experience more severe disability and morbidity (Brown et al. 2012; Cantu et al. 2013; Haas and Rohlfen 2010; Kelley-Moore and Ferraro 2004). According to the literature, the racial and ethnic disparities in the severity of disability persist even after accounting for socioeconomic characteristics in childhood and adulthood. This persistent inequality can be partially explained by systemic barriers that minority populations face regarding access to quality healthcare, insurance coverage, and other health-promoting resources (Taylor 2008).

## **2.2. Family Caregiving across Racial and Ethnic Groups**

Long-term care poses the greatest financial risk to the elderly. Living longer with more severe disabilities, minority groups will likely face this financial risk more intensely than non-minority groups. Help and support from family are essential for racial and ethnic minorities due to low income and wealth coupled with inadequate access to formal long-term care services and support. Cultural norms and customs surrounding family care are also heterogeneous among racial and ethnic groups, since caring for the elderly has a strong cultural significance in many communities.

The research on the racial and ethnic differences in family caregiving is relatively scant and often uses cross-sectional or pooled cross-sectional analysis (Cohen et al. 2019; Navaie-Waliser et al. 2001; Rote and Moon 2018). Using a 2011 nationally representative sample of Medicare beneficiaries and their adult children caregivers, Cohen et al. (2019) document the prevalence of family caregiving across three measures: 1) help with personal activities such as walking, dressing, and bathing, 2) help with chore activities such as making meals, grocery shopping, and managing finances, and 3) care hours per month. The authors find that non-Hispanic Blacks have higher levels of care than non-Hispanic Whites across all three measures after controlling for socioeconomic factors. Similarly, Hispanics are more likely to provide care with chore activities and more care hours than non-Hispanic Whites. On average, after accounting for socioeconomic factors, non-Hispanic Black caregivers spent 28.5 more hours and Hispanic caregivers spent 37.6 more hours per month than non-Hispanic White caregivers (Cohen et al. 2019, Table 3). Rote and Moon (2018) use a pooled American Time Use Survey from 2011 to 2014 and support the findings that non-Hispanic Blacks and Hispanics provide more frequent family care than non-Hispanic Whites. Specifically, the authors find that non-Hispanic Black and Hispanic caregivers are 1.48 and 1.75 times more likely to provide daily care than non-Hispanic White caregivers. These racial and ethnic differences in family care are also found in a randomized telephone survey study conducted in New York City (Navaie-Waliser et al. 2001). My study contributes to this strand of literature by using a longer horizon of family caregiving patterns using the Health and Retirement Study 1998–2014. The longitudinal setting of the dataset allows me to document the racial and ethnic differences in the prevalence and hours of family care across the lifespans of the elderly.

While my study does not investigate the determinants behind the racial and ethnic differences in family caregiving, the literature has documented a number of factors behind why family care is more prevalent and time intensive among minority populations. Given the racial and ethnic disparities in income and wealth, Blacks and Hispanics are less able to “self-insure” against financial risks related to long-term care needs (Bullock et al. 2003; Mier 2007; Willert and Minnotte 2021). Minorities have lower ownership of health insurance (Kirby et al. 2006; Mier 2007) and private long-term care insurance (Johnson and Park 2011; McGarry et al. 2014). The lack of means to insure themselves against old-age health risks, either due to out-of-pocket spending or formal insurance, puts the minority populations in a position to rely mainly or solely on family care (Navaie-Waliser et al. 2001). In addition, racial disparities in access to formal care services and support

also put the minority elderly and their families in a position to rely more on family care (Dilworth-Anderson et al. 2002). In addition, there is a significant level of segregation in the nursing home industry and the quality of nursing homes (Rahman and Foster 2015).<sup>6</sup> Lastly, other studies have shown that minority elderly prefer family care over formal care at higher rates than non-Hispanic Whites do (Kasper et al. 2018). This difference in preferences could be shaped by cultural values, norms, and traditions regarding caring for the elderly (Dilworth-Anderson et al. 2002; Knight and Sayegh 2010; Silverstein et al. 2006).

### **2.3. Family Care and Labor Market Outcomes**

Theoretically, the effect of caregiving on employment is ambiguous. Caregiving may lower labor force participation or hours worked if the substitution effect dominates. That is, if care responsibility increases the shadow wage rate on work hours, caregivers may shift away from labor supply to care work to meet the care needs of the elderly. Moreover, caregivers could lose their jobs and exit the labor market due to absenteeism caused by care demand (Heitmueller and Inglis 2007). On the other hand, caregivers may reduce leisure time and remain in the labor force or increase their hours for reasons such as employer-sponsored health insurance (Wilson et al. 2007), a relief from care time (“respite effect”) (Carmichael and Charles 2003) or additional income due to financial costs associated with caregiving (Carmichael and Charles 1998; Heger and Korfhage 2017).

There is a vast empirical literature on the effect of caregiving on employment. That caregivers who end up providing care may self-select into caregiving because they were already less attached to the labor market is the central concern of endogeneity in the literature.<sup>7</sup> Earlier papers use the cross-sectional relationship between care work and employment or they lack rigorous treatment to causal identification of care work on employment (Bolin et al. 2008; Casado-Marin et al. 2011; Heitmueller 2007; Johnson and Lo Sasso 2006; Michaud et al. 2010).<sup>8</sup> More recent studies have used longitudinal analysis to account for unobserved heterogeneity and use more robust instruments (Butrica and Karamcheva 2018; Maestas et al. 2020; Van Houtven et al. 2013).

The effect of care work on employment works along two main margins. At the extensive

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<sup>6</sup> See Smith et al. (2008) for discussions on historical discrimination in access to nursing homes and other structural shifts in the healthcare industry that shape racial disparities in health access.

<sup>7</sup> See Muurinen (1986) for an early empirical discovery of this issue in determining the labor force participation of caregivers compared to non-caregivers.

<sup>8</sup> See Lilly et al. (2007) for a meta-analysis of the earlier literature on caregiving and employment.



margin, caregivers may withdraw from the labor market or retire early. At the intensive margin, caregivers may lower their hours worked instead of exiting the labor market. Using the Health and Retirement Study 1992–2008, Van Houtven et al. (2013) find a drop of 2.4 percentage points in labor force participation for male caregivers and an increase of 2.3 percentage points in early retirement for female caregivers. For female caregivers who work, the authors find a reduction of three to ten hours per week worked and 3 percent lower wages than those for non-caregivers. The results hold after accounting for unobserved heterogeneity and ruling out the endogeneity bias using instruments. The authors point out that most female caregivers were already retired when caregiving needs arose. The non-effects at the extensive margin for women may reflect the fact that women have lower labor force participation than men before the onset of caregiving.

Using a monthly frequency Survey of Income and Program Participation 1996–2008 and an event-study approach, Maestas et al. (2020) find similar patterns of labor force participation and hours worked for male and female caregivers.<sup>9</sup> The authors find that employment declines by 2 percentage points at the onset of the caregiving spell and that this decline persists for at least two years. This effect lasts for male caregivers for the entire sample period. On the other hand, female caregivers return to work after two years of the caregiving spell but do so with reduced hours or through self-employment. Using the Health and Retirement Study, Butrica and Karamcheva (2018) find no effects on wages or hours worked but find lower labor force participation for caregivers.

My study contributes to the literature in the following ways. First, using the Health and Retirement Study 1998–2014, I focus on adult children aged above 21 and over and do not restrict the sample to those aged 50 and older. Since the age gap between elderly parents and their adult children is increasing with the Baby Boomer generation, most adult children are under 50 when their parents face disability. Thus, my sample allows for a more comprehensive analysis of the effect of caregiving on adult children's employment. Second, the existing literature on care work and employment focuses extensively on the gender differential effects on labor market outcomes, but studies examining the racial and ethnic differences are scant. Using a cross-sectional survey of 2,283 patients and their caregivers, Covinsky et al. (2001) suggest evidence that Black and Hispanic caregivers had lower labor force participation and lower hours compared to White caregivers. Bullock et al. (2003) use a small sample of Black elderly individuals and their

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<sup>9</sup> Note that Maestas et al. (2020) focus on caregivers to adults of all age, whereas Van Houtven et al. (2013) focus on adult children caregivers that are aged 50 and over.

caregivers and conduct a within-group analysis. My paper focuses on the racial and ethnic disparities in caregiving and labor market outcomes using a long-horizon dataset while accounting for unobserved heterogeneity and endogeneity. Third, one methodological contribution my study provides is the use of a non-linear probability model over linear probability models used in the literature. To the best of my knowledge, my study is the only study that uses a non-linear probability model to estimate employment outcomes and family care, especially in the context of instrumental variable analysis.

### **3. Data**

I use the Health and Retirement Study (HRS) from 1998 to 2019 in the study. The HRS biennially collects a nationally representative longitudinal survey of older individuals aged 50 and over. The HRS began in 1992, and a refresher sample is added every six years to maintain the national representation. A rich set of information is collected on the demographics of elderly individuals and their spouses in addition to their economic outcomes such as income, wealth, housing, and employment. The HRS also asks the elderly individuals about their health outcomes such as physical and cognitive impairments, acute health shocks, the use of nursing home and home-based care services, and the ownership of public and private insurances covering health and long-term care (LTC) needs.

My study takes advantage of the extensive information on the health outcomes of respondents but also the sources of care they receive for their physical disability in old age. Specifically, I focus on unpaid family care that elderly individuals receive from their adult children. The HRS asks how much family care adult children provide to the respondents in addition to asking for socioeconomic and labor market information on each adult child. To create the adult children sample, I link each respondent in the HRS Longitudinal File 1998–2019 to their children in the HRS Family Data 1998–2014.<sup>10</sup>

#### **3.1. Sample Selection**

I use two datasets for the analysis: 1) parent sample and 2) adult children sample. For the parent sample, I restrict the sample to elderly individuals aged 50 and over with at least one adult child aged 21 and over with non-missing values for the set of covariates used in the analysis. To create the adult children sample, I merge the parent sample with their adult children in the family file and

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<sup>10</sup> Both files are constructed and harmonized by RAND: <https://hrsdata.isr.umich.edu/data-products/rand>.

create a long format dataset with the unit of observation as an adult child. This gives me the sample of adult children aged 21 and over with parents aged 50 and over with non-missing values for the set of covariates used in the analysis. See Table A1 in the Appendix for details on the sample restrictions.

Table 1 shows the two samples disaggregated by race and ethnicity. The parent sample contains 112,221 person-wave observations with 25,142 unique parents. Out of the total parents, 70 percent are non-Hispanic White, 18 percent are non-Hispanic Black, and 12 percent are Hispanic.<sup>11</sup> The adult children sample has 308,902 person-wave observations with 79,093 unique adult children. Out of the total adult children, 67 percent have a non-Hispanic White elderly parent, 20 percent have a non-Hispanic Black elderly parent, and 13 percent have a Hispanic parent.

Table 1. Sample Disaggregated by Race and Ethnicity, HRS 1998–2014

	Parent Sample				Adult Children Sample			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
No. of Individuals	17,498 (70%)	4,558 (18%)	3,086 (12%)	25,142 (100%)	52,889 (67%)	15,562 (20%)	10,642 (13%)	79,093 (100%)
No. of Observations	82,081 (73%)	18,202 (16%)	11,938 (11%)	112,221 (100%)	219,186 (71%)	53,105 (17%)	36,611 (12%)	308,902 (100%)

*Notes:* The samples are from the pooled Health and Retirement Study 1998–2019. The parent sample contains elderly individuals aged 50 and over who have at least one adult child. The adult children sample contains children aged 21 and over of those elderly individuals. Column (1) refers to non-Hispanic Whites, Column (2) refers to non-Hispanic Blacks, and Column (3) refers to Hispanics. See Table A1 in the Appendix for details on the sample restrictions disaggregated by race and ethnicity.

### 3.2. Variables

This section presents summary statistics of the sample and defines the variables used in the analysis. I first describe the variables used in the analysis of the parent sample and those of the adult children disaggregated by race and ethnicity. I then discuss how I define long-term care (LTC) needs according

<sup>11</sup> The HRS categorizes the race variable as Whites, Blacks, and Other and includes an additional variable asking whether a respondent is Hispanic. I combine these two variables to create the race variable used in the analysis by defining racial and ethnic groups as non-Hispanic White, Non-Hispanic Black, and Hispanic and dropping the Other category. See Table A1 in the Appendix for the observations in the Other category.

to the HRS questionnaire.

### **3.2.1. Parent characteristics.**

Table 2 shows the demographic and socioeconomic characteristics of elderly parents by race and ethnicity. The mean age of the full sample is 67.64. Non-Hispanic Whites are older than non-Hispanic Blacks and Hispanics. Around 61 percent of the parents are female, and this share is marginally higher for non-Hispanic Blacks. Non-Hispanic Whites and Hispanics are married at 70 percent and 68 percent, respectively, compared with 48 percent of Blacks. More than 80 percent of non-Hispanic Whites are high school educated, with the majority of them educated at the college level or higher. For non-Hispanic Blacks, 63 percent are high school educated with more than half of those with a college degree or higher. The lowest educated group is Hispanics, at 41 percent who are high school educated and 21 percent who are college educated. The mean number of children for non-Hispanic Whites is more than three, compared to the mean number of children for non-Hispanic Blacks and Hispanics at more than four.

Total income is defined as the total income of the respondent (and their spouses if married) for the past calendar year. It sums up earnings, pensions and annuities, social security payments, unemployment and workers' compensation, household capital income, all government transfers, including Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI), and other income. The mean total income for Whites is around \$82,000, whereas for Blacks, the mean total income is around \$45,000, and for Hispanics, it is around \$40,000. Total wealth is the sum of real estate, vehicles, businesses, stocks, mutual funds, checking, savings, bonds, and treasury bills minus debts. Non-housing wealth subtracts the real estate values from total wealth, and debt is the sum of outstanding mortgages, home loans, and other debts. The mean wealth for non-Hispanic Whites is around \$645,000. The mean wealth for Blacks is \$145,000 and for Hispanics around \$169,000. Around 70 percent of the total wealth comes from non-housing wealth for non-Hispanic Whites, whereas home ownership takes up more than half of the total wealth for non-Hispanic Blacks and Hispanics. The average debt is highest at around \$49,000 for non-Hispanic Whites. The mean debt is around \$37,000 for non-Hispanic Blacks and around \$39,000 for Hispanics.

Table 2: Summary Statistics of Parent Sample

	(1)	(2)	(3)	(4)
	Non-Hispanic Whites	Non-Hispanic Blacks	Hispanics	Total
Age	68.60 (10.13)	65.24 (9.59)	64.66 (9.58)	67.64 (10.12)
Female	0.61 (0.49)	0.65 (0.48)	0.61 (0.49)	0.61 (0.49)
Married	0.70 (0.46)	0.49 (0.50)	0.68 (0.47)	0.66 (0.47)
Divorced	0.10 (0.30)	0.22 (0.41)	0.15 (0.35)	0.12 (0.33)
Widowed	0.20 (0.40)	0.23 (0.42)	0.15 (0.36)	0.20 (0.40)
High school	0.81 (0.39)	0.63 (0.48)	0.40 (0.49)	0.74 (0.44)
College	0.47 (0.50)	0.36 (0.48)	0.21 (0.41)	0.42 (0.49)
Number of children	3.53 (1.95)	4.29 (2.49)	4.47 (2.47)	3.75 (2.14)
Total income (in thousands)	82.62 (175.83)	45.83 (57.49)	40.83 (127.19)	72.20 (158.64)
Wealth (in thousands)	645.86 (1,788.90)	145.75 (449.77)	169.07 (540.60)	514.02 (1,565.87)
Non-housing wealth (in thousands)	443.92 (1,499.86)	68.17 (374.12)	74.83 (463.35)	343.71 (1,310.83)
Debt (in thousands)	-49.42 (109.48)	-37.36 (86.30)	-39.01 (129.19)	-46.36 (108.52)
Has SSDI or SSI	0.04 (0.19)	0.14 (0.35)	0.13 (0.34)	0.06 (0.24)
Receives other government assistance	0.08 (0.27)	0.19 (0.39)	0.16 (0.37)	0.10 (0.31)
Observations	82,081	18,202	11,938	112,221

*Notes:* The summary statistics are from the respondent-wave observations of elderly individuals aged 50 and over with at least one adult child in the pooled Health and Retirement Study 1998–2014. The means are reported with standard deviations in parentheses. Total income is the sum of earnings, pensions and annuities, social security payments, unemployment and workers compensation, household capital income, all government transfers including Supplemental Security Income and Social Security Disability Insurance, and other income of the respondent (and their spouse if married). Total wealth is the sum of real estate, vehicles, businesses, stocks, mutual funds, checking, savings, bonds, and treasury bills minus debts. Non-housing wealth subtracts the real estate values from total wealth, and debt is the sum of mortgages, home loans, and other debts. SSDI or SSI and other government assistance refer to the share of individuals receiving the benefits in the last calendar year. Other government assistance accounts for veterans' benefits, welfare, and food stamps. All monetary values are in thousands, and inflation is adjusted to the 2014 CPI.

### 3.2.2. Adult children characteristics.

Table 3 shows the demographic and socioeconomic characteristics of adult children by the race and ethnicity of the parent in the HRS. The average age of the full sample is 42.12, with the oldest group being non-Hispanic Whites and the youngest being Hispanics. More than 85 percent of adult children are the biological children of elderly parents. More than 65 percent of the adult children in the non-Hispanic White and Hispanic groups are married, compared with about half of the adult children in the non-Hispanic Black group. Most adult children are high school educated across all groups. However, more than 60 percent of the adult children in the non-Hispanic White group are college educated, whereas 49 percent of those with non-Hispanic Black parents and 40 percent with Hispanic parents are college educated. Co-residency and living within 10 miles of the parent is more prevalent for non-Hispanic Blacks and Hispanics. A higher proportion of non-Hispanic Whites are employed and employed full-time. Around 35 percent of non-Hispanic Blacks and Hispanics earn more than \$35,000, and 7 percent of both groups earn more than \$70,000. This proportion is almost doubled for non-Hispanic Whites: 65 percent of adult children earn more than \$35,000, and 14 percent earn more than \$70,000.

### 3.2.3. Disability and family care.

Disability or long-term care (LTC) needs are defined as difficulty performing Activities of Daily Living (ADLs) or Instrumental Activities of Daily Living (IADLs). Table 4 lists the activities under ADLs and IADLs in the HRS. Particularly, ADLs refer to a set of six activities: walking across the room, dressing, bathing, eating, toileting, and getting out of bed; and IADLs refer to a set of five activities: managing money, using the phone, taking medications, making meals, and grocery shopping. The exact wording of the questionnaire in the HRS for each specific activity follows: “Because of a health or memory problem, do you have any difficulty with [each activity]?” The respondents are also asked to exclude any difficulties that are expected to last less than three months. If the answer is “yes” to any of the listed activities in Table 4, the respondent is considered as disabled or having long-term care needs for the questionnaire wave.

Family care is defined as unpaid care provided by adult children aged 21 and over to elderly individuals in the HRS sample. For the purpose of my study, family care should not be conflated with care provided by spouses, siblings, grandchildren, other relatives, friends, and community members to elderly individuals. One important aspect of adult children care is the care provided by

the spouses of the adult children. While the HRS has data on care hours from the spouses of adult children, I stray away from using them in my analysis as the variables suffer from significant amounts of missing values.

In terms of measuring family care, I use the following four variables. First, family care is measured as the number of hours adult children spend caring for the respondents with disability. Family care hours are collected in the HRS as follows. If the respondent answers “yes” to the question “Because of a health or memory problem, do you have any difficulty with [each activity]?”, the HRS further asks the respondent “Does anyone ever help you with [each activity]?” If anyone helps the respondent with any of the ADLs or IADLs, the HRS records how many hours each person and/or institution (in the case of formal care services) provided in the last month to help the respondent with the said activity. I use the total hours provided by each adult child to help respondents with any ADLs or IADLs for family care.

The last three variables to measure family care comes directly from the RAND 1992–2014 family file: 1) whether an adult child helps with the respondent’s ADLs; 2) whether an adult child helps with the respondent’s IADLs; 3) whether an adult child helps the respondent with household chores, errands, and transportation. Note the list of activities under ADLs and IADLs in Table 4. In addition to family care, formal care and the use of public and private insurances covering long-term care needs are important sources of care for the elderly. See Appendix A.2 for variable description and summary statistics on formal care arrangements.

Table 4: ADL and IADL definitions

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*Activities of Daily Living (ADLs)*

Walking  
Dressing  
Bathing or showering  
Eating  
Getting in/out of bed  
Toileting

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*Instrumental Activities of Daily Living (IADLs)*

Managing money  
Using the phone  
Taking medications  
Preparing hot meals  
Grocery shopping

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*Notes:* The table lists the set of activities under Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs) in the Health and Retirement Study.

## 4. Methods

My empirical investigation has two parts. The first part of the empirical investigation involves a descriptive analysis of the disability and family care of the elderly by race and ethnicity. The second part of the empirical investigation explores the effect of family care on adult children's employment. This section describes the method used for the second part of my empirical investigation.

I examine the effect of four different binary care variables on adult children's employment: 1) whether an adult child helps their parent with Activities of Daily Living or Instrumental Activities of Daily Living (ADLs or IADLs); 2) whether an adult child helps their parent with ADLs; 3) whether an adult child helps their parent with IADLs; and 4) whether an adult child helps their parent with households chores, errands, and transportation (referred hereafter as "Chores").<sup>12</sup> In addition to the binary nature of these care variables, their effects on employment suffer from endogeneity issue. An adult child can withdraw from the labor market due to care responsibility, but it's also possible that they provide care since they are already not working and thus making the direction of causality endogenous. To tease out causal identification of care on employment, I use a number of exogenous variables to instrument for family care and estimate its effect on employment. Given that my outcome variable is a binary variable of whether a child is employed, and my endogenous explanatory variable of care types is also binary, I choose a recursive bivariate probit model to simultaneously estimate the following equations:

$$Y_{ijt} = 1 [\mathbf{X}\beta_1 + \alpha F_{ijt} + \lambda_t + v_{ijt} > 0] \quad (1)$$

$$F_{ijt} = 1 [\mathbf{X}\beta_2 + \mathbf{Z}\gamma + \lambda_t + v_{ijt} > 0] \quad (2)$$

where  $(v_{ijt}, v_{ijt})$  is distributed as bivariate normal with mean zero and unit variance.  $Y_{ijt}$  equals to 1 if an adult child  $i$  in racial and ethnic group  $j$  is employed in time  $t$ .  $F_{ijt}$  equals to 1 if an adult child  $i$  in racial and ethnic group  $j$  helps elderly parent with family care in time  $t$ . Note that family care is measured across four care types mentioned above. The set of controls  $\mathbf{X}$  includes the adult child's age, age squared, gender, marital status, and education, number of their own children, whether they live within 10 miles of the parent, whether they co-reside with the parent, whether they provide financial help to the parent, whether they receive financial help from the parent, the parent's education, the

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<sup>12</sup> See Table 4 for a full list of activities under ADLs and IADLs.



parent's wealth quintile, the parent's Medicaid coverage, and the parent's receipt of government assistance such as Supplement Security Income or Social Security Disability Insurance and other welfare benefits. An indicator symbol 1 equals to an identity when the expression in the bracket holds.

Additionally, I include the following variables  $\mathbf{Z}$  in the first stage estimation: parent's number of limitations with ADLs or IADLs, whether the parent is married, and other parent characteristics such as age, age squared, gender, subjective health measure, use of home care, nursing home stay, and private long-term care insurance coverage. The assumption is that these variables affect whether an adult child provides family care but do not directly affect the employment of adult children. Out of these variables, my identification specifically focuses on the parent's number of limitations with ADLs or IADLs and the parent's marital status.<sup>13</sup>  $\lambda_t$  refers to survey year fixed effects. Since the dataset includes multiple adult children of the same parents, standard errors are clustered at the family level.

The recursive bivariate model assumes that the unobservables affecting adult children's employment are correlated with the unobservables affecting adult children's family care decisions. That is,  $\text{Corr}(v_{ijt}, v_{ijt}) \neq 0$ . I use the full maximum likelihood estimator to simultaneously estimate Equations (1 - 2) to get consistent estimates of  $\alpha$  and  $\beta_1$ .<sup>14</sup>

The causal identification rests on the assumption that the parent's disability affects the adult child's employment only through family care provided by adult children. It is possible that a parent's health can affect children's employment through a strain on the adult child's mental capacity to work from dealing with the parent's health issues (Amirkhanyan and Wolf 2006). Moreover, a parent's health can directly affect the work behavior of adult children through other means such as grandchild care.<sup>15</sup> To shore off this concern, I additionally include whether the parent is widowed or divorced as an instrument in the first stage estimation. Since adult children care is the largest source of family care in the absence of spousal care (Barczyk and Kredler 2019), a parent's marital status has a strong effect on whether the adult child provides care. Van Houtven et al. (2013) use this strategy to mitigate the concern with the parent's disability as an instrument and find that the parent's

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<sup>13</sup> For robustness, I estimated the bivariate probit model without excluding variables in  $\mathbf{Z}$  from the outcome equation in (1) except for the two instruments: the parent's number of limitations with ADLs or IADLs and the parent's marital status. The results are not sensitive to the exclusion of all variables in  $\mathbf{Z}$  from the outcome equation.

<sup>14</sup> See Section 15.7.3 of Wooldridge (2001) for the precise mathematical derivation of the maximum likelihood estimator and the consistent measurement of coefficients in Equation (1).

<sup>15</sup> I credit this insightful comment to the anonymous reviewer at the Center for Financial Security.

widowhood is a strong instrument even after excluding the parent's health as an instrument.

#### **4.1. Caveats**

My study has some caveats in terms of data limitations and methodology. First, despite the strength of the instruments such as the parent's disability and marital status, there is still a concern that marital status and the parent's health may affect the adult children's employment through channels other than family care. The parent's disability and parent's singlehood may entail financial needs for the elderly as well. In this case, these variables may belong in the main equation and are expected to have a positive relationship with adult children's employment. To the extent that the parent's disability has a direct positive effect on the adult children's employment, not including it in the main equation would underestimate adult children's employment. Similarly, to the extent that the parent's singlehood has a direct positive effect on adult children's employment, excluding it from the main equation would also underestimate the adult children's employment. To disentangle these two issues, I specifically focus on single parents and estimate the recursive bivariate probit model with parent's disability as the instrument in Section 5.2.1.

Second, I ignore family care provided by children-in-law due to data limitations. Ignoring children-in-law care has implications for measuring the effects of family care and for the racial and ethnic differences in family care. To the extent that children-in-law care is an important source of family care in addition to care provided by adult children themselves, my study provides a lower bound on adult children care. In addition, if children-in-law care is more pronounced in one racial and ethnic group over the other, my study potentially underestimates the racial and ethnic differences in adult children care and its effect on employment of all adult children including children-in-law.

## **5. Results**

### **5.1. Disability and Family Care: Prevalence, Intensity, and Duration**

The first set of results includes a descriptive analysis of the disability patterns of elderly parents and their family care arrangements by race and ethnicity. I also present the empirical patterns of family care provided by adult children in terms of its prevalence and intensity.

The mean number of Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs) across the lifespan are illustrated in Figure 1. The left panel shows the trajectory

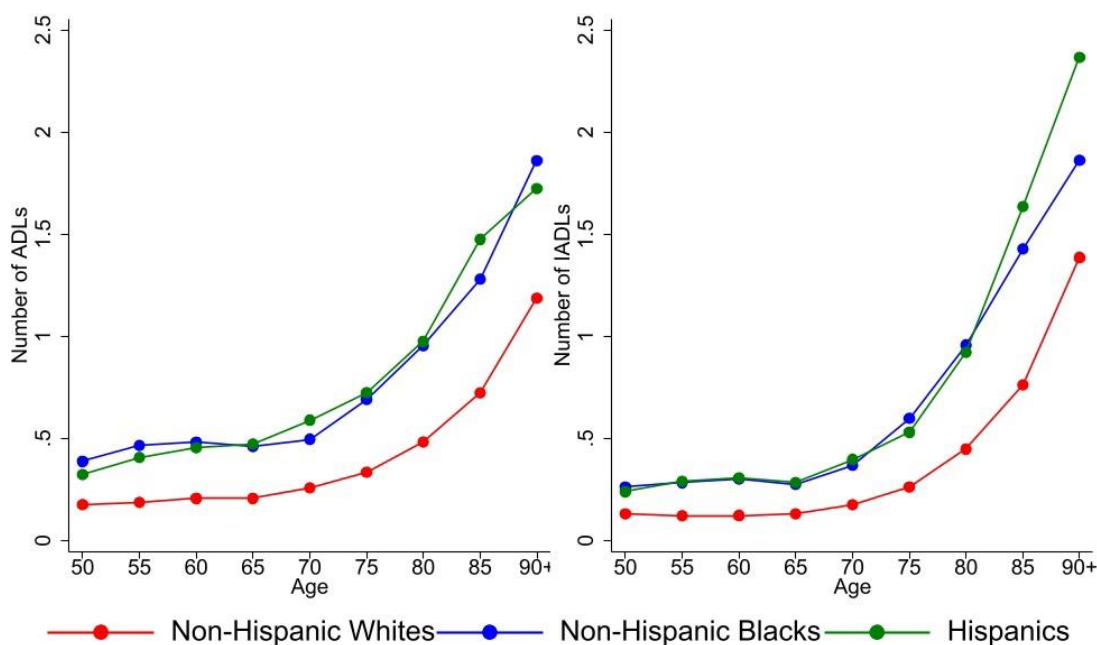
of physical limitations with ADLs, and the right panel shows that with IADLs. The mean number of ADL and IADL limitations is higher for non-Hispanic Blacks (in blue) and Hispanics (in green) across all ages. This is consistent with the findings of Haas and Rohlfen (2010), who document similar patterns of racial and ethnic differences in disability using earlier 1994–2004 waves of the HRS. The mean number of ADLs is around 0.5 for non-Hispanic Blacks and Hispanics from age 50 to age 70 and less than 0.3 for non-Hispanic Whites during the same age range. After 70, the mean number of ADLs increases for all groups reaching one in the early 80s for non-Hispanic Blacks and Hispanics and 0.5 for non-Hispanic Whites. The mean number of IADLs is around 0.3 for non-Hispanic Blacks and Hispanics between age 50 and age 70 and approximately 0.2 for non-Hispanic Whites. In the early 80s, the number rises to one for non-Hispanic Blacks and Hispanics, and averages less than 0.5 for non-Hispanic Whites. After age 85, the number goes up to around two for Hispanics, 1.7 for non-Hispanic Blacks, and one for non-Hispanic Whites. Additionally, the onset of disability is earlier for non-Hispanic Blacks and Hispanics, as shown by the differences at age 50 in physical limitations in both measures. These findings are consistent with the literature that non-Hispanic Blacks and Hispanics have an earlier onset of disability and persistently have higher physical limitations across their life courses than non-Hispanic Whites.

Figure 2 illustrates the family care arrangements of elderly individuals. The left panel shows the fraction of elderly individuals who receive family care from their adult children. The right panel shows the total (unconditional) family care hours provided by adult children weekly. Similar to the patterns in rates of disability, non-Hispanic Blacks and Hispanics have a higher rate of family care receipt across all ages. The racial and ethnic disparities in family care receipt are high at age 50, reflecting the differences in onset for disability for non-Hispanic Blacks and Hispanics compared to non-Hispanic Whites. Close to 10 percent of the Hispanic and non-Hispanic Black elderly individuals received help with physical limitations from their adult children before age 70. In comparison, around 0.2 percent of Whites received help. After age 70, the fraction of elderly receiving family care increases drastically for all groups, but the disparities between the minority groups and non-Hispanic Whites persist. After age 90, half of non-Hispanic Blacks and Hispanics receive care from their adult children compared to around 37 percent of non-Hispanic Whites. At the intensive margin, family care hours start similarly for all groups at age 50, as shown in the right panel of Figure 2. However, the gap in weekly care hours provided by adult children increases with age across racial and ethnic groups. For example, at age 75, non-Hispanic Black individuals receive

close to eight hours of family care per week from their adult children and Hispanic individuals close to five hours, which is significantly higher than non-Hispanic Whites who receive close to one hour of family care.

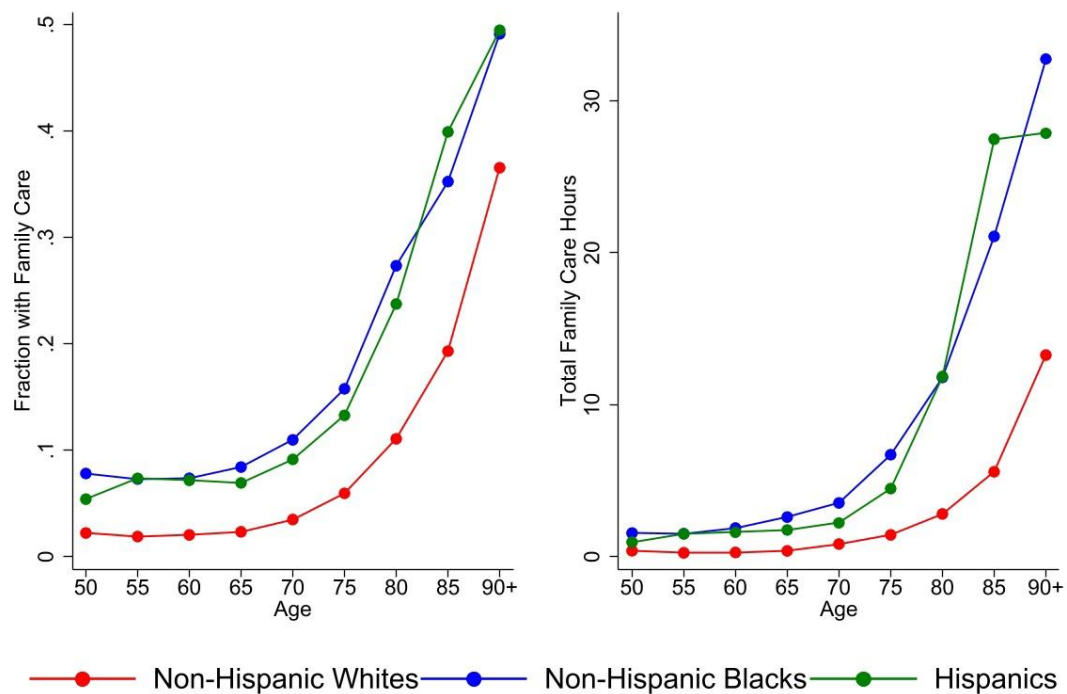
Figure 3 reports the mean weekly family care hours an adult child provides to parents with functioning limitations, conditional on providing positive family care. The left panel shows the care hours adult children provide to parents with ADLs and the right panel reports the care hours adult children provide to parents with IADLs. Interestingly, care is more time-intensive for helping with IADL needs than ADL needs. For non-Hispanic White elderly parents with ADL needs, adult children spend an average of 10 hours per week. This number is close to 15 for non-Hispanic Blacks and Hispanics. However, the means are not statistically significantly different between the three groups. For parents with IADL needs, adult children provide, on average, 20 hours per week in the non-Hispanic White group whereas adult children provide close to 25 hours for non-Hispanic Black and Hispanic groups.

Figure 1: The Trajectories of ADLs and IADLs across Lifespan



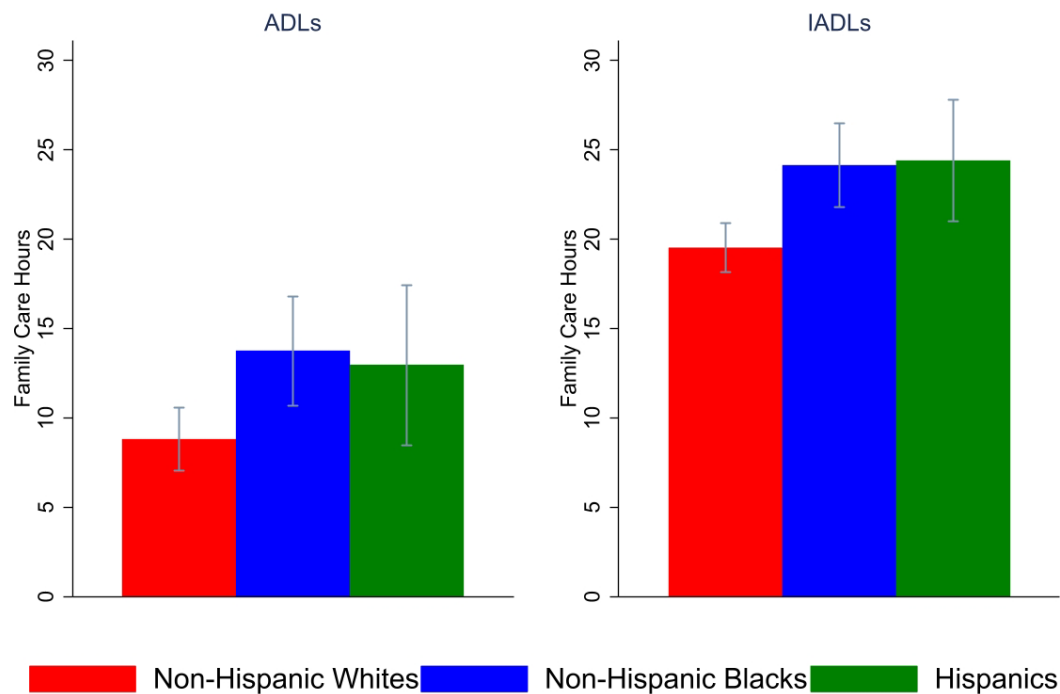
*Notes:* The sample comes from elderly individuals aged 50 and over with at least one adult child aged 21 and over in the pooled Health and Retirement Study 1998–2014. The mean numbers of Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs) are reported across age in the left and right panels, respectively. The list of activities under ADLs and IADLs is listed in Table 4.

Figure 2: Family Care across Lifespan



*Notes:* The sample comes from elderly individuals aged 50 and over with at least one adult child aged 21 and over in the pooled Health and Retirement Study 1998–2014. Family care is defined as time adult children spend helping their elderly parents with Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs). The left panel shows the fraction of elderly individuals who received any positive care hours from adult children, and the right panel shows the total (unconditional) weekly family care hours elderly individuals received from adult children. The list of activities under ADLs and IADLs is listed in Table 4.

Figure 3: Family Care Hours by ADLs and IADLs



*Notes:* The sample comes from the adult children of elderly individuals aged 50 and above in the pooled Health and Retirement Study 1998–2014. The mean weekly family care hours provided by adult children are shown by ADLs (left panel) and IADLs (right panel), conditional on providing positive family care. The list of activities under ADLs and IADLs is listed in Table 4.

## 5.2. Family Care and Employment

Figure 4 reports the average marginal effects of caregiving on the employment of adult children by care type. Four types of family caregiving are considered: 1) helping an elderly parent with ADLs or IADLs, 2) helping with ADLs, 3) helping with IADLs, and 4) helping with chore activities. For all adult children, helping with ADLs or IADLs lowers an adult child's propensity to work by 5 percentage points, which is driven by helping with both ADL and IADL activities. Helping with ADLs and helping with IADLs, respectively, result in 4.6 and 5 percentage points of reduced employment of adult children. Chore caregiving, which includes household chores, running errands, and providing transportation, has the most effect of a 9.2 percentage point reduction in employment of adult children for the overall sample.

The effect of care on employment differs significantly by race and ethnicity. For non-Hispanic Whites, helping with ADLs or IADLs lowers employment of adult children by 3.3 percentage points. Help with IADLs rather than ADLs drives this group's effect; helping with ADLs does not statistically significantly affect employment, whereas helping with IADLs reduces employment of adult children by 3.5 percentage points. This is somewhat surprising given that ADL care is more time-intensive compared to IADL care (see Mommaerts and Truskinovsky 2020), and we would expect that ADL care would have a stronger effect on employment as this type of care requires constant in-person time. It is plausible that the face-to-face care of helping a parent with dressing, walking, or bathing may not affect employment as much as less time-intensive care such as running errands and cooking meals, since families may depend on formal, professional care for the more time-intensive care activities. Instead, adult children are likely to provide care themselves when a parent needs less intensive care. This is supported by the strong effect of chore care on employment at 8.4 percentage points for non-Hispanic Whites.

The effect on employment is more pronounced for non-Hispanic Blacks. For this group, helping with ADLs lowers employment by 12 percentage points, while helping with IADLs lowers it by 11 percentage points. Similarly, chore caregiving reduces employment of non-Hispanic Black adult children by 13 percentage points. In contrast to non-Hispanic Whites, ADL care affects the employment of adult children as strongly as IADL care does for non-Hispanic Blacks. This can be because non-Hispanic Blacks do not utilize formal care as much as non-Hispanic Whites do for time-

intensive care activities.<sup>16</sup> For Hispanics, none of the care activities has a statistically significant effect on the employment of adult children.

The racial differences in marginal effects of care activities on employment worsen the pre-existing racial disparities in employment for non-Hispanic Whites and non-Hispanic Blacks. The base employment before a parent's care needs take effect is around 76 percent for non-Hispanic Blacks, whereas base employment is roughly 84 percent for non-Hispanic Whites (see Tables 5 and 6, respectively). That is, around 80.7 (84 minus 3.3) percent of non-Hispanic White adult children helping with ADLs or IADLs are predicted to be employed. On the other hand, only 65 (76 minus 11) percent of non-Hispanic Black adult children helping with ADLs or IADLs are predicted to be employed. The gap in employment of caregiver adult children between non-Hispanic Whites and non-Hispanic Blacks is predicted to be roughly 20 percent.

The effects of the full set of control variables on employment are reported in Tables 5 through 7 for the racial and ethnic groups. In addition, the tables report the average marginal effects of controls on employment from the second stage of the recursive bivariate probit model.

### **5.2.1. Demographics.**

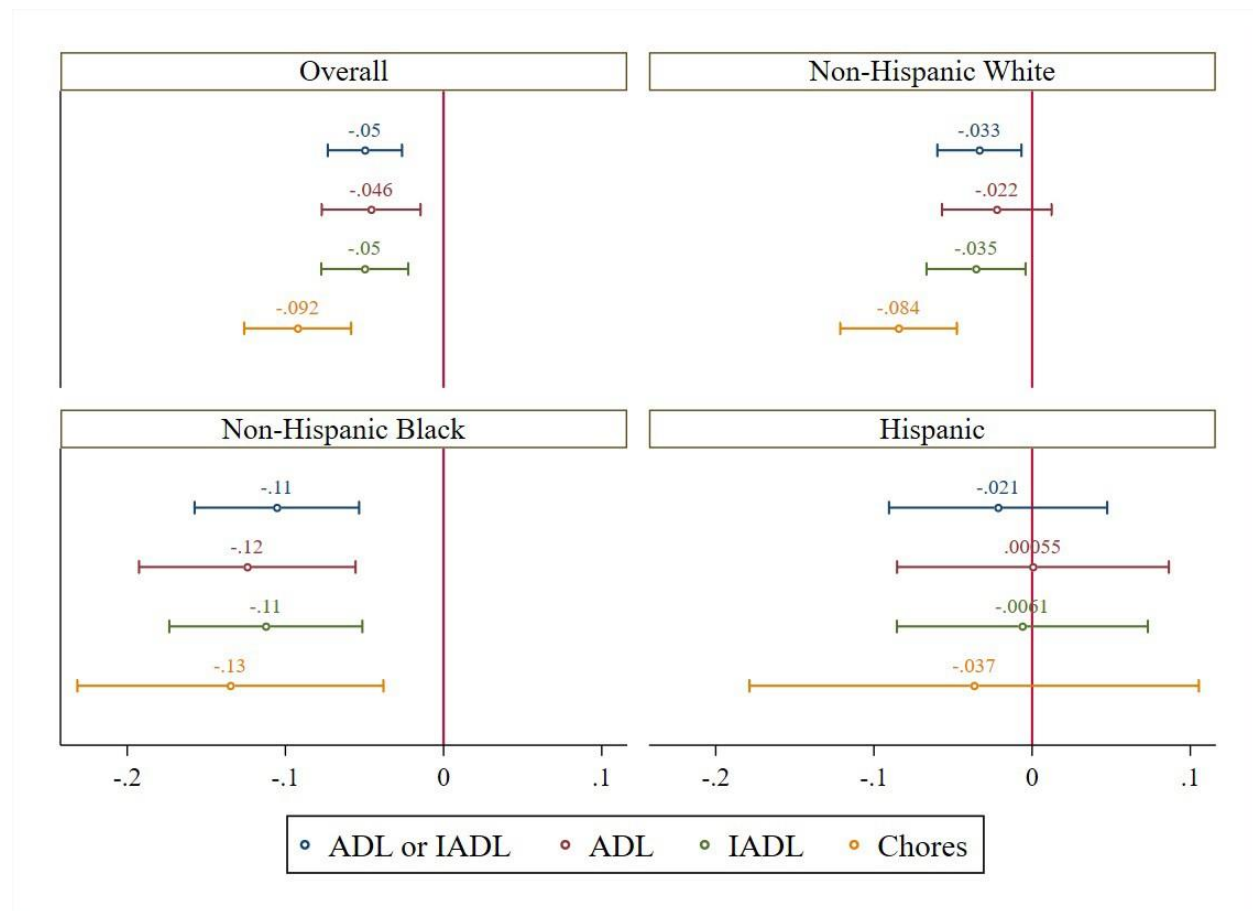
Across all groups, age has a hump shape for employment. Being female is associated with a drop of 12.7 percentage points in employment for non-Hispanic Whites and 14.9 percentage points for Hispanics. For non-Hispanic Blacks, being female is associated with a drop of 2.2 percentage points, which implies a lesser gender gap in employment for non-Hispanic Blacks compared to the other two groups. Education is associated with higher employment propensity, with the highest premium for non-Hispanic Blacks and the lowest for Hispanics. Being college-educated compared to having less than a high school education is associated with around a 25–percentage point increase in employment for non-Hispanic Blacks compared to 15 percentage points for Hispanics and 18 percentage points for non-Hispanic Whites. Being married is associated with a 3.1–percentage point increase in employment for Hispanics and a 5.5–percentage point increase for non-Hispanic Blacks. At the same time, marital status does not significantly affect non-Hispanic Whites. Finally, the number of an adult child's own children has a significant but small negative association with employment for non-Hispanic Whites and non-Hispanic Blacks. For Hispanics, having an additional number of their own children has a 1.1–percentage point lower association with employment.

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<sup>16</sup> See Section 2.2 for discussion on possible explanations in the literature.



Figure 4: The Average Marginal Effects of Family Care on Adult Children's Employment



*Notes:* The estimates are from the recursive bivariate probit model of employment and family care among adult children of elderly individuals aged 50 and over in the pooled 1998–2014 HRS. Four types of care are considered: 1) helping an elderly parent with ADLs or IADLs, 2) helping with ADLs, 3) helping with IADLs, and 4) helping with chore activities. The list of activities under ADLs and IADLs is listed in Table 4. The set of controls includes adult child's age, age squared, gender, marital status, education, number of own children, whether they live within 10 miles of the parent, whether they co-reside with the parent, whether they provide/ receive financial help to/ from the parent in addition to the parent's education, wealth quintiles, Medicaid coverage, whether the parent receives Supplemental Security Income or Social Security Disability Insurance, and whether the parent receives any other government transfers. The first stage estimation also adds the parent's age, age squared, gender, marital status, subjective health measure, use of home care, nursing home stay, and private long-term care insurance coverage. All specifications include survey year fixed effects. Standard errors are clustered at the family level.

### **5.2.2. Geographical proximity to the parent.**

Living within 10 miles of an elderly parent is associated with a 1.4– to 1.8–percentage point increase in employment for non-Hispanic Whites and Hispanics, while it has no significant association with employment for non-Hispanic Blacks. On the other hand, co-residing with a parent is associated with around a 9– to 11.7–percentage point decrease in employment for all groups. This is likely because co-residing with a parent signifies the parent’s care needs, while living close to the parent could entail the adult children receiving help, including grandchild care from elderly parents.

### **5.2.3. Upstream and downstream financial transfers.**

Providing financial help to parents (upstream) is associated with a 3.5–percentage point increase in employment for non-Hispanic Whites and 8.9 percentage points for non-Hispanic Blacks. On the other hand, receiving financial help from parents (downstream) is associated with a 2– to 3.1–percentage point decrease in employment for these two groups. For Hispanics, neither type of financial transfer significantly affects employment.

### **5.2.4. Parent’s wealth and receipt of public assistance.**

The parent’s wealth and the adult child’s employment have a positive relationship for non-Hispanic Whites and non-Hispanic Blacks. Conversely, the parent’s receipt of public assistance such as Medicaid, Social Security Disability insurance, Supplementary Security Income, and other welfare benefits represent the parent’s income and have a negative relationship with the adult child’s employment for non-Hispanic Whites and non-Hispanic Blacks. For Hispanics, wealth and government assistance are not significantly associated with employment, with one exception: the parent receiving welfare benefits has a negative association with the adult child’s employment.

Table 5: The Average Marginal Effects of Controls on Employment: Non-Hispanic Whites

	(1) ADL or IADL	(2) ADL	(3) IADL	(4) Chore
Base employment	0.830 <sup>†</sup> 0.001	0.830 <sup>†</sup> 0.001	0.830 <sup>†</sup> 0.001	0.839 <sup>†</sup> 0.002
Age	0.025 <sup>†</sup> 0.001	0.025 <sup>†</sup> 0.001	0.025 <sup>†</sup> 0.001	0.025 <sup>†</sup> 0.001
Age squared	-0.000 <sup>†</sup> 0.000	-0.000 <sup>†</sup> 0.000	-0.000 <sup>†</sup> 0.000	-0.000 <sup>†</sup> 0.000
Female	-0.127 <sup>†</sup> 0.003	-0.127 <sup>†</sup> 0.003	-0.127 <sup>†</sup> 0.003	-0.145 <sup>†</sup> 0.003
Married	-0.002 0.003	-0.002 0.003	-0.002 0.003	-0.021 <sup>†</sup> 0.004
High school	0.145 <sup>†</sup> 0.008	0.145 <sup>†</sup> 0.008	0.145 <sup>†</sup> 0.008	0.127 <sup>†</sup> 0.010
College	0.182 <sup>†</sup> 0.008	0.181 <sup>†</sup> 0.008	0.182 <sup>†</sup> 0.008	0.160 <sup>†</sup> 0.010
More than college	0.211 <sup>†</sup> 0.008	0.211 <sup>†</sup> 0.008	0.211 <sup>†</sup> 0.008	0.178 <sup>†</sup> 0.010
Number of own children	-0.008 <sup>†</sup> 0.001	-0.008 <sup>†</sup> 0.001	-0.008 <sup>†</sup> 0.001	-0.013 <sup>†</sup> 0.001
Co-reside with parent	-0.115 <sup>†</sup> 0.005	-0.117 <sup>†</sup> 0.005	-0.115 <sup>†</sup> 0.005	-0.102 <sup>†</sup> 0.008
Live within 10 miles from parent	0.018 <sup>†</sup> 0.003	0.017 <sup>†</sup> 0.003	0.018 <sup>†</sup> 0.003	0.029 <sup>†</sup> 0.004
Provides financial help to parent	0.035 <sup>†</sup> 0.008	0.033 <sup>†</sup> 0.008	0.034 <sup>†</sup> 0.008	0.036*** 0.012
Receives financial help from parent	-0.020 <sup>†</sup> 0.003	-0.020 <sup>†</sup> 0.003	-0.020 <sup>†</sup> 0.003	-0.016 <sup>†</sup> 0.004
Parent's wealth 2nd quintile	0.017 <sup>†</sup> 0.004	0.018 <sup>†</sup> 0.004	0.017 <sup>†</sup> 0.004	0.020*** 0.007
Parent's wealth 3rd quintile	0.027 <sup>†</sup> 0.004	0.028 <sup>†</sup> 0.004	0.027 <sup>†</sup> 0.004	0.025 <sup>†</sup> 0.007
Parent's wealth 4th quintile	0.037 <sup>†</sup> 0.004	0.037 <sup>†</sup> 0.004	0.037 <sup>†</sup> 0.004	0.030 <sup>†</sup> 0.007
Parent's wealth 5th quintile	0.026 <sup>†</sup> 0.005	0.026 <sup>†</sup> 0.005	0.026 <sup>†</sup> 0.005	0.009 0.007
Parent has Medicaid	-0.014** 0.005	-0.014*** 0.005	-0.014** 0.005	-0.011 0.009
Parent receives SSDI or SSI	-0.024 <sup>†</sup> 0.006	-0.025 <sup>†</sup> 0.006	-0.024 <sup>†</sup> 0.006	-0.022** 0.009
Parent receives other government assistance	-0.021 <sup>†</sup> 0.004	-0.021 <sup>†</sup> 0.004	-0.021 <sup>†</sup> 0.004	-0.006 0.007
Year FE	Yes	Yes	Yes	Yes
Observations	219186	219186	219186	63904

Notes: The estimates are from the recursive bivariate probit model of employment and family care among adult children of non-Hispanic White elderly individuals aged 50 and over in the pooled 1998–2014 Health and Retirement Study. Four types of care are considered: 1) helping an elderly parent with ADLs or IADLs, 2) helping with ADLs, 3) helping with IADLs, and 4) helping with chore activities. The list of activities under ADLs and IADLs is listed in Table 4. All specifications include survey year fixed effects. Standard errors are clustered at the family level. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , <sup>†</sup>  $p < 0.001$ .

Table 6: The Average Marginal Effects of Controls on employment: Non-Hispanic Blacks

	(1) ADL or IADL	(2) ADL	(3) IADL	(4) Chore
Constant	0.757 <sup>†</sup> 0.003	0.757 <sup>†</sup> 0.003	0.757 <sup>†</sup> 0.003	0.774 <sup>†</sup> 0.006
Age	0.026 <sup>†</sup> 0.002	0.026 <sup>†</sup> 0.002	0.026 <sup>†</sup> 0.002	0.024 <sup>†</sup> 0.003
Age squared	-0.000 <sup>†</sup> 0.000	-0.000 <sup>†</sup> 0.000	-0.000 <sup>†</sup> 0.000	-0.000 <sup>†</sup> 0.000
Female	-0.022 <sup>†</sup> 0.006	-0.023 <sup>†</sup> 0.006	-0.022 <sup>†</sup> 0.006	-0.036 <sup>†</sup> 0.009
Married	0.057 <sup>†</sup> 0.005	0.057 <sup>†</sup> 0.005	0.056 <sup>†</sup> 0.005	0.048 <sup>†</sup> 0.009
High school	0.188 <sup>†</sup> 0.012	0.188 <sup>†</sup> 0.012	0.188 <sup>†</sup> 0.012	0.166 <sup>†</sup> 0.017
College	0.250 <sup>†</sup> 0.012	0.249 <sup>†</sup> 0.012	0.250 <sup>†</sup> 0.012	0.221 <sup>†</sup> 0.017
More than college	0.316 <sup>†</sup> 0.012	0.316 <sup>†</sup> 0.012	0.316 <sup>†</sup> 0.012	0.280 <sup>†</sup> 0.017
Number of own children	-0.003 <sup>*</sup> 0.002	-0.003 <sup>*</sup> 0.002	-0.003 <sup>*</sup> 0.002	-0.006 <sup>**</sup> 0.003
Co-reside with parent	-0.088 <sup>†</sup> 0.008	-0.091 <sup>†</sup> 0.008	-0.089 <sup>†</sup> 0.008	-0.077 <sup>†</sup> 0.016
Live within 10 miles from parent	0.002 0.006	0.000 0.006	0.002 0.006	0.030 <sup>***</sup> 0.010
Parent's wealth 2nd quintile	0.025 <sup>†</sup> 0.007	0.026 <sup>†</sup> 0.007	0.025 <sup>†</sup> 0.007	0.027 <sup>***</sup> 0.010
Parent's wealth 3rd quintile	0.052 <sup>†</sup> 0.008	0.053 <sup>†</sup> 0.008	0.052 <sup>†</sup> 0.008	0.043 <sup>†</sup> 0.013
Parent's wealth 4th quintile	0.043 <sup>†</sup> 0.010	0.044 <sup>†</sup> 0.010	0.043 <sup>†</sup> 0.010	0.050 <sup>***</sup> 0.017
Parent's wealth 5th quintile	0.064 <sup>†</sup> 0.013	0.064 <sup>†</sup> 0.013	0.064 <sup>†</sup> 0.013	0.062 <sup>***</sup> 0.024
Parent has Medicaid	-0.018 <sup>***</sup> 0.007	-0.018 <sup>***</sup> 0.007	-0.018 <sup>***</sup> 0.007	-0.020 <sup>*</sup> 0.012
Parent receives SSDI or SSI	-0.029 <sup>†</sup> 0.009	-0.031 <sup>†</sup> 0.009	-0.030 <sup>†</sup> 0.009	-0.034 <sup>**</sup> 0.014
Parent receives other government assistance	-0.004 0.006	-0.005 0.006	-0.004 0.006	-0.001 0.013
Provides financial help to parent	0.089 <sup>†</sup> 0.011	0.088 <sup>†</sup> 0.011	0.088 <sup>†</sup> 0.011	0.096 <sup>†</sup> 0.020
Receives financial help from parent	-0.031 <sup>†</sup> 0.007	-0.031 <sup>†</sup> 0.007	-0.031 <sup>†</sup> 0.007	-0.023 <sup>*</sup> 0.013
Year FE	Yes	Yes	Yes	Yes
Observations	53105	53105	53105	13205

*Notes:* The estimates are from the recursive bivariate probit model of employment and family care among adult children of non-Hispanic Black elderly individuals aged 50 and over in the pooled 1998–2014 Health and Retirement Study. Four types of care are considered: 1) helping an elderly parent with ADLs or IADLs, 2) helping with ADLs, 3) helping with IADLs, and 4) helping with chore activities. The list of activities under ADLs and IADLs is listed in Table 4. All specifications include survey year fixed effects. Standard errors are clustered at the family level. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , <sup>†</sup>  $p < 0.001$ .

Table 7: The Average Marginal Effects of Controls on Employment: Hispanics

	(1) ADL or IADL	(2) ADL	(3) IADL	(4) Chore
Constant	0.761 <sup>†</sup> 0.004	0.761 <sup>†</sup> 0.004	0.761 <sup>†</sup> 0.004	0.772 <sup>†</sup> 0.006
Age	0.021 <sup>†</sup> 0.003	0.021 <sup>†</sup> 0.003	0.021 <sup>†</sup> 0.003	0.018 <sup>†</sup> 0.004
Age squared	-0.000 <sup>†</sup> 0.000	-0.000 <sup>†</sup> 0.000	-0.000 <sup>†</sup> 0.000	-0.000 <sup>†</sup> 0.000
Female	-0.149 <sup>†</sup> 0.007	-0.149 <sup>†</sup> 0.007	-0.149 <sup>†</sup> 0.007	-0.178 <sup>†</sup> 0.012
Married	0.031 <sup>†</sup> 0.007	0.031 <sup>†</sup> 0.007	0.031 <sup>†</sup> 0.007	0.025** 0.012
High school	0.100 <sup>†</sup> 0.011	0.100 <sup>†</sup> 0.011	0.100 <sup>†</sup> 0.011	0.119 <sup>†</sup> 0.015
College	0.152 <sup>†</sup> 0.012	0.152 <sup>†</sup> 0.012	0.152 <sup>†</sup> 0.012	0.161 <sup>†</sup> 0.018
More than college	0.209 <sup>†</sup> 0.012	0.209 <sup>†</sup> 0.012	0.209 <sup>†</sup> 0.012	0.201 <sup>†</sup> 0.018
Number of own children	-0.011 <sup>†</sup> 0.002	-0.012 <sup>†</sup> 0.002	-0.012 <sup>†</sup> 0.002	-0.004 0.004
Co-reside with parent	-0.090 <sup>†</sup> 0.010	-0.091 <sup>†</sup> 0.010	-0.091 <sup>†</sup> 0.010	-0.073 <sup>†</sup> 0.019
Live within 10 miles from parent	0.014** 0.007	0.014* 0.007	0.014* 0.007	0.012 0.013
Provides financial help to parent	0.141 0.016	0.140 0.016	0.140 0.016	0.118 0.027
Receives financial help from parent	-0.042 0.009	-0.042 0.009	-0.042 0.009	0.013 0.020
Parent's wealth 2nd quintile	0.012 0.008	0.013 0.008	0.013 0.008	-0.015 0.014
Parent's wealth 3rd quintile	0.014 0.010	0.014 0.010	0.014 0.010	-0.021 0.018
Parent's wealth 4th quintile	0.018 0.013	0.018 0.013	0.018 0.013	0.025 0.020
Parent's wealth 5th quintile	0.014 0.017	0.014 0.017	0.014 0.017	0.019 0.035
Parent has Medicaid	0.006 0.009	0.006 0.009	0.006 0.009	-0.022 0.016
Parent receives SSDI or SSI	-0.014 0.010	-0.014 0.010	-0.014 0.010	0.010 0.017
Parent receives other government assistance	-0.024*** 0.009	-0.024*** 0.009	-0.024*** 0.009	-0.048*** 0.016
Year FE	Yes	Yes	Yes	Yes
Observations	36611	36611	36611	8314

*Notes:* The estimates are from the recursive bivariate probit model of employment and family care among adult children of Hispanic elderly individuals aged 50 and over in the HRS 1998–2014. Four types of care are considered: 1) helping an elderly parent with ADLs or IADLs, 2) helping with ADLs, 3) helping with IADLs, and 4) helping with chore activities. The list of activities under ADLs and IADLs is listed in Table 4. All specifications include survey year fixed effects. Standard errors are clustered at the family level. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , <sup>†</sup>  $p < 0.001$ .

### 5.3. By Marital Status of Elderly Parents

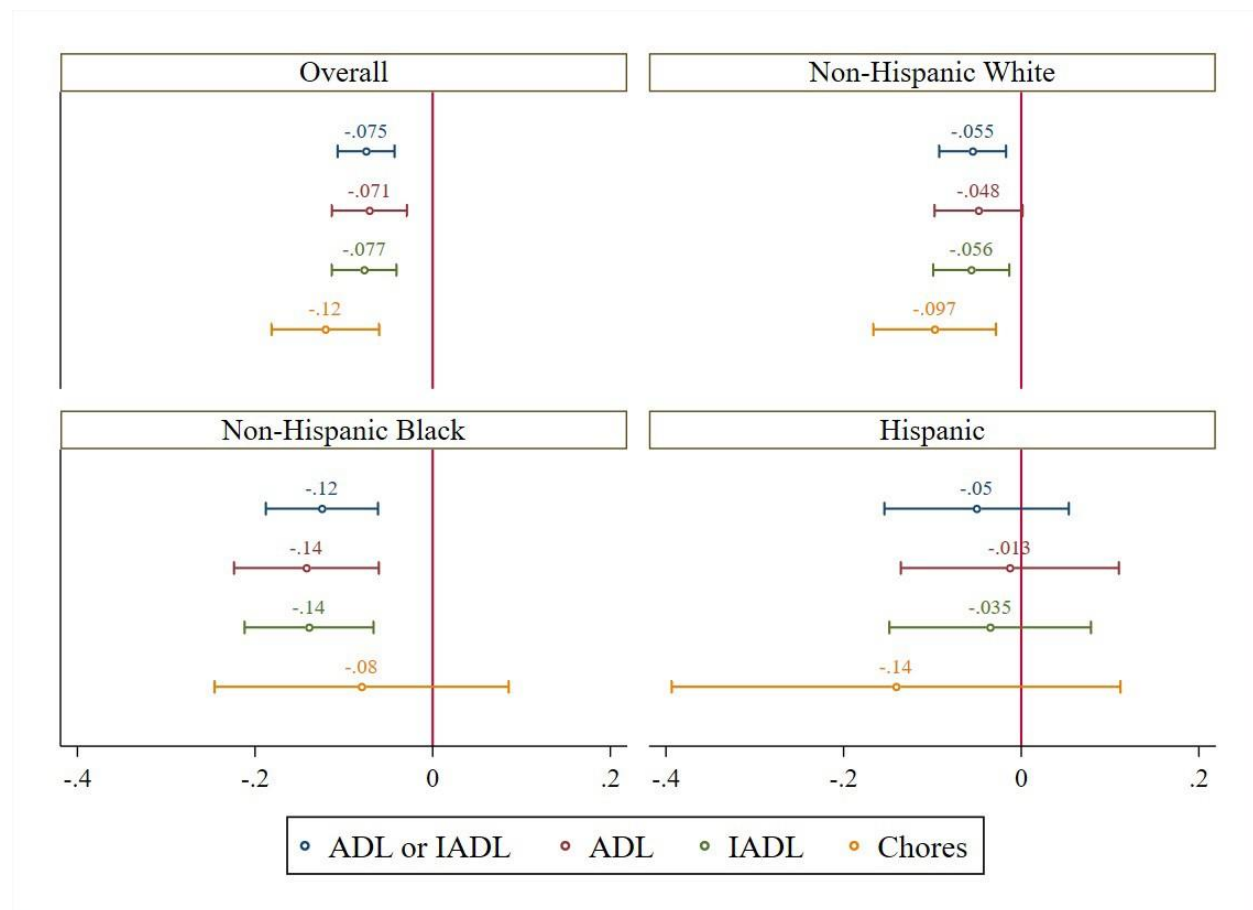
Figure 5 focuses on the effects of family care on adult children of single elderly parents across care types. For the full sample, the average marginal effects of ADL or IADL care are about 50 percent higher among adult children of single elderly parents compared to those of all elderly parents. Helping an elderly parent with ADLs lowers adult children's employment by 7.1 percentage points, while helping an elderly parent with IADLs lowers it by 7.7 percentage points. Again, we observe that IADL care has a stronger effect on employment than ADL care does. For non-Hispanic Whites, helping a parent with ADLs or IADLs reduces employment by 5.5 percentage points. This effect is mostly driven by IADL care of 5.6 percentage points. Helping a parent with chore activities lowers employment by 9.7 percentage points, which is slightly higher than the 8.4 percentage points reported for adult children of all parents.

For non-Hispanic Blacks, the magnitude does not change as much between the overall group and single only parents. This may be due to the fact that divorce and widowhood rates are much higher for non-Hispanic Blacks compared to the other groups, which attenuates the effects of family care on employment among adult children of single parents. Helping a parent with ADLs or IADLs lowers employment by 12 percentage points. For Hispanics, family care continues to have no statistically significant effect on employment.

### 5.4. By Age of Adult Children

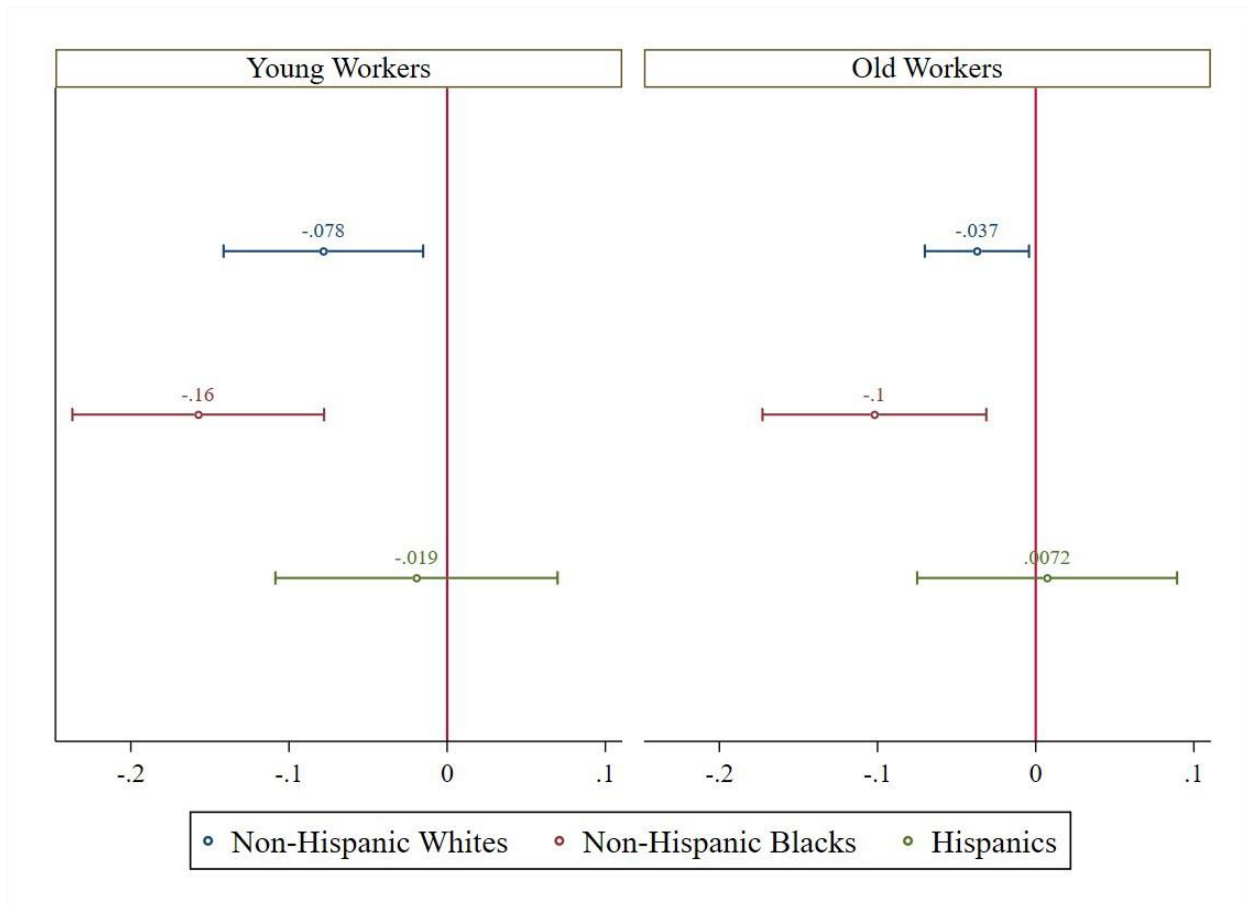
Figure 6 shows the average marginal effects of family care on employment across race and ethnicity. The results only pertain to the family care type of helping an elderly parent with ADLs or IADLs. "Younger workers" are defined as adult children aged less than 40, and "older workers" are defined as those aged between 40 and 65. For non-Hispanic Whites, helping a parent with ADLs or IADLs lowers employment among younger workers by 7.8 percentage points and among older workers by 3.7 percentage points. In comparison, for non-Hispanic Blacks, helping a parent with ADLs or IADLs lowers employment among younger workers by 16 percentage points and among older workers by 10 percentage points. This suggests that family care affects younger workers more strongly than it does older workers.

Figure 5: The Average Marginal Effects of Family Care on Adult Children's Employment: Single Elderly Parents



*Notes:* The estimates are from recursive bivariate probit model of employment and family care among adult children of single elderly individuals aged 50 and over in the pooled 1998–2014 Health and Retirement Study. Four types of care are considered: 1) helping an elderly parent with ADLs or IADLs, 2) helping with ADLs, 3) helping with IADLs, and 4) helping with chore activities. The list of activities under ADLs and IADLs is listed in Table 4. The set of controls includes the adult child's age, age squared, gender, marital status, education, and number of own children, whether they live within 10 miles of the parent, whether they co-reside with the parent, whether they provide/ receive financial help to/ from the parent in addition to the parent's education, wealth quintiles, Medicaid coverage, whether the parent receives Social Security Supplement or Social Security Disability Insurance, and whether the parent receives any other government transfers. The first stage estimation also adds the parent's age, age squared, gender, marital status, subjective health measure, use of home care, nursing home stay, and private long-term care insurance coverage. All specifications include survey year fixed effects. Standard errors are clustered at the family level.

Figure 6: The Average Marginal Effects of Family Care on Adult Children's Employment: Younger versus Older Workers



*Notes:* The estimates are from recursive bivariate probit model of employment and family care among adult children of elderly individuals aged 50 and over in the pooled 1998–2014 Health and Retirement Study. “Younger workers” refer to adult children under age 40, and “older workers” refers to adult children aged between 40 and 65. Family care is defined as helping an elderly parent with ADLs or IADLs, which are defined in Table 4. The set of controls includes the adult child's age, age squared, gender, marital status, education, and number of own children, whether they live within 10 miles of the parent, whether they co-reside with the parent, whether they provide/ receive financial help to/ from the parent, in addition to the parent's education, wealth quintiles, Medicaid coverage, whether the parent receives Social Security Supplement or Social Security Disability Insurance, and whether the parent receives any other government transfers. The first stage estimation also adds the parent's age, age squared, gender, marital status, subjective health measure, use of home care, nursing home stay, and private long-term care insurance coverage. All specifications include survey year fixed effects. Standard errors are clustered at the family level.



## 6. Discussion

Family caregiving has implications for the income and financial insecurity of caregivers, which can translate into short-term effects for Social Security Administration programs such as Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI) in addition to long-term effects on wealth and retirement income such as Social Security benefits. For example, Maestas et al. (2020) find an increase in SSDI claims among all caregivers following the start of a caregiving spell. The authors estimate a 30-percent increase in SSDI claims over the pre-caregiving mean and a 55-percent increase six years after the onset of caregiving.

Lee et al. (2015) find that caregivers incur direct monetary costs related to care responsibilities, and when labor market exit or interruptions are added, family caregiving can compound lost earnings and depressed wealth over time. Several studies have attempted to determine the long-term impact of caregiving on income insecurity and the receipt of public assistance. Butrica and Karamcheva (2018) find that caregivers have a significantly higher likelihood of living in poverty, and they experience lower asset growth compared to non-caregivers. Using two waves of the Health and Retirement Study in 1991 and 1999, Wakabayashi and Donato (2006) find that older women who provided care in 1991 experienced a higher probability of being poor or receiving public assistance eight years later. The authors suggest worse that health outcomes and the exit from the labor market due to caregiving in earlier years contributed to the higher poverty level and receipt of caregivers' public assistance. Using the 1982 Beneficiary Survey of the Social Security Administration, Kingson and O'Grady-LeShane (1993) find that women who dropped from the labor force for care obligations had lower monthly payments in early retirement. The authors estimated that women who left their jobs to care for a child had \$8 to \$16 less in monthly payments in Social Security benefits in early retirement. This number increased to \$126 for those who left jobs to care for adults, which suggests that family care for an elderly parent may have a substantial effect on future Social Security benefits for adult children.

Another link between family care and Social Security benefits is the fact that family care by adult children is also associated with the Social Security benefits of their elderly parents. Using the HRS data, Mukherjee (2018) shows a negative association between family care by adult children and the elderly parent's Social Security benefits, implying that Social Security benefits may alleviate the caregiving burden of adult children. Using a more rigorous identification strategy by taking

advantage of an inflation-indexing mistake made in Social Security payments, Mukherjee (2020) supports the findings that family care is significantly reduced when elderly parents experienced an increase in their Social Security benefits. Thus, increasing Social Security payments and supporting elderly individuals in need with more income may potentially alleviate the family care burden and the economic strains associated with caregiving for adult children.

## **7. Conclusion**

Adult children are the biggest source of family care for the US elderly. As the demography ages, a rising demand for family care will affect the economic outcomes of racial and ethnic groups differently. Using the Health and Retirement Study 1998–2019, I find that family care is more prevalent and prolonged among non-Hispanic Blacks and Hispanics than non-Hispanic Whites. Given the structural barriers in access to quality formal care and differences in norms and traditions, the increased need for family care puts financial strain on minority populations. In terms of labor market exit or interruptions, adult children are affected the most due to their younger age profiles compared to other family caregivers.

Using a recursive bivariate probit model with an instrumental variable, I find that family care lowers adult children's employment by 5 to 9 percentage points, depending on care type. This effect is 3.3 to 8.4 percentage points for non-Hispanic Whites and 11 to 13 percentage points for non-Hispanic Blacks. These effects are stronger for adult children with non-married parents and those aged less than 40. I do not find statistically significant effects among Hispanics. These results shed light on the importance of studying racial and ethnic groups separately regarding family care and labor market outcomes. In addition, given that the effects are strongest among younger workers under 40, the resulting long-term implications for adult children caregivers and their labor supply trajectory is crucial. Finally, given that family caregivers tend to have a higher likelihood of poverty and reliance on public assistance, studying these effects by race and ethnicity highlights the racial and ethnic disparities in the economic outcomes of family caregiving.

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## Appendix

### A.1. Sample Restrictions

Table A.1 shows the loss in observations due to sample restrictions. I start out with 32,744 elderly individuals aged 50 and over. About 90 percent of these individuals had a child aged 21 and over, which comprises the initial 105,488 adult children. I then restrict the sample to those who had non-missing values for controls for elderly parents and adult children, respectively. This gives us the final sample of 25,890 elderly parents and their 81,373 adult children. To make sure there is no systematic pattern on attrition across racial and ethnic groups considered, I show the percentage of each group at each level of sample restriction. Despite the sample selections, the composition in terms of race and ethnicity remain the same.

Table A.1. Sample Construction, Disaggregated by Race and Ethnicity, HRS 1998-2014

	Observations	Individuals	White	Black	Hispanic	Other
<i>Panel A. Parent sample</i>						
age 50+ individuals (1998-2014)	170,322	32,744	68%	18%	11%	3%
At least one adult child	155,208	29,421	68%	18%	11%	3%
Non-missing own controls	132,416	27,899	67%	18%	12%	3%
Non-missing children's controls	114,998	25,848	67%	18%	12%	3%
<i>Panel B. Adult children sample</i>						
Adult children of age 50+ individuals	579,042	105,488	64%	20%	13%	3%
Non-missing parent's controls	491,905	100,906	64%	20%	13%	3%
Non-missing own controls	316,352	81,227	65%	19%	13%	3%

### A.2. Formal and Family Care Arrangements

Table A.2 shows the breakdown of formal care and family care patterns by race and ethnicity. In terms of subjective health measures, Whites are more likely to answer excellent or good compared to Blacks and Hispanics. Hispanics have the lowest rate of excellent or good health reporting, followed by Blacks. In terms of insurance coverage, more Whites own private LTC insurance

whereas Blacks and Hispanics have a higher rate of using Medicaid. Nursing home stay is low and similar across all groups. Home-based formal care is more popular and slightly higher for Blacks and Hispanics. The out-of-pocket medical costs are high for Whites and lowest for Hispanics, which is likely associated with Medicaid use as the Hispanics have the highest rate of Medicaid coverage.

The number of children living within 10 miles or co-residing is highest among Blacks and Hispanics, especially the co-residency rate for Hispanics. Similarly, the number of children providing ADLs and IADLs are significantly higher for minority groups, supporting the literature that minority groups rely more heavily on family care compared to Whites. Total help hours include not only those of adult children but also those of paid care services in addition to unpaid care from family and community members. We can see that Blacks and Hispanics receive significantly more care hours from adult children, which represent about half of their total care hours received. In comparison, Whites receive about less than half as much of total care hours as do Blacks and Hispanics, and they receive about 30 percent of it from their adult children.

Table A.2. Formal and Family Care Arrangements

	Non-Hispanic Whites	Non-Hispanic Blacks	Hispanics
ADL or IADL	0.19 (0.39)	0.28 (0.45)	0.28 (0.45)
Health excellent or good	0.77 (0.42)	0.62 (0.48)	0.52 (0.50)
Nursing home stay in last two years	0.03 (0.18)	0.03 (0.16)	0.02 (0.13)
Home-based care services in last two years	0.07 (0.26)	0.09 (0.29)	0.07 (0.25)
Medicaid	0.04 (0.20)	0.18 (0.38)	0.22 (0.42)
Private LTCI	0.14 (0.34)	0.08 (0.27)	0.04 (0.20)
Out-of-pocket medical spending	2,742.46 (9,447.71)	1,875.17 (6,507.32)	1,677.96 (5,993.39)
No. of children helping with ADLs	0.03 (0.23)	0.09 (0.39)	0.07 (0.34)
No. of children helping with IADLs	0.05 (0.29)	0.13 (0.46)	0.11 (0.40)
Total hours of help with ADLs or IADLs	13.92 (81.94)	26.84 (118.66)	27.31 (118.11)
Hours provided by adult children	5.12 (47.07)	14.64 (84.85)	13.30 (78.78)
Observations	112221		

*Notes:* The summary statistics are from elderly individuals aged 50 and over with at least one adult child aged 21 and over in the pooled Health and Retirement Study 1998–2014. The means are reported with standard deviations in parentheses. Health excellent or good comes from a subjective health measurement. Medicaid and LTCI refer to the share of individuals with insurance. Total hours of help refers to all hours the elderly receive from spouse, adult children, friends, relatives, and professional (paid) caregivers in and out of institutions. (Unpaid) family care hours provided by adult children for the elderly with ADLs or IADLs are also shown. All monetary values are inflation adjusted to the 2014 CPI and shown in thousands. ADLs refer to Activities of Daily Living and IADLs refer to Instrumental Activities of Daily Living. See Table 4 for a full list of activities under ADLs and IADLs.

### A.3. Components of ADLs and IADLs by Race and Ethnicity

Table A.3 breaks down the components of ADLs and IADLs for each group. Blacks and Hispanics have a higher number of limitations with ADLs and IADLs compared to Whites. For each component, the share of individuals who need help is shown. The greatest racial differentials are obtained in dressing, bathing, and getting out of bed for ADLs and in managing money and grocery shopping for IADLs.

Table A.3: Breakdown of ADLs and IADLs by Race and Ethnicity

	Non-Hispanic Whites	Non-Hispanic Blacks	Hispanics
No. of difficulties with ADLs	0.26 (0.84)	0.51 (1.20)	0.51 (1.21)
Walking	0.05 (0.21)	0.09 (0.29)	0.07 (0.26)
Dressing	0.07 (0.25)	0.12 (0.33)	0.14 (0.35)
Bathing	0.05 (0.21)	0.09 (0.29)	0.08 (0.27)
Eating	0.02 (0.14)	0.04 (0.19)	0.05 (0.21)
Getting out of bed	0.04 (0.20)	0.09 (0.28)	0.11 (0.32)
Toileting	0.04 (0.26)	0.09 (0.37)	0.07 (0.33)
No. of difficulties with IADLs	0.20 (0.71)	0.37 (0.96)	0.38 (1.02)
Managing money	0.04 (0.20)	0.08 (0.28)	0.08 (0.28)
Using phone	0.03 (0.16)	0.05 (0.21)	0.07 (0.25)
Taking medications	0.02 (0.15)	0.04 (0.20)	0.06 (0.23)
Making meals	0.04 (0.20)	0.08 (0.27)	0.07 (0.25)
Grocery shopping	0.07 (0.25)	0.12 (0.32)	0.10 (0.30)
Observations	82,081	18,202	11,938

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