ABSTRACT

Title of Dissertation: HETEROGENEOUS EFFECTS OF GRANDCHILD CARE ON EMPLOYMENT, WORKING TIME, AND WORK-FAMILY CONFLICT

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A substantial number of adult children, both in dual-earner and single-parent families, are increasingly relying on grandchild care to bridge childcare gaps. Despite the growing trends of grandchild care and the prolonged participation of older Americans in the workforce, prior evidence over how time spent on grandchild care is associated with grandparents' employment outcomes remains inconclusive. Considering unobserved (time-constant) heterogeneity is important for a better understanding of the association between grandchild care time and employment/work hours, because mixed findings in prior research may be attributed to omitted variables, such as preferences related to grandchild caregiving and work. Empirical research has not yet examined how grandchild care time influences family-to-work and work-to-family conflict over time among employed grandparents. To examine these questions, this dissertation uses a nationally representative study, the Health and Retirement Study between 2004 and 2014

and employs fixed effects models to take into account unobserved heterogeneity and to address selection issues and random effects model for family-to-work conflict.

Chapter two illustrates that considering class and employment informs us with further understanding of grandchild care time, while the effects of gender and race/ethnicity on the time allocated to grandchild care largely remain. Particularly, non-employed NH Black men with a high school diploma or less provide substantial grandchild care (500 hours or more over the two years; approximately 4.9 to 96 weekly hours), matching the level of care given by non-employed NH Black women with the same education. Class is only linked to the time spent on grandchild care for employed NH White and Hispanic men. College-educated employed NH White men engage in a low level of grandchild care (1-99 hours over the two years; about 1 weekly hour), which is greater than that of employed NH White men with a high school diploma or less. Employed Hispanic men with some college education or more tend to provide an intermediate level of grandchild care (100-499 hours over the two years; roughly 1 to 4.8 weekly hours) more, whereas devoting to substantial care less, compared to employed Hispanic men with a high school diploma or lower education. Employment exclusively influences the time that NH White grandparents dedicate to grandchild care: Non-employed NH White women and men are more involved in substantial grandchild care compared to their employed counterparts. In contrast, no employment variations in grandchild care among NH Blacks and Hispanics may suggest that racial minority groups may prioritize grandchild care regardless of their employment status.

Chapter three shows that an increase in time spent on grandchild care is link to a decrease in work hours over time among both grandmothers and grandfathers. Although the direction of providing each additional hour of grandchild care on employment status appears similar to the

effect on work hours, it is not significant. No gender differences are found in the effect of grandchild care hours on both work hours and employment status.

Chapter four demonstrates that employed grandfathers who provide a low level of grandchild care experience a decrease in family-to-work conflict and an increase in work-to-family conflict over time compared to employed grandfathers who do not engage in grandchild care. No significant associations are found among employed grandmothers. However, employed grandfathers who engage in a low level of grandchild care are more likely to experience an increase in work-to-family conflict compared to employed grandmothers who do the same level of care. No significant evidence for gender differences in the association between grandchild care time and family-to-work conflict is found.

Results in chapter three and four collectively provide insight into both negative and positive aspects of grandchild care. Results in Chapter three indicate that an increase in time spent on grandchild care is linked to reduce grandparents' work hours regardless of gender and may potentially produce economic repercussions, especially among grandparents who are socioeconomically disadvantaged. Results in Chapter four demonstrate the buffering effect of minimal grandchild care on family-to-work conflict and its adverse effect on work-to-family conflict among employed grandfathers. In conclusion, my dissertation sheds light on both different aspects of grandchild caregiving, with outcomes potentially depending on the level of caregiving engagement and gender.

HETEROGENEOUS EFFECTS OF GRANDCHILD CARE ON EMPLOYMENT, WORKING TIME, AND WORK-FAMILY CONFLICT

by

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Chapter 1: Introduction and Backgrounds

1.1. Introduction

Grandparents have served as a family safety net for grandchildren in times of need (Fuller-Thomson and Minkler 2001; Luo, LaPierre, Hughes, and Waite 2012). Grandchild care is more common when adult children may or may not be present as a result of incarceration, illness, and substance abuse (Bryson and Casper 1999; Cherlin and Furstenberg 1992; Goodman and Silverstein 2002; Hughes et al. 2007). Much of the scholarly attention on grandchild care has focused on custodial grandchild care and its association with grandparents' labor outcomes (Pebley and Rudkin 1999; Pruchno and McKenney 2009; Minkler and Roe 1996; Wang and Marcotte 2007). While a substantial number of adult children, both in dual-earner and single-parent families, increasingly rely on grandchild care to bridge childcare gaps (Dunifon, Near, and Ziol-Guest 2018), the evidence regarding how time spent on residential and non-coresidential grandchild care affects grandparents' labor force outcomes remains mixed (Ho 2015; Lumsdain and Vermeer 2015; Rupert and Zanella 2018). These inconclusive results may partly stem from factors such as the inclusion of new grandchild arrivals, as well as the omission of unmeasured preferences regarding grandchild care and work. Furthermore, empirical research has yet to fully examine work-family conflict, which could serve as an underlying mechanism in the association between grandchild care time and employment/work hours. To address the gaps in this emerging literature on grandchild care, employment outcomes, work-family conflict, my dissertation uses the 2004-2014 Health and Retirement Study and

employs fixed effects models, as well as random effects models for family-to-work conflict.

My dissertation first draws from life course theory to develop expectations about influences of grandchild care on grandparents' labor force outcomes (Bengtson 2001). Life course theory posits that individual's life transitions (e.g., adult children's transition to parenthood) are interlinked with changes in their family members' circumstances (e.g., grandparents' work or health) over the life course (Elder 1994; O'Rand 2003). This is particularly relevant due to increasing life expectancy and better health, which suggest that grandparents may engage more in the lives of grandchildren by providing routine childcare assistance (Bianchi and Milkie 2010; Dunifon, Near, and Ziol-Guest 2018; Luo, LaoPierre, Hughes, and Waite 2012; Margolis and Wright 2017; Meyer 2014; Vandell et al. 2003 for USA; Compton and Pollak 2014 for EU; Geurts, Van Tilburg, Poortman, and Dykstra 2015 for Netherlands; Lee and Bauer 2010; Lee and Bauer 2013; Oh 2018 for Korea). According to the Survey of Income and Program Participation (SIPP), 23.4 percent of children aged 5 and under received non-coresidential grandparental care in 2011, up from less than 15 percent in 1987 (Laughlin 2013; Rupert and Zanella 2018). This increase is likely influenced by the growing prevalence of dual-earner and single-parent families, income-based disparities in affordable and accessible market childcare, and unequal access to paid leave (Bailey and DiPrete 2016; Cherlin and Seltzer 2014; Jacobs and Gerson 2004).

On the other hand, the socioeconomic and demographic shifts serving as sources of increasing demands for grandchild care are also influencing the necessity

for grandparents to remain employed. This creates competing needs for grandparents because grandparents are also more likely to work longer compared to earlier periods. Older adults are increasingly working longer due to increased life expectancy, family instability, and limited income for retirement linked with wage stagnation and pension shifts (Carr 2019; Goldin and Katz 2018; Kojola and Moen 2016). Whereas national statistics for grandparents' employment are not available, labor force participation rates among American men between 50 and 69 years-old increased from 66.9 % in 1998 to 68 % in 2018. Women of the same age range also experienced a rise in labor force participation, from 51.4 % to 56.2% in the same period (author calculations based on Current Population Survey from the Bureau of Labor Statistics 2019a).[1] Additionally, the average age of becoming a first time grandparent for U.S. adults is 49 for women and 52 for men (Leopold and Skopek 2015).[2] Thus, grandparenthood may overlap with some periods of co-work with their employed adult children who may need childcare assistance (Margolis and Wright 2017). In summary, older men and women not only stay longer in the workforce but may be also expected to care for grandchildren at older ages (Bianchi and Milkie 2010; Cherlin and Seltzer 2014).

[1] In detail, among American men between 55 and 64 years-old, labor force participation rates increased from 67% in 1996 to 71.2% in 2018 (Bureau of Labor Statistics 2019a). Women of the same age range also experienced a rise in labor force participation, from 49.6% to 59.1% in the same period. Generally, labor force participation rates among Americans aged 65 to 69 are lower compared to those aged 55 to 64. However, labor force participation rates for Americans between 65 and 69 years-old are projected to increase. For men aged 65 to 69, labor force participation rates are projected to be 40.5 % in 2026, up from 27.5 % in 1996. For women of the same age group, rates are projected to be 33.2 % in 2026, an increase from 17.2 % in 1996 (Bureau of Labor Statistics 2019b).

[2] This article provides the latest information on experiencing the first grandparenthood in the U.S. and uses median age of transitioning to grandparenthood and life expectancy data in 2000.

In response to these socioeconomic and demographic changes, three prior studies examined whether grandchild care needs and time affect labor and retirement decisions over time in later life (Ho 2015; Lumsdain and Vermeer 2015; Rupert and Zanella 2018). Collectively, they provide mixed findings. These studies share two factors: the use of an economic perspective to guide their research and the inclusion of variables such as both the arrival of a new grandchild and the provision of grandchild care. The conventional rational choice approach in Economics posits that individuals can choose their behaviors based on personal preferences by assuming equal access to available information and resources for making choices (Altman 2001; Grusky, Kanbur, and Sen 2006; Reynolds and Aletraris 2006). Contrasting with this perspective, intersectionality theory offers a multifaceted framework to emphasize diverse experiences of employment and grandchild caregiving among grandparents through the interconnected lens of gender, race-ethnicity, and class (Collins 2000). Guided by this sociological approach, my dissertation assumes that social characteristics resulting from the intersection of gender, race, and socioeconomic status may shape the demand for grandchild care, the resources that influence it, and diverse attitudes in response to norms and expectations about employment and caregiving (Di Gessa, Glaser, and Zaninotto 2022 for Europe; Fuller-Thomson and Minkler 2001; Luo et al. 2012).

While individuals with similar social characteristics often share circumstances related to grandchild care and work, they remain unique because they possess heterogenous preferences and circumstances that may be untethered from normative expectations. This uniqueness may prevail even among those sharing gender, race-

ethnicity, and class, aligning with prior research on within-group heterogeneity in Black extended family support networks (Taylor, Chatters, and Cross 2021). To the best of my knowledge, the association between time spent on grandchild care and employment outcomes has not been investigated, specifically in terms of considering unmeasured preferences about employment and grandchild care. Given the mixed findings in previous research about grandchild care and employment outcomes (Ho 2015; Lumsdain and Vermeer 2015; Rupert and Zanella 2018), examining this association using a fixed effects model may provide an insight into whether inconclusive results are indeed related to unmeasured preferences (Chapter 3).

Chapter two draws from intersectionality approach (Collins 2000), highlighting that individuals face varying opportunities and constraints in meeting or declining the demand for grandchild care. These constraints are based in part on intersection of gender, race-ethnicity, and class, typically measured with education. Previous literature on grandchild care documents that grandmothers engage in grandchild care more than grandfathers (Leopold and Skopek 2014 for Europe; Fuller-Thomson and Minkler 2001; Minkler and Fuller-Thomson 2000 for USA; Lee and Bauer 2010 for Korea) and that racial-ethnic groups may face different normative expectations for grandchild care and its demands (Chen et al. 2015; Fuller-Thomson and Minkler 2001; Luo et al. 2012). Together with gendered patterns in grandchild care (Leopold and Skopek 2014 for Europe; Fuller-Thomson and Minkler 2001; Minkler and Fuller-Thomson 2000 for USA; Lee and Bauer 2010 for Korea), NH Black and Hispanic women are prone to provide more grandchild care and to endorse

the prevalence of kin care assistance compared to NH White women (Dow 2015; Mendoza et al. 2018).

Furthermore, constrained circumstances created by either family norms, job/financial resources, or time availability related to work, leisure, and other types of activities may also create ambivalence about grandchild care due to the competing preferences shaped by the intersection of gender, race-ethnicity, and class. For example, NH Black or Hispanic grandmothers with higher education and good jobs with autonomy may have greater flexibility to manage both grandchild care and work when they are in need of caring for grandchildren. Furthermore, they may feel less ambivalent about caring for grandchildren because NH Black or Hispanic grandmothers may take grandchild caregiving for granted based on the normative expectations. On the other hand, NH White grandmothers with less education and jobs with little autonomy may find it stressful to provide grandchild care when the normative expectation for grandchild care is less strong than racial minorities and they have little job or financial resources to control their own life while helping out childcare.

Furthermore, labor force participation in later life may involve selective processes based on socioeconomic status (Moen, Flood, and Wang 2022; OECD 2018; Raymo, Warren, Sweeney, Hauser, and Ho 2010). Without considering omitted variables (i.e., individual differences in labor force attachment and/or differences in grandchild care preferences within race-ethnic groups), the association between time spent on grandchild care and labor force outcomes over time may be spurious. Thus, core analyses of my dissertation are different from previous work because I employ

fixed-effects models to take into account unobserved heterogeneity (time-constant) in grandchild care preferences and labor force attachment among older individuals (Chapter 3).

To better understand the association between grandchild care hours and employment outcomes, I first describe patterns in grandchild care by the intersection of gender, race, and class among grandparents and how that also varies by grandparents' employment status among those who provide any care in Chapter two. Next, in Chapter three of this dissertation, I examine whether and how time spent on grandchild care affects employment and work hours over time by using the Health and Retirement Study (HRS) between 2004, 2006, 2008, 2010, 2012, and 2014 and by employing fixed effects logistic and-linear regression models.

Chapter three contributes to role strain and role enhancement theory. Role strain theory maintains that engaging in multiple roles may produce adverse outcomes when competing roles result in stress (Goode 1960; Pearlin 1989). Employed grandparents who spend more time spent on grandchild care may feel stressful and overburdened, resulting in labor force exit or in reducing work hours over time. In contrast, role enhancement theory argues that having multiple roles increases well-being when the multiple responsibilities give a sense of satisfaction to individuals (Moen, Robison, and Dempster-McClain 1995). For some grandparents who are employed, spending more time with grandchildren as occasional caretakers can let them feel rejuvenated, happy, a sense of meaning, improve cognitive functioning, and even less depressed (Baker and Silverstien 2008 for USA; Choi, Jun, and Kim 2021; Choi 2022 for Korea; Fuller-Thomson and Serbinski 2014 for Canada; Meyer 2014

for USA). Accordingly, their employment status or work hours are not influenced by a change in time spent on grandchild care over time.

Lastly, little is known about whether and how time spent on grandchild care is associated with family-to-work conflict and work-to-family conflict over time. To fill the aforementioned gap, Chapter four examines whether and how grandchild care time influences family-to-work and work-to-family conflict among employed grandparents over time using the HRS between Wave 1 (2006 & 2008), Wave 2 (2010 & 2012), and Wave 3 (2014).[3] Guided by role strain/enhancement theory (Goode 1960; Moen, Robison, and Dempster-McClain 1995; Pearlin 1989) and spillover theory (Grzywacz and Marks 2000), I argue that employed grandparents with greater time spent on grandchild care are more apt to increase family-to-work conflict over time compared to those without such care. Spillover theory maintains that the source of tension matters for understanding family-to-work conflict and work-to-family conflict (Grzywacz and Marks 2000). Because grandchild care is a family-related activity derived from the domain of family, time spent on grandchild care may only influence family-to-work conflict, not work-to-family conflict.

If employed grandparents perceive an increase in time allocated to the grandchild care as extra burdens on them and as a disruption to their well-being (Meyer 2014), family-to-work conflict is more likely to be increased consistent with role strain theory (Goode 1960; Pearlin 1989). Although the adverse association

[3] Unlike Chapter two and three, Chapter four uses a psychosocial module of the HRS that is only administered every 4 years for a rotating sample of the HRS. Subsample A is administered in 2006, 2010, and 2014. Subsample B is administered in 2008 and 2012. I pooled subsample A and B to maximize sample size for Chapter 4. The Michigan HRS team advised me that pooling subsample A and B for psychosocial module is very common.

between childcare and work-family conflict can be found similarly in the childrearing and work-family conflict association among employed mothers with young children (Damaske 2011), no empirical study has examined this association among employed American grandparents who provide any time for grandchild care. This adverse association may be found among socioeconomically disadvantaged grandparents who have inflexible jobs yet decide to provide many hours of grandchild care.

However, unlike parents, not all employed grandparents feel obligated to provide grandchild care (Grünwald et al. 2022) because they may not perceive routine grandchild care as necessary, or they do not face the urgent demands for grandchild care. Hence, employed grandparents should not experience any change in family-to-work conflict linked with care if they do not provide any care to their grandchildren. In contrast, some employed grandparents may find that their time and physical/emotional resources, and actual time spent on work and grandchild care, fit together well. As a result, there is a decrease in family-to-work conflict, consistent with role enhancement theory (Moen, Robison, and Dempster-McClain 1995). For example, a low level of grandchild care, rather than substantial grandchild care (e.g., 500 hours or more), may decrease employed grandparents' family-to-work conflict because providing a small amount of time on grandchild care while being employed may not be burdensome in terms of time availability and fulfil a sense of meaning for grandparenthood. Furthermore, the ability of employed grandparents to change when, where, and how to do work can enable them to effectively manage their time devoted to grandchild care and work. Accordingly, engaging in both caregiving and work may mitigate their perceived level of family-to-work conflict.

In the next section, I first overview demographic and socioeconomic changes at the macro-level and discuss how these macro-level changes may relate to increased demands for grandchild care. In the following chapters, I review previous research on (1) prevalence of grandchild care, (2) linkages between time spent on grandchild care and employment/working time in later life and then discuss (3) how time spent on grandchild care may affect family-to-work and work-to-family conflict which may be a mediating mechanism between grandchild care and work link.

1.2. Backgrounds

As mentioned in the Introduction, grandparents have often served as a family safety net for grandchildren, especially when parents are absent (Bryson and Casper 1999; Cherlin and Furstenberg 1992; Pilkauskas, Dunifon, and Amorim 2017). However, the growth of single-parent and dual-earner families may highlight increasing demands for grandchild care that employed grandparents may face (Bailey and DiPrete 2016; Dunifon, Near, Ziol-Guest 2018; Jacobs and Gerson 2004 for USA; McGarrigle, Timonen, and Layte 2018 for Ireland). According to the Current Population Survey, the percent of children living with one parent rose from 11.8 to 26.6 between 1968 and 2018 (U.S. Census Bureau 2019). Additionally, 60 percent of married couples with children under 18 are dual-earner families in 2012, up from 25 percent in 1960 (Pew Research Center 2015). These changes in family structures and the division of household labor may indicate a rise in the need for grandchild care. For example, about 24% of non-coresidential children aged 5 and under were cared for by grandparents (Laughlin 2013). Although most American grandparents provide

grandchild care on an occasional basis (David and Nelson-Kakulla 2018), approximately 22% of American grandparents who provided grandchild care offered regular childcare (Pew Research Center 2015). Overall, grandparents (50%) are more likely to spend their time with young grandchild in a typical week, with 35% of them spending with elementary school children and 20% of them spending with teens (Dunifon, Near, Ziol-Guest 2018).

The need for grandchild care is considerable for low- and middle-income families, particularly given how expensive childcare can be. Overall, average weekly childcare costs for families with working mothers rose to $143 in 2011, up from $84 in 1985 (Pew Research Center 2015)[4]. For low- and some middle-income families, their wages may not be enough to afford market childcare.[5] In 2009, childcare expenses for low-income families are approximately $2,300 a year per child under age 6, which consists of about 14 percent of their annual income (Williams and Boushey 2010). In the same year, childcare costs about 6 percent to 9 percent of income among middle-income families, for an average of $3,500 per year (Williams and Boushey 2010).

Even if parents manage to afford market childcare, many available jobs for low- and some middle-class families have nonstandard work schedules that are

[4] Both costs are inflation-adjusted using the Bureau of Labor Statistics CPI in 2019.
[5] Although low-income families can receive childcare subsidies funded by federal and state governments, the subsidies are often scarce, and many eligible families for childcare subsidized programs tend not to use them (Williams and Boushey 2010). About 15 percent of children received childcare subsidies in 2015, despite 25.6 percent of children being eligible (Office of the Assistant Secretary for Planning and Evaluation 2019). This underuse of childcare subsidy is often attributable to a lack of knowledge for the eligibility or for the difficulty in completing an application process. Childcare subsidy programs are funded by the Child Care and Development Fund (CCDF) and other government funding associated with Temporary Assistance for Needy Families (TANF) and the Social Services Block Grant (Office of the Assistant Secretary for Planning and Evaluation 2019).

incompatible with operating hours of childcare centers. Some parents who have service jobs or who are nursing assistants often face on-call shifts or just-in-time work practices which inform them at short notice to work at night or on weekends (Clawson and Gerstel 2014; Schneider and Harknett 2019; Swanberg, Watson, and Eastman 2014). In this circumstance, grandparents may need to step in to look after their grandchildren, as there are no alternatives for parents (Bianchi and Milkie 2010; Cooney 2021; Meyer 2014). According to the 2004 SIPP, about one-third of low- and middle-income families received informal childcare, such as grandchild care (Williams and Boushey 2010). Among low-income families, two-thirds are single parent-families who ask family and friends to look after a child.

However, grandparents themselves are also working longer. This change is due in part to increasing life expectancy and economic insecurity related to marital instability and pension shifts (Cahill, Giandrea, and Quinn 2015; Goldin and Katz 2018; Kojola and Moen 2016). Life expectancy at birth has increased from 73.1 to 81.1 for women and from 66.6 to 76.1 for men between 1960 and 2017 (National Center for Health Statistics 2018). The full retirement age for Social Security benefits has also slowly increased over time as a way of reducing its fiscal burden to the national budget (Social Security Administration 2019).[6] Although one can claim Social Security benefits at age 62, the benefits are significantly reduced by claiming them before one's full retirement age (Maestas 2018). In addition, ten married adults for every 1,000 married adults aged 50 and older had divorced in 2015, up from five in 1990, according to data from the National Center for Health Statistics and the U.S.

[6] The full benefit age is 65 for those who were born in 1937 or earlier and has increased to become 67 for those who were born in 1960 and later (Social Security Administration 2019).

Census Bureau (Brown and Lin 2012; Pew Research Center 2017). These demographic and socioeconomic changes may influence older individuals to continue to stay in the workforce (Moen, Kojola, Kelly, and Karakaya 2016; Moen, Flood, and Wang 2022; Kojola and Moen 2016; Raymo, Warren, Sweeney, Hauser, and Ho 2010). Accordingly, labor force participation rates of those aged 55 to 64 years-old increased 9.5 percent for women and 4.2 percent for men between 1996 and 2018 (Bureau of Labor Statistics 2019a).[7]

The aforementioned socioeconomic and demographic changes at the macro-level suggest the importance of investigating whether and how varying levels of grandchild care demands that older people face even at a later life course stage may influence their employment decisions.

1.3. Contributions

This dissertation aims to extend existing research on the linkage between grandchild care provision and work in several ways. The first contribution of this dissertation is to document the patterns of grandchild care provision by the intersection of gender, race-ethnicity, class, and employment among adults born 1954-1959 (mid-Baby Boomers). Whereas recent cohorts of older individuals are strongly encouraged to prolong working life through a delay in claiming full Social Security benefits, not all individuals are able to continue working. Individuals face different opportunities and constraints to either provide grandchild care or to continue

[7] Men's labor force participation rates increased from 67% in 1996 to 71.2% in 2018 and women's rose from 49.6% in 1996 to 59.1% in 2018.

working based on the intersecting social locations of gender, race-ethnicity, class, and employment (Floridi 2023 for Italy and Korea; Luo et al. 2012; Moen, Flood, and Wang 2022). Although Baby boomer women are apt to have higher educational credentials and strong attachment to the workforce than previous cohorts (Carr 2019; Goldin and Katz 2018; Kojola and Moen 2016), little is known about whether and how the extent of grandchild care provision differs across the interplay of gender, race-ethnicity, class, and particularly employment by including younger baby boomers. As such, Chapter two fills this gap in the literature on the provision of grandchild care and lays out the foundation for better understanding the association between grandchild care and work outcomes investigated in Chapter three.

Second, chapter three of my dissertation makes a methodological contribution to the literature on grandchild care and employment outcomes by employing fixed-effects models that consider unobserved heterogeneity (time-constant) in preferences with respect to grandchild care and workforce attachment among older individuals to examine grandchild care time-employment/work hours linkage over time. Whereas literature on grandchild care and work in older ages documents that individuals have diverse preferences over them (Luo et al. 2012; Moen, Flood, and Wang 2022; Taylor, Chatters, and Cross 2021), previous work on the linkages between grandchild care and employment outcomes did not take into account individuals' heterogeneous preferences methodologically despite some research controls for the characteristics that may indirectly shape norms, resources, and the need for grandchild care (Lumsdain and Vermeer 2015; Ho 2015; Rupert and Zanella 2018).

Third, I examine the effect of time spent with grandchildren on employment outcomes over time, by excluding the arrival of a new grandchild, unlike prior work including both factors as time spent on grandchild care or the arrival of a new grandchild to examine their effects on work outcomes. While the arrival of a new grandkid may reflect possible demands for grandchild care (Lumsdain and Vermeer, 2015; Ho 2015; Rupert and Zanella 2018), it may tap into a different dimension of having new grandchild such as a new role transition to grandparenthood (Di Gessa, Bordone, and Arpino 2020; Sheppard and Monden 2019). Since these two factors are highly correlated as in previous studies noted (Lumsdain and Vermeer 2015), I solely examine the effect of time spent on grandchild care on work outcomes over time.

Fourth, chapter four of this dissertation is the first to delve into the association between time spent on grandchild care and family-to-work conflict/work-to-family conflict among employed older Americans using longitudinal datasets. Taken together, my dissertation contributes to extend both a small body of research on grandchild care and employment outcomes and robust research on family and work literature by (1) documenting patterns of grandchild care across the interplay of gender, race-ethnicity, class, and employment, by (2) examining its association between grandchild care and employment/working time using fixed effects models, and by (3) investigating family-to-work and work-to-family conflict as a potential social process behind the grandchild care-work link.

Chapter 2: Grandchild Care and Employment Outcomes

2.1. Research Questions and Literature Review

To better understand the association between time spent on grandchild care and employment/work hours in Chapter three, I first document how the prevalence of time spent on grandchild care among older Americans varies by the intersection of gender, race-ethnicity, class (proxied by education) and employment in Chapter two. Guided by previous research revealing gender differences in grandchild care (Fuller-Thomson and Minkler 2001; Minkler and Fuller-Thomson 2005; Luo et al. 2012; Leopold and Skopek 2014 for Europe), I first discuss whether the patterns differ by gender, race/ethnicity, and class. I then review relevant literature on grandchild care and its link with work status. Lastly, I review prior research on work engagement in later life by addressing some factors that may confound the association between grandchild care and employment outcomes over time.

Research on grandchild care provision consistently finds that gender, race-ethnicity, and class jointly influence the amount of time grandparents spend on caregiving and the nature of their caregiving roles. According to the theory of intersectionality (Collins 2000), these characteristics also reflect diverse needs and support for grandchild care, which are influenced by cultural norms associated with gender and race-ethnicity, family structure, and socioeconomic status. Specifically, prior findings from both U.S. and cross-national research consistently suggest the gendered nature of grandchild care (Leopold and Skopek 2014 for Europe; Fuller-Thomson and Minkler 2001; Minkler and Fuller-Thomson 2000 for USA; Lee and Bauer 2010 for Korea). In light of the gendered expectation surrounding caregiving

(Risman 1999; Sayer 2005), grandmothers are more likely to provide grandchild care than grandfathers. When grandfathers provide care, they tend to provide occasional and less demanding care as non-custodial grandfathers or become primary caretakers as custodial grandfathers (Fuller-Thomson and Minkler 2001; Minkler and Fuller-Thomson 2000 for USA; Hank and Buber 2009 for Europe). Accordingly, much of previous literature examining the prevalence and extent of grandchild care has largely focused on grandmothers rather than grandfathers (Luo et al. 2012; Musil et al. 2011; Hank and Buber 2009). Existing studies have used data only for women born before or during early baby boom, leaving open questions of how associations between grandchild care and grandparental employment/working time may differ among women born later during a period of employment and normative change.

Race and ethnicity also affects grandchild care. These racial-ethnic variations are attributed to the interplay of cultural norms and patterns of requesting and providing such care among racial-ethnic groups (Chen et al. 2015; Luo et al. 2012; Taylor, Chatters, and Cross 2021), coupled with distinct racial-ethnic differences in fertility, nuptiality, and mortality (Pilkauskas, Amorim, and Dunifon 2020). Although there could be socioeconomic variations in grandchild care within the same racial-ethnic group due to the interplay of gender, class, and employment, existing scholarship has not explored this possibility, generally focusing instead only on race-ethnicity (Cherlin and Furstenberg 1992). Culturally, Non-Hispanic (NH) White individuals typically value non-interference in their married adult children's lives unless their adult children are facing hardships (Cherlin and Furstenberg 1992; Pebley and Rudkin 1999; Radey and Brewster 2007). In contrast, NH Blacks and Hispanics

appear to be influenced by the norm of kin-care that each group has developed culturally, structurally, and historically (Dow 2015; Kamo 2000; Mendoza et al. 2018; Minkler and Fuller-Thomson 2005; Park, Wiemers, and Seltzer 2019; Wilson 1989). Regardless of socioeconomic characteristics, NH Black mothers and Hispanic mothers tend to prefer grandparental and relative care over non-relative care, aiming to reduce early exposure to racial discrimination and to expose their children to culturally appropriate racial and ethnic socialization (Baca Zinn and Wells 2000; Dow 2015; Mendoza et al. 2018).

In addition, grandparents with higher socioeconomic status (i.e., higher levels of education and financial resources) are less likely to engage in childcare extensively or on a regular basis as opposed to those with lower socioeconomic status (Di Gessa, Glaser, and Zaninotto 2022 for Europe; Fuller-Thomson and Minkler 2001; Luo et al. 2012). Rather, grandparents with higher socioeconomic status often provide various forms of support for their grandchildren, including financial assistance and occasional grandchild care, such as babysitting during urgent occasions or helping with homework and giving advice (Di Gessa, Glaser, and Zaninotto 2022; Park, Wiemers, and Seltzer 2019). They may also engage in activities, such as visiting museums, to contribute to the accumulation of cultural capital (King and Elder 1998; McGarrigle, Timonen, and Layte 2018). These efforts aim to allow their adult children to have some free time, to promote the intergenerational transmission of cultural and social capital, and to help save money that might otherwise be spent on private childcare (Di Gessa, Glaser, and Zaninotto 2022; Lee and Aytac 1998; Luo et al. 2012).

In contrast, grandparents with less education are more likely to do regular, demanding, and hands-on grandchild care activities (e.g., cooking, driving grandchildren to/from school) than their more educated counterparts (Di Gessa, Glaser, and Zaninotto 2022). Compared to grandparents with higher socioeconomic status, those with lower socioeconomic status report feeling less able to decline the request for grandchild care (Grünwald et al. 2022; McGarrigle, Timonen, and Layte 2018). Additionally, research on the reproduction of intergenerational stratification notes that adult children of parents with higher socioeconomic status are more likely to have similar socioeconomic status with their own parents (Mare 2011; Pfeffer and Killewald 2018). Accordingly, grandparents with higher socioeconomic status may not face an intense demand for grandchild care in the first place, leading to fewer difficulties in turning down such request for grandchild care compared to those with lower socioeconomic status.

In addition to the intersecting influences of gender, race/ethnicity, and class on the demand and supply of grandchild care, employment also shapes the availability of grandchild care (Danielsbacka and Tanskanen 2012; Dunifon, Near, and Ziol-Guest 2018; Hank and Buber 2009; Lee and Tang 2015). In line with previous studies documenting a reciprocal relation between caregiving and employment (Clawson and Gerstel 2014; Lee and Tang 2015), employed grandparents may not have enough time to accommodate childcare on a regular basis as opposed to non-employed grandparents (Hank and Buber 2009). Similarly, grandparents who work part-time or are out of the labor force may provide more grandchild care than full-time grandparents due in part to their greater availability of

time (Danielsbacka and Tanskanen 2012). However, depending on model specifications, the effect of being out of the labor force on the extent and nature of grandchild care may differ. Counter to studies using cross-sectional data that find negative associations between employment and the level of grandchild care (Hank and Buber 2009; Lee and Bauer 2010; Luo et al. 2012), studies that use longitudinal data find that unemployment has no effect or a positive effect on the level of grandchild care (Lakomý and Kreidl 2015). One contribution of this dissertation is building on the limited evidence base investigating with longitudinal data how grandparental care is linked with employment over the life course.

Prior research documents that grandchild care provision is also linked to demographic characteristics: age, health, and marital status (Di Gessa, Glaser, and Zaninotto 2022; Dunifon, Near, and Ziol-Guest 2018; Fuller-Thomson and Minkler 2001; Luo et al. 2012; Minkler and Fuller-Thomson 2000). First, age is an important factor for determining whether grandparents can physically provide grandchild care. Compared to older grandparents, their younger counterparts are prone to take care of grandchildren as either primary caregivers while living with their adult child or to provide regular grandchild care or babysitting while living apart (Di Gessa, Glaser, and Zaninatto 2022; Fuller-Thomson and Minkler 2001). Age is also associated with morbidity, and healthier grandparents are more likely than less healthy grandparents to provide some grandchild care (Henretta, Grundy, and Harris 2002; Luo et al. 2012; Margolis and Wright 2017). With regard to marital status, married grandparents may have more time/energy resources to attend to grandchildren as their own spouse can

economically support them while they provide grandchild care (Ho 2015; Leopold and Skopek 2014; Luo et al. 2012).

Numerous studies on the provision of grandchild care document that the extent and meaning of providing grandchild care largely depend on co-residential status, which pertains to the demands and supply of grandchild care (Chen et al. 2015; Dunifon, Near, and Ziol-Guest 2018; Fuller-Thomson and Minkler 2001; Harvey, Dunifon, and Pilkauskas 2021; Luo et al. 2012). Specifically, grandparents who live in skipped-generation household (either custodial or not) tend to provide time-intensive care to grandchildren than those who co-reside with both adult children and grandchildren (Baker, Silverstein, and Putney 2008). On the other hand, those who do not reside with grandchildren are more likely to provide occasional childcare or babysitting if they decide to engage in grandchild care (Dunifon, Near, and Ziol-Geist 2018; Luo et al. 2012). However, even among grandparents who live in a separate household, some of them tend to provide care on a regular basis to grandchildren particularly when their adult children are in the workforce and have a difficulty in securing childcare (Meyer 2014). As the share of multigenerational households, which includes both grandparents, adult children, and grandchildren, has increased over the past two decades (Harvey, Dunifon, and Pilkauskas 2021; Pilkauskas, Amorim, and Dunifon 2020), it remains important to control for coresidential status in exploring the link between grandchild care and employment outcomes over time. In the next section, I explain data and measures on gender, race/ethnicity, class, and employment status. Finally, I document the prevalence of grandchild care by grandparents' gender, race/ethnicity, class, and employment status.

2.2. Data

This dissertation uses the Health and Retirement Study (HRS). The HRS provides a nationally representative and longitudinal information on demographic and socioeconomic characteristics and intergenerational transfers of American adults over 50 and older. Since 1992, the HRS biannually surveyed respondents and their spouses who were born between 1931 and 1941. New cohorts have been added to the HRS, when individuals become 51 years of age and older. Black and Hispanic populations are oversampled in the HRS. By doing so, the HRS ensures to represent population of older Americans. The baseline interviews were completed for 12,654 individuals in 7,702 households in 1992. For individual- and family- characteristics, I mostly use the RAND HRS to facilitate longitudinal analyses and to have consistency of variables across waves (St. Clair et al. 2010). Because the RAND HRS document recommends researchers to use individual weights to account for the complex sample design and to represent the U.S. population (Smith et al. 2017), I apply individual weights for analyses.

For Chapter two and three, I include all respondents who are grandparents and those who are at risk of having a grandchild (i.e., those who have at least a living adult child) between 2004, 2006, 2008, 2010, 2012, and 2014. Although there is a possibility that grandparents have a new grandchild through stepfamilies, research shows that grandparents tend to provide care to biological grandchildren than step-grandchildren (Seltzer, Yahirun, and Bianchi 2013).

Among 109,322 person-year observations of 26,533 individuals, I first exclude respondents who have missing information on grandchild care (3.8%) and

those do not have a living adult child (3.23%). This restriction yields 105,824 person-year observations of 25,401 individuals. I drop cases that are overlapped and have linkage problems (4.49%). I also exclude respondents who are disabled (2.5%) because people with disabilities may have a difficulty in engaging in both caregiving and paid work. Of 98,591 person-year observations of 23,518 individuals, I exclude missing values on any variables included in the analyses (5.9%) and select those with at least two observations across survey rounds (exclude 3.9%), to facilitate my estimation of fixed-effects models, which require multiple observations from each respondent. This restriction results in 89,129 person-year observations of 20,451 respondents.

Furthermore, I limit my sample to respondents aged 51 to 67 because the effective retirement age in the U.S. is approximately 67 years old both for women and men (OECD 2018).[8]By using this age restriction (51-67), I can test the true effect of grandchild care time on work outcomes among grandparents. As such, this restriction excludes those who are over 67 years old (exclude 51.3%). Due to the very small sample size of other race-ethnic groups, I exclude this category (3.3 %). To sum up, the final analytic sample size is 41,974 person-year observations of 11,818 individuals. The final sample for women is 24,862 person-year observations of 6,701 individuals and that for men is 17,112 person-year observations of 5,117 individuals.

[8] The average effective labor market exit age for women and for men is 65.4 and 66.8, respectively. Women and men in the lowest tertile withdraw from the labor market around 61 years old and 62 years old, respectively. Men who are in the highest tertile leave the workforce at about 70 years old and women leave the workforce at 68 years old (OECD 2018).

2.3. Measures

To provide a demographic profile of grandparents who provide childcare, I break-down time in grandchild care by gender, race-ethnicity, education, and employment status. Chapter three presents multivariate analysis and focuses on variation by gender. Those analyses control for other variables documented to affect time spent on grandchild care and employment/work hours.

2.3.1. Dependent Variable

Grandchild care is measured with the question on *time spent on grandchildren*, specifically respondents indicating how many hours were spent on grandchild care in the last two years. I construct time spent on grandchild care variable from the HRS questions: "Did you spend 100 or mor hours in total (since previous wave interview in the last 2 years) taking care of grandchildren/great-grandchildren?" "If yes, roughly how many hours altogether did you spend?"[9] Grandparents who have a grandchild but do not provide any grandchild care and/or those who have an adult child but don't have a grandchild yet are coded zero hours. I create four types of grandchild care using the 2004-2014 HRS (0 hours, 1-99 hours, 100-499 hours, and 500 or more hours). Throughout my dissertation, I classify 1-99 hours as a low level of grandchild care, 100-499 hours as an intermediate level of grandchild care, and 500 or more hours as substantial grandchild care. Because this grandchild care variable measures time spent on grandchild care over the two years, it is particularly limited in that it

[9] Grandchild care questions are retrieved from page 29-30 in the HRS questionnaire (https://hrs.isr.umich.edu/sites/default/files/meta/2010/core/qnaire/online/06hr10E.pdf).

obscures distinct experiences of substantial caregivers. To illustrate weekly care hours that each group spent, I divide both the lower and upper threshold in each category by 104 weeks.[10] For example, low caregiving engagement (1-99 hours) means that grandparents spent roughly 0.9 hour per week. Grandparents in the intermediate level of grandchild care (100-499 hours) spent an average of 1 to 4.7 hours per week. Those who provided substantial care (500 hours or more) provided an average of 5- 96 hours (the maximum value) of care per week. This approximate weekly estimation highlights the diversity among substantial caregivers. Some grandparents who devoted 96 weekly hours to grandchild care may be primary caregivers, whereas those spending 4.8 hours per week may consider their level of grandchild care moderate.

2.3.2. Independent Variables

Women are coded 1, and men are coded as 0.

Race-ethnicity includes Non-Hispanic (NH) White, NH Black, and Hispanic. I exclude other racial and ethnic groups because sample sizes are too small to include as a separate category.

Education is measured as less than high-school, GED/high-school graduate, some college, and college and post-graduate degrees. Prior research shows that older adults

[10] Similar to Ho (2015), the choice of 104 hours is based on the calculation that a calendar year, with 365 days (except for a leap year every four years), is divided by 7 (the number of days in a week). This division results in an average of 52.143 weeks in a year, and consequently, two years consist of 104 weeks.

with higher education tend to work longer hours and continue working for a more extended period in their lives than those with lower education (Carr 2019; Ekerdt, Kosloski, and DeViney 2000; Goldin and Katz 2018; Moen, Flood, and Wang 2022). In my analyses, those who have a high school diploma or less are coded as 0 and those who have some college or more education are coded as 1.

Employment status is categorized as employed and not employed. Those who are employed are coded as 1 and those who are not employed are coded as 0. As mentioned earlier, I did not include respondents with disabilities in my sample as they may serve as an absorbing factor. Although Ho's study (2015) excludes respondents who are not in the labor force, I include respondents who are not in the labor force because there are minor labor force status transitions among those who were not in the labor force in the first wave. Also, I ran sensitivity analyses without including respondents who are not in the labor force and results change little.

2.3.3. Controls

The ***demographic characteristics*** include time-invariant (cohort) and time-varying (age, marital/partnership status) variables.

Cohort is categorized as AHEAD (born before 1924) & Children of Depression (born 1924-1930) & HRS (HRS cohort refers to the original cohort which was recruited in 1992 and includes those who were born 1931-1941), War Babies (WB) (born 1942-1947), Early Baby Boomers (EBB) (born 1948-1953), and Middle Baby Boomer

(born 1954-1959)[11]. As mentioned in the literature, women's attachments to the workforce and their patterns of providing grandchild care vary across cohorts (Carr 2019; Bao and Chen 2019). The reference group for cohort is AHEAD & Children of Depression & HRS.

Age is a continuous measure. As individuals age or are in the latter life stage, they are more likely to withdraw from the labor market and to reduce work hours (Moen, Flood, and Wang 2022).

Age indicator for 62 is categorized into two groups: respondents who are over 61 and those aged 61 or younger. Because individuals older than 62 become eligible for early social security benefits, this age indicator may indicate an incentive for people to withdraw from the labor force if they face competing demands for grandchild care and work.

Marital status is categorized as two groups: married/cohabiting and never married/separated/divorced/widowed (reference group). Primary and custodial caregivers were more likely to be married than widowed/divorced/separated/never married (Fuller-Thomson and Minkler 2001). Married/cohabiting individuals are coded as 1, otherwise coded 0.

The ***socioeconomic characteristics*** are time-varying variables (parental household net wealth accumulated at each wave, parental household annual income, and health status).

Parental household net worth and parental household income are continuous measures. Due to the skewness, I use logged *parental household income* and parental household net worth is used as inverse hyperbolic sine of income for final analyses.

Health status is measured by self-reported health status on a scale of 1 to 5 (reversed coding is used so that the highest value indicates the best health status). Frail grandparents are less likely to provide grandchild care on a regular basis (Fuller-Thomson 2011).

Adult child characteristics and intergenerational transfer. Although grandparents are major agents for deciding whether to provide grandchild care, existing studies show that adult children's characteristics are more crucial factors than grandparent's own characteristics for whether grandparents provide grandchild care (Cooney 2021; Fuller, Holloway, and Liang 1996; Liu 2015; Radey and Brewster 2007).

Adult child characteristics include the number working full-time, the number of grandchildren, and co-residence. The number of adult children working full-time and the number of grandchildren are continuous measures. More grandchildren may suggest increased demands for grandchild care and previous findings show that

grandparents who have multiple grandchildren were more likely to be caregivers than others (Fuller-Thomson et al. 1997). With regard to co-residence status, respondents who live with grandchildren are coded 1, otherwise coded 0. The variables indicating grandchild care needs come from the RAND HRS Family respondent level data.

Intergenerational transfer variables are measured by elder caregiving status and financial transfer from/to children. Elder caregiving status is a binary variable which is coded 1 if respondents provide any care for the elder adults and coded 0 otherwise. If there is no living parent, I also assign 0 to the elder caregiving status. If respondents receive or provide financial support from/to children, I coded these two variables as 1 and coded 0 otherwise.

2.4. Method

In this chapter, I first report descriptive statistics by gender using the full analysis sample[12]. I then focus on those who have at least one grandchild to examine the overall prevalence of grandchild care by gender, race-ethnicity, class respectively,

[12] Appendix A shows descriptive results by gender and the presence of grandchild. Generally, those without a grandchild are younger, better educated, and socioeconomically advantaged compared to those with a grandchild. These socioeconomic and demographic differences between those without a grandchild and those with a grandchild may influence the association between grandchild care time and employment/work hours in Chapter three. In other words, as respondents who have a grandkid tend to be older and be socioeconomically less advantaged, they are more likely to withdraw from the labor force if they decide to provide many hours of grandchild care and their income is not high enough to continue working given their low socioeconomic status (i.e., opportunity cost of leaving the labor force is low). In contrast, those with a grandkid could remain in the labor force by not providing any care or by engaging in low or intermediate levels of grandchild care if their advantageous socioeconomic status enables them to help adult children through monetary assistance or to work flexibly.

and their intersections. Lastly, I present estimates that indicate if the amount of time devoted to grandchild care significantly differs by the interplay of gender, race-ethnicity, class, and employment among grandparents who provide any care to grandchildren. To do so, post-hoc pairwise chi-square comparisons were conducted to examine whether variations in the proportion across different levels of grandchild care are statistically significant.

2.5. Results

2.5.1. Descriptive Results

Table 2.1 shows weighted means and proportions by gender. Although I show descriptive statistics by gender, note that women make up 59% of the analytic sample and men 41%. For work outcomes, men (68.7%) have higher employment levels than women (57.5%). Similar to gendered patterns in employment status, men report higher work hours (29 hours per week) than women (21 hours). The low average number of work hours may result from including respondents who are retired, unemployed, and those who are not in labor force.

For demographic characteristics, the average age of respondents is about 60 years old for both women and men. Married respondents are more common than those who are divorced, separated, widowed, or never married for both women (70.2%) and men (83.1%). The composition of race/ethnicity is similar for women and men. Regardless of gender, the majority of respondents are non-Hispanic whites

Table 2.1. Descriptive Statistics, HRS 2004-2014

	Women		Men	
	Mean or %	SD	Mean or %	SD
Focal variables				
Race-ethnicity				
NH White	80.1		82.1	
NH Black	10.8		9.1	
Hispanic	9.1		8.9	
Education				
LT HS & HS/GED	46.0		40.1	
Some College, CL, and Above	54.0		59.9	
Employment (yes=1, no=0)	57.5		68.7	
Work hours (for main job)	20.5	(20.4)	29.2	(22.8)
Controls				
Demographic characteristics				
Age	59.7	(4.7)	59.6	(4.7)
Age indicator for 62	37.3		36.3	
Cohort				
AHEAD & Children of Depression & HRS (born before 1941)	20.8		11.5	
War Babies (born 1942-1947)	31.5		28.8	
Early Baby Boomers (EBB, born 1948-1953)	32.7		39.0	
Mid Baby Boomers (MBB, born 1954-59)	15.0		20.7	
Marital status (ref. divorced/separated/widowed/never married)				
Married/partnered	70.2		83.1	
Divorced/separated/widowed/never married	29.8		16.9	
Race-ethnicity				
NH White	80.1		82.1	
NH Black	10.8		9.1	
Hispanic	9.1		8.9	
Socioeconomic characteristics				
Labor force status				
Full-time	38.6		56.8	
Part-time	11.8		4.3	
Unemployed	2.9		3.4	
Phased/bridge retired	7.2		7.7	
Retired	30.7		27.1	
Not in labor force	8.9		0.7	
Household total wealth (housing + non-housing assets) in $1,000	513.5	(1227.4)	584.9	(1434.7)
Household total annual income in $1,000	89.0	(263.1)	108.0	(179.6)
Self-reported health (1: poor - 5: excellent)	3.4	(1.1)	3.4	(1.1)
Children characteristics				
# of children working full-time	2.0	(1.4)	1.8	(1.3)
# of grandchildren	4.1	(4.5)	3.4	(4.2)

Coresidence	8.0	5.0
Other Controls		
Intergenerational transfer		
Financial transfer to children	45.6	50.6
Financial transfer from children	5.1	2.9
Eldercare	7.2	3.4
N (person-year)	24,862	17,112

Source: Health and Retirement Study, 2004, 2006, 2008, 2010, 2012, 2014.
Notes: Descriptive statistics are weighted to represent the U.S population and sample size is unweighted. I aggregate AHEAD & Children of Depression & HRS cohorts into one category due to small sample size for each cohort. Mid Baby Boomers first entered the HRS in 2010. Household wealth and income are inflation-adjusted using CPI in 2020.

(about 80-82%) in my sample. Approximately 60% of men and 54% of women have some college or above credentials. Additionally, more than half of men are employed full-time, whereas about 38% of women are employed full-time and more women than men work part-time. The distribution of phased retirement (7 %) or full retirement (about 27-30 %) is similar by gender. Additionally, a larger proportion of women are not in the labor force (9%) compared with men (0.7%).

Inflation-adjusted average annual earnings in $1,000s are 89 dollars for women and 108 dollars for men. Inflation-adjusted household wealth that include both housing and non-housing assets in $1,000s is 513.5 dollars for women and 584.9 dollars for men. The average wealth in my sample is slightly below the average wealth (OECD 2018). However, it exceeds the median household net wealth that Americans aged 45 to 69 have, which is $267.8 for $1,000s, according to the Survey of Income and Program Participation (Sullivan, Hays, and Bennet 2023). Regardless of gender, respondents are healthy considering the average score of health (3.4 on a scale of 1 to 5).

The number of adult children working full-time is on average two and the number of grandchildren on average is four among women and three for men. Consistent with prior research that shows the proportion of grandchildren living with grandparents ranging between 5% and 10% (Pilkauskas, Amorim, and Dunifon 2020), roughly 8% of women co-reside with grandchildren and 5% of men do so in my sample. Lastly, higher proportions of grandparent transfer money to adult children than receive transfers from adult children, as found in prior work documenting downward flows of financial resources (Swartz 2009). Lastly, more women (7.2%) than men (3.4%) provide elder care.

2.5.2. Grandchild Care by Gender, Race-ethnicity, and Class

2.5.2.1. Grandchild Care by Gender

As shown in Table 2.2, the proportion of each grandchild care level among those with a grandchild varies by gender. Irrespective of gender, grandparents who provide no care are more common than those who provide any care. More grandmothers (21.8%) report 500 hours or more hours in grandchild care compared with grandfathers (12.5%). This is consistent with the literature documenting that women tend to engage in grandchild care substantially compared to men (Luo et al. 2012). Additionally, grandfathers are more likely to report no time in grandchild care or 1-99 hours compared with grandmothers.

Within-gender differences in the levels of grandchild care are significantly different. Among grandmothers who provide any care, engaging in substantial

Table 2.2**.** Percent of Grandchild Care by Gender among Grandparents

	Women	Men	Gender diff.
No hours	53.0%	60.5%	*
1-99 hours	7.5%	13.8%	*
100-499 hours	17.7%	13.2%	*
500 hours or more	21.8%	12.5%	*
F-test (within-gender)	1390.8***	523.5***	
Overall F-test		170.5***	
N	20,400	12,795	

Notes: * p<0.05; ** p<0.01; *** p<0.001

grandchild care (500 hours or more) is the most common, followed by intermediate level (100-499 hours) of and low level of (1-99 hours) grandchild care. In contrast, for men, only certain comparisons (i.e., no hour versus 1-99 hours, no hour versus 100-499 hours, and no hour versus 500 hours or more) show statistically significant differences. The share of grandfathers providing low, intermediate, substantial levels of grandchild care is similar, ranging from 12 % to 14%.

2.5.2.2. Grandchild Care by the Intersection of Gender and Race-ethnicity

As shown in Table 2.3, grandmothers report more time in grandchild care among all racial and ethnic groups. Specifically, larger shares of NH White grandmothers than grandfathers report doing 100-499 hours or 500 hours of care. NH Black and Hispanic grandmothers also do more intermediate and substantial grandchild care than same-race grandfathers.

Table 2.3. Percent of Grandchild Care by Gender, Race-Ethnicity among Grandparents

	NH White^{W}			NH Black^{B}			Hispanic^{H}			Ethnoracial differences within	
	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men
No hour	52.6%	58.9%	*	52.1%	65.9%	*	57.6%	68.2%	*	W,B≠H	W≠B,H
1-99 hours	7.7%	14.5%	*	7.0%	11.8%	*	6.7%	9.8%	*		W≠B,H
100-499 hours	18.9%	14.3%	*	13.9%	9.1%	*	13.4%	9.4%	*	W≠B,H	W≠B,H
500 hours or more	20.9%	12.4%	*	27.0%	13.2%	*	22.3%	12.6%	*	W,H≠B	
F-test (within-gender)	860.4 ***	478.9 ***		344.7 ***	168.9 ***		266.7 ***	453.1 ***			
Overall F-test						42.3 ***					
N	12,932	8,497		4,497	2,335		2,971	1,963			

Notes: " ≠" indicates significant racial-ethnic differences at the 0.05 alpha level. "W" indicates Non-Hispanic Whites, "B" indicates Non-Hispanic Blacks, and "H" refers to Hispanics.

* p<0.05; ** p<0.01; *** p<0.001

Racial-ethnic variations in each level of grandchild care are significantly different among women who have at least one grandchild, for some comparisons. The proportion of NH White grandmothers who spend no hour on grandchild care (52.6%) is not statistically different from that of NH Black grandmothers (52.1%) but is lower compared with Hispanic grandmothers (57.6%). In terms of low grandchild care category (1-99 hours), none of racial-ethnic comparisons of grandmothers are statistically significantly different.

In contrast, the proportion of NH White grandmothers who report 100-499 hours on grandchild care (18.9%) is higher than the proportion of NH Black grandmothers (13.9%) and Hispanic grandmothers (13.4%). Smaller shares of NH White (20.9%) and Hispanic grandmothers (22.3%) also report providing 500 hours or more of grandchild care, compared with NH Black grandmothers (27%).

Likewise, there are racial-ethnic variations in each level of grandchild care hours among grandfathers. The proportion of NH White grandfathers who do not spend any time providing grandchild care in the past two years (58.9%) is smaller than that of NH Black grandfathers (65.9%) and Hispanic grandfathers (68.2%). In contrast, the proportion of NH White grandfathers who spent either 1-99 hours (14.5%) or 100-499 hours (14.3%) for grandchild care is greater than NH Black and Hispanic grandfathers. Lastly, there are no statistically significant racial-ethnic differences in the proportion of grandfathers who report 500 or more hours of grandchild care. In short, NH White grandfathers spend their time on grandchild care at either a low level (1-99 hours) or an intermediate level (100-499 hours) relative to NH Black and Hispanic men, respectively.

2.5.2.3. Grandchild Care by the Intersection of Gender and Class

As indicated in Table 2.4, there are gender differences in the distribution of grandmothers' and grandfathers' grandchild care, regardless of educational credentials. Similar to the gendered patterns of grandchild care shown in Table 2.3, higher proportions of grandmothers reported intermediate type of grandchild care (100-499 hours) or substantial care (500 or more hours) than grandfathers across both educational groups.

Shifting focus to educational differences for grandmothers, Table 2.4 indicates that a slightly higher proportion (3 percentage points) and slightly lower proportion (about 3.4 percentage points) of those with a high school diploma or less report no hours and 100-499 hours respectively compared with grandmothers with some college or more education. Similar proportions of grandmothers engage in the low level of grandchild care (1-99 hours) and substantial grandchild care (500 hours or more) across education categories.

Except for the category of devoting 500 hours or more to grandchild care, education also differentiates grandfathers' care levels. Grandfathers have similar patterns as grandmothers: a higher proportion of less educated report no grandchild care and lower proportions report low and intermediate levels of care.

Table 2.4. Percent of Grandchild Care by Gender, Class among Grandparents

	High school graduate or less			Some college and above			Differences between educational groups	
	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men
No hour	54.5%	63.0%	*	51.3%	58.4%	*	*	*
1-99 hours	7.6%	12.4%	*	7.5%	14.9%	*		*
100-499 hours	16.1%	11.8%	*	19.5%	14.5%	*	*	*
500 hours or more	21.9%	12.8%	*	21.6%	12.2%	*		
F-test (within-gender)	718.9***	391.2***		765.6***	286.5***			
Overall F-test				46.6***				
N	11,257	6,524		8,825	6,158			

Notes: * p<0.05; ** p<0.01; *** p<0.001.

2.5.2.4. Grandchild Care by the Intersection of Gender, Race-ethnicity, and Class

As shown in Table 2.5, gender differences remain significant with higher proportions of grandmothers reporting the intermediate level of grandchild care (100-499 hours) or substantial grandchild care (500 hours or more), across education and racial-ethnic groups, except for Hispanic Americans who have at least a college degree or more. On the other hand, grandfathers are more likely than grandmothers engage in grandchild care for 1-99 hours, irrespective of race-ethnicity and education. Specifically, the differences between men's proportion of spending 1-99 hours on grandchild care and women's range from 3.3% (Hispanic Americans with a high school diploma or less) to 8% (NH White Americans with a college degree or more).

There are also race-ethnic variations in the distribution of grandchild care by educational attainment. Among women who graduated from high school or less, Hispanic women report the highest proportion of spending no hour for grandchild care (58.9%) relative to NH White women (53.5%). In contrast, there is no significant variation in the share of spending 1-99 hours on grandchild care across any racial-ethnic groups. With regard to devoting 100-499 hours to grandchild care, more NH White women with a high school diploma or less (17.5%) contribute to 100-499 hours of grandchild care, relative to NH Black women (12.1%) and Hispanic women (12%) who have the same education. Consistent with the literature on the widespread practice of grandchild care among Black women (Dow 2015; Luo et al. 2012), NH Black women with a high school diploma or less report the highest proportion of grandchild care spending 500 hours or more (25.6%) and its difference with less-

Table 2.5. Percent of Grandchild Care by Gender, Race-Ethnicity, Class among Grandparents

High school graduate or less than	NH White^{W}			NH Black^{B}			Hispanic^{H}			Ethnoracial differences within	
	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men
No hour	53.5%	61.0%	*	55.6% ‡	65.7%	*	58.9%	70.1%	*	W≠H	W≠H
1-99 hours	7.9%	13.0% ‡	*	6.7%	12.0%	*	6.8%	10.1%	*		W≠H
100-499 hours	17.5% ‡	13.4%	*	12.1% ‡	8.6% ‡	*	12.0% ‡	7.2% ‡	*	W≠B,H	W≠B,H
500 hours or more	21.1%	12.7%	*	25.6%	13.8%	*	22.3%	12.6%	*	W≠B	
F-test (within-gender)	458.4***	277.8***		383.1***	105.1***		177.1***	190.7***			
Overall F-test						214.2***					
N	6,671	3,764		2,412	1,343		2,174	1,417			

Some College, CL, Above	NH White^{W}			NH Black^{B}			Hispanic^{H}			Ethnoracial differences within	
	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men
No hour	51.7%	57.3%	*	48.0% ‡	66.3%	*	53.4%	63.7%			W≠B
1-99 hours	7.6%	15.6% ‡	*	7.5%	11.7%	*	6.5%	9.1%			W≠H
100-499 hours	20.1% ‡	14.9%	*	16.0% ‡	9.7% ‡	*	17.9% ‡	14.8% ‡		W≠B	W≠B
500 hours or more	20.6%	12.2%	*	28.5%	12.4%	*	22.2%	12.4%	*	W≠B	
F-test (within-gender)	543.6***	230.4***		95.5***	122.1***		82.8***	42.2***			
Overall F-test						255.5***					
N	6,093	4,668		2,013	968		719	522			

Notes: "≠" indicates significant racial-ethnic differences at the 0.05 alpha level. "W" indicates Non-Hispanic Whites, "B" indicates Non-Hispanic Blacks, and "H" refers to Hispanics. Proportions in the same column for the equal employment status sharing ‡ sign show educational differences at the 0.05 alpha level.
* p<0.05; ** p<0.01; *** p<0.001.

educated NH White women's share (21.1%) is the largest (4.5%) and only significant.

College-educated women's variations in grandchild care by race-ethnicity are also similar to their women educational counterpart's. NH White women with higher education report the highest proportion of spending 100-499 hours on grandchild care (20.1%), relative to NH Black women counterpart (16%). In contrast, a large proportion of NH Black women with a college degree or more (28.5%) are observed to dedicate the highest number of hours (500 hours or more) to grandchild care compared to NH White women (20.6%).

In terms of men who graduated from high school or less, only NH White-Hispanic men's differences in spending either no hour or 1-99 hours with grandchildren are found, with other comparison groups not showing any significant differences in these categories. Specifically, more Hispanic men with lower levels of education (70.1%) do not spend any hour for grandchild care than NH White men with the same educational attainment (61%), whereas more NH White men with lower levels of education (13%) engage in the low level of grandchild care (1-99 hours) than Hispanic men with the same educational credential do (10.1%). NH White men with a high school diploma or less (13.4%) are more apt to devote 100-499 hours to grandchild care compared to NH Black men (8.6%) and Hispanic men (7.2%) with the same educational attainment.

Significant variations in grandchild care time emerge among men with some college education or more. NH White men and NH Black men show distinct patterns, with notable differences found in the proportion of those who spend no hours (White: 57.3% vs. Black: 66.3%) and those who spend 100-499 hours (White: 14.9% vs.

Black: 9.7%). Additionally, NH White men (15.6%) demonstrate the highest proportion of spending 1-99 hours on grandchild care across race-ethnicity, which is particularly significant compared to their Hispanic male counterparts (9.1%).

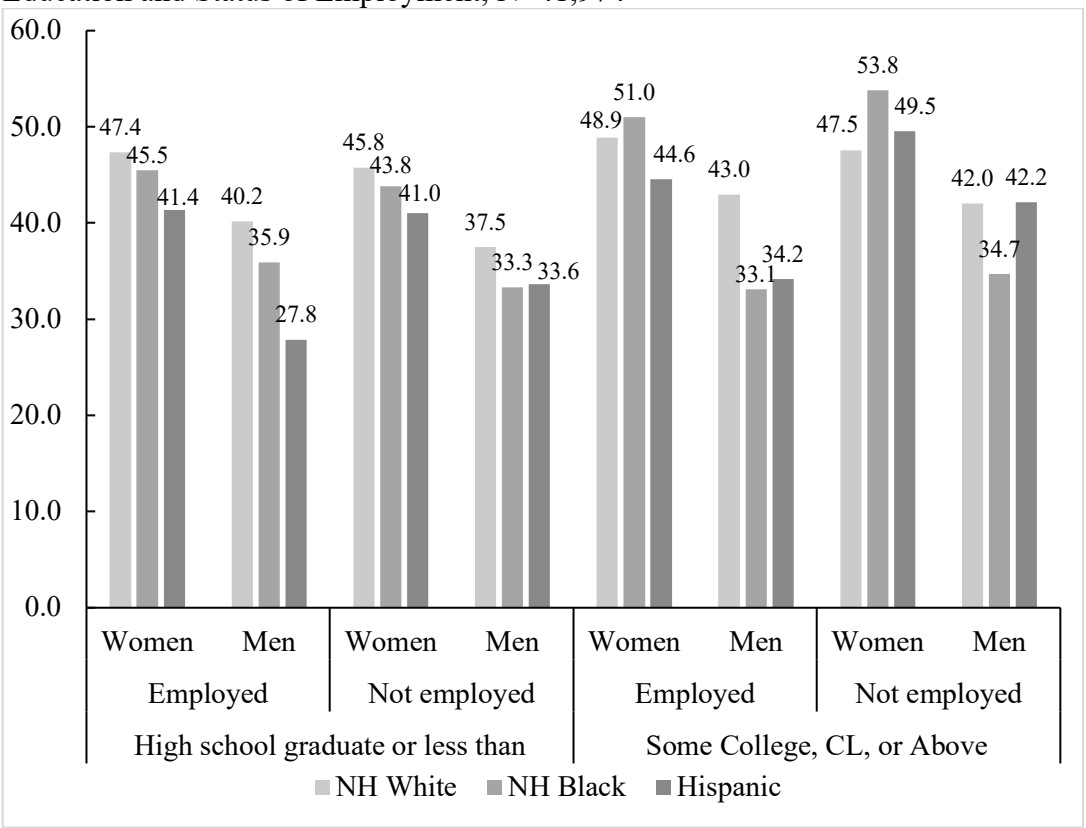
There are also educational variations in the proportion of each level of grandchild care within the same gender and race-ethnic groups. Notably, an educational difference is observed exclusively among Black women, who are more likely to report not spending any time on grandchild care (HS: 55.6% vs. CL: 48%). Second, more NH White women with a college degree or more (20.1%) engage in grandchild care at the intermediate level (100-499 hours) compared to NH White women with a high school diploma or less (17.5%). This educational pattern of involvement in intermediate-level grandchild care is similarly observed among NH Black women (HS: 12.1% vs. CL: 16%) and Hispanic women (HS: 12% vs. CL: 17.9%).

The educational variations are also found among NH White men, NH Black men and Hispanic men. Hispanic men (14.8%) and NH Black men (9.7%) with a college education or above are apt to spend 100-499 hours on grandchild care than Hispanic men (7.2%) and NH Black men (8.6%) who have a high school diploma or less, respectively. Lastly, college-educated NH White men (15.6%) are prone to provide a low level of grandchild care (1-99 hours) than NH White men with lower levels of education (13%).

2.5.2.5. Grandchild Care by the Intersection of Gender, Race-ethnicity, Class, and Employment

As shown in Figure 2.1, women are more likely to provide any care than men regardless of race-ethnicity, education, and status of employment. Among grandmothers who hold a high school diploma or less, the proportion of NH White grandmothers providing any type of grandchild care is the highest, followed by NH Black grandmothers, and Hispanic grandmothers. This racial-ethnic pattern is mostly consistent regardless of employment status and gender, except for NH Black grandfathers (33.3%) and Hispanic grandfathers (33.6%) who are not employed.

Figure 2.1. Proportion of Providing Any Grandchild Care by Gender, Race-ethnicity, Education and Status of Employment, N=41,974



The race-ethnic pattern by gender demonstrates nuanced differences among respondents who hold a college degree or more. In other words, employment status slightly intersects with gender and race-ethnicity among those who are better educated. Specifically, among college-educated, NH Black grandmothers (51% for the employed, 53.8% for the not employed) are the group with the highest proportion of providing any form of care, followed by NH White grandmothers and Hispanic grandmothers regardless of employment status. Among grandfathers, a higher share of NH White men who are employed report providing care, followed by Hispanic grandfathers (34.2%) and NH Black grandfathers (33.1%). For college-educated respondents who are not employed, a higher share of Hispanic grandfathers report providing care, followed by NH White grandfathers (42%) and NH Black grandfathers (34.7%).

Given results shown to now, Table 2.6 indicates that among those who provide any care, grandchild care patterns vary by gender, race-ethnicity, class, and employment status. First, I examine the extent to which the distribution of grandchild care varies within each race-ethnic group among respondents who share the same characteristics in terms of gender, class, and employment status. Second, I explore gender differences in different levels of time spent on grandchild care within specific groups of respondents who share the same race-ethnicity, education, and employment status. Third, I document whether there are race-ethnic variations in grandchild care by the intersection of gender, education, and employment status. Lastly, I analyze if educational or employment variations in grandchild care exist among respondents who share other intersecting locations (i.e., gender and race-ethnicity).

Within-racial/ethnic differences in grandchild care among individuals with the same gender, class, and employment status

To explore whether certain socioeconomic and demographic characteristics are related to how many hours grandparents undertook the care, I examine whether the distribution of time spent on grandchild care (i.e., 1-99 hours/100-499 hours/500 or more hours) in each race-ethnic group is statistically different by the intersection of gender, education, and employment status.

Similar to results shown earlier, higher proportions of employed and not-employed NH Black and Hispanic grandmothers, in both education categories, report substantial grandchild care, compared with NH White grandmothers, although differences are only statistically significant for those with a high school diploma or less education. In contrast, grandfathers' level of grandchild care does not appear to vary significantly when employment, race and ethnicity, and education are considered together. Exceptionally, among employed men with high school education or less, Hispanic men states that a higher share of them engaged in grandchild care for 500 hours or greater (42.8%), followed by 1-99 hours (37.9%) and 100-499 hours (19.4%). For college-educated NH White men who are employed, 41.3% of them engaged in grandchild care for 1-99 hours in the past two years, followed by 100-499 hours (33.7%) and 500 or more hours (25%).

Among men who are not employed, education does not seem to differentiate the extent to which grandchild care provided within each race-ethnic group. Exceptionally, similar shares of college-educated White men who are not employed

Table 2.6. Grandchild Care Hours by Gender, Race-ethnicity, Class, and Employment among Respondents who Provide Any Grandchild Care

Employed											
HS or less	NH White^{w}			NH Black^{B}			Hispanic^{H}			Ethnoracial differences within	
	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men
1-99	18.4	35.7 ‡	*	16.3	37.9	*	16.0	37.9	*		
100-499	38.7	33.4	*	25.6	28.1		28.6	19.4 ‡		W≠B,H	W≠H
500 or more	43.0	30.9	*	58.1	34.0	*	55.5	42.8 ‡	*	W≠B,H	W≠H
F-test (within-gender)	53.8***	0.9		45.5***	1.0		41.3***	7.6**			
N	1,361	813		496	238		348	265			
CL or Above	NH White^{w}			NH Black^{B}			Hispanic^{H}			Ethnoracial differences within	
	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men
1-99	16.9	41.3 &‡	*	13.5	35.2	*	14.5	30.8			
100-499	42.8	33.7	*	31.6	27.9		41.2	40.6 ‡		W≠B	
500 or more	40.3 &	25.0 &	*	54.9	36.9	*	44.2	28.6 ‡		W≠B	W≠B
F-test (within-gender)	74.2***	15.2***		37.4***	0.9		12.4***	0.3			
N	1,541	1,311		608	208		159	127			
Not employed											
HS or less	NH White^{w}			NH Black^{B}			Hispanic^{H}			Ethnoracial differences within	
	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men
1-99	15.5	30.0	*	14.0	32.2	*	16.9	28.2	*		
100-499	36.7	35.4		28.4	22.4		29.6	30.8		W≠B	W≠B

500 or more	47.8	34.6	*	57.6	45.4		53.4	41.0	*	W≠B	W≠B
F-test (within-gender)	117.9***	1.1		60.8***	6.0**		28.7***	0.9			
N	1,597	651		570	241		472	180			

CL or Above	NH White^{W}			NH Black^{B}			Hispanic^{H}			Ethnoracial differences within	
	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men	Gender diff.	Women	Men
1-99	13.8	25.8 &	*	15.7	33.6	*	13.4	12.7			B≠H
100-499	40.0	37.6		29.7	30.1		34.7	40.8		W≠B	
500 or more	46.2 &	36.5 &	*	54.6	36.2	*	51.9	46.5			
F-test (within-gender)	90.0***	6.6**		24.8***	0.2		27.1***	3.9*			
N	1,224	644		405	144		133	52			

Notes: " ≠" indicates significant racial-ethnic differences at the 0.05 alpha level. "W" indicates Non-Hispanic Whites, "B" indicates Non-Hispanic Blacks, and "H" refers to Hispanics. Proportions in the same column for the same educational level sharing & sign indicate employment differences at the 0.05 alpha level. Proportions in the same column for the equal employment status sharing ‡ sign show educational differences at the 0.05 alpha level.

* p<0.05; ** p<0.01; *** p<0.001.

engaged in either intermediate (37.6%) or substantial grandchild care (36.5%), with roughly 26% of them doing the low level of grandchild care. On the other hand, approximately 41% of college-educated Hispanic men who are not employed devoted their time of 100-499 hours to grandchild care and only 13% of them did the low level of care, with half of them (46.5%) devoting 500 hours or more to grandchild care. For less-educated NH Black men who are not employed, 45.4% of them engaged in grandchild care for 500 or more hours in the past two years, followed by 1-99 hours (32.2%) and 100-499 hours (22.4%).

Gender differences in each level of grandchild care among individuals with equal race-ethnicity, class, and employment

Gendered patterns in grandchild care are predominantly found in the low level of care (1-99 hours) and substantial grandchild care (500 hours or more) across the intersection of race-ethnicity, education, and employment. Notably, men show a higher inclination towards the low level of grandchild care (1-99 hours) compared to women. Conversely, women dedicate significant amounts of time to grandchild care (500 hours or more) in comparison to men.

However, there are a few exceptions to these patterns. One noteworthy case is the absence of significant gender differences in contributing 500 hours or more to grandchild care among NH Black respondents with a high school diploma or less and who are not employed. In other words, both Black women and men are similarly involved in substantial care (Women: 57.6% vs. Men: 45.4%). In the context of college-educated Hispanic respondents, whether employed or not, there are no significant gender differences in the distribution of grandchild care across different levels.

Gender differences in allocating 100-499 hours to grandchild care are statistically insignificant across the interplay of race-ethnicity, education, and employment. Exceptionally, employed Whites only demonstrate gender differences regardless of educational attainment, with women exhibiting greater involvement in intermediate range of grandchild care (100-499 hours) as compared to men.

Between-race/ethnic variations in each level of grandchild care by gender, class, and employment

Among employed women who graduated from high school or less, NH White women (38.7%) are more likely to spend 100-499 hours on grandchild care compared with NH Black women (25.6%) and Hispanic women (28.6%). In contrast, NH White women (43%) are less likely to engage in grandchild care for 500 or more hours than NH Black women (58.1%) and Hispanic women (55.5%). White-Black patterns in intermediate and substantial grandchild care are also similar among better educated women. Similar to employed women with a high school diploma or less, NH White men (33.4%) are more likely to spend 100-499 hours on grandchild care than Hispanic men (19.4%). In contrast, Hispanic men (42.8%) are more likely to take care of grandchild care for 500 or more hours than NH White men (30.9%). Unlike college-educated NH White men' relatively low likelihood to provide substantial grandchild care (25%), over one-third Black men with the same educational level spend 500 hours or more on grandchild care.

Consistent with employed women in both education categories, NH white women who are not employed and less educated (36.7%) are more likely to engage in the intermediate level of grandchild care than NH Black women (28.4%). On the other hand, Black women (57.6%) spent the highest hours on grandchild care than NH White women (47.8%) did. Similar

comparison results are found for less-educated men who are not employed. A greater share of Black men (45.4%) took care of grandchildren for 500 hours or more than NH White men did (34.6%), although 35.4% of NH White men allocated 100-499 hours to grandchild care compared to 22.4% of NH Black men. Among college-educated women who are not employed, NH White women (40%) are more likely to engage in the intermediate level of grandchild care compared with NH Black women (29.7%). Lastly, college-educated Black men who are not employed (33.6%) are more likely to provide a low level of care (1-99 hours) compared to college-educated Hispanic men who are not employed (12.7%).

Educational differences in each level of grandchild care among individuals with the equal gender, race-ethnicity, and employment

Interestingly for employed men, there are a few educational differences in each type of grandchild care provision. For employed NH White men, college-educated men are more likely to spend 1-99 hours on grandchild care (41.3%) compared to NH White men who have a high school diploma or less (35.7%). Hispanic men who are employed and less educated are apt to undertake substantial grandchild care (500 or more hours) than to engage in intermediate grandchild care (100-499 hours), compared with Hispanic men who are employed and highly educated. However, no educational difference is evident in any type of grandchild care provision among employed NH White women, employed NH Black men and women, and employed Hispanic women. Lastly, with regard to respondents who are not employed, evidence shows that there is no educational difference in the proportion of spending any particular hours on grandchild care for all groups.

Employment variations in each level of grandchild care among individuals with the equal gender, race-ethnicity, and class

There are employment differences in grandchild care among the same gender-race/ethnicity-education group, only for White women and men who have some college education or more. College-educated White men who are employed are more apt to participate in the low level of grandchild care with grandchildren (1-99 hours: Employed (41.3%) vs. Not employed (25.8%)) and less likely to invest in substantial grandchild care (500 hours or more: Employed (25%) vs. Not employed (36.5%)) in comparison with their employment counterpart. Similarly, more college-educated NH White women who are not employed (46.2%) devote the highest hours (500 hours or more) to grandchild care than college-educated White women who are employed (40.3%).

2.6. Conclusions

Findings from Chapter two demonstrate that a consideration of class and employment gives us an additional understanding for grandchild care time. However, gender and race-ethnicity are most important factors of determining the amount of time spent on grandchild care after considering education and employment. To facilitate a better understanding of grandchild care time, the levels of caregiving in the HRS questions translate to approximately 0.9 weekly hour (1-99 hours over 2 years), 1-4.7 weekly hours (100-499 hours over 2 years), 5-96 weekly hours of grandchild caregiving (500 or more hours over 2 years) per week. Particularly, it is important to interpret substantial care carefully, as its wide range may mask heterogeneous grandchild care patterns among substantial caregivers.

Spending no hour for grandchild care is common, based on grandchild care measures from prior work using the HRS (Chen et al. 2015; Luo et al. 2012), with roughly more than half of grandparents reporting this type of grandchild care provision regardless of gender, race-ethnicity, and class. When considering the intersection of gender, race-ethnicity, and class, Hispanic men and women with a high school diploma or less stand out as they spend no time with their grandchildren, relative to White men and women with the same educational credentials. This finding counters to prior work suggesting that Hispanic Americans tend to engage in grandchild care due to a strong emphasis on familism (Fuller-Thomson and Minkler 2000; Kamo 2000; Mendonza et al. 2017). In line with previous work on the estrangement of Black men from family responsibilities (Minkler and Fuller-Thomson 2005; Wilson 1989), I also found that more Black men with college education spend no time with grandchildren, compared to White men with the same education.

Among those who provide any care, gendered patterns persist even after accounting for race-ethnicity, class, and employment status. Generally, women are apt to undertake substantial grandchild care (an average of 5 or more weekly hours; 500 + hours over the two years) compared with men. In contrast, men tend to do a low level of care (roughly 0.9 weekly hour; 1-99 hours over the two years) than women. These results are consistent with previous research (Fuller-Thomson and Minkler 2001; Leopold and Skopek 2014; Luo et al. 2012) and my descriptive evidence drawn from gender, race-ethnicity, and class respectively or simultaneously. However, among college-educated Hispanic grandparents, whether employed or not, there are no significant gender differences in grandchild care across various levels.

Interestingly, both women and men engage in the intermediate level of grandchild care (an average of 1-4.7 weekly hours; 100-499 hours over the two years) similarly across all

intersecting locations of race-ethnicity, class, and employment. However, it is noteworthy that employed NH White grandmothers are more actively involved in intermediate grandchild care compared with NH White grandfathers, highlighting gendered patterns in caregiving within educational categories. This finding may suggest that grandchild care provision among NH White men is relatively lower than NH White women, due in part to their emphasis on their career or financial assistance and its effect on time availability for grandchild care.

NH White-NH Black patterns in intermediate or substantial grandchild care are mostly found for women and men, but some of them depend on the status of employment and educational attainment. Overall, more NH White grandparents spend 100-499 hours with grandchildren compared with NH Black grandparents. On the other hand, NH Black grandparents contribute to substantial grandchild care than NH White grandparents. These patterns may corroborate the existing evidence that Blacks' widespread engagement with grandchild care is noticeable relative to NH Whites, due in part to cultural expectations for kin-care and compositional differences in family structure related to adult children's struggles and more demand for grandchild care (Cherlin and Furstenberg 1992; Dow 2015; Minkler and Fuller-Thomson 2005; Taylor, Chatters, and Cross 2021). Nevertheless, this pattern does not hold for employed men who have a high school diploma or less. Furthermore, there are no race-ethnic variations in substantial grandchild care among non-employed men and women who have attained some college education or more. These findings may suggest that, in certain intersecting locations, class and employment status could have a greater influence on grandchild care time than race/ethnicity.

Evidence for NH White-Hispanic differences is found among employed grandfathers with a high school diploma or less: Employed Hispanic men with a high school diploma or less

devote substantial time (an average of 5-96 weekly hours) to grandchild care more, compared to employed NH White men with the same educational background. This finding is consistent with a greater propensity of Hispanic grandparents raising grandchildren compared to NH Whites (Chen et al. 2015; Fuller-Thomson and Minkler 2001). To better understand the meaning of substantial care among employed Hispanic men, future research may give attention to immigration status. The present chapter did not include nativity to avoid overly complex analyses within the intersectional framework. However, prior work shows that immigration status is associated with language barriers and their impact on accessing appropriate information, housing instability, and legal challenges in the formal labor market (Baca Zinn and Wells 2000; Bao and Chen 2019). Hence, considering nativity in future research would help understand whether substantial care among employed Hispanic men reflects these two separate mechanisms: a cultural practice similar to that of Black families or an adaptive strategy prevalent among immigrant or disadvantaged families.

Four major findings are found from Chapter two. First, a larger share of employed NH White grandfathers with a high school diploma or less allocate about 1 to 4.7 weekly hours to grandchild care (100-499 hours over the two years) compared to employed Hispanic men with the same education. Contradictory to prior research on minimal involvement with grandchild care among NH White grandparents (Cherlin and Furstenberg 1992; Fuller-Thomson and Minkler 2001), less-educated White grandparents also allocate low or intermediate amounts of weekly time to grandchild care, net of adult child's characteristics. Second, it is noticeable that non-employed NH Black men with a high school diploma or less particularly undertake substantial care (5-96 weekly hours) to a similar extent as their non-employed NH Black women counterpart. This finding seems to contradict prior work suggesting that Black men, based on the

deficit model of Black families, do not fully involve in family responsibilities because of high unemployment, incarceration, and dysfunctional relationship with family (Sarkisian 2007). Rather, this finding is consistent with recent work documenting within-heterogeneity of NH Black extended families' support behaviors (Taylor, Chatters, and Cross 2021). Third, educational differences in grandchild care are only found among employed NH White and Hispanic men. College-educated NH White men are more prone to engage in grandchild care for roughly 0.9 weekly hour (1-99 hours over the two years) compared to NH White men who have a high school diploma or less. College-educated Hispanic men who are employed provide an average of 1 to 4.7 weekly hours of grandchild care (100-499 hours over the two years) more than Hispanic men with high school education or less. The pattern for substantial grandchild care is the opposite, with college-educated Hispanic men devoting roughly 5-96 weekly hours to care (500 hours or more over the two years) less than Hispanic men who have a high school diploma or less. Lastly, only the decisions of NH Whites regarding the amount of time they provide to grandchild care are associated with employment status. Non-employed NH White women and men who have some college education or more devote an average of 5-96 weekly hours to grandchild care (500 or more hours over the two years) relative to employed NH White women and men with the same education. One possible interpretation for this pattern among college-educated Whites may be related to intensive grandparenting because these grandparents are economically secure enough not to need to work for pay as well as they also value the quality and safety of grandchildren's rearing for the sake of intergenerational class transmission, consistent with previous research and media (Meyer 2014; Span 2019).

While this chapter provides a small but additional evidence of class and employment status shaping grandchild care provision among grandparents, it has limitations that future

research should address. First, I suggest future research investigates how coresidence shapes time spent on grandchild care along the intersection of gender, race-ethnicity, class, and employment. Given prior research suggesting that demanding care is linked to coresidential status with grandchildren (Luo et al. 2012; Pilkauskas, Amorim, and Dunifon 2020), I include coresidence as a control in multivariate analyses of Chapter three. Supplementary results presented in Appendix Tables B.1-B.3 indicate that a greater share of co-resident grandmothers and grandfathers spend substantial time (500 hours or more over two years) to grandchild care compared to those who do not live with grandchildren. However, in Chapter two, coresidence status is not considered to avoid overly complex analyses within the intersectional framework, as correlation results presented in Appendix Table D show that the positive correlation between grandchild care time and coresidence is weakly related. Second, proximity to grandchildren affects the level of grandchild care (Lumsdaine and Vermeer 2015). Supplementary results presented in Appendix tables C.1-C.3 demonstrate that grandparents living close to any adult child within 10 miles tend to spend more time on grandchild care, especially substantial care, compared to those who do not live in close proximity. However, proximity shows a weak and positive correlation with grandchild care measure (see Appendix Table D). In the pursuit of model parsimony, I didn't include proximity in my analyses. In conclusion, future research using a different dataset should explore the influence of proximity and coresidence on grandchild care time.

Chapter 3: Associations between Grandchild Care and Employment Outcomes

3.1. Research Questions and Literature Review

3.1.1. Existing Research on Grandchild Care and Employment

A few studies have investigated the association between grandchild care and employment outcomes across time, reporting inconclusive results (Ho 2015; Lumsdain and Vermeer 2015; Rupert and Zanella 2018). Two plausible explanations for these mixed findings are the studies examine both the arrival of a new grandchild and time spent on grandchild care, two highly correlated factors, simultaneously in their models. Additionally, scholars argue that having a new grandchild may not necessarily reflect new demand for grandchild care, but instead a new role acquisition. Therefore, new grandchildren may have stronger associations with well-being (Di Gessa, Bordone, and Arpino 2020; Sheppard and Monden 2019) and weaker or no associations with other roles, such as employment. The studies also do not control for unmeasured heterogeneous factors such as preferences in grandchild care and work. Considering unobserved heterogeneity (time-constant) is needed to better understand the association between grandchild care and employment outcomes because omitted variables such as preferences about grandchild caregiving and employment may affect both the provision of care and employment decisions (Ates 2015). In this chapter, I extend prior work on grandchild care and grandparents' work outcomes by examining the effect of time spent on grandchild care on employment and work hours over the life course. To do this, I use data from the 2004-2014 Health and Retirement Study and estimate fixed effect models that control for time-constant unobserved heterogeneity.

Generally, the association between grandchild care and labor force outcomes has been investigated for co-resident grandparents who tend to be primary caretakers for grandchildren

(Pruchno and McKenney 2009; Minkler and Roe 1996; Sands and Goldberg-Glen 1998; Wang and Marcotte 2007). Existing studies investigated this selective population because co-resident grandparents are more likely to provide substantial care (e.g., 500 hours or more) than non-coresident grandparents (Harvey, Dunifon, and Pilkauskas 2021). Accordingly, providing grandchild care may have stronger associations with employment outcomes among those who provide demanding grandchild care such as coresidential grandparents.

However, a growing number of single parents and dual-earner parents who need care assistance, together with increased longevity, better health, and prolonged work life, suggest greater demand for grandchild care from grandparents (Bianchi and Milkie 2010; Cooney 2021; Dunifon, Near, Ziol-Guest 2018; Luo, LaoPierre, Hughes, and Waite 2012; Margolis and Wright 2017; Meyer 2014; Presser 2005; Vandell et al. 2003). Simultaneously, older adults are increasingly working longer due to increased life expectancy, family instability, economic insecurity, and pension shifts (Carr 2019; Goldin and Katz 2018; Kojola and Moen 2016). Taken together, older men and women not only stay longer in the workforce but may be also expected to care for grandchildren in later life (Bianchi and Milkie 2010; Cherlin and Seltzer 2014).

Three demographic and economic studies that include both custodial and non-custodial grandparents have examined the relationship between grandchild care time/needs and work outcomes in later life over time (Ho 2015; Lumsdain and Vermeer 2015; Rupert and Zanella 2018). Rupert and Zanella (2018), using the 1968-2015 Panel Study of Income Dynamics (PSID), show that becoming a grandparent and increased time spent on grandchild care reduces work hours among employed grandmothers aged 80 and younger by around 30%. In addition, no significant effect of becoming a grandparent on employment is found among both female and male parents. Lumsdain and Vermeer (2015), using the 1992-2004 Health and Retirement Study

(HRS), find that grandmothers who provide grandchild care are 9.6 % more likely to retire than those who do not provide any care. In contrast, Ho (2015), using the 1998-2002 HRS for grandparents aged 51 and 64, argues that having a new grandchild likely increases time spent on grandchild care and thus is proxied as a possible demand for grandchild care. The study finds that married grandmothers with a new grandchild were 1.4 percent more likely to be employed compared with married grandmothers without a new grandchild, whereas married grandfathers were 2 percent more likely to be employed compared with married grandfathers without a new grandchild. However, married grandfathers with a new grandchild also worked 30 minutes less per week relative to married grandfathers without a new grandchild. A new grandchild was not statistically related to work hours for single grandmothers and grandfathers, and married grandmothers. In sum, different effects and directions of time spent on grandchild care and having a new grandkid on work outcomes suggest the need for investigating both employment and work hours in Chapter three. For grandparents, adjusting their work hours in need of grandchild care may be easier than changing their work status, particularly when decisions to leave employment may reduce economic security in later life.

As mentioned above, inconclusive findings about associations between grandchild care and grandparental employment may result from estimation techniques that do not control for unmeasured preferences associated with grandchild care and work. With regard to analytical method and sample, Lumsdain and Vermeer (2015) used Cox proportional hazard models to estimate the transition to retirement among all women aged 51-61 between 1992 and 2006 (HRS wave 1-8). In contrast, Ho (2015) used random effects Tobit models for work hours and random effects Probit models for employment status among all grandparents aged 51 and 64 between 1998 and 2002 (HRS wave 4-6). Another clear difference in analytical approach between these

two studies is that Ho (2015) stratified models by marital status unlike Lumsdaine and Vermeer (2015). Despite prior work suggesting the role of individual preferences on family support behaviors and paid work (Ates 2015; Moen, Flood, and Wang 2022; Taylor, Chatters, and Cross 2021), none of methods used by prior work control for unmeasured time-constant heterogeneity that individuals may have on grandchild care and work. Given methodological limitations from prior work, I fill in a gap in this small literature on grandchild care and paid work by focusing on examining the effect of time spent on grandchild care on employment and work hours over time, using fixed effects models to control for unobserved heterogeneity.

3.1.2. Explanations for the Effect of Grandchild Care on Employment

My work builds on role strain and enhancement theory to guide theoretical predictions for the association between grandchild care time and work outcomes over time. Role strain theory maintains that engaging in multiple roles likely results in adverse outcomes when role competition causes or increases stress (Goode 1960; Pearlin 1989). As grandparents spend more time on grandchild care, they have less time available for work-related activities. As a result, substantial time contributing to grandchild care may increase the probability of employed grandparents exiting the labor force or reducing work hours as an effort to mitigate the role overload stress associated with time scarcity. This scenario is likely to be profound among employed grandparents who are socioeconomically vulnerable, as they may lack time and flexibility at work.

On the other hand, role enhancement theory posits that occupying multiple roles may serve as a source of increasing well-being when the multiple duties provide a sense of satisfaction and meaning to individuals (Moen, Robison, and Dempster-McClain 1995).

Specifically, for some employed grandparents, low to moderate levels of caregiving can enable them to feel rejuvenated, emotionally fulfilling, and even less depressed (Baker and Silverstien 2008 for USA; Choi, Jun, and Kim 2021 for Korea; Fuller-Thomson and Serbinski 2014 for Canada; Meyer 2014 for USA).

I also build upon previous research regarding gendered expectations in grandchild caregiving and employment, specifically focusing on time allocation (Flood and Moen 2015; Fuller-Thomson and Minkler 2001; Goode 1960; Luo et al. 2012; Meyer 2014) to guide the development of theoretical predictions about gender differences in grandchild care and employment associations. Because time and energy are finite, there should be a tradeoff between time spent on grandchild care and time spent on paid work (Becker 1965). According to role strain and enhancement theory, grandparents are likely to prioritize whichever activity increases their satisfaction and well-being. However, prior work on gender differences in grandchild care time and work (Flood and Moen 2015; Luo et al. 2012) informs the possibility that our perceived conflicts and enhancement associated with grandchild care and work are shaped particularly by gendered normative expectations about the demand and supply of grandchild care. For example, Meyer (2014) showed that employed grandmothers tend to choose grandchild care over work. Supporting this evidence, Lee and Tang (2015), using the 2004 HRS, have shown that caregiving for grandchildren relates to women's labor force withdrawal. Irrespective of why grandmothers who cared for grandchildren left the labor force,[13] these qualitative and cross-sectional studies support findings by Lumsdain and Vermeer (2015). When an increase in time spent on

[13] Using the HRS, it is difficult to know underlying reasons for the correlation between grandchild care and grandmothers' labor force exit. Lee and Tang (2015) suggest two possible reasons for this association. First, grandmothers left the labor force to reduce role strains created by both caregiving and work. Second, grandmothers left work to better attend to grandchildren.

grandchild care competes with work demand, grandmothers and grandfathers may response to this change in grandchild caregiving in different ways.

In light of role strain theory and previous research on the association between grandchild care and work (Goode 1960; Lee and Tang 2015; Lumsdain and Vermeer 2015), grandmothers with an increase in time spent on grandchild care are more likely to stop working over time compared to grandmothers without any change after controlling for other characteristics (similar to Lumsdain and Vermeer's work (2015)). Alternatively, the opposite association between grandchild care time and employment may be feasible according to role enhancement theory (Moen, Robison, and Dempster-McClain 1995; Moen 2016). In other words, grandmothers with an increase in time spent on grandchild care are more likely to continue being employed compared to grandmothers without any change after controlling for other characteristics (similar to Ho's work (2015)). For grandfathers, I focus more on existing research on gendered grandchild caregiving and work than the influence of role strain/enhancement theory. Regardless of the extent to which an increase in grandchild care occurs, grandfathers may not change their employment status because normative gendered expectations associated with breadwinning may be stronger than expectations for grandchild care (similar to Rupert and Zanella's work (2018)). Taken together, I hypothesize that grandfathers with an increase in grandchild care time are less likely to change employment status compared to grandfathers without such change. Based on the different perspectives, I develop:

H1a: employed grandmothers with an increase in grandchild care time are more likely to be not employed in the next two years than those without any change.

H1b: employed grandmothers with an increase in grandchild care time are more likely to be employed in the next two years than those without any change.

H2: employed grandfathers with an increase in grandchild care time are more likely to be employed in the next two years than those without any change.

Prior work shows different effects of time spent on grandchild care and having a new grandkid on employment and work hours (Ho 2015; Lumsdain and Vermeer 2015; Rupert and Zanella 2018). Consistent with role strain theory and prior work (Goode 1960; Collins 2000; Rupert and Zanella 2018), I also hypothesize whether and how greater time spent on grandchild care reduces work hours over time. For grandparents, particularly for grandfathers who are likely to be breadwinners, adjusting their work hours because of competing demands for grandchild care may be more consistent with economic and normative expectations than leaving employment. Consistent with Rupert and Zanella's work (2018), I also hypothesize that both grandmothers and grandfathers who experience greater grandchild care time are more likely to reduce work hours compared to those without any change. In contrast, based on role enhancement theory and prior finding (Ho 2015; Moen, Robison, and Dempster-McClain 1995), grandparents with an increase in time spent on grandchild care may not change work hours over time because their well-being is enhanced by engaging in both grandchild care and certain work hours. In this case, I will find no significant evidence for the longitudinal association between time spent on grandchild care and work hours for grandmothers and grandfathers, respectively. As the null effect between grandchild care and work hours are likely to be found (i.e., no significant evidence for H3 & H4 in Chapter 3), I do not construct any hypothesis related to role enhancement. Therefore, I construct two hypotheses on work hours based on role strain theory:
H3: employed grandmothers with elevated level in grandchild care time are more likely to reduce work hours in the next two years than those without any change.

H4: employed grandfathers with elevated level in grandchild care time are more likely to reduce work hours in the next two years than those without any change.

Some of other factors influencing the provision of grandchild care similarly play a role in shaping employment behaviors in later life. Overall, prior studies on later-life labor force outcomes have found that older Americans' age, health, education, race-ethnicity, and economic necessity are major factors of influencing their employment and retirement decisions (Han and Moen 1999; Hurd 1990; Kim and Feldman 2000; Maestas 2018; Moen, Flood, and Wang 2022; Raymo, Warren, Sweeney, Hauser, and Ho 2010; Shutz and Wang 2008). As individuals age, they are more likely to withdraw from the labor force or to retire (Kim and Feldman 2000). Existing research has documented that individuals with better health status tend to remain longer in the labor force (Moen, Flood, and Wang 2022; Shultz and Wang 2007). In addition, research has shown that those with lower socioeconomic status are more likely to have deteriorating health earlier than those with higher socioeconomic status (Raymo, Warren, Sweeney, Hauser, and Ho 2010), suggesting that an interplay between socioeconomic status and health are also likely to influence older individuals' decisions of remaining employed or of changing work hours at later life.

Education and economic necessity are also related to later-life labor force outcomes. Existing research documents that those with higher education tend to work longer in their career field than those with lower education (Ekerdt, Kosloski, and DeViney 2000; Moen, Flood, and Wang 2022; OECD 2018). Possible reasons for this educational disparity in labor force participation at later life intertwine with other factors such as ageism in the labor market and socioeconomic disparities in health and career histories. This suggests that labor force outcomes

at later life may be results of cumulative disadvantage/advantage (O'Rand 1996; Raymo, Warren, Sweeney, Hauser, and Ho 2010).

The influence of financial situation on later-life labor force outcomes is mixed. Generally, when older individuals expect they will be economically secure via pensions or assets, they may have a capability to retire early or not to continue working in retirement (Floridi 2023; Wang and Shultz 2010). However, older individuals who have more autonomy or flexibility in their jobs are prone to keep working in retirement, while already being financially prepared for retirement (Kojola and Moen 2016; Maestas 2010). Taken together, it is important to control for these socioeconomic and demographic factors to investigate whether and how time spent on grandchild care affects employment/working time over time in Chapter three.

3.2. Data

Data descriptions are consistent with Chapter two.

3.3. Measures

Dependent variables. The main dependent variables for Chapter three are employment status and work hours. Respondents who are employed are coded 1, otherwise 0. Work hours is a continuous measure for main job.

Independent variable is *time spent on grandchild care*. Because descriptions and questions for the independent variable in Chapter three are same with grandchild care variable in Chapter two, I only discuss how I code the variables. *Grandchild care* is used as a continuous measure for the

number of hours that grandparents provide grandchild care in the past two years to facilitate fixed effects analyses. Due to the skewness, I log-transform grandchild care hours in analyses.

Controls

Based on the previous literature on grandchild care and employment outcomes, I control for parental demographic and socioeconomic characteristics, adult child characteristics, and other related variables. Descriptions and coding for controls are consistent with Chapter two.

3.4. Method

Chapter three uses HRS between 2004, 2006, 2008, 2010, 2012, and 2014 data on grandparents and those who are at risk of having a grandchild to examine the association between grandchild care and employment/work hours over time. To take into account unobserved heterogeneity and resolve selection issues (Allison 2009),[14] I employ a two-way fixed effects logistic regression model (for employment) and two-way fixed effects linear regression model (for work hours) to estimate whether and how changes in time spent on grandchild are associated with changes in employment and work hours over time among older Americans and how that varies by gender. One drawback of the fixed effects model is not to be able to know the effects of any time-invariant variables (e.g., race-ethnicity, education, or cohort). Given the gendered expectations surrounding caregiving and employment, I stratify my models by gender to estimate between-gender differences in its associations.[15]

[14] I ran hausman test for all of models and the results show that fixed effects models are appropriate than random effects model and pooled OLS (see Appendix Table E). I also tested time effect, and the results indicate that time should be controlled.

[15] I also ran analyses by including an interaction term with gender. However, interesting results for other factors (e.g., child characteristics and elderly care) disappeared. Furthermore, I also decided to stratify the analyses by

Model 1. Fixed effects logistic model (employment):

$$Employment_{it} = \beta_1 GH_{it} + \cdots \beta_k X_{k,it} + \alpha_{it} + e_{it}$$; i=1….n; t=1,2,3,4,5,6

Model 2. Fixed effects linear regression model (work hours):

$$Work\ Hours_{it} = \beta_{0i} + \beta_1 GH_{it} + \cdots \beta_k X_{k,it} + \alpha_{it} + e_{it}$$; i=1….n; t=1,2,3,4,5,6

Grandchild care hours: GH

$\alpha_{it} = \alpha + u_i + \lambda_t$

α: average individual effect
u_i: unobserved individual effect
λ_t: unobserved time effect

Model 1 represents how a change in grandchild care time is associated with a change in employment over time. Model 2 represents how a change in grandchild care time is associated with variation in work hours over time. Considering the structure of the HRS using repeated measurements of related variables within individuals, the dependent variable y_{it} for person i at time t is estimated as a function of linear terms of year for person i at time t for Model 2. The coefficients β_{0i} indicates the intercept and β_1 represents the linear rate of change in work hours with changes in grandchild care hours. The error terms e_{it} suggests a time-varying part of the error terms and α_{it} indicates unobserved individual effect that remains constant over time and includes a time effect. $X_{k,it}$ represents control variables and β_k is the coefficient for each control variable. Similar to Yu and Kuo's approach (2017), I apply baseline survey weights throughout analyses because *clogit* (fixed effects logistic regression model) and *xtreg, fe* (fixed effects linear regression model) Stata commands do not allow time-varying weights. I also estimate robust standard errors for all of fixed effects analyses.

gender because the interconnectedness of family, paid work, and state policies tend to shape different trajectories of the life course for women and men (Moen, Flood, and Wang 2022).

3.5. Transitions in Grandchild Care and Employment by Gender

Table 3.1 presents transitions into and out of various employment/grandchild care giving states from one wave (time t) to the next wave (time t+1) for respondents who were grandparents at time t. Each row of the table indicates the transition from the state in the column labeled "Time t" to each of the four possible states (columns 1 to 4). Among those who have at least one grandchild, this yields a sample of 13,864 transition observations for grandmothers and 2,179 for grandfathers. Looking at the diagonal of the Table 3.1, persistence is evident for both grandmothers and grandfathers. Specifically, more than 60% of both women and men remain in the same state from the previous wave, except for men who are not employed and not caring for grandchildren (16.4%).

However, there is still evidence of movement into and out of grandchild care and employment. Although 16.7 % of grandfathers who are employed started to care for grandchildren and still to be employed between consecutive waves, only 4% of them initiated grandchild care while becoming not employed between waves. Roughly 11% of grandfathers who used to be employed and care for grandchildren became not employed while still caring for grandchildren between two consecutive waves. Similarly, 13.7% of employed grandmothers who used to care for grandchildren stopped being employed while still caring for them between consecutive waves. Similar to men, only 4% of employed grandmothers stopped being employed in the next wave while starting to care for grandchildren and roughly 18 % of them started to care for grandchildren and still being employed between two time points.

Table 3.1. Transitions between Employment and Grandchild Care among Respondents with a Grandchild

Time t	Time t + 1 (1) Employed/ Not caring	(2) Employed/Caring	(3) Not employed/Caring	(4) Not employed/ Not caring	Total
Women					
(1) Employed/Not caring					
Number	2,584	731	169	592	4,076
% of row	63.4	17.93	4.15	14.52	100
(2) Employed/ Caring					
Number	765	2,102	482	168	3,517
% of row	21.75	59.77	13.7	4.78	100
(3) Notemployed/Caring					
Number	78	203	1,871	777	2,929
% of row	2.66	6.93	63.88	26.53	100
(4) Not employed/Not caring					
Number	210	47	567	2,518	3,342
% of row	6.28	1.41	16.97	75.34	100
Total	3,637	3,083	3,089	4,055	13,864
Men	(1) Employed/ Not caring	(2) Employed/Caring	(3) Not employed/Caring	(4) Not employed/ Not caring	Total
(1) Employed/Not caring					
Number	2,158	551	129	129	464
% of row	65.35	16.7	3.9	3.9	14.1
(2) Employed/Caring					
Number	509	1,300	239	239	113
% of row	23.55	60.2	11.1	11.1	5.2
(3) Not employed/Caring					
Number	46	100	696	696	319
% of row	3.96	8.61	59.95	59.95	27.5
(4) Not employed/Not caring					
Number	162	44	291	291	1283
% of row	9.1	2.5	16.4	16.4	72.1
Total	2,875	1,995	1,355	1,355	2,179

Notes: Percentages and counts are unweighted values.

More noticeable patterns are found among those who were not employed in the first wave and change their states in employment/grandchild care provision. Approximately 7% of grandmothers, who were not employed and providing grandchild care at baseline, became employed and continued providing grandchild care. Similarly, 8.6% of non-employed grandfathers become employed from baseline while still caring for grandchildren. One interesting pattern for women and men is that the share of men who changed their state from not employed/caring to not employed/not caring (60%) is more than twice the share of grandmothers (26.5%). This may highlight the gendered expectation for grandchild care even among those who are not employed, consistent with the literature (Fuller-Thomson and Minkler 2001; Minkler and Fuller-Thomson 2000). Lastly, about 16% of grandparents who were not employed and did not provide any care started to care for grandchildren and remain still not employed regardless of gender. Only negligible share of them changed their employment status from not being employed to being employed while initiating grandchild care (Women: 1.4% vs. Men: 2.5%). This transition into and out of several employment/grandchild caregiving states suggests the need of identifying the association between time spent on grandchild care and employment outcomes over time.

3.6. Results of Fixed Effects Models

Table 3.2 (employment) and Table 3.3 (work hours) show results of fixed effects logistic models for employment and fixed effects linear regression models for work hours, respectively. All models are stratified by gender because the interconnectedness of family, paid work, and state policies tend to shape different trajectories of the life course for women and men (Moen, Flood, and Wang 2022). Model 1 only includes time spent on grandchild care. Model 2 adds adult child characteristics. Model 3 estimates the effect of grandchild care hours on outcomes, holding parental and adult child characteristics constant. Model 4 tests the effect of time spent on grandchild care on employment and work hours, controlling for intergenerational transfer and other controls (tests of H1, H2, H3, H4).

3.6.1. Employment

Fixed effects logistic regression models are estimated to predict the influence of time spent on grandchild caregiving on employment for grandmothers and grandfathers. As shown in Table 3.2, its negative effect of time spent on grandchild care on the odds of being employed remain insignificant for both grandmothers (Model 1-4) and grandfathers (Model 1-4), being consistent across all models (inconsistent with H1b for grandmothers and H2 for grandfathers; consistent with H1a for grandmothers yet it is not significant). These results showing no effect of grandchild care provision on employment may highlight that grandparent's socioeco-

Table 3.2. Fixed Effects Logistic Regression Models Predicting the Effect of Grandchild Care Hours on Employment by Gender

	Women				Men			
	Grandchild care time	Child characteristics	Demographic & SES	Generational transfer	Grandchild care time	Child characteristics	Demographic & SES	Generational transfer
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio
Grandchild care								
Time spent on grandchild care	0.986	0.987	0.988	0.988	0.973	0.972	0.978	0.976
	(0.013)	(0.014)	(0.014)	(0.014)	(0.019)	(0.019)	(0.020)	(0.020)
Child characteristics								
# of grandchildren		0.980	0.978	0.979		1.028	1.018	1.020
		(0.023)	(0.023)	(0.023)		(0.030)	(0.033)	(0.034)
# of adult children working full-time		0.970	0.936	0.940		1.168*	1.136	1.136
		(0.049)	(0.048)	(0.048)		(0.076)	(0.076)	(0.076)
Coresidence		1.069	1.003	0.996		0.720	0.728	0.726
		(0.211)	(0.199)	(0.198)		(0.185)	(0.191)	(0.190)
Demographic and Socioeconomic characteristics								
Age			0.947	0.950			0.926	0.918
			(0.095)	(0.095)			(0.110)	(0.110)
Age indicator for age 62			0.487***	0.486***			0.329***	0.329***
			(0.064)	(0.064)			(0.055)	(0.055)

Marital status (ref. divorced/separated/widowed/never married)								
Married			0.672	0.682			1.063	1.059
			(0.153)	(0.155)			(0.294)	(0.295)
Self-reported health status			1.102	1.099			1.075	1.072
			(0.065)	(0.065)			(0.072)	(0.072)
Household wealth			1.004	1.008			0.994	0.992
			(0.025)	(0.025)			(0.029)	(0.029)
Household income			1.642***	1.641***			1.693***	1.693***
			(0.101)	(0.102)			(0.110)	(0.109)
Financial transfer to children (ref. no)				1.048				1.078
				(0.093)				(0.128)
Financial transfer from children (ref. no)				0.912				1.442
				(0.157)				(0.339)
Elderly care (ref. no)				0.669**				0.651
				(0.103)				(0.154)
Year (ref. 2004)								
2006	0.452***	0.455***	0.591*	0.589*	0.396***	0.382***	0.581*	0.597
	(0.045)	(0.046)	(0.126)	(0.125)	(0.048)	(0.048)	(0.154)	(0.159)
2008	0.278***	0.283***	0.479	0.475	0.195***	0.187***	0.390	0.405
	(0.032)	(0.033)	(0.189)	(0.186)	(0.030)	(0.030)	(0.190)	(0.197)

2010	0.099***	0.101***	0.241*	0.236*	0.045***	0.043***	0.153*	0.163*
	(0.014)	(0.014)	(0.147)	(0.144)	(0.008)	(0.008)	(0.113)	(0.121)
2012	0.051***	0.053***	0.166*	0.162*	0.027***	0.025***	0.131*	0.142*
	(0.008)	(0.008)	(0.134)	(0.130)	(0.005)	(0.005)	(0.126)	(0.136)
2014	0.025***	0.026***	0.102*	0.099*	0.016***	0.014***	0.102	0.111
	(0.004)	(0.005)	(0.101)	(0.098)	(0.003)	(0.003)	(0.120)	(0.132)
Goodness of fit								
R-squared	0.2803	0.2806	0.3093	0.311	0.3348	0.3372	0.3772	0.3788
BIC	23100000.0	23100000.0	22100000.0	22100000.0	18400000.0	18300000.0	17200000.0	17200000.0
N	24,862	24,862	24,862	24,862	17,112	17,112	17,112	17,112

Notes: Observations from the same individuals are clustered, with robust standard erros estimated for the models. On the top panel, "Demographic & SES" indicates demographic and socioeconomic characteristics and "Generational transfer" refers to intergenerational transfer. The HRS individual longitudinal weights are applied in the models. Model 3 and 4 also control for race/ethnicity, education, and cohort (time-constant variables).
* p<0.05; ** p<0.01; *** p<0.001

nomic status and demographic characteristics are more important than grandchild care itself when it comes to understanding employment decisions.

Grandparents who are aged 62 years or older and annual household income are significantly associated with the decision of being employed. Generally, respondents who are aged 62 and above have lower likelihoods of remaining employed. Grandparents with greater annual household income have 1.6 times higher odds (grandmothers)/1.7 times greater odds (grandfathers) of staying employed than those with less annual household income, net of controls (Model 4).

There are two control variables that show gender differences in their impacts on employment decisions: elder care and the number of adult children working full-time. As shown in Model 4, elder care decreases the odds of grandmothers remaining employed by 0.33 after controlling for all other factors. Unlike grandmothers, the negative impact of elder care on employment among grandfathers is statistically insignificant (Model 4). Lastly, having more adult children working full-time increases the odds of grandfathers staying employed by 0.17 (p-*value* < 0.05; Model 2). However, with all controls added, the effect of having more adult children working full-time on grandfathers' employment becomes statistically insignificant (Model 4).

Table 3.3. Fixed Effects Linear Regression Models Predicting the Effect of Grandchild Care Hours on Work Hours by Gender

	Women				Men			
	Grandchild care time	Child characteristics	Demographic & SES	Generational transfer	Grandchild care time	Child characteristics	Demographic & SES	Generational transfer
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Grandchild care								
Time spent on grandchild care	-0.129*	-0.133*	-0.131*	-0.131*	-0.190*	-0.195*	-0.170*	-0.176*
	(0.052)	(0.053)	(0.052)	(0.053)	(0.080)	(0.082)	(0.079)	(0.079)
Child characteristics								
# of grandchildren		-0.021	-0.020	-0.016		0.045	0.074	0.080
		(0.075)	(0.073)	(0.073)		(0.120)	(0.119)	(0.119)
# of adult children working full-time		0.084	-0.005	0.000		0.704**	0.503*	0.510*
		(0.177)	(0.175)	(0.175)		(0.257)	(0.247)	(0.247)
Coresidence		0.335	0.138	0.174		-0.263	-0.424	-0.410
		(0.683)	(0.660)	(0.660)		(1.053)	(1.031)	(1.028)
Demographic and Socioeconomic characteristics								
Age			0.029	0.023			0.290	0.269
			(0.321)	(0.321)			(0.399)	(0.400)
Age indicator for age 62			-3.300***	-3.315***			-6.014***	-6.033***
			(0.440)	(0.440)			(0.600)	(0.599)
Marital status (ref. divorced/separat								

ed/widowed/never married)								
Married			-3.162***	-3.178***			-1.987	-1.930
			(0.836)	(0.835)			(1.276)	(1.280)
Self-reported health status			0.414*	0.414*			0.592*	0.584*
			(0.201)	(0.201)			(0.289)	(0.289)
Household wealth			-0.034	-0.032			-0.037	-0.035
			(0.081)	(0.081)			(0.099)	(0.099)
Household income			2.638***	2.643***			3.265***	3.270***
			(0.195)	(0.195)			(0.267)	(0.266)
Financial transfer to children (ref. no)				0.048				0.659
				(0.287)				(0.413)
Financial transfer from children (ref. no)				-0.409				0.414
				(0.561)				(1.026)
Elder care (ref. no)				-1.614**				-2.118*
				(0.582)				(1.000)
Year (ref. 2004)								
2006	-2.723***	-2.725***	-2.142**	-2.139**	-3.333***	-3.445***	-2.985***	-2.904**
	(0.288)	(0.289)	(0.673)	(0.672)	(0.394)	(0.399)	(0.882)	(0.884)
2008	-4.735***	-4.735***	-3.680**	-3.657**	-6.793***	-6.963***	-6.189***	-6.061***
	(0.360)	(0.365)	(1.287)	(1.286)	(0.495)	(0.506)	(1.617)	(1.622)
2010	-8.790***	-8.775***	-6.680***	-6.656***	-14.006***	-14.152***	-11.985***	-11.776***
	(0.437)	(0.440)	(1.988)	(1.987)	(0.591)	(0.616)	(2.507)	(2.515)
2012	-11.303***	-11.291***	-8.581***	-8.553***	-16.236***	-16.488***	-13.882***	-13.599***

	(0.470)	(0.477)	(2.577)	(2.576)	(0.628)	(0.663)	(3.254)	(3.264)
2014	-13.639***	-13.635***	-10.464**	-10.411**	-18.596***	-18.983***	-15.969***	-15.651***
	(0.501)	(0.512)	(3.181)	(3.181)	(0.658)	(0.707)	(3.986)	(3.998)
Constant	27.160***	27.058***	15.311	15.695	39.206***	37.945***	7.170	7.865
	(0.318)	(0.526)	(17.767)	(17.792)	(0.410)	(0.636)	(21.902)	(21.964)
Goodness of fit								
R-squared	0.120	0.120	0.143	0.144	0.172	0.173	0.206	0.207
BIC	172,158.7	172,187.6	171,636.1	171,643.6	128,275.9	128,284.5	127,658.5	127,670.7
N (person-year)	22,982	22,982	22,982	22,982	16,587	16,587	16,587	16,587

Notes: Observations from the same individuals are clustered, with robust standard errors estimated for the models. On the top panel, "Demographic& SES" indicates demographic and socioeconomic characteristics and "Generational transfer" refers to intergenerational transfer. The HRS individual longitudinal weights are applied in the models. Model 3 and 4 also control for race/ethnicity, education, and cohort (time-constant variables).
* p<0.05; ** p<0.01; *** p<0.001

3.6.2. Work hours

Table 3.3 presents coefficients from the fixed effects linear regression models regressing work hours on grandchild caregiving among women and men. As shown in Table 3.3, grandmothers who provide each additional hour of grandchild care reduce work hours by 0.131 hours (*p-value* < 0.05; Model 4) compared with grandmothers who do not provide each additional hour of grandchild care (consistent with H3). Similarly, grandfathers who provide each additional hour of grandchild care decrease work hours by 0.176 (*p-value* < 0.05; Model 4) than grandfathers who do not, controlling for other factors (consistent with H4). The magnitude in the effect of grandchild care hours on work hours seems to be slightly greater for grandfathers than for grandmothers. Based on equivalence tests of coefficients, however, I found that gender differences in the coefficients of grandchild care time on work hours are not statistically significant.

Age indicator for 62, self-reported health status, household income, and elder care are significantly related to work hours for both women and men. Respondents who are older than 62 years reduce work hours over time. Those who are healthy are more likely to increase work hours. Respondents with more household annual income are more likely to increase work hours than those with less household income per year. Lastly, those who provide elder care reduce work hours over time than those who do not (Women: -1.614, *p-value* < 0.01, Model 4; Men: -2.118, *p-value* < 0.05, Model 4). Similar to grandchild care, the magnitude of elder care effect on work hours is stronger for grandfathers than for grandmothers.

For grandmothers, marital status is statistically significant. Being married is related to reduce work hours over time by 3.178 (*p-value* < 0.000; Model 4), holding other variables constant. The influence of marital status does not hold for grandfathers. For grandfathers, having more adult children working full-time is linked to a change in work hours over time. Specifically, grandfathers who have more adult children working full-time increase work hours over time by 0.51, holding other variables constant (p-value < 0.05; Model 4). This magnitude of having more adult children working full-time decreases gradually by adding adult child and parental characteristics (0.704 for Model 2 and 0.503 for Model 3). Lastly, the fit of models improves as BIC gets smaller by adding various variables across Models for both women and men.

3.7. Conclusions

My findings suggest that both grandmothers and grandfathers who increase each additional hour of their time spent on grandchild care are apt to decrease work hours over time compared to those who do not, respectively. These findings confirm my hypotheses on work hours for both grandmothers and grandfathers, corroborating Ho's result for grandfathers (2015) and Rupert and Zanella's result for grandmothers (2018).

My evidence that grandfathers with an increase in time spent on grandchild care are more likely to adjust their work hours over time compared to those without such change supports role strain theory and may imply two scenarios. First, grandfathers' increased involvement could imply more urgent need for grandchild

care requiring a shift in work hours, despite the behavior not necessarily corresponding with cultural norms for downplaying the active role of grandfathers for grandchild care (Silverstein, Giarrusso, and Bengtson 2003; Silverstein and Marenco 2001). Second, because the share of men being full-time employed is greater than that of women in my sample, grandfathers may have more job resources to adjust their work hours than grandmothers when they devote more time to grandchild care.

However, contrary to my hypotheses on the association between grandchild care hours and employment, no significant evidence is found for the influence of spending each additional hour of grandchild care on being employed for both grandmothers and grandfathers (inconsistent with H1a & H1b for grandmothers and H2 for grandfathers; consistent with Rupert and Zanella's null finding (2018) and inconsistent with Ho's results (2015)). The null effect of grandchild care time on employment may address the fact that taking care of grandchildren is only supplementary for most grandparents, as shown in Chapter two. As opposed to an adjustment in work hours impacted by greater time spent on grandchild care, a decision to change one's employment status due to an increased commitment to grandchild care is a significant choice in light of grandparents' own financial and psychological well-being, as well as their profession in later life. No significant evidence in Chapter three confirms that a change in grandchild care time does not necessarily lead to a change in grandparents' employment status.

Another interesting but additional finding related to caregiving is that eldercare is linked to reduce work hours over time for those who start to provide elder care (see Table 3.3). Although my evidence shows that the elder care may serve as a

source of barriers to prolonged work for both women and men, it is a stronger factor for men to reduce work hours than for women. Additionally, initiating elder care decreases the probability of being employed only for women, not for men (see Table 3.2). Lastly, a finding related to the potential demand for grandchild care is noteworthy. Unlike grandmothers, grandfathers tend to increase work hours when they have more adult children who work full-time. This gender difference may highlight the strong normative expectations of being breadwinners among grandfathers.

This chapter is not without its limitations. A limitation for this chapter is a possibility for the bidirectionality. As previous work on paid work and caregiving pointed out (Wang and Marcotte 2007), the relationship between grandchild care and work outcomes in later-life may be bidirectional. In other words, labor force exits or a reduction in work hours may also affect provision of grandchild care (Ho 2015). To address the issue of reverse causality, I lagged employment outcomes and found that neither employment nor work hours are linked to changes in grandchild care time. Second, the age of grandchildren is not included in my models because the HRS lacks information about the age of grandchildren who receive grandchild care.
Given prior work documenting that the amount of time spent on grandchild care decreases with the age of grandchildren (Dunifon, Near, Ziol-Guest 2018), future research using other datasets should consider the age of grandchildren in understanding the linkage between grandchild care time and employment outcomes. Third, limited evidence on the effect of grandchild care on employment may be attributed to the use of a crude measure of grandchild care with a two-year time span

between panel waves. Future studies could benefit from using new data that captures specific grandchild care activities at shorter time intervals and the timing of care. Fourth, as Chapter two demonstrates the influence of education on grandchild care time for employed grandfathers, future research may explore a potential moderating role of education in the association between grandchild care time and work hours over time. Lastly, an important avenue for new research is to analyze sub-samples of racial-ethnic groups because findings from Chapter two demonstrate heterogenous patterns in grandchild care by race/ethnicity. The present chapter does not stratify models by race and ethnicity because considering variations by race/ethnicity is outside of the scope of this chapter. The focus in this chapter is on gender differences in associations of grandmothers' and grandfathers' time spent on grandchild care with work hours and employment status. This approach facilitates the comparison of my results with prior research, contributing to ongoing debates on the mixed finding in this emerging field. Furthermore, I stratify my models solely by gender under the assumption that fixed effects models can address individual heterogeneous behaviors associated with racial-ethnic differences in grandchild care, provided that race/ethnicity is included as a control in analyses. This possibility arises because fixed-effects models, less susceptible to omitted variable bias (Allison 2009), have been employed in the present chapter. While my findings reveal the negative association between grandchild care time and work hours among grandparents, analyzing sub-samples of racial-ethnic groups may lead to different conclusions, given that its effect is likely to be profound for those who are socioeconomically vulnerable and racial-ethnic minority groups. In conclusion, future research should

consider ethnoracial variations in the association between grandchild care time and employment outcomes.

Chapter 4: Grandchild Care Time and Family-to-Work Conflict/Work-to-Family Conflict

4.1. Research Questions and Literature Review

Despite changing demographic and socioeconomic trends that affect increasing demand for grandparents who provide either primary or supplemental childcare (Bianchi and Milkie 2010; Compton and Pollak 2014; Luo, LaoPierre, Hughes, and Waite 2012; Meyer and Kandic 2017; Presser 2005; Zamarro 2020), there is scant research on whether and how older grandparents' work-to-family conflict and family-to-work conflict may be adversely or positively affected by time spent on grandchild care (Emslie and Hunt 2009; Meyer 2014; Pruchno and McKenney 2002). Consistent with previous work on well-being effect of grandparenting (Bordone and Arpino 2016; Chen et al. 2015; Danielsbacka and Tanskanen 2016; Fuller-Thomson and Serbinski 2014; Hughes et al. 2007), their findings show that the nature and hours of grandchild care matter and may have the implication for grandparents' work-to-family conflict and family-to-work conflict. Whereas excessive grandchild care increases employed grandparents' work-family conflict (Hamilton and Suthersan 2021; Keene and Reynolds 2005; Meyer 2014), low and intermediate levels of grandchild care may not necessarily worsen work-family conflict. Yet, these existing studies are largely based on qualitative research using convenience samples. I examine associations between grandchild care and work-to-family conflict/family-to-work conflict and consider variations by gender using a national representative study of employed American grandparents, the Health and

Retirement Study. The results of this chapter also advance the understanding of associations between grandchild care and employment outcomes reported in Chapter three.

To investigate the association between time spent on grandchild care and work-to-family conflict and family-to-work conflict among employed grandparents over time, my theoretical predictions build on the caregiving literature using work-family spillover theory (Grzywacz and Marks 2000), role strain/role enhancement theory (Greenhaus and Powell 2006; Goode 2000; Moen, Robison, and Dempster-McClain 1995; Pearlins 1989), and prior work on work-family conflict and gendered patterns of caregiving and work.

First, work-family conflict can be bi-directional, with work having the potential to spill over into family and family to spill over into work (Grzywacz and Marks 2000; Raymo and Sweeney 2006). Prior work has shown that these two constructs (work-to-family conflict and family-to-work conflict) show low correlations with each other, suggesting they are separate processes (Lin and Burgard 2018). For example, having a tight work deadline (i.e., an antecedent from work domain) can reduce one's ability to spend time with family and thus result in increasing work-to-family conflict. Alternatively, during work time, trying to pick up sick grandchildren from school (i.e., an antecedent from family domain) might prevent one from getting the work done on time, leading to perceptions of adverse family-to-work conflict. However, little is known about whether and how greater time spent on grandchild care over time influences an increase in work-to-family conflict or family-to work conflict, respectively. The scenario in family-to-work conflict

seems more related to my research than work-to-family conflict because the main independent variable in Chapter four is time spent on grandchild care which is an antecedent from family domain. Hence, any positive or negative influence from spending more time on grandchild care is expected to be a spillover only to work domain. If the spillover theory is correct, grandchild care time would be significantly associated with family-to-work conflict, not with work-to-family conflict.

As shown in Table 4.1, my theoretical predictions draw from role enhancement and strain theory (Greenhaus and Powell 2006; Goode 2000; Moen, Robison, and Dempster-McClain 1995; Pearlins 1989). Role enhancement theory maintains that having multiple roles increases well-being when the multiple

Table 4.1. Summary of the Direction Associated with Hypotheses and Theories

Theory	Hypothesis	Outcomes	Grand-mothers	Gender Diff. ***(H5)***	Grand-fathers
Role enhancement	H1: Movement from no care to low care	A: Family-to-work conflict	–	<	–
		B: Work-to-family conflict	N/A		N/A
Role enhancement	H2: Movement from no care to intermediate care	A: Family-to-work conflict	–	<	–
		B: Work-to-family conflict	N/A		N/A
Role strain	H3: Movement from no care to intermediate care	A: Family-to-work conflict	+	<	+
		B: Work-to-family conflict	N/A		N/A
Role strain	H4: Movement from no care to substantial care	A: Family-to-work conflict	+	<	+
		B: Work-to-family conflict	N/A		N/A

responsibilities give a sense of satisfaction to individuals (Moen, Robison, and Dempster-McClain 1995). Employed grandparents spending more time with grandchildren as occasional caregivers may feel more satisfied, profoundly rewarding, and find a sense of meaning (Baker and Silverstein 2008; Fuller-Thomson, Serbinski, and McCormack 2014; Grünwald et al. 2022; Meyer 2014). Similarly, some employed parents with young children felt more balance in engaging in both childcare and employment (Milkie et al. 2010). If the role enhancement theory and spillover theory are accurate, employed grandparents who engage in a low level of grandchild care may experience a reduced level of family-to-work conflict (H1a). If the spillover theory is inaccurate, simultaneous engagements in both work and a low level of grandchild care could also decrease work-to-family conflict (H1b). Based on these perspectives, I develop:

H1a: *employed grandparents who provide a low level of grandchild care are more likely to experience a decrease in family-to-work conflict over time than those who provide no grandchild care.*

H1b: *employed grandparents who provide a low level of grandchild care are more likely to experience a decrease in work-to-family conflict over time than those who provide no grandchild care.*

This association between time spent on grandchild care and family-to-work conflict/work-to-family conflict may be also plausible for the intermediate grandchild care. Similar to the low level of grandchild care, intermediate level of grandchild care may be less stressful and exhausting to combine with work duties for both some

employed grandmothers and grandfathers. If role enhancement and spillover theory are accurate, I expect to find that employed grandparents who engage in intermediate level of grandchild care are more likely to decrease family-to-work conflict compared with those without any care (H2a). In contrast, if spillover theory is accurate, I expect to find a non-significant association with work-to-family conflict (H2b). Based on these perspectives, I develop:

H2a: *employed grandparents who engage in intermediate level of grandchild care are more likely to experience a decrease in family-to-work conflict over time than those without any care.*

H2b: *employed grandparents who engage in intermediate level of grandchild care are more likely to experience a decrease in work-to-family conflict over time than those without any care.*

A competing association between time spent on grandchild care and family-to-work conflict/work-to-family conflict is possible particularly for the intermediate level of grandchild care and substantial grandchild care, according to role strain theory (Goode 1960; Pearlin 1989). Role strain theory posits that engagement in multiple roles would produce detrimental outcomes when competing roles lead to stress (Goode 1960; Pearlin 1989). Employed grandparents who need to provide more grandchild care may experience an increase in family-to-work conflict due to time scarcity. This suggests that work-to-family and family-to-work conflict should be responsive to levels of caregiving duties and resources that grandparents can utilize to buffer role competitions (Moen, Kelly, and Hill 2011; Schieman and Glavin 2008;

Schieman, Glavin, and Milkie 2009). However, the extent of employed grandparents' worsening family-to-work conflict may not be as strong as that of employed mothers with young children unless employed grandparents provide substantial childcare (e.g., 500 hours or more in my analyses). This prediction is based on the fact that the majority of grandparents are not primary or sole caretakers for grandchildren (Lauglin 2013; Luo et al. 2012).

If the role strain theory and spillover theory are accurate, when employed grandparents provide an intermediate level of care, the extent of increasing family-to-work conflict is likely to be higher over time (H3a) as a result of greater psychological distress incurred by fulfilling an additional set of grandparents' role responsibilities along with their work duties (Chan et al. 2023; Jendrek 1993). Similarly, elder caregiving literature has documented the adverse association between caregiving duties and family-to-work conflict among employed middle- and older individuals as opposed to non-caregivers (Duxbury and Higgins 2017; Glavin and Peters 2015). If the spillover theory is accurate, I anticipate discovering a lack of significant association between intermediate care and work-to-family conflict (H3b). Based on these perspectives, I develop:

H3a: *employed grandparents who provide an intermediate level of grandchild care are more likely to experience an increase in family-to-work conflict over time than those without grandchild care.*

H3b: *employed grandparents who provide an intermediate level of grandchild care are more likely to experience an increase in work-to-family conflict over time than those without grandchild care.*

Substantial grandchild care (500 hours or more) is associated with worsening work-family conflict for grandmothers (Hamilton and Suthersan 2021; Keene and Reynolds 2005; Meyer 2014). Although the impact of substantial grandchild care on work-family conflict for employed grandfathers has not yet been studied, the influence of substantial grandchild care on family-to-work conflict and work-to-family conflict may be similar to women's, due in part to their greater emphasis on the role of breadwinning (Henretta and Campbell 1976; Moen 2016; Risman 1999). Considering these findings, if the role strain and spillover theory are accurate, it is possible that employed grandparents who devote their time to substantial grandchild care may experience an increase in family-to-work conflict over time (H4a). If spillover theory is inaccurate, I also expect to find a significant and adverse association between substantial grandchild care and work-to-family conflict (H4b). Taken together, I expect to find:

H4a: *employed grandparents who undertake* substantial *grandchild care are more likely to experience an increase in family-to-work conflict over time than those without any care.*

H4b: *employed grandparent who undertake* substantial *grandchild care are more likely to experience an increase in work-to-family conflict over time than employed grandparent without any care.*

Whereas prior work suggests that there are gendered expectations for breadwinning associated with long job tenure (Henretta and Campbell 1976; Moen 2016; Risman 1999), existing research on gender and childcare consistently

documents that grandmothers tend to provide care for grandchildren more than grandfathers (Fuller-Thomson and Minkler 2001). Given these gendered patterns in work and grandchild care, I argue that grandfathers who provide any time for grandchild care are more likely to experience an increase in family-to-work conflict or work-to-family conflict compared to employed grandmothers who provide any grandchild care (H5). Although intermediate and substantial grandchild care may be burdensome for both grandmothers and grandfathers while being employed, I expect this prediction because greater time spent on grandchild care (even if it is not on a regular basis) may go against men's normative gender expectation associated with caregiving and conform to women's. Taken together, I expect to find:

H5: *employed grandfathers who provide any level of grandchild care time are more likely to experience an increase in family-to-work conflict or work-to-family conflict over time than employed grandmothers who provide any level of grandchild care time.*

4.2. Data

The HRS asks detailed information about employed respondents' evaluation of their work-family balance, personality, and life circumstances since 2006. The questions have been asked in the Leave-Behind questionnaires, which is self-administered. This psychosocial information is gathered in each biennial wave from a rotating (random) 50% of the core longitudinal participants who finish the enhanced face-to-face interview. Thus, longitudinal data is available at four-year intervals. In other words, the 2010 wave provides the first longitudinal psychosocial data from the

2006 respondents. As a result, respondents who first answered this psychosocial questionnaire in 2006 (i.e., subsample A) have longitudinal information across three time points with four-year intervals (2006, 2010, 2014). Respondents who first answered this questionnaire in 2008 (i.e., subsample B) have two-time points in 2008 and 2012. This chapter uses this psychosocial information by pooling subsample A (2006, 2010, 2014) and subsample B (2008, 2012) to maximize sample size.

I include all employed respondents who are grandparents and those who are at risk of having a grandchild (i.e., those who have at least a living adult child) between 2006, 2008, 2010, 2012, and 2014.[16]Although there is a possibility that grandparents have a new grandchild through stepfamilies, research shows that grandparents tend to provide care to biological grandchildren than step-grandchildren (Seltzer, Yahirun, and Bianchi 2013).

First, I exclude cases that are overlapped and have linkage problems (3.5%), those who are not working (2.14%), and those who don't have a living child (1.4%). Among 9,927 person-year observations, I exclude 677 missing values on any variables included in the analyses (6.8%). This restriction results in 9,250 person-year observations of 6,400 respondents. I then selected those with at least two observations across survey rounds (4,978 person-year observations of 2,236), to facilitate my estimation of fixed-effects models, which require multiple observations from each respondent. Among 9,250 person-year observations, 4,272 (46.18%) dropped due to survey attrition. This high missing value is created by creating longitudinal dataset at

[16] The main reason that I chose these years as my sample is to use psychosocial modules that were administered between 2006 and 2014.

four-year intervals. This result in 4,978 person-year observations of 2,236 individuals. Furthermore, I limit my sample to respondents who are less than 68 years old because the effective retirement age in the U.S. is approximately 67 years old both for women and men (OECD 2018).[17]As such, I restrict my sample to respondents who are aged between 51 and 67 (exclude 22%). Lastly, I exclude other racial-ethnic group due to very small sample size (exclude 2.5%). The final analytic sample size is 3,706 person-year observations of 1,717 individuals.

Although the RAND HRS recommends researchers to use psychosocial weights to account for the complex sample design (Smith et al. 2017), this weight is cross-sectional for subsamples, whereas my analyses require that I pool subsample A (2006, 2010, 2014) and subsample B (2008, 2012) as a longitudinal dataset. Therefore, I did not use any weight for analyses.[18]Because the small sample size of this chapter doesn't allow me to stratify models by gender, I control for gender for Model 1 through 3 and add an interaction term between gender and grandchild care time in Model 4 to examine between-gender differences.

[17] The average effective labor market exit age for women and for men is 65.4 and 66.8, respectively. Women and men in the lowest tertile withdraw from the labor market around 61 years old and 62 years old, respectively. Men who are in the highest tertile leave the workforce at about 70 years old and women leave the workforce at 68 years old (OECD 2018).

[18] Additionally, it is difficult to incorporate time-varying weights into *xtreg, fe* command in STATA. I tried to run the dataset using *areg* and time-varying weights, but the coefficients were exceptionally high. It seemed that the weights boosted the magnitude of coefficients unusually compared to results that are produced by the *xtreg, fe* command. Thus, I decided not to use individual weights.

Table 4.2. Operational Definitions for Chapter 4

Variables	Operational Definitions
Dependent variables	
Work-to-family conflict	Work-to-family conflict on a scale of 1 to 10
Family-to-work conflict	Family-to-work conflict on a scale of 1 to 10
Independent and control variables	
Grandchild care hours	Hours spent on grandchild care (no hour, 1-99 hours, 100-499 hours, 500 hours or more)
Adult child characteristics	Number of grandchildren, number of adult children working full-time, status of co-residence with grandchildren
Intergenerational transfer	Financial transfer to/from children, elder care
Work characteristics	Labor force status, work hours
Sociodemographic controls	Age, marital status, self-reported health, household income and wealth, gender, race, education, cohort

4.3. Measures

Table 4.2 shows operational definitions of variables.

Dependent Variables. The dependent variables for Chapter 4 are family-to-work conflict and work-to-family conflict. Six questions on work-family conflict are asked only among respondents who currently work between 2006 and 2014. Each question is on a scale of 1 (rarely) to 4 (most of time). These measurements derive from MacDermid et al (2000). I create work-family conflict by considering sources of conflict and enhancement: (1) work-to-family conflict and (2) family-to-work conflict. These two measures show whether conflict flows from work/family to family/work.

First, questions on *work-to-family conflict (WTFC)* are the following: (1) My work schedule makes it difficult to fulfill personal responsibilities, (2) Because of my job, I do not have the energy to do things with my family or other important people in my

life, and (3) Job worries or problems distract me when I am not at work. Work-to-family conflict (*WTFC*) is a continuous measure which is on a scale of 1 (positive) to 10 (negative). The work-to-family conflict (WTFC) has moderate levels of internal consistency (Cronbach α= 0.71 in 2006; Cronbach α= 0.72 in 2008; Cronbach α= 0.67 in 2010; Cronbach α= 0.70 in 2012; Cronbach α= 0.72 in 2014).

Second, questions on *family-to-work conflict (FTWC)* are following: (4) My home life keeps me from getting work done on time on my job, (5) My family or personal life drains me of the energy I need to do my job, and (6) I am preoccupied with personal responsibilities while I am at work. Family-to-work conflict (*FTWC*) is a continuous measure which is on a scale of 1 (positive) to 10 (negative). The *family-to-work conflict (FTWC)* has moderate levels of internal consistency (Cronbach α= 0.65 in 2006; Cronbach α= 0.65 in 2008; Cronbach α= 0.67 in 2010; Cronbach α= 0.66 in 2012; Cronbach α= 0.65 in 2014).

Independent variables. The main independent variable is time spent on grandchild care.

Time spent on grandchild care. Grandchild care is measured with the same question used in Chapter two and three, but I use a categorical measure of grandchild care hours in Chapter four. I classify 0 hour as no hour, 1-99 hours as a low level of grandchild care, 100-499 hours as intermediate grandchild care, and 500 hours or more as substantial grandchild care.

Gender is categorized as women and men (reference group). Women are coded as 1, otherwise coded 0. I include gender as an interaction term with grandchild care time in Model 4 to examine between-gender differences in the association between grandchild care time and family-to-work conflict/work-to-family conflict.

Controls

Based on the previous literature on grandchild care and work-family conflict, I control for parental demographic and socioeconomic characteristics, adult child characteristics, and other related variables. Questions and coding of all control variables are consistent with Chapter two and Chapter three.

Work characteristics are measured by labor force status and work hours. Since all respondents are employed, labor force status is categorized as full-time (reference), part-time, and phased retirement. Although part-time and phased retirement sound similar due to a reduction in work hours, the nature of these two labor force statuses is different. Part-time does not guarantee health insurance or pension benefits, while phased retirement indicates working in the same job with equal benefits for reduced work hours. Additionally, phased retirement is uncommon in the U.S. except for professional workers (e.g., doctors, lawyers) (OECD 2018).

4.4. Method

Employed grandparents who selectively respond to the need of grandchild care may differ on unobserved characteristics from those who do not in various ways.

Despite the importance of considering preferences over work and grandchild caregiving in analyses (Allison 2009), it is often difficult to measure them in survey-dataset and they are not included from the HRS (Smith et al. 2017). However, these characteristics are very important because employed grandparents who face the demand for grandchild care and decide to provide it may have strong norm for intergenerational solidarity. Furthermore, labor force participation among older individuals tends to involve a process of selectivity and cumulative advantage/disadvantage (Moen, Flood, and Wang, 2022; OECD 2018; Raymo, Warren, Sweeney, Hauser, and Ho 2010). The Cumulative Advantage/Disadvantage Process Theory posits that a person's retirement process and job resource are likely influenced by prior life experiences, which stem from individual attributes and their subsequent employment (O'Rand 1996; Raymo, Warren, Sweeney, Hauser, and Ho 2010). Therefore, it is important to use a method that addresses the issue of unobserved heterogeneity. My preliminary results from Hausman test indicate that a fixed effects model is more appropriate for analyses of work-to-family conflict than a random effects model/pooled OLS. However, the results from Hausman and Breusch-Pagan test suggest that random effects model is more appropriate for family-to-work conflict than fixed effects model/pooled OLS. Lastly, I also ran time effect test for my analyses, finding no time effects. As such, I do not include time as a control in my final models. Taken together, in Chapter 4, I utilize a fixed effects linear regression model for work-to-family conflict and a random effects linear regression model for family-to-work conflict.

Fixed effects linear regression model for work-to-family conflict

Model 1:

$$\boldsymbol{WFC_{it} = \alpha_i + \beta_1 GH_{it} + \cdots \beta_k X_{k,it} + e_{it}}$$ **; i=1….n; t=1,2,3**

Model 2:

$$\boldsymbol{WFC_{it} = \alpha_i + \beta_1 GH_{it} XFemale + \cdots \beta_k X_{k,it} + e_{it}}$$ **; i=1….n; t=1,2,3**

Grandchild care hours: GH

$\alpha_i = \alpha + u_i$
α: average individual effect
u_i: unobserved individual effect

Model 1 represents how a change in grandchild care time is associated with a change in work-to-family conflict over time. Considering the structures of the HRS using repeated measurements of related variables within individuals, the dependent variable y_{it} for person i at time t, work-to-family conflict (*WFCit*), is estimated as a function of linear terms of year for person i at time t. The coefficient β_1 indicates the linear rate of change in work-to-family conflict with changes in grandchild care hours. The error terms e_{it} suggests a time-varying part of the error terms and α_i indicates an unobserved individual effect that does not change over time. $X_{k,it}$ represents control variables and β_k is the coefficient for each control variable. Similarly, Model 2 estimates an interactive association of gender and grandchild care time with work-to-family conflict over time.

Random effects linear regression model for family-to-work conflict

Model 3:

$$FWC_{it} = \beta_1 GH_{it} + \cdots \beta_k X_{k,it} + \alpha + u_{it}; \text{ i=1...n; t=1,2,3}$$

Model 4:

$$FWC_{it} = \beta_1 GH_{it} XFemale + \beta_2 Female \cdots \beta_k X_{k,it} + \alpha + u_{it}; \text{ i=1...n; t=1,2,3}$$

Grandchild care hours: GH

$u_{it} = u_i + \varepsilon_{it}$
u_i ~IID $(0, \sigma_u^2)$
ε_{it} ~ IID $(0, \sigma_e^2)$
IID: independent and identically distributed

Regarding family-to-work conflict, I use a random effects linear model based on the Hausman test result. Unlike fixed effects model absorbing time-constant variables into the intercept (Allison 2009), random effects linear model allows us to test the independent effect of time-constant variables (e.g., gender, race-ethnicity, and education) on dependent variables (Cameron and Trivedi 2010). A random effect model assumes that individual effects (heterogeneity) are not correlated with any regressor, subsequently estimating error variance specific to individuals. u_{it} represents an individual-specific random heterogeneity or the composite error term. The composite error term consists of the traditional random error and a random intercept, which quantifies how much an individual's intercept differs from the overall intercept (Cameron and Trivedi 2010). Model 3 represents how grandchild care time is associated with family-to-work conflict over time. The dependent variable y_{it} for person i at time t, family-to-work conflict (*FWCit*), is estimated as a function of linear terms of year for person i at time t. In Model 3, the coefficient

β_1 indicates the linear rate of change in family-to-work conflict with changes in grandchild care hours. $X_{k,it}$ represents control variables and β_k is the coefficient for each control variable. Lastly, Model 4 estimates an interactive effect of gender and grandchild care time on family-to-work conflict over time.

4.5. Results

4.5.1. Descriptive Statistics

Table 4.3 shows means and percentage of the variables. For dependent variables, the average score of work-to-family conflict and family-to-work conflict is 2.7 and 1.5 on a scale of 1 to 10, respectively. In short, the distribution of work-to-family and family-to-work conflict is skewed right. In other words, respondents generally report a higher level of conflict relative to the median (2 for work-to-family conflict and 1 for family-to-work conflict).

As shown in Table 4.3, providing no time to grandchild care is very common (69.6%). Among those who provided any grandchild care, similar shares of employed grandparents spent either 100-499 hours (11.1 %) or 500 hours or more (11.6 %) for time spent on taking care of grandchildren. Those who provided 1-99 hours consist of 7.7% of the sample. Because grandparents in my sample are less apt to provide time-substantial grandchild care, the effect of grandchild care on measures of work-to-family conflict and family-to-work conflict may be limited.

Table 4.3. Descriptive Statistics, HRS Wave 1(2006 & 2010), Wave 2 (2008 & 2012), Wave 3 (2014)

	Mean or %	SD
Dependent variables		
Work-to-family conflict (1-10)	2.7	(1.7)
Family-to-work conflict (1-10)	1.5	(1.0)
Independent variables		
Time spent on grandchild care (ref. no hour)		
no hour	69.6	
1-99 hours	7.7	
100-499 hours	11.1	
500 or more hours	11.6	
Controls		
Parental characteristics		
Demographic characteristics		
Gender		
Women	58.5	
Men	41.5	
Age	58.7	(4.3)
Age indicator for 62	28.1	
Cohort		
AHEAD & Children of Depression & HRS (born before 1941)	14.3	
War Babies (born 1942-1947)	20.4	
Early Baby Boomers (EBB, born 1948-1953)	48.4	
Mid Baby Boomers (MBB, born 1954-59)	16.9	
Marital status (ref. divorced/separated/widowed/never married)		
Married/partnered	78.3	
Divorced/separated/widowed/never married	21.7	
Race-ethnicity		
NH White	80.5	
NH Black	10.8	
Hispanic	8.7	
Socioeconomic characteristics		
Education		
LT HS & HS/GED	35.3	
Some College, CL, and Above	64.7	
Labor force status		
(1) Work hours (for main job)	39.1	(12.4)
(2) Labor force status (ref. full-time)		
Full-time	77.1	
Part-time	13.1	
Phased/bridge retired	9.9	
Household total wealth (housing + non-housing assets) in $1,000	626.1	(1423.8)
Household total annual income in $1,000	138.6	(328.4)
Self-reported health (1: poor - 5: excellent)	3.7	(0.9)
Adult child characteristics		
# of children working full-time	1.9	(1.3)
# of grandchildren	3.2	(3.9)
Coresidence	5.7	
Other Controls		
Intergenerational transfer		

Financial transfer to children	52.8
Financial transfer from children	4.0
Elder care	5.3
N (person-year)	3,706

Source: Health and Retirement Study, 2006, 2008, 2010, 2012, 2014

Notes: Descriptive statistics and sample size are unweighted. All work-family balance measures are adjusted to start from a scale of 1. I aggregate AHEAD & Children of Depression & HRS cohorts into one category due to small sample size for each cohort. Mid Baby Boomers first entered the HRS in 2010. Household wealth and income are inflation-adjusted using CPI in 2020.

In contrast, demographic characteristics in my sample may indicate that respondents' adjustment to work hours may be more feasible when they provide grandchild care considering the intersection of gender and marital status. Specifically, more women (58.5%) are included than men in this sample and the average age of respondents is about 59 years old. In addition, married respondents are more common (78.3%) than those who are divorced, separated, widowed, or never married.

Alternatively, composition of cohort membership and race-ethnicity in my sample may suggest that the adverse association between time spent on grandchild care and work-to-family conflict/family-to-work conflict over time may not hold true. Existing literature on work and grandchild care suggests that baby boomers tend to prioritize their career, and NH Whites are less likely to provide substantial grandchild care that may significantly impact their work, especially when compared to racial minorities (Carr 2019; Goldin and Katz 2018; Kojola and Moen 2016; Moen, Flood, and Wang 2022). My sample shows that the half of respondents is early baby boomers (48.4%) and roughly 17% of respondents are mid-baby boomers. Non-Hispanic (NH) White respondents are 80.5%, NH Black is 10.8%, and Hispanic is 8.7%.

Some of important factors affecting work-to-family conflict or family-to-work conflict when respondents care for family members are education, work characteristics, and economic standings. These characteristics may reflect whether respondents have a job that guarantees flexibility, authority, and occupational norms for being flexible for family needs (Clawson and Gerstel 2014). Respondents in my sample tend to be better educated (65%) and full-time employed (77%). These socioeconomic statuses may suggest two possibilities: respondents may have authority to be flexible, allowing them to manage grandchild care without significantly affecting work-to-family or family-to-work conflict, or they are in the occupations that demand a substantial time commitment. On the other hand, respondents who are employed part-time (13.1%) or those with phased retirement (9.9%) are less likely to experience worsening work-to-family or family-to-work conflict because of their time availability.

Although labor force status and work hours are somewhat correlated[19], the effect of them on family-to-work conflict/work-to-family conflict may be slightly different. The average work hours are 39.1 hours per week, indicating a solid majority is full-time employed. Inflation-adjusted average annual earnings in $1,000s are 138.6 dollars. This indicates that respondents tend to be located on the upper side of socioeconomic ladder (OECD 2018). Inflation-adjusted household wealth that include both housing and non-housing assets in $1,000s is 621.1 dollars. This corresponds to the average wealth that Americans have (OECD 2018). Overall, my sample suggests

[19] The correlation coefficient of labor force status and work hours is -0.70 and is statistically significant at the 0.05 alpha level.

that respondents have socioeconomic characteristics representing good job and economic security and relatively small shares of respondents devoting their considerable time to grandchild care. Accordingly, respondents who provide grandchild care are more likely to experience less work-to-family or family-to-work conflict due to their increased time and financial resources to mitigate such conflicts. Respondents tend to be healthy based on the average score of self-reported health (3.7 on a scale of 1 to 5).

Adult child characteristics suggest that the number of children working full-time is on average two and the number of grandchildren on average is three. Consistent with the literature (Chen et al. 2015; Luo et al. 2012), approximately 5.7% of respondents co-reside with grandchildren. Lastly, respondents tend to transfer more money to children (53%) than to receive it from them (4%). A small proportion of respondents (5.3%) provided elder care.

4.5.2. Transitions in Time spent on Grandchild Care by Gender

Table 4.4 shows gendered transitions into and out of various levels of time spent on grandchild care from one wave (time *t*) to the next (time *t*+1) for individuals who have at least one adult children at time t. Each row of the table shows the transition from a state in the column labeled Time *t* to each of the four possible states in the column labeled Time *t* +1 (columns 1 to 4). There are some persistent patterns in all four states (the diagonal of the table), with more than 80% of both women and men staying in the same state spending no hour with grandchildren, with about 9% of

Table 4.4. Transitions between Employment and Grandchild Care among Respondents with a Grandchild

	Time t + 1				
Time t	(1) no hour	(2) 1-99 hours	(3) 100-499hours	(4) 500 hours +	Total
Women					
(1) no hour					
Number	607	16	61	43	727
% of row	83.49	2.2	8.39	5.91	100
(2) 1-99 hours					
Number	24	5	16	11	56
% of row	42.86	8.93	28.57	19.64	100
(3) 100-499 hours					
Number	50	10	41	26	127
% of row	39.37	7.87	32.28	20.47	100
(4) 500 hours +					
Number	33	13	39	73	158
% of row	20.89	8.23	24.68	46.2	100
Total	714	44	157	153	1,068
Men	(1) no hour	(2) 1-99 hours	(3) 100-499hours	(4) 500 hours +	Total
(1) no hour					
Number	485	48	34	19	586
% of row	82.76	8.19	5.8	3.24	100
(2) 1-99 hours					
Number	28	30	9	14	81
% of row	34.57	37.4	11.11	17.28	100
(3) 100-499 hours					
Number	15	13	11	13	52
% of row	28.85	25	21.15	25	100
(4) 500 hours +					
Number	13	8	10	19	50
% of row	26	16	20	38	100
Total	541	99	64	65	769

Notes: Percentages and counts are unweighted values.

women and 37% of men remaining in spending 1-99 hours with grandchildren, with 32% of women and 21% of men continuing spending 100-499 hours with grandchildren, and with 46% of women and 38% of men remaining devoting 500 hours or more to grandchild care between waves.

Yet, there is still evidence of showing movements into and out of various levels of time spent on grandchild care. Whereas 8% of men who initially spent no time with their grandchildren began spending 1-99 hours on grandchild care between waves, only 2.2% of women did the same. In addition, about 6% and 3% of men started to spend 100-499 hours and 500 hours or more on grandchild care between consecutive waves, respectively. In contrast, roughly 8% of women and 6% of men, who spent no time on grandchild care at baseline, began allocating 100-499 hours and 500 hours or more to grandchild care in the subsequent wave, respectively.

More noticeable patterns are found among those who transitioned their states from 1-99 hours to 100-499 hours. Specifically, roughly 42% of grandmothers who spent 1-99 hours at baseline ceased spending any hours in the subsequent wave, whereas 34% of men experienced a similar transition between two time points. About 28% of women increased their grandchild care hours from 1-99 hours at baseline to 100-499 hours, while only 11% of men made the same transition. The transition from spending 1-99 hours on grandchild care to 500 hours or more occurred in approximately 19% for women and 17 % for men, respectively.

Among men, roughly 28% shifted from 100-499 hours at baseline to spending no time, 25% to 500 hours or more, and about 25% to 1-99 hours. On the other hand, a substantial share of women who initially allocated 100-499 hours to grandchild care

at baseline transitioned to spending no time with grandchildren (40%) and to devoting 500 hours or more to grandchild care (20%), respectively. A significant proportion of women who initially allocated 100-499 hours to grandchild care at baseline transitioned to providing no care (40%), which may be related to the age of grandchildren over time. Lastly, about 26% of grandfathers who previously devoted 500 hours or more to grandchild care at baseline transitioned to spending no time with their grandchildren. Roughly 21% of women made the similar transition between consecutive waves. Whereas about 25% of women changed their grandchild care time from spending 500 hours or more to spending 100-499 hours, roughly 20% of men made the same transition. The transition from devoting 500 hours or more to grandchild care at baseline to spending 1-99 hours on grandchild care occurred in 8% of women and 16% of men, respectively. In conclusion, these shifts in grandchild care time across waves may emphasize the importance of examining the association between time spent on grandchild care and family-to-work or work-to-family conflict.

4.5.3. Results of Fixed Effects Linear Regression Model

Fixed effects linear regression models are estimated to predict the influence of grandchild caregiving on work-to-family conflict. As shown in Table 4.5, Model 1 includes parental demographic and socioeconomic variables. Model 2 adds child characteristics and intergenerational transfer variables. Model 3 estimates the effect of grandchild care hours, holding intergenerational transfer variables, parental and adult child characteristics constant. Consistent with the literature documenting the

Table 4.5. Fixed Effects Linear Regression Models Predicting Work-To-Family Conflict

	Work-to-family conflict			
	Baseline	Child & Transfer	Care	Gender X Care
	Model 1	Model 2	Model 3	Model 4
Grandchild care time (ref. no hour)				
1-99 hours			0.128	
			(0.120)	
100-499 hours			-0.021	
			(0.106)	
500 hours or more			0.105	
			(0.110)	
Men X Grandchild care time (ref. no hour)				
1-99 hours				0.263 †
				(0.152)
100-499 hours				0.098
				(0.174)
500 hours or more				0.148
				(0.192)
Women X Grandchild care time (ref. no hour)				
1-99 hours				-0.044
				(0.249)
100-499 hours				-0.087
				(0.217)
500 hours or more				0.069
				(0.234)
Child characteristics				
# of grandchildren		-0.002	-0.003	-0.004
		(0.022)	(0.022)	(0.022)
Coresidence		0.322 †	0.304 †	0.304 †
		(0.182)	(0.183)	(0.182)
# of adult children working full-time		0.062	0.063	0.064
		(0.043)	(0.044)	(0.044)
Work characteristics				
Labor force status (ref. full-time)				
Part-time	-0.135	-0.141	-0.148	-0.143
	(0.145)	(0.144)	(0.144)	(0.144)
Phased retirement	-0.437 *	-0.433 *	-0.435 *	-0.431 *
	(0.182)	(0.182)	(0.182)	(0.183)
Work hours	0.037 ***	0.037 ***	0.037 ***	0.037 ***
	(0.006)	(0.006)	(0.006)	(0.006)
Demographic and Socioeconomic characteristics				
Age (ref. 50-54)				
55-59	0.133 †	0.110	0.109	0.108
	(0.074)	(0.078)	(0.078)	(0.078)

60-67	0.170	†	0.139		0.139		0.138	
	(0.103)		(0.109)		(0.109)		(0.110)	
Age indicator for age 62	0.025		0.020		0.019		0.014	
	(0.086)		(0.087)		(0.087)		(0.087)	
Marital status (ref. divorced/separated/widowed/never married)								
Married	-0.016		-0.014		-0.019		-0.025	
	(0.175)		(0.176)		(0.176)		(0.177)	
Self-reported health status	-0.116	*	-0.119	*	-0.118	*	-0.121	*
	(0.059)		(0.059)		(0.059)		(0.059)	
Household wealth	0.008		0.005		0.004		0.004	
	(0.019)		(0.019)		(0.019)		(0.019)	
Household income	0.070		0.067		0.066		0.064	
	(0.052)		(0.052)		(0.052)		(0.052)	
Financial transfer to children			-0.005		-0.005		-0.001	
			(0.072)		(0.072)		(0.072)	
Financial transfer from children			-0.036		-0.037		-0.041	
			(0.211)		(0.212)		(0.212)	
Elderly care (ref. no)								
Yes			0.091		0.089		0.098	
			(0.137)		(0.137)		(0.138)	
Constant	1.307	**	1.229	**	1.232	**	1.250	**
	(0.430)		(0.439)		(0.437)		(0.439)	
Within R-squared	0.074	***	0.077	***	0.078	***	0.078	***
BIC	9,432.684		9,469.965		9,490.675		9,511.852	
N (person-year)	3,706		3,706		3,706		3,706	

Data: Health and Retirement Study, Wave 1 (2006& 2010), Wave 2 (2008 & 2012), Wave 3 (2014)

Notes: I include gender, race, education, and cohort as controls in all models. On the top panel, "Child & Transfer" in Model 2 indicates child characteristics and intergenerational transfer. "Care" in Model 3 refers to grandchild care time. Weights are not applied.

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

gendered outcomes with respect to time spent on grandchild care (Fuller-Thomson and Minkler 2001; Hank and Buber 2009; Sheppard and Monden 2019), I add an interaction term between gender and grandchild care time in Model 4 to investigate between-gender differences in the association between grandchild care and work-to-family conflict over time (test of H5).

As shown in Table 4.5, the effect of grandchild care time on work-to-family conflict is not statically significant for most cases (inconsistent with H2b, H3b, H4b), except for employed grandfathers spending a low level of grandchild care (1-99 hours) with grandchildren. Employed grandfathers who engaged in a low level of grandchild care experience an increase in work-to-family conflict by 0.263 compared to employed grandfathers without such change (significant but opposing direction from H1b for grandfathers; *p-value* < 0.1, Model 4). This finding runs counter to H1b positing the negative association between the low level of grandchild care and work-to-family conflict based on the role enhancement theory. This finding is unexpected according to the spill over theory (Grzywacz and Marks 2000). Because more time spent on grandchild care originally results from the domain of family, the effect of grandchild care time on work-to-family conflict is expected to be insignificant. While I do not find any significant effect of low care among employed grandmothers, it reveals an adverse association between low care and work-to-family conflict (inconsistent with H1b for grandmothers; Model 4). Lastly, no significant evidence of the association between intermediate level of grandchild care (100-499 hours) or substantial grandchild care (500 hours or more) and work-to-family conflict is found for both employed grandmothers and grandfathers, respectively (inconsistent with H2b, H3b, H4b; Model 4). However, I found that gender differences in the effect of low care on work-to-family conflict are statistically significant based on the equivalent test of coefficients. In other words, employed grandfathers who provide a low level of grandchild care are more likely to increase work-to-family conflict by 0.219 compared to employed grandmothers with such provision (consistent with H5).

Labor force status and work hours are similarly related to work-to-family conflict. Employed grandparents who are phased retirement experience a 0.0431 decrease in work-to-family conflict compared to those who work full-time (*p-value* < 0.05; Model 4). In contrast, respondents who work each additional hour experience an increase in work-to-family conflict by 0.037 compared to those who do not (*p-value* < 0.001; Model 4). The effects of these variables on work-to-family conflict indicate consistent directions and similar magnitudes across all models. This finding supports the spillover theory, confirming no measurement error for work-to-family conflict. Age is positively associated with work-to-family conflict (Model 1), but the effect becomes insignificant (Model 2-4). Similarly, no significant evidence of age indicator for 62 is found. Better health is adversely associated with work-to-family conflict over time.

Co-residence is significantly linked to work-to-family conflict over time. Employed grandparents who live with grandchildren in the same household are more likely to increase work-to-family conflict by 0.322 than those without coresident grandchildren (*p-value* < 0.1; Model 2). Upon introducing grandchild care hours and an interaction term of gender and grandchild care time into Model 4, the magnitude of co-residing with grandchildren gradually decreases to 0.304 (*p-value* < 0.1; Model 4), net of other variables.

4.5.4. Results of Random Effects Linear Regression Model

Table 4.6 presents coefficients from the random effects linear regression model regressing family-to-work conflict on grandchild care time. As shown in Table

4.6, the association between time spent on grandchild care and family-to-work conflict is not statically significant for most cases (inconsistent with H2a, H3a, H4a). However, significant evidence is found among employed grandparents (Model 3) and employed grandfathers (Model 4) who engage in a low level of grandchild care (1-99 hours). Employed grandparents who spend a small amount of time with their grandchildren (1-99 hours) reduce family-to-work conflict by 0.135 (consistent with H1a; *p-value* < 0.05, Model 3). Similarly, employed grandfathers who engage in the low level of grandchild care decrease family-to-work conflict by 0.174 compared to employed grandfathers without any grandchild care (consistent with H1a for grandfathers*; p-value* < 0.05, Model 4). According to the spillover theory (Grzywacz and Marks 2000), this finding is as expected. Because more time spent on grandchild care originally stems from the domain of family, the influence of grandchild care time on family-to-work conflict is expected to be significant.

However, intermediate level of grandchild care (inconsistent with H2a and H3a) or substantial grandchild care (inconsistent with H4a) are not significantly related to family-to-work conflict among employed grandparents (Model 3) and employed grandfathers (Model 4). Although employed grandmothers who engage in low and intermediate levels of care decrease family-to-work conflict (consistent with role enhancement theory) and those who provide substantial care increase family-to-work conflict (consistent with role strain theory), I did not find any significant evidence among grandmothers (inconsistent with H1a, H2a, H3a, H4a for grandmothers). Hence, no gender differences are found for any level of grandchild care time (inconsistent with H5).

Table 4.6. Random Effects Linear Regression Models Predicting Family-to-Work Conflict

	Family-to-work conflict			
	Baseline	Child & Transfer	Care	Gender X Care
	Model 1	Model 2	Model 3	Model 4
Grandchild care time (ref. no hour)				
1-99 hours			-0.135 *	
			(0.059)	
100-499 hours			-0.050	
			(0.051)	
500 hours or more			0.032	
			(0.054)	
Men X Grandchild care time (ref. no hour)				
1-99 hours				-0.174 *
				(0.076)
100-499 hours				-0.048
				(0.089)
500 hours or more				-0.058
				(0.093)
Women X Grandchild care time (ref. no hour)				
1-99 hours				-0.084
				(0.093)
100-499 hours				-0.047
				(0.061)
500 hours or more				0.073
				(0.063)
Child characteristics				
# of grandchildren		-0.010 †	-0.009	-0.008
		(0.005)	(0.006)	(0.006)
Coresidence		0.159 *	0.146 *	0.150 *
		(0.071)	(0.074)	(0.074)
# of adult children working full-time		-0.004	-0.003	-0.003
		(0.015)	(0.015)	(0.015)
Work characteristics				
Labor force status (ref. full-time)				
Part-time	0.067	0.068	0.066	0.064
	(0.058)	(0.058)	(0.058)	(0.058)
Phased retirement	-0.042	-0.041	-0.039	-0.038
	(0.071)	(0.071)	(0.071)	(0.071)
Work hours	0.004 *	0.004 *	0.004 *	0.004 *
	(0.002)	(0.002)	(0.002)	(0.002)
Demographic and Socioeconomic characteristics				
Women (ref. men)	0.034	0.023	0.016	-0.003
	(0.040)	(0.040)	(0.040)	(0.045)
Race (ref. NH White)				
NH Black	-0.134 *	-0.133 *	-0.134 *	-0.135 *

	(0.061)		(0.061)		(0.061)		(0.061)	
Hispanic	0.057		0.055		0.052		0.054	
	(0.067)		(0.067)		(0.067)		(0.067)	
Cohort (ref. Ahead & Coda & HRS)								
War babies	0.046		0.019		0.022		0.022	
	(0.062)		(0.063)		(0.063)		(0.063)	
Baby boomers	0.018		-0.021		-0.020		-0.018	
	(0.058)		(0.058)		(0.058)		(0.058)	
Age (ref. 50-54)								
55-59	0.002		0.009		0.014		0.013	
	(0.039)		(0.039)		(0.039)		(0.039)	
60-67	-0.037		-0.024		-0.020		-0.018	
	(0.052)		(0.053)		(0.053)		(0.053)	
Age indicator for age 62	-0.076		-0.071		-0.071		-0.070	
	(0.049)		(0.049)		(0.049)		(0.049)	
Education (ref. LT HS & HS/GED)	-0.005		-0.015		-0.016		-0.014	
Some CL, CL and Above	(0.041)		(0.041)		(0.041)		(0.041)	
Marital status (ref. divorced/separated/widowed/never married)								
Married	0.065		0.082	†	0.088	†	0.090	†
	(0.047)		(0.047)		(0.048)		(0.048)	
Self-reported health status	-0.099	***	-0.099	***	-0.100	***	-0.100	***
	(0.019)		(0.019)		(0.019)		(0.019)	
Household wealth	-0.011		-0.013	†	-0.012	†	-0.012	†
	(0.007)		(0.007)		(0.007)		(0.007)	
Household income	-0.027		-0.032		-0.032		-0.031	
	(0.022)		(0.023)		(0.023)		(0.023)	
Financial transfer to children			0.058	†	0.060	†	0.059	†
			(0.032)		(0.032)		(0.032)	
Financial transfer from children			0.048		0.048		0.050	
			(0.080)		(0.080)		(0.080)	
Elderly care (ref. no)								
Yes			0.257	***	0.258	***	0.256	***
			(0.067)		(0.067)		(0.068)	
Constant	1.842	***	1.882	***	1.884	***	1.889	***
	(0.153)		(0.156)		(0.156)		(0.156)	
Within R-squared	0.009		0.009		0.009		0.009	
Overall R-squared	0.024	***	0.033	***	0.035	***	0.035	***
Rho	0.337		0.331		0.331		0.33	
N (person-year)	3,706		3,706		3,706		3,706	

Data: Health and Retirement Study, Wave 1 (2006& 2010), Wave 2 (2008 & 2012), Wave 3 (2014)
Notes: On the top panel, "Child & Transfer" in Model 2 indicates child characteristics and intergenerational transfer. "Care" in Model 3 refers to grandchild care time. Weights are not applied.
† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Work hours, race/ethnicity, marital status, and health are significantly associated with family-to-work conflict. Respondents who spend more time working experience an increase in family-to-work conflict (*p-value* < 0.05; Model 4). No significant influences of age, age indicator for 62, and cohort membership are found. Better health mitigates family-to-work conflict by 0.1 (*p-value* < 0.001; consistent in Model 1 through 4).

Respondents who are married experience an increase in family-to-work conflict by 0.09 compared to those who are divorced, separated, widowed, and never married (*p-value* < 0.1; Model 4). Employed grandparents with greater wealth mitigate family-to-work conflict by 0.012 than employed grandparents with less wealth (*p-value* < 0.1; Model 4). Interestingly, gender itself is not significantly related to family-to-work conflict. Lastly, employed Black grandparents experience a decrease in family-to-work conflict by 0.135 than employed NH White grandparents (*p-value* < 0.05; Model 4).

Among intergenerational transfer variables, I found that financial transfer to children and elder care are statistically significant. In short, employed grandparents who provide greater financial support to their adult children experience an increase in family-to-work conflict by 0.059 than those who do not (*p-value* < 0.1; Model 4). Lastly, employed grandparents who provide elder care assistance experience a 0.256 increase in family-to-work conflict than those who do not (*p-value* < 0.001; Model 4).

Among child characteristics, employed grandparents who co-reside with grandchildren are more likely to experience an increase in family-to-work conflict by 0.15 than those who do not (*p-value* < 0.05; Model 4), holding other variables

constant. Additionally, employed grandparents who have more grandchildren experience a decrease in family-to-work conflict by 0.01 over time, holding other variables constant (*p-value* < 0.1; Model 2). Yet, the effect disappears as grandchild care time and an intersection term of gender and grandchild care time are added into Model 3 and Model 4.

4.6. Conclusion

This chapter investigates the question, "Does time spent on grandchild care influence family-to-work conflict or work-to-family conflict over time among employed grandparents?" Aging population, combined with insufficient institutional support for work-family policies among employed parents with young children in the U.S., addresses the importance of delving into this question in the context of the U.S. where exists persisting inequality in work-family policies and the shift of retirement policies promoting prolonged work. My findings contribute to the literature on family, work, and aging by exploring grandchild care time to account for employed American grandparents' family-to-work conflict and work-to-family conflict.

My findings provide a confirmation of hypothesis H1a (family-to-work conflict) and a partial confirmation of H1b (work-to-family conflict) based on role enhancement theory. Specifically, employed grandfathers who engaged in a low level of grandchild care (an average of 0.5 h per week; 1-99 hours over 4 years) more often experience a decrease in family-to-work conflict (consistent with H1a) and an increase in work-to-family conflict (significant but inconsistent with H1b) than employed grandfathers without such care. In contrast, employed grandmothers

providing the low care experience a reduced level of family-to-work conflict and work-to-family conflict, while showing the absence of statistical significances. However, controlling for gender, employed grandparents who provide low levels of grandchild care similarly experience a reduced level of family-to-work conflict over time. This finding aligns with the role enhancement theory (Moen, Robison, and Dempster-McClain 1995) and the common sentiment that grandparents view some occasional time with grandchildren as an emotionally fulfilling and rewarding life experience. On the other hand, no significant evidence for intermediate or substantial grandchild care associated with family-to-work and work-to-family conflict counters to the role enhancement theory (inconsistent with H2a and H2b for intermediate care) and the role strain theory (inconsistent with H3a and H3b for intermediate care and inconsistent with H4a and H4b for substantial care).

One paradoxical result is that that employed grandfathers engaging in a low level of grandchild care are more likely to experience an increase in work-to-family conflict over time than employed grandfathers without such care (significant but opposing direction from H1b). According to the spillover theory (Grzywacz and Marks 2000), any burden or benefit derived from time spent on grandchild care is expected to spill over from family to work domain, not to family domain. One plausible account for this unexpected result is that employed grandparents who provide low care to grandchildren may derive enjoyment, affirmation of their role, and/or develop close relationships with grandchildren and adult children. Accordingly, these positive experiences might lead employed grandfathers to experience more stress when asked whether work-related situations make it difficult

for them to spend occasional time with grandchildren, potentially complicating the distinction between the sources of tensions. The possibility of measurement error in work-to-family conflict is relatively limited because the adverse effects of labor force status and work hours on work-to-family conflict align with the spillover theory. Furthermore, the null negative association between a low level of grandchild care and work-to-family conflict among employed grandmothers also supports the spillover theory. I cautiously argue that employed grandfathers may view low levels of grandchild care as a voluntary and occasional activity that complements their expectations of grandparenthood. However, work commitments may hinder their participation in these occasional caregiving events for their grandchildren, thereby increasing work-to-family conflict regardless of the sources of tension.

Additional noticeable results are related to family caregiving factors: co-residence, financial transfer to children, and elder care. Employed grandparents who co-reside with grandchildren are more apt to experience an increase in both work-to-family and family-to-work conflict than those without such living arrangement. Similar to the influence of low levels of grandchild caregiving on work-to-family conflict, the unexpected finding of the association between co-residence and work-to-family conflict also contradicts the spillover theory. Additionally, employed grandparents who transfer more money to adult children tend to experience an increase in family-to-work conflict compared to those who do not. Lastly, employed grandparents who provide elder care are more prone to increase family-to-work conflict. Corresponding to the spillover theory, the adverse influences of co-residence

and elder care on family-to-work conflict may suggest the importance of providing institutional support related to family caregiving for employed grandparents.

This chapter is not without its limitations. First, although the nature of longitudinal data allows me to investigate the associations between time spent on grandchild care and family-to-work and work-to-family conflict over time, as well as whether these relationships vary by gender, my results are only limited to the relatively small sample due to the way the HRS was administered. Furthermore, the categorical measure of time spent on grandchild care is quite crude and measured at four-years interval. Future studies using nationally representative longitudinal data, which includes detailed information about the type, timing, and frequency of care activities at shorter intervals, could help confirm why the inverse association between the low level of grandchild care and family-to-work conflict is found only among employed fathers. Given the unexpected findings of work-to-family conflict resulting from a low level of grandchild care, future research may investigate the mechanism behind this association and whether there is a measurement error for work-to-family conflict associated with grandchild care.

Despite its limitations, my findings on grandchild care and family-to-work and work-to-family conflict imply that engaging in low care than spending no hour with grandchildren serves as a buffer for mitigating family-to-work conflict among grandparents and a negative factor to increase work-to-family conflict among employed grandfathers, in societies where prolonged work life is increasingly expected.

Chapter 5: Conclusion and Discussions

Greying US population, together with disparities in work-family policies among employed parents with young children and institutional shifts in postponing retirement claiming age for the sake of reducing fiscal burdens, points out the need of understanding grandchild care time, employment outcomes, and work-family conflict. Hence, my dissertation investigates three research questions pertaining to the time spent on grandchild care, employment and work hours, and work-family conflict. Chapter two documents whether and how the patterns of time spent on grandchild care vary by gender, race-ethnicity, and class (proxied by education), and employment among those who provide any grandchild care. Chapter three examines whether and how a change in time spent on grandchild care is associated with a change in employment or work hours over time by addressing (time-constant) unobserved heterogeneity methodologically. To answer Chapter two and Chapter three, I use Health and Retirement Study between 2004 and 2014. Chapter four uses the Health and Retirement Study between Wave 1 (2006 & 2008), Wave 2 (2010 & 2012), and Wave 3 (2014) to examine the association between grandchild care time and family-to-work conflict or work-to-family conflict among employed grandparents.

Chapter two demonstrates that considering class and employment offers us additional insights into grandchild care provision. Employment influences the decisions of NH White grandparents who tend to provide an intermediate level of grandchild care. Non-employed NH White women and men are more actively and substantially involved in providing grandchild care relative to employed White

women and men. This result may highlight contemporary intensive grandparenting practice and imply increasing inequality in intergenerational class transmission. No employment variations in grandchild care among NH Blacks and Hispanics may suggest that racial minority groups place some degrees of emphasis on grandchild care regardless of employment status, corroborating prior work on normative expectation for grandchild care among racial-minority groups. Class is only linked to the time spent on grandchild care for employed NH White and Hispanic men. College-educated employed NH White men tend to engage in the low level of grandchild care compared to employed NH White men with less education. On the other hand, employed Hispanic men with higher levels of education tend to engage in intermediate grandchild care more often, while providing substantial care less frequently than employed Hispanic men with lower levels of education. Educational differences in grandchild care time among employed NH White and Hispanic men may be attributed to the demands of their careers, leaving them with less time for substantial grandchild care. Alternatively, higher education, coupled with good jobs, may help individuals accumulate greater financial resources to support adult children with paid childcare services.

Last but not least, gender and race-ethnicity remain the most important factors in determining the amount of time spent on grandchild care even after considering education and employment. Grandmothers contribute to substantial grandchild care more than grandfathers, whereas grandfathers engage in a low level of grandchild care compared with grandmothers. On the other hand, both grandmothers and grandfathers participate in intermediate level of grandchild care similarly. NH Black

and Hispanic grandparents undertake substantial grandchild care more than NH White grandparents, whereas NH White grandparents tend to participate in low and intermediate levels of grandchild care compared to racial-ethnic minority grandparents.

Some key findings in Chapter two guide the direction for future studies. No evidence of gender differences in grandchild care, whether employed or not, is found across various levels among college-educated Hispanic grandparents. This may be attributed to a small sample size, highlighting the need for a new dataset with a more considerable representation of the Hispanic population. Second, one interesting finding shows that non-employed NH Black men with a high school diploma or less particularly dedicate their time to substantial grandchild care as much as their non-employed NH Black women counterparts. This finding aligns with recent research documenting within-heterogeneity in NH Black extended families' support behaviors and underscores the need for further explorations of within-race/ethnic variations in grandchild care provision.

Evidence from Chapter three suggests that both grandmothers and grandfathers who increase their time spent on grandchild care decrease work hours over time compared to those who do not, respectively. This finding is consistent with Ho (2015) for grandfathers and Rupert and Zanella (2018) for grandmothers. Grandfathers' increased engagement in grandchild care might signal a pressing need for grandchild care because this behavior may not necessarily conform to prior work showing that grandfathers play a less active role in taking care of their grandchildren compared to grandmothers. Because full-time employment is more common among

grandfathers than grandmothers, grandfathers may have more job, financial, and time resources to adjust their work hours than grandmothers when they devote more time to grandchild care.

Null findings on the influence of doing each additional hour of grandchild care on being employed, for both grandmothers and grandfathers, refute the findings of Ho (2015) and support those of Rupert and Zanella (2018). The insignificant effect of grandchild care time on employment may address the fact that taking care of grandchildren is only supplementary for the majority of grandparents, as shown in Chapter two. As opposed to an adjustment in work hours impacted by an increase in time spent on grandchild care, a shift in employment status affected by an increase in time spent on grandchild care may be a difficult decision for grandparents to make considering their own financial and psychological well-being in later life. Taken together, my findings both extend and refute prior research on the longitudinal associations between grandchild care and employment outcomes.

Findings from Chapter four demonstrate that employed grandfathers who provide a small amount of time to grandchild care more often experience a decrease in family-to-work and an increase in work-to-family conflict over time compared with employed grandfathers without such grandchild care. Employed grandfathers may feel more enhanced or less ambivalent/stressful about work-related circumstances if they need to tend to grandchildren for a limited amount of time, aligning with role enhancement theory. No evidence for other levels of grandchild care time may be attributed to the fact that grandparents are employed, and grandchild care is not an obligation for most of them. The unexpected evidence of the positive

association between low grandchild care and work-to-family conflict among employed grandfathers may be explained by the possibility that the source of tension does not matter as much for them, contradicting the spillover theory (Grzywacz and Marks 2000). This result may suggest that some employed grandfathers may find it challenging to be as involved with their grandchildren as they would prefer due to their work obligations. Consistent with gendered expectation, although statistically insignificant for employed grandmothers, employed grandfathers who spend a small amount of time to grandchild care are more likely to increase work-to-family conflict than employed grandmothers with such grandchild care. On the other hand, no gender differences in its association are found for family-to-work conflict.

Despite my dissertation's contribution to the emerging research on the longitudinal association between grandchild care and work as well as robust literature on family, work, and aging, it has some limitations. First, the measure of time spent on grandchild care in my research is quite crude, with measurements taken at two-year intervals in Chapter two and three, and at four-year intervals in Chapter four. Because of the limited nature of time spent on grandchild care in my dissertation, substantial care (500 hours or more) should be interpreted carefully as this caregiving engagement encompasses heterogenous hours of grandchild care ranging from roughly 4.9 hours to 96 hours per week. Although the HRS did not ask for other details about grandchild characteristics, grandchild care time is likely to decrease with the age of grandchildren and to increase if grandchildren have disabilities. Hence, future research should consider employing new data that provides more detailed information about grandchild characteristics (age and disability status) and grandchild

caregiving (frequency, timing, and specific activities of caregiving with shorter time intervals). This would enable a more comprehensive exploration of the longitudinal associations between grandchild care, employment outcomes, and work-family conflict.

Second, my analyses in Chapter three and four only compare grandmothers and grandfathers to focus on gender- and within-variations in grandchild care, employment, and work-family conflict, after controlling for race/ethnicity. This limitation is partly attributed to the use of fixed effects analyses. Fixed effects analyses eliminate time-constant factors, such as race/ethnicity, to facilitate within-variations analyses, aiming to achieve results less susceptible to omitted variable bias (Allison 2009). Given prior work suggesting that time spent on grandchild care and employment markedly vary across race/ethnicity, future research should consider analyzing subsamples of race-ethnic groups to reveal potential differences in the association between grandchild care time, employment outcomes, and work-family conflict by racial-ethnic groups. Conceptually, this would allow future research to make more appropriate comparisons between Black and Hispanic grandparents who show relatively similar patterns in grandchild care provision. Relatedly, immigration status is an important moderator to consider for future research on this topic because it sheds light on additional variations in grandchild care among racial minority grandparents. Immigration status is often associated with structural challenges, such as language proficiency, housing, legal access to the formal labor market, social networks, and information about the childcare system and the availability of appropriate social policies. Consequently, even among racial-minority groups,

immigrant families with fewer resources may face greater vulnerability in navigating U.S. society. This potential challenge could lead them to adopt double-up households as a strategy to maximize their quality of life, resulting in increased time spent on grandchild care. Therefore, future research may pay special attention to investigating a moderating effect of immigration status on the longitudinal association between grandchild care and employment outcomes, particularly among Hispanic families. Although my dissertation does not differentiate family structures in analyses as it is outside of the scope of my research questions, future studies should consider investigating how family structure moderates the effect of grandchild care on employment outcomes and work-family conflict over time.

Although the issue of reverse causality is addressed to the best of my knowledge in Chapter three, it may still persist due to the reciprocal nature of caregiving and work. For this reason, causal conclusions in my dissertation should be interpreted with caution given the HRS is observational data. Future research addressing this ongoing debate on the causal association between grandchild care time and employment outcomes would greatly benefit from a new dataset that includes the exact timing of grandchild care provision, employment status, and work hours to effectively address the issue of reverse causality. Lastly, a paradoxical finding, where a low level of grandchild care is linked to increase work-to-family conflict, calls for future research delving into the mechanism of work-to-family conflict, particularly in the context of grandchild care time.

My dissertation highlights the importance of considering both childcare and late-life employment simultaneously. Employed adult children's economic

vulnerability that may prevent them from purchasing childcare in the market may unfavorably influence grandparents' work. Grandparents who adjust their employment situations in response to grandchild care may face negative economic consequences, as the U.S. retirement policies, along with those of other OECD countries, are shifting to postpone retirement claiming age to alleviate governmental fiscal burdens. Relatedly, macro-level societal pressure on prolonged working life may contradict with older individuals' work and family caregiving circumstances. This circumstance is likely to be particularly profound for socioeconomically disadvantaged grandparents who need to work while also providing some forms of care to grandchildren.

To better accommodate diverse family and work circumstances of older individuals, it could be beneficial to explore the implementation of a family leave policy or a policy that compensates for unpaid grandchild caregiving. Some countries, including Seoul and GwangJu Metropolitan cities in South Korea, have implemented measures to provide a $230 monthly allowance for a duration of 13 months to non-coresident and coresident (non-custodial) grandparents. This remuneration is given for providing 40 or more weekly hours of grandchild care to the household of adult children with a median monthly income less than 150%, which is 5,069 dollars for three family members. Similarly, considering my results indicating that grandchild care provision is linked to decreased work hours and increased work-to-family conflict for some grandparents, offering a modest allowance to older individuals for providing grandchild care may provide positive support to American grandparents who are socioeconomically vulnerable. In conclusion, my dissertation addresses the

relatively overlooked connections between childcare and employment in later life, which are likely to have profound impacts on the lives of socioeconomically disadvantaged grandparents.

Appendices

Appendix Table A. Descriptive Statistics by Gender and Presence of Grandchild, HRS 2004-2014

	Have a grandkid				No grandkid			
	Women		Men		Women		Men	
	Mean or %	SD	Mean or %	SD	Mean or %	SD	Mean or %	SD
Focal variables								
(1) Employment (yes=1, no=0)	52.6		62.8		73.5		81.9	
(2) Work hours (for main job)	18.4	(20.1)	26.1	(23.2)	27.2	(20.)	35.8	(20.4)
Controls								
Demographic characteristics								
Age	60.4	(4.6)	60.5	(4.6)	57.5	(4.2)	57.6	(4.2)
Age indicator for 62	43.2		44.1		18.2		19.3	
Cohort								
AHEAD & Children of Depression & HRS (born before 1941)	24.6		14.8		8.6		4.3	
War Babies (born 1942-1947)	34.3		33.5		22.2		18.4	
Early Baby Boomers (EBB, born 1948-1953)	29.5		36.5		43.0		44.5	
Mid Baby Boomers (MBB, born 1954-59)	11.6		15.2		26.3		32.8	
Marital status (ref. divorced/separated/widowed/never married)								
Married/partnered	69.4		83.2		72.7		82.9	
Divorced/separated/widowed/never married	30.6		16.8		27.3		17.1	
Race-ethnicity								
NH White	77.8		79.5		87.8		87.6	
NH Black	12.4		10.5		5.8		6.0	
Hispanic	9.9		10.0		6.5		6.3	
Socioeconomic characteristics								
Education								

LT HS & HS/GED	52.5		46.3		25.2		26.3	
Some College, CL, and Above	47.5		53.7		74.8		73.7	
Labor force status								
Full-time	34.5		49.9		51.7		71.9	
Part-time	10.6		4.1		15.5		4.6	
Unemployed	2.8		3.3		3.2		3.7	
Phased/bridge retired	7.4		8.8		6.3		5.3	
Retired	35.5		33.2		15.3		13.8	
Not in labor force	9.2		0.7		8.1		0.7	
Household total wealth (housing + non-housing assets) in $1,000	451.2	(1151.5)	493.7	(1280.5)	714.5	(1427.2)	786.6	(1710.)
Household total annual income in $1,000	77.9	(288.5)	88.9	(125.6)	124.8	(149.1)	150.1	(257.)
Self-reported health (1: poor - 5: excellent)	3.3	(1.1)	3.3	(1.1)	3.7	(1.)	3.6	(1.)
Children characteristics								
# of children working full-time	2.2	(1.4)	2.2	(1.4)	1.2	(1.)	1.1	(1.)
# of grandchildren	5.4	(4.4)	5.0	(4.2)	0.0		0.0	
Coresidence	10.4		7.2		0.3		0.3	
Other Controls								
Intergenerational transfer								
Financial transfer to children	40.7		43.9		61.3		65.4	
Financial transfer from children	5.4		3.3		4.1		1.9	
Elderly care	7.0		3.5		8.0		3.1	
N	20,082		12,682		4,780		4,430	

Source: Health and Retirement Study, 2004, 2006, 2008, 2010, 2012, 2014

Notes: Descriptive statistics are weighted and sample size is unweighted. I aggregate AHEAD & Children of Depression & HRS cohorts into one category due to small sample size for each cohort. Mid Baby Boomers first entered the HRS in 2010. Household wealth and income are inflation-adjusted using CPI in 2020.

Appendix B.

Grandchild Care and Coresidence

Appendix Table B.1 shows that not-coresident grandparents across gender and racial-ethnic groups tend to provide no care and low (1-99 hours) or intermediate (100-499 hours) levels of grandchild care compared to coresident grandparents. Appendix Table B.2 indicates that racial-ethnic variations in grandchild care by coresidence status are also similar, except for Hispanic grandparents and Black grandfathers. A slightly higher proportion of coresident Black grandfathers spend 1-99 hours or 100-499 hours with their grandchildren compared to not-coresident Black grandfathers. Lastly, Appendix Table B.3 shows that a greater share of coresident Black and Hispanic grandfathers with a high school diploma or less and those with college education or more engage in both low and intermediate levels of grandchild care compared to non-coresident grandfathers of the same race/ethnicity.

Appendix Table B.1. Percent of Grandchild Care by Coresidence Status, Gender among Grandparents

	All Grandparents		Grandmothers		Grandfathers	
	Not Coresident	Coresident	Not Coresident	Coresident	Not Coresident	Coresident
No hour	59.4%	24.8%	56.3%	25.2%	63.4%	24.1%
1-99 hours	10.4%	8.8%	7.7%	6.2%	13.8%	13.9%
100-499 hours	16.2%	11.5%	18.5%	11.6%	13.4%	11.1%
500 + hours	14.0%	54.9%	17.6%	57.0%	9.5%	50.9%

Notes: Descriptive statistics are weighted.

Appendix Table B.2. Percent of Grandchild Care by Coresidence Status, Gender, Race-ethnicity among Grandparents

	Women					
	NH White		NH Black		Hispanic	
	Not Coresident	Coresident	Not Coresident	Coresident	Not Coresident	Coresident
No hour	55.1%	21.5%	59.4%	24.7%	63.0%	36.4%
1-99 hours	7.8%	6.0%	7.4%	5.5%	6.6%	7.5%
100-499 hours	19.4%	13.2%	14.8%	10.3%	14.7%	8.9%
500 + hours	17.7%	59.3%	18.4%	59.5%	15.7%	47.2%
	Men					
	NH White		NH Black		Hispanic	
	Not Coresident	Coresident	Not Coresident	Coresident	Not Coresident	Coresident
No hour	61.3%	19.5%	71.6%	15.6%	72.2%	44.6%
1-99 hours	14.5%	14.2%	11.5%	14.6%	9.5%	12.2%
100-499 hours	14.4%	11.7%	8.8%	11.9%	9.5%	8.8%
500 + hours	9.8%	54.5%	8.1%	57.9%	8.8%	34.4%

Notes: Descriptive statistics are weighted.

Appendix Table B.3. Percent of Grandchild Care by Coresidence Status, Gender, Race-ethnicity, Class among Grandparents

	Women							Men						
	High school diploma or less							High school diploma or less						
	NH White		NH Black		Hispanic			NH White		NH Black		Hispanic		
	(1)	(2)	(1)	(2)	(1)	(2)		(1)	(2)	(1)	(2)	(1)	(2)	
0	56.3%	24.9%	63.7%	28.6%	64.3%	39.0%	0	63.9%	21.6%	71.5%	17.5%	74.4%	48.7%	
1-99	7.9%	7.9%	7.1%	5.2%	6.8%	7.0%	1-99	13.1%	12.3%	12.4%	8.6%	9.4%	13.8%	
100-499	18.1%	12.3%	12.7%	9.4%	13.2%	7.9%	100-499	13.5%	11.0%	8.3%	11.7%	7.5%	6.3%	
500 +	17.7%	54.9%	16.5%	56.8%	15.7%	46.1%	500 +	9.5%	55.1%	7.9%	62.3%	8.7%	31.3%	
	Women							Men						
	Some college, college, or more							Some college, college, or more						
	NH White		NH Black		Hispanic			NH White		NH Black		Hispanic		
	(1)	(2)	(1)	(2)	(1)	(2)		(1)	(2)	(1)	(2)	(1)	(2)	
0	53.9%	16.5%	54.7%	19.1%	59.3%	26.3%	0	59.5%	17.5%	71.7%	12.5%	67.4%	23.9%	
1-99	7.8%	3.0%	7.8%	6.0%	5.9%	9.5%	1-99	15.6%	16.1%	10.4%	24.1%	9.6%	4.6%	
100-499	20.6%	14.5%	17.1%	11.5%	19.0%	12.9%	100-499	15.0%	12.4%	9.5%	12.3%	14.0%	21.3%	
500 +	17.7%	66.0%	20.4%	63.4%	15.8%	51.3%	500 +	10.0%	54.0%	8.3%	51.1%	9.0%	50.2%	

Notes: Descriptive statistics are weighted. Coresidence status indicates (1) Not Coresident, (2) Coresident.

Appendix Table C

Grandchild Care and Proximity

The HRS measures the proximity by asking if adult children live within 10 miles using a question: “Do any of your children who do not live with you live within 10 miles of you?” Appendix Table C.1 shows that living close to adult children within 10 miles is linked to increase the level of grandchild care among both grandmothers and grandfathers, compared to grandparents who do not have any adult child living within 10 miles. Results in Appendix Table C.2 show consistent patterns across gender and race-ethnicity, except for Black grandmothers engaging in intermediate-level of grandchild care. In Appendix C.3, only a few exceptional cases are found: low level of care (1-99 hours) among college-educated White and Black women, and Hispanic women with a high school diploma or less, and intermediate-level of care (100-499 hours) among all college-educated women and college-educated White men. These grandparents who live in proximate distance to their children tend to have reduced caregiving engagement compared to those who do not live near their children.

Appendix Table C.1. Percent of Grandchild Care by Proximity, Gender among Grandparents

	All Grandparents		Grandmothers		Grandfathers	
	Not Proximate	Proximate	Not Proximate	Proximate	Not Proximate	Proximate
No hour	68.7%	50.6%	65.9%	47.5%	72.1%	54.9%
1-99 hours	8.1%	11.2%	6.1%	8.1%	10.4%	15.4%
100-499 hours	13.8%	16.7%	16.0%	18.5%	11.3%	14.2%
500 hours or more	9.4%	21.5%	12.0%	25.9%	6.2%	15.5%

Notes: Descriptive statistics are weighted.

Appendix Table C.2. Percent of Grandchild Care by Proximity, Gender, Race-ethnicity among Grandparents

	Women					
	NH White		NH Black		Hispanic	
	Not Proximate	Proximate	Not Proximate	Proximate	Not Proximate	Proximate
No hour	65.3%	46.1%	68.0%	48.2%	72.4%	54.9%
1-99 hours	6.0%	8.5%	5.3%	7.4%	8.8%	6.4%
100-499 hours	16.6%	20.1%	13.7%	13.9%	9.2%	14.2%
500 hours or more	12.1%	25.3%	13.0%	30.5%	9.5%	24.5%
	Men					
	NH White		NH Black		Hispanic	
	Not Proximate	Proximate	Not Proximate	Proximate	Not Proximate	Proximate
No hour	70.1%	52.6%	83.1%	59.8%	85.2%	64.2%
1-99 hours	11.1%	16.4%	7.2%	13.5%	4.6%	11.1%
100-499 hours	12.2%	15.4%	6.1%	10.2%	5.9%	10.2%
500 hours or more	6.6%	15.5%	3.6%	16.5%	4.3%	14.5%

Notes: Descriptive statistics are weighted.

Appendix Table C.3.Percent of Grandchild Care by Proximity, Gender, Race-ethnicity, Class among Grandparents

	Women							Men						
	High school diploma or less							High school diploma or less						
	NH White		NH Black		Hispanic			NH White		NH Black		Hispanic		
	(1)	(2)	(1)	(2)	(1)	(2)		(1)	(2)	(1)	(2)	(1)	(2)	
0	68.7%	47.7%	72.0%	52.0%	71.6%	57.0%	0	75.6%	54.7%	83.7%	59.9%	88.8%	66.2%	
1-99	5.5%	8.8%	5.0%	7.0%	9.9%	6.4%	1-99	10.2%	14.3%	9.7%	12.7%	4.3%	11.3%	
100-499	14.6%	18.7%	10.5%	12.3%	9.3%	12.4%	100-499	8.8%	15.3%	3.9%	10.2%	3.1%	8.1%	
500 +	11.2%	24.8%	12.6%	28.7%	9.3%	24.2%	500 +	5.4%	15.8%	2.6%	17.3%	3.8%	14.4%	
	Women							Men						
	Some college, college, or more							Some college, college, or more						
	NH White		NH Black		Hispanic			NH White		NH Black		Hispanic		
	(1)	(2)	(1)	(2)	(1)	(2)		(1)	(2)	(1)	(2)	(1)	(2)	
0	53.9%	16.5%	54.7%	19.1%	59.3%	26.3%	0	59.5%	17.5%	71.7%	12.5%	67.4%	23.9%	
1-99	7.8%	3.0%	7.8%	6.0%	5.9%	9.5%	1-99	15.6%	16.1%	10.4%	24.1%	9.6%	4.6%	
100-499	20.6%	14.5%	17.1%	11.5%	19.0%	12.9%	100-499	15.0%	12.4%	9.5%	12.3%	14.0%	21.3%	
500 +	17.7%	66.0%	20.4%	63.4%	15.8%	51.3%	500 +	10.0%	54.0%	8.3%	51.1%	9.0%	50.2%	

Notes: Descriptive statistics are weighted. Proximity indicates (1) Not Proximate, (2) Proximate.

Appendix Table D

Correlations of Grandchild Care, Proximity, and Coresidence among Grandparents

Appendix Table D shows that the positive correlation between grandchild care time and coresidence is weakly related (0.271). Interestingly, among coresident Hispanic grandparents with high school diploma or less, the proportion of spending no hour with grandchildren is quite high (see Appendix Table B.3). This may be related to a lack of language proficiency as 35% of Hispanic population is foreign-born according to the Current Population Survey (U.S. Census Bureau 2022). Looking at results from Appendix Table B.3, the proportion of co-resident and college-educated Hispanic women who spend no time with their grandchildren appears to be higher compared to other ethnoracial groups with the same level of education but similar to other groups with a high school diploma or less.

Appendix Table D. Correlations of Grandchild Care, Proximity, and Coresidence among Grandparents

Variables	1. Grandchild care	2. Proximity	3. Coresidence
1. Grandchild care	1.000		
2. Proximity	0.175 ***	1.000	
3. Coresidence	0.271 ***	0.217 ***	1.000

Notes: Coresidence: 0=not coresident, 1=coresident. Proximity: 0=not proximate, 1=proximate.
* p<0.05, ** p<0.01, *** p<0.001

Appendix Table E. Hausman & Breausch and Pagan Test Results

Model 4: Gender X grandchild care hours	Hausman test	F-test	P-value for fixed effects model
Work-family conflict	0.000	Pass	0.000
Family-work conflict	0.111	Pass	0.106
Model 4: Gender X grandchild care hours	Breausch and Pagan Test	F-test	P-value for fixed effects model
Family-work conflict	0.000	Pass	0.000

Notes: Hausman test indicates whether models are appropriate for fixed effects model. F-test indicates whether models suit Fixed-effects versus pooled-OLS. Breausch and Pagan Test indicates whether random effects models are appropriate compared to OLS models.

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