Gender, Work, and Family Dynamics of Adult Children's Time Transfers to Their Widowed
Elderly Parents: An Analysis of Married Dyads

By

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Background

As the number of Americans aged 65 and older continues to grow as a proportion of the population, it raises the issue of who will provide care to the elderly. Since elders' spouses and siblings have similar levels of mortality and morbidity, adult children often play a vital role in assisting their aging parents. Such intergenerational support-giving practices will become more important as life expectancy lengthens because more adults will have elderly parents.

The determinants and patterns of intergenerational transfers from adult children to their parents have been extensively investigated. The existing literature emphasizes how factors including parental need, adult children's ability and motivation, gender roles, and quality of the parent-child relationship influence intergenerational transfers at various stages of the life course (Boaz, Hu, and Ye, 1999; Furstenberg, Hoffman, and Shrestha, 1995; Kohli and Künemund, 2003; Pezzin and Schone, 1999a; Silverstein, Parrott, and Bengtson, 1995; Wong, Capoferro, and Soldo, 1999). The gender gap in providing time transfers to parents is also well-documented. Empirical studies have consistently found that women spend more time helping elders than men (Aronson, 1992; Gerstel and Gallagher, 2001; Weinick, 1995; Wolf, Freedman, and Soldo, 1997). After marriage, many women also assist their parents-in-law (Allen, Blieszner, and Roberto, 2001; Globerman, 1996; Lee, Spitze, and Logan, 2003).

While insightful, the theoretical interpretation of why women are the primary caregivers should go beyond the discussion on gender roles. As women's labor force participation has grown, a structural explanation focusing on gendered opportunity costs in the labor market, informs another perspective on the care-giving discrepancy between men and women. Whether care-giving services should be purchased from the market or performed by designated members mainly entails a family-level decision-making process. It should nevertheless be recognized that

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household dynamics are intertwined with the structure forces outside the family unit. Studies indicate that higher wage rates are inversely associated with the amount of time transfer to parents (Couch, Daly, and Wolf, 1999; Sarkisian, and Gerstel. 2004). Since men usually have greater wage advantages and work longer hours than women in the employment settings, the gender differential in support could be illuminated by studying how macro-level labor force structure extends its impact to the individual family.

Family dynamics and care-giving decisions may also be influenced by non-work-related factors. The existing literature often uses rational calculation to address the transfer motivations of the adult children. For instance, adult children provide some care-giving services because they expect the receipt of future financial bequests from their parents. Another approach to conceptualizing motivation is altruism, arguing that children's transfers are based on love and concern for parents' well-being, without expecting feedback from the party receiving support. These two frameworks are both theoretically solid yet difficult to operationalize in quantitative analyses.

The concept of "support hierarchy", however, is an alternative that highlights the motivations underlying intergenerational transfer practices. A study suggests that even though married women frequently help their parents-in-law, their support-provision priority is often to their own parents (Lee, Spitze, and Logan, 2003). A kin hierarchy in the care-giving practices can be inferred from this analysis. Adult children and their siblings are the major providers of support to needy parents, and spouses' assistances are supplemental to what adult children and siblings already given. The hierarchy of support may apply to the spousal relationship, as well. Taking care of aging or unhealthy spouses curtails the time availability of an adult child and

thereby reduces time transfers to the parents. In short, resource competition between adult children's spouses and parents may affect the allocation of care.

Overemphasis of care-giving time may underestimate adult sons' time contributions, however. In addition to the care-giving time, it is essential to assess other types of time transfers which adult sons may indeed provide. Although care-giving time virtually fulfills the Activity of Daily Living (ADL) needs of parents, a more complete appraisal of elders' well-being should also incorporate the dimension of Instrumental Activity of Daily Living (IADL). Adult children's time spent on running errands, working around the house, etc., are also crucial to parents' daily lives. Overlooking this aspect of elder well-being will seriously bias the assessment of time transfers from the adult sons.

With the background stated above, my project assesses how married adult children's time transfers are conditioned by the structural forces of the labor market, individual adult children and spouses' characteristics, and parental needs. ADL and IADL time transfers to non-coresident widowed parents, a category with potentially higher levels of need, are evaluated. The major contribution of this study lies in its integration of labor market and gender interaction factors, household decision-making processes, and person-level determinants into a single analysis. The use of the recently released 2006 wave of Health and Retirement Study data gives updated information on the intergenerational transfer research. By examining adult children and spouses' time transfer amounts separately, this project also provides a more precise assessment of family transfer dynamics.

Hypotheses

The following research hypotheses will be examined in this paper:

Hypothesis 1: Employment status, wage rate, and work hours affect adult sons' and daughters' time transfers to parents. Controlling for key variables, daughters' transfers are more responsive to these factors than sons'.

Hypothesis 2: Labor force participation affects the family transfer dynamics. All else being equal, the division of transfers within married dyads is based on the husbands' and wives' comparative advantage in the labor force.

Hypothesis 3: Kin hierarchy affects the family transfer dynamics. Controlling for gender and other key variables, siblings play a substitution role in adult children's transfer practices, whereas spouses provide supplementary assistances to adult children's transfers.

Hypothesis 4: All else being equal, there is a resource competition between adult children's parents and their spouses. Adult children's transfers to parents are inversely related to their spouses' needs.

Research Methods

Data

The Health and Retirement Study (HRS) is a nationally representative panel data studying later-life health and economic well-being. The first wave of the HRS contains information of 7,607 respondents aged 51-61 in 1992, and their spouses, regardless of their age, are also interviewed (n=5,045). The follow up surveys were conducted every two years thereafter. In 1998 and 2004, new interview cases were added into the original sample, and the 2006 data is the most recently available data released to the public.

For this study, the 2006 HRS is employed. This wave of the survey contains information on 18,469 respondents. A sub-sample of married respondents who have a living, non-coresident, and currently widowed parent are included for the statistical analysis. These inclusion criteria are adopted for several reasons. First, an examination focused on the married respondents will offer an insight into how adult children's transfer practices are entwined with the presence of a close family member other than a sibling. Second, widowed parents have a higher need for help because they do not have a spouse to serve as an immediate source of support. A study on these

parents not only reflects the major life-course experience of older Americans, it also has a social implication for the long-term well-being of widowed elders. Lastly, because this project utilizes a single wave of HRS data, a thorough analysis of causality between intergenerational co-residence and time transfer outcomes cannot be completed. Since residential proximity is endogenous to the dependent variables in question, the exclusion of parent-child coresident cases from this study is necessary.

Transfers from adult children to their stepparents are not considered because detailed information on stepparents' characteristics is not available. After applying above sample-selection criteria, the finalized sample size for this study is 1,478. All the information used in this analysis comes from adult children's perspectives. Results are weighted to adjust for the oversampling and attrition associated with the survey design.

Variables

Dependent Variables

The amounts of time transfers to the parents are the dependent variables in this study. There are two types of time transfers being investigated in the HRS 2006—care-giving time and errand time. The survey first asks whether the adult child or the spouse had spent at least 100 hours helping parents with basic personal needs like dressing, eating, and bathing since the previous wave of survey was conducted (about two years ago). This measurement intrinsically reflects the "ADL" or "care-giving" time transfers. If the child and/or the spouse provided at least 100 hours personal care assistance to the parents, the actual amounts of time are recorded, and the transfer amounts from the adult child and the spouse are documented separately.

Data involving adult child's time spent on helping parents with the household chores, errand, and transportation, etc., is collected in a similar manner. If the child and/or the spouse

provided at least 100 hours assistance in these IADL tasks, the actual amounts of time spent by the adult child and the spouse are recorded.

As in many other datasets, the time transfer amounts recorded in the HRS 2006 are highly skewed. The natural logarithm is used to normalize the distributions for all four variables.

Independent Variables

Adult children's characteristics. A set of variables including adult children's gender (men=1), work, and demographics, are adopted to capture adult children's transfer ability and constraints associated with the labor market and the family.

The work-related variables take account of adult children's work status (working for pay=1), weekly wage rates, and weekly work hours. For the non-working adult children, a value of 0 is assigned to weekly wage rates and work hours so the effects of lack of wages and work hours can also be analyzed. To normalize the distributions, both variables are natural logged. Besides serving as the main effects in the regression models, the work-related variables also interact with adult children's gender to capture the extent to which gendered opportunity structure in the labor force may affect adult children's provision of time transfers.

Based on the literature, several demographic variables of the adult children are introduced for the purpose of statistical control. Specifically, the age variable measures adult children's chronological age in years. The race variables involve three dichotomized racial-ethnicity groups, "White", "Black", and "Other", and the "Other" category is omitted from the regression models as reference. Years of education is used to control for the human capital effect, whereas the self-rated health status (good or better health=1) gauges adult children's physical limitations in helping the parents. To evaluate siblings' substitution in transfer duties by their gender, variables of "Number of sister" and "Number of brother" are adopted in the

analysis. It is expected that having more sisters will significantly and inversely related to adult children's care-giving contributions. "Number of financial dependents", defined by HRS as number of individuals that depend on the survey respondents for more than half of their support, measures adult children's financial burdens and responsibilities associated with other family members.

Spouses' characteristics. To examine how spouses' labor force participation affects intergenerational time transfers, three variables, spouses' work status (working for pay=1), weekly wage rates (natural logged), and weekly work hours (natural logged), are created. As with adult children's work variables, spouses' weekly wage rates and work hours are assigned 0 if they are non-workers. Age and years of education of the spouses are both in continuous forms. Health of the spouses is dichotomized as 1 if spouses have good or better health, 0 otherwise.

Wage and work hour differentials of the couple. Couples' comparative advantage in the labor force is captured by comparing the weekly wage rates of the adult children and their spouses. This variable is constructed as (Adult child wage rates ÷ Spouse wage rates) ×100. To normalize the distributions, the calculated percentages are natural logged. The work hour differential variable is defined as (Adult child weekly work hours – Spouse's weekly work hours). Interaction effects of these two variables with adult children's gender are also included in this paper.

Parents' characteristics. Parents' characteristics are included in the analysis to investigate the relationships between parental needs and the amounts of ADL and IADL time transfers they received. These measurements are: parents' gender (fathers=1), age, years of education, whether live with another child (yes=1), whether have memory-related diseases (yes=1), and whether can be left alone for an hour or more (yes=1). Although HRS 2006 asked

adult children about their parents' financial status and home ownerships, and these variables are the proper indictors to delineate parental economic needs, this study is not able to incorporate them into the analysis due to large proportions of missing values.

Analytical strategies

In addition to the descriptive analysis, this study uses multivariate regression models to examine the proposed hypotheses. Modeling the hypothesized relationships involves analyzing censored data. As mentioned earlier, HRS first asks whether at least 100 hours in ADL and IADL time transfers had been provided by the adult child and/or the spouse. If the answers are positive, the HRS further asks the actual values of the transfer amounts. According to Maddala (1999), when a normal distributed y* has mean μ and variance σ^2, and the values of y* are only recorded when y* is greater than a constant c, the sample is said to be left-censored. Since censored cases with values less than the criterion are unobserved, if the OLS regression is adopted and the censored cases are treated as 0s or deleted from the dataset, the analysis will be biased. For this reason, the Tobit regression is adopted to analyze the censored data. The estimated probability of exceeding the censoring threshold *c* is:

$$pr(y_i > c) = \phi\left(\frac{x_i\beta}{\sigma}\right)$$

In this study, all four dependent variables are left-censored at 100 hours. In the finalized sample, there are 109 and 453 adult children, respectively, provided 100 hours or more transfers in ADL and IADL time. 56 and 272 spouses, respectively, spent 100 hours or more helping with care-giving and running errands for adult children's parents. A cluster control procedure at the household-level is employed to adjust for the standard errors in the statistical analysis.

To take non-dual-earner households' transfer dynamics into consideration, instead of using working individuals to perform sub-sample analysis, this project assigns 0s to the weekly

wage rates and work hours if the adult children or spouses are not working for pay. Due to the endogenous nature of the weekly wage rates and work hours, the regression estimations are conducted separately in the modeling processes. Lastly, to illustrate how couples' ADL and IADL assistances vary by their comparative advantages in the labor forces, in addition to the Tobit regression analysis, estimations on probabilities of providing 100 hours or more are performed based on various combinations of adult children and spouses' wage rates and work hours.

Results

Descriptive Analysis

Table 1 shows the weighted descriptive statistics of the independent variables, by adult children's gender. Overall, higher proportions of adult sons than daughters work for pay, have higher weekly wage rates, and longer work hours. They also have more years of education and a higher percentage report being in good or better health. Conversely, by considering the results of adult children spouses' work variables, one can find that husbands occupy a more advantaged position in the labor market compared to their wives, implying that gendered structure barrier may exist in the U.S. labor forces.

Examinations of parental characteristics demonstrate that there are more elderly mothers than fathers in the sample, which is to be expected as women have a longer life expectancy than men. 18.39% of these widowed parents co-reside with another child, and 16.89% have memory-related disease. Most parents can be left alone for at least an hour (88.27%).

[Insert Table 1 Here]

Table 2 summarizes the t-test results on time transfer incidences and amounts, by adult children's gender. Compared to adult sons, adult daughters significantly provided more ADL and

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IADL helps. The analysis also finds that when transfer incidence is considered (ever gave 100 hours or more), adult sons significantly contributed more IADL time than ADL time (p<.001, table not shown). Because care-giving is often viewed as women's job, adult sons may prefer to choose IADL assistance, which is less gender-specific, as the way to support their elderly parents. Fewer numbers of spouses than adult children ever provided ADL and IADL helps. Much smaller gender differentials are found in transfer amounts from adult children's spouses to the parents. These findings may be indications of the existence of a kin-support hierarchy, and will be assessed in the multivariate regressions.

[Insert Table 2 Here]

Multivariate analysis

Table 3 and 4 display the Tobit regression results on ADL and IADL time transfers. Transfers provided by adult children and their spouses are both presented. Under each column, Model 1 represents the result without including the gender×work interaction variables. Models 2, 3 and 4 illustrate the estimations using variables of adult children and spouses' work status, weekly wage rates, and weekly work hours, respectively, along with the interaction terms.

ADL / Care-giving Time Transfers

From Table 3, the transfer from adult children column, we can see that adult sons provide fewer hours of ADL care than adult daughters, and the results are statistically significant across Models 1 to 4 (p<.001). The inclusions of the work variables in Model 2, 3, and 4 point out that adult children's ADL time are significantly decreased if they are working for pay (p<.01), have higher wage rates (p<.05), or have longer work hours (p<.01). However, because none of the gender×work interaction terms are statistically significant, we have very limited evidence to

conclude that variations in work status, wages, and work hours influence adult sons and daughters in a different manner.

All else being equal, having an older spouse reduces the amounts of ADL time transfers from adult children to their parents ($p<.10$), meaning that, adult children may allocate part of their time resources assisting their aging spouses. At this stage of life course, it is not uncommon for individuals to shoulder multiple care-giving burdens, and how to relieve the stress of family caregivers will be a key issue for the aging U.S. society.

Parents' receipt of care-giving support is significantly related to their needs. Older parents, parents with memory-related diseases, and parents who cannot be left alone for an hour, acquire more care-giving time from their children.

Adult children's gender does not have a significant impact on the amounts of care-giving time provided from their spouses to the parents. Adult children's wage and work hours have inverse relationships with their spouses' ADL time transfers. When adult children and spouses' work variables are both controlled in the models, the results reveal that spouses' time spent on caring for parents actually decreases when adult children are working for pay ($p<.05$), having higher wages ($p<.10$), or longer work hours ($p<.05$). Whether monetary transfers are used to replace spouses' time contributions in certain family situations is a topic worthy of further study.

Spouses with better health have a higher propensity to provide care to their parents-in-law ($p<.05$). Aging fathers receive more ADL assistance from adult children's spouses ($p<.05$), and this result is reasonable. Keep in mind that parents in this study are widowed—a large body of literature shows that widowers have higher demands for daily-life support than widows, and social support networks are particularly important to widowers' well-being (Elwert and

Christakis, 2008; Martikainen and Valkonen, 1996). As with the transfers initiated by the adult children, spouses' transfers are also affected by parents' needs.

[Insert Table 3 Here]

IADL / Errand Time Transfers

Table 4 describes the results of IADL/Errand time transfers. Parallel to the ADL/Care-giving analysis, adult sons spent fewer hours providing IADL help than daughters. Working for pay, higher wage rates, and longer work hours are again negatively related to the amount of time given (p<.05), yet these effects universally apply to sons and daughters because the interaction variables are not statistically significant.

Extended family members are important in the IADL time transfers. Since IADL supports are usually less gender-specific, the regression models demonstrate that either having more brothers or sisters will relieve adult children's transfer burdens (p<.05 and p<.001, respectively). When parents live with another child, adult children also give less IADL assistances (p<.01).

Overall, the amounts of IADL time provided by adult children are positively associated with parents' levels of needs. The only exception is that when parents can be left alone for at least an hour, adult children will be more likely to help them with the IADL tasks (p<.05). This finding is solid across all four models.

Amounts of IADL time transferred from spouses cannot be explained by either adult children or spouses' work characteristics. Rather, the coordination among household members could plausibly explain the transfer dynamics. First, when adult children themselves are older, their spouses would spend fewer hours helping parents with IADL chores (p<.05), suggesting that spouses may divide part of their resources to satisfy aging adult children's needs. Second,

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when adult children have more brothers or sisters, their spouses contribute lower amounts of IADL time ($p<.05$). Therefore, sibling involvement creates a division of labor in taking care of parents' IADL demands, and spouses can be viewed as the substitutes of adult children's siblings, or vice versa. Even so, spouses complement but do not substitute adult children's transfers because the data shows that still more adult children give IADL time transfers by themselves (30.65%, table not shown) than just having their spouses to help with the parents alone (0.74%, table not shown). In brief, by considering the transfer dynamics among adult children, siblings, and spouses, the relationship between kin hierarchy and IADL time transfer can be established.

Finally, the fact that parents who live with another child receive less IADL help from the spouse also supports the idea that siblings can substitute for adult children's transfer responsibilities. Which adult child should co-reside with the aging parents and how to divide support duties among the siblings reflects the joint decision-making of extended families. Although every family has a different resource allocation strategy, it is not surprising that sibling with closest proximity will provide more help to the parents, and thereby reduce non-coresident adult children's time transfer amounts substantially.

With above findings, the Hypotheses 1, 3, and 4 are generally supported. Holding key variables constant, adult daughters give more help to parents than sons. Work-related factors are the potential multipliers influencing adult children's transfers, and in some situations, resource competition for adult children's time may exist between spouses and aging parents. Evidence of transfer hierarchy can also be inferred from the analyses. Having siblings to assist in IADL tasks significantly decreases adult children's time transfers, and children themselves tend to provide more support to parents rather than having spouses provide substitute efforts. A sense of filial

responsibility to one's own parents may play a role in the transfer hierarchy, and hence influence the division of labor among the children, siblings, and spouses.

[Insert Table 4 Here]

Couple's Comparative Advantage in the Labor Force and Transfers

To examine how couples' comparative advantage in the labor force may have an impact on time transfers, this study assess wage and work hour differentials between adult children and their spouses and apprise their effects in another set of multivariate analyses. Effects of two interaction terms, including (Adult children's gender × Couple's wage differentials), as well as (Adult children's gender × Couple's work hour differentials), are also examined. Variables delineating adult children, spouses, and parents' characteristics are all controlled in the statistical models.

The upper panel of Table 5 presents findings on ADL time transfer outcomes. In the aspect of adult children's own transfers, being a male adult child is significantly associated with fewer hours of ADL support ($p<.001$). Differentials in couples' wages do not explain variations in transfers, yet greater differences between couples' work hours is inversely correlated with adult children's time spent in care-giving ($p<.01$). After incorporating the interaction term (Adult children's gender × Couple's wage differentials), the analysis shows that when adult sons have higher wage rates, their wives also spend more hours providing help to parents ($p<.10$).

The lower panel of Table 5 summarizes the results of IADL time transfers. Adult children and their spouses' errand time transfers are both affected by couples' differentials in wage and work hours. Adult sons with greater wage advantage or longer work hours than their spouses contribute less time in errand support. The same qualities also associated with a decrease in transfers from their wives to the parents. Accordingly, wives do not necessarily substitute for

adult sons' IADL efforts even though they earn less and work fewer hours than their husbands in the labor forces.

[Insert Table 5 Here]

A portion the findings above offers evidence that intergenerational time transfer is responsive to the comparative advantage of married couples in the labor force. Thus, the Hypothesis 2 can be partially supported. To further reveal how ADL and IADL transfers may be affected by adult children and their spouses' paid-jobs, the probabilities of adult children provided 100 hours or more transfers are simulated with various combinations of couples' wage rates and work hours. Figures 1 to 4 illustrate the results of White adult children's transfers to elderly mothers. All the estimations control for the variables presented in Table 3 and Table 4, with the assumptions that the age and years of education of the adult children, spouses, and mothers, are all fixed at the grand means. Adult children and spouses are presumed as having good or better health. Adult children's numbers of siblings and financial dependents are also set at the grand means. Mothers are hypothesized as not living with any child, not having memory-related diseases, and can be left alone for an hour and more.

From Figure 1, we can see that regardless of adult children and spouses' wages, daughters always spend more time than sons in care-giving. Adult sons' probabilities of giving ADL assistance stay unchanged even when wives' wage rates vary. Nevertheless, daughters' transfer propensity decreases to a greater extent if their wage rate is in the top 1/3 of the pay scale of the labor market.

The patterns of IADL transfer displayed in Figure 2 are very similar to the Figure 1. However, compared to their ADL transfers, sons' IADL transfer probabilities are more sensitive to the changes of their wage rates. For both sons and daughters, the transfer probabilities increase

if their spouses are in the top 1/3 pay scale, but this effect is slightly stronger for daughters than for sons. This result provides some implications that the likelihood of adult children giving IADL transfers is associated with wage advantages in the spousal relationship, especially when the spouses are well-paid.

Figures 3 and 4 illustrate how couples' work hours influence adult children's provisions of ADL and IADL supports. From Figure 3, it is apparent that non-working adult daughters have a much higher likelihood providing care to mothers. The probabilities for daughters' transfer decline with their work hours. When daughters work 60 hours or longer during the week, the likelihood for them to provide care-giving becomes much closer to that of the adult sons'. The same graph also tells us that daughters' care-giving is more sensitive to their husbands' work hours. When husbands spend longer hours in the labor forces, the propensity for daughters to perform care-giving also increase. However, wives' work hours do not show a noticeable impact on adult sons' care-giving behaviors.

A comparable pattern on the IADL time transfer can be found in Figure 4, but the impact of husbands' work hours on daughters' transfer is more remarkable than in the Figure 3. Adult sons' IADL support also changes with their wives' work hours, although the size of the effect is not as large.

[Insert Figures 1 to 4 Here]

Figures 5 to 8 visualize the estimated probabilities for the dependent variables of transfers from adult children's spouse. Unlike Figures 1 to 4, these figures indicate that adult children's gender does not play an influential role in spouses' transfer behaviors. Although spouses are more likely to help with IADL chores than provide care-giving, the likelihoods of giving ADL and IADL transfers do not vary with couples' wage differentials. In Figure 7, the

propensities for adult children's spouses to provide care-giving assistance decrease with adult children and spouses' weekly work hours. However, in Figure 8, it is adult children's own work hours, not spouses', affect the likelihood for spouses to help with older parents' IADL needs.

[Insert Figures 5 to 8 Here]

Conclusion and Discussion

The United States is being transformed into an aging society. When accompanied by a decline in fertility, the speed of population aging accelerates. Satisfying later-life needs and providing care to the elderly has become a critical issue for society as a whole. Without comprehensive care-giving policies, the adult children, in particular, will be the leading candidates to provide the necessary assistances to support their elders.

Transfers from adult children to their older parents may take place when elderly parents have needs, and when adult children have ability and transfer motivation. Nevertheless, it is observed that more working women are shouldering the care-giving duties than men. In a society where paid work for women has become a norm, why do men not participate in care-giving chores as much as women? How do the employment structure and social norm affect adult children's ability, and consequently intergenerational transfer outcomes? Furthermore, how do we go beyond the conventional assessments of rational calculation and altruism, and explore an alternative conceptualization framework to evaluate the role of transfer motivation in the study of intergenerational transfers?

For long time, the relationship between women's labor force participation and their family issues has been discussed by academics. Yet the majority of these studies focus on how women balance work and child-care conflicts, and examinations of elderly support have remained inconclusive. Using the 2006 Health and Retirement Study, this study argues that

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differentials in transfer practices between adult daughters and sons are a joint product of gender norms and the gendered labor force structure. In this paper, the measurements of time transfer include care-giving and errand time. Compared to sons, daughters contribute more care-giving time than sons. Moreover, while errand time transfer may be less gender-specific, and the analysis finds that sons give more IADL than ADL time, still, the errand time transfers of sons are significantly lower than their female counterpart's. The multivariate analysis confirms that gender differentials in opportunity costs in the wage market affect adult children's transfer decisions. Higher earnings and longer work hours are inversely associated with time contributions to elderly parents. At least in some of the analyses, the comparative advantage between husbands and wives in the labor force also affect division of labor in time transfer practices. In addition, examinations of transfer hierarchy indicate that among married dyads, adult children themselves would provide help to their parents, and spouses' involvements tend to be supplementary, but do not substitute for adult children's transfer efforts.

At a structural level, although eliminating the wage gap between men and women may enhance daughters' monetary transfer ability, this is not to say that daughters' time transfer obligations will be completely relieved by a financial substitution strategy. A more equal wage structure between men and women only offers a partial solution. Holding everything constant, well-paid daughters still spend longer hours than sons fulfilling elderly parents' needs, and the gender norms may play an important part in this regard. There are social expectations for daughters to be the primary caregivers. As full-time work for women has become more common, satisfying elders' needs without sacrificing their career development is of great consequence. It is crucial for the government to expand the scale of elderly-care programs in the upcoming years,

otherwise elders' families will have to absorb all these care-giving burdens. And if they do, women are likely to experience most of the stress.

For future study, it is worth noting that a longitudinal appraisal incorporating the timing and reasons of intergenerational co-residence will give deeper insights into the time transfer analysis. Another topic to be explored is how adult children adjust their transfer strategies over time as they themselves experience major life course transitions including retirement, marital dissolution, and health deterioration. Despite the limitations associated with the cross-sectional design, this paper has found robust explanations for the importance of employment and gender roles in determining adult children's provision of time transfers. The substitution and complementary effects among siblings and spouses in the transfer hierarchy are valuable elements for intergenerational transfer scholars and sociologists of gender, work, and family to take into account.

Table 1: Weighted Descriptive Statistics, by Gender of the Adult Children

N=1478

	Adult Son (N=677)	Adult Daughter (N=801)	Total (N=1478)
Adult Children Characteristics			
Gender, Male=1			45.81%
Working for pay	74.54%	60.49%	67.33%
Weekly wage rate	808.51	435.46	617.02
	(1118.93)	(1074.18)	(1111.57)
Weekly work hours	31.81	20.91	26.22
	(22.48)	(20.09)	(21.97)
Age	58.67	58.37	58.51
	(5.37)	(4.97)	(5.17)
Race			
White	86.36%	88.80%	87.61%
Black	6.62%	6.14%	6.38%
Other races	7.02%	5.06%	6.01%
Years of education	13.84	13.48	13.65
	(2.84)	(2.61)	(2.73)
Good or better health	83.89%	81.50%	82.66%
Number of sister	1.54	1.54	1.54
	(1.37)	(1.45)	(1.41)
Number of brother	1.56	1.47	1.51
	(1.40)	(1.28)	(1.34)
Number of financial dependent	0.40	0.27	0.33
	(0.81)	(0.66)	(0.74)
Spouses' Characteristics			
Working for pay	64.48%	69.22%	66.91%
Weekly wage rate	558.91	736.85	650.25
	(2533.79)	(1278.38)	(1992.08)
Weekly work hours	22.80	29.32	26.15
	(20.60)	(23.55)	(22.39)
Age	55.23	60.29	57.97
	(6.66)	(7.57)	(7.53)
Years of education	13.43	13.58	13.50
	(2.75)	(2.99)	(2.87)
Good or better health	83.03%	81.78%	82.39%
Work differential of the couples			
Percent adult children wage vs. Spouse wage, Logged	5.46	3.95	4.69
	(4.07)	(4.00)	(4.08)
Weekly work hour differential (Adult children-Spouse)	8.91	-8.33	0.06
	(26.43)	(26.05)	(27.41)
Parents' characteristics			
Gender, Father=1	14.08%	17.13%	15.64%
Age	82.47	81.38	81.91
	(7.88)	(9.15)	(8.57)
Years of education	10.78	10.72	10.75
	(3.47)	(3.34)	(3.40)
Live with another child	18.68%	18.12%	18.39%
Have memory-related disease	16.27%	17.48%	16.89%
Can be left alone for an hour	89.63%	86.97%	88.27%

Source: Author's analysis using 2006 HRS. Standard deviations in parentheses.

Table 2: T-Test on Time Transfers to Parents, by Adult Children's Gender

Transfers from Adult Children to Parents	Adult Sons (N=677)	Adult Daughters (N=801)	t-Value
ADL / Care-giving Time Transfer			
Transfer Incidence: Ever Gave 100 Hours or More	0.04 (0.01)	0.10 (0.01)	5.21***
Transfer Amount: Include Transfer Less Than 100 Hours	22.36 (7.00)	118.41 (17.35)	5.13***
Transfer Amount: Transfer 100 Hours and Above [a]	588.64 (153.15)	1127.48 (118.17)	2.79**
IADL / Errand Time Transfer			
Transfer Incidence: Ever Gave 100 Hours or More	0.24 (0.02)	0.36 (0.02)	5.13***
Transfer Amount: Include Transfer Less Than 100 Hours	82.60 (11.39)	206.61 (18.00)	5.82***
Transfer Amount: Transfer 100 Hours and Above [b]	335.28 (41.57)	568.47 (42.03)	3.94***

Transfers from Adult Children's Spouses to Parents	Wives (N=677)	Husbands (N=801)	t-Value
ADL / Care-giving Time Transfer			
Transfer Incidence: Ever Gave 100 Hours or More	0.03 (0.01)	0.03 (0.01)	0.18
Transfer Amount: Include Transfer Less Than 100 Hours	15.02 (4.97)	13.06 (3.98)	-0.31
Transfer Amount: Transfer 100 Hours and Above [c]	482.66 (116.08)	413.71 (89.79)	-0.48
IADL / Errand Time Transfer			
Transfer Incidence: Ever Gave 100 Hours or More	0.17 (0.01)	0.18 (0.01)	0.51
Transfer Amount: Include Transfer Less Than 100 Hours	45.15 (6.44)	63.02 (8.38)	1.67+
Transfer Amount: Transfer 100 Hours and Above [d]	249.79 (31.06)	335.98 (37.85)	1.72+

Note: *a:* Sub-sample analysis of adult children who provided 100 hours and more on ADL time transfer. N=25 and 84 for sons and daughters, respectively.

b: Sub-sample analysis of adult children who provided 100 hours and more on IADL time transfer. N=163 and 290 for sons and daughters, respectively.

c: Sub-sample analysis of spouses of adult children who provided 100 hours and more on ADL time transfer. N=25 wives and 31 husbands, respectively.

d: Sub-sample analysis of spouses of adult children who provided 100 hours and more on IADL time transfer. N=118 wives and 154 husbands, respectively.

Source: Author's analysis using 2006 HRS. *** p<.001;**p<.01; *p<.05; +p<.10. Standard errors in parentheses.

Table 3: ADL/Care-giving Time Transfers from Married Adult Children and Spouses to Widowed Parents [a]

N=1478

	Transfer from Adult Children				Transfer from Spouses of the Adult Children			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Adult Children Characteristics								
Gender, Male=1	-1.66***	-1.80***	-1.79***	-1.68***	0.40	0.19	0.48	0.58
Working for pay		-0.10**				-1.22*		
Weekly wage rate, logged			-0.05*				-0.06+	
Weekly work hours, logged				-0.09**				-0.10*
Male*Working for pay interaction		0.12				0.54		
Male*Weekly wage rate interaction			0.04				0.05	
Male*Weekly work hours interaction				0.02				0.04
Age	-0.10**	-0.07	-0.06	-0.07+	-0.06	-0.05	-0.04	-0.05
Race (Ref: Other races)								
White	-1.18+	-1.20+	-1.21+	-1.23+	0.62	0.50	0.45	0.47
Black	-1.49+	-1.40+	-1.45+	-1.41+	-0.31	-0.35	-0.44	-0.37
Years of education	0.18**	0.17*	0.15+	0.17*	0.07	0.01	-0.01	0.01
Good or better health	0.22	0.38	0.26	0.40	-0.08	-0.08	-0.18	-0.09
Number of sister	-0.11	-0.11	-0.12	-0.10	-0.16	-0.17	-0.17	-0.18
Number of brother	-0.03	-0.01	0.01	-0.01	-0.22	-0.15	-0.16	-0.15
Number of financial dependent	-0.19	-0.14	-0.20	-0.14	-0.29	-0.21	-0.25	-0.22
Spouses' Characteristics								
Working for pay		0.38				-0.16		
Weekly wage rate, logged			0.01				-0.01	
Weekly work hours, logged				0.03				-0.02
Age		-0.05+	-0.05+	-0.05+		-0.03	-0.03	-0.03
Years of education		0.21	0.03	0.02		0.08	0.08	0.08
Good or better health		0.37	0.45	0.38		1.37*	1.39*	1.39*
Parents' characteristics								
Gender, Father=1	0.80	0.77	0.75	0.76	1.26*	1.26*	1.24*	1.25*
Age	0.04+	0.04+	0.04+	0.04+	0.04	0.04	0.04	0.04
Years of education	0.10+	0.10+	0.11*	0.10+	0.02	0.02	0.02	0.02
Live with another child	0.13	0.11	0.13	0.13	0.02	0.23	0.22	0.23
Have memory-related disease	1.49***	1.51***	1.52***	1.52***	0.94*	0.94*	0.92*	0.93*
Can be left alone for an hour	-1.07**	-1.08**	-1.12**	-1.08**	-1.01*	-1.03**	-1.06**	-1.04**
Log Likelihood	-518.39	-512.11	-514.29	-511.62	-293.91	-284.68	-287.02	-284.46
Uncensored Observations (>=100 Hours)	109	109	109	109	56	56	56	56

Note: *a:* Transfer amount estimation using multivariate Tobit regression. Left-censored at 100 hours.
Source: Author's analysis using 2006 HRS. ***p<.001; **p<.01; *p<.05; +p<.10.

Table 4: IADL/Errand Time Transfers from Married Adult Children and Spouses to Widowed Parents [a]

N=1478

	Transfer from Adult Children				Transfer from Spouses of the Adult Children			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Adult Children Characteristics								
Gender, Male=1	-0.61***	-0.51**	-0.57***	-0.55***	-0.05	0.10	-0.09	-0.10
Working for pay		-0.35*				-0.14		
Weekly wage rate, logged			-0.02*				-0.01	
Weekly work hours, logged				-0.03*				-0.01
Male*Working for pay interaction		-0.06				-0.28		
Male*Weekly wage rate interaction			-0.01				-0.02	
Male*Weekly work hours interaction				0.01				-0.02
Age	-0.04**	-0.05**	-0.05**	-0.05**	-0.03**	-0.03*	-0.03*	-0.03*
Race (Ref: Other races)								
White	-0.17	-0.20	-0.22	-0.20	-0.11	-0.12	-0.13	-0.12
Black	-0.22	-0.24	-0.28	-0.24	-0.42	-0.43	-0.43	-0.43
Years of education	0.01	0.02	0.02	0.02	-0.01	0.01	0.01	0.01
Good or better health	0.23	0.33*	0.31*	0.33*	0.01	0.07	0.05	0.07
Number of sister	-0.15***	-0.15***	-0.15***	-0.15***	-0.08*	-0.08*	-0.08*	-0.09*
Number of brother	-0.09*	-0.09*	-0.09*	-0.09*	-0.10*	-0.10*	-0.10*	-0.11*
Number of financial dependent	-0.11	-0.10	-0.10	-0.10	-0.08	-0.07	-0.07	-0.07
Spouses' Characteristics								
Working for pay		0.09				-0.11		
Weekly wage rate, logged			0.01				-0.01	
Weekly work hours, logged				0.01				-0.01
Age		0.01	0.01	0.01		-0.01	-0.01	-0.01
Years of education		-0.01	-0.01	-0.01		-0.01	-0.01	0.08
Good or better health		-0.07	-0.05	-0.06		0.05	0.04	0.05
Parents' characteristics								
Gender, Father=1	-0.24	-0.24	-0.24	-0.25	-0.07	-0.07	-0.06	-0.08
Age	0.02*	0.02*	0.02*	0.02*	0.01	0.01	0.01	0.01
Years of education	-0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Live with another child	-0.43**	-0.43**	-0.42**	-0.43**	-0.33*	-0.34*	-0.32*	-0.34*
Have memory-related disease	0.53***	0.54***	0.53***	0.54***	0.49***	0.51***	0.49***	0.51***
Can be left alone for an hour	0.40*	0.40*	0.40*	0.40*	0.34*	0.35*	0.34*	0.35*
Log Likelihood	-1355.69	-1350.64	-1351.11	-1350.72	-905.82	-901.21	-902.66	-901.54
Uncensored Observations (>=100 Hours)	453	453	453	453	272	272	272	272

Note: *a:* Transfer amount estimation using multivariate Tobit regression. Left-censored at 100 hours.
Source: Author's analysis using 2006 HRS. ***p<.001; **p<.01; *p<.05; +p<.10.

Table 5: Comparative Advantage in the Labor Force and Time Transfers from Married Adult Children and Spouses to Widowed Parents [a]

N=1478

ADL/Care-giving Time Transfers

	Transfer from Adult Children				Transfer from Spouses of the Adult Children			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Adult Children's Gender and Couple's Comparative Advantage								
Gender, Male=1	-1.77***	-1.92***	-1.56***	-1.55***	0.38	0.17	0.43	0.44
% wage differential, logged	-0.06	-0.07			-0.04	-0.10+		
Weekly work hour differential			-0.19**	-0.02**			-0.01	-0.01
Male*% wage differential interaction		0.03				0.13+		
Male*Weekly work hour interaction				0.01				0.01
Log Likelihood	-514.96	-514.89	-511.51	-511.41	-288.67	-287.23	-288.44	-288.40
Uncensored Observations (>=100 Hours)	109	109	109	109	56	56	56	56

Note: *a:* Transfer amount estimation using multivariate Tobit regression. Left-censored at 100 hours.
Source: Author's analysis using 2006 HRS. ***p<.001; **p<.01; *p<.05; +p<.10.

IADL/Errand Time Transfers

	Transfer from Adult Children				Transfer from Spouses of the Adult Children			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Adult Children's Gender and Couple's Comparative Advantage								
Gender, Male=1	-0.55***	-0.28+	-0.48***	-1.49***	-0.07	0.17	-0.04	-0.06
% wage differential, logged	-0.03*	-0.01			-0.02	0.01		
Weekly work hour differential			-0.01**	-0.01			-0.01+	0.01
Male*% wage differential interaction		-0.06*				-0.06*		
Male*Weekly work hour interaction				-0.01**				-0.01**
Log Likelihood	-1352.43	-1349.60	-1350.54	-1347.22	-904.51	-901.88	-903.80	-898.38
Uncensored Observations (>=100 Hours)	453	453	453	453	272	272	272	272

Note: *a:* Transfer amount estimation using multivariate Tobit regression. Left-censored at 100 hours.
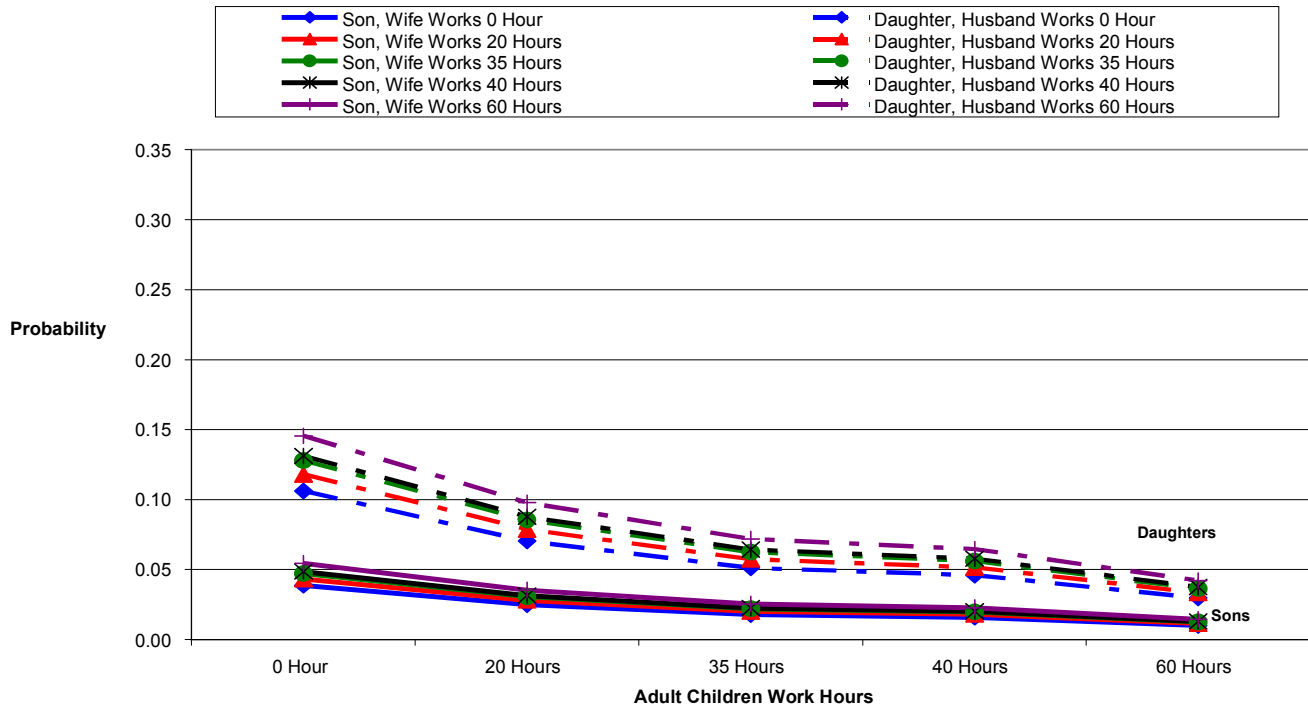Source: Author's analysis using 2006 HRS. ***p<.001; **p<.01; *p<.05; +p<.10.

Figure 1: Probability of White Adult Children Provide 100 Hours or More ADL/Care-giving Time Transfers
Effects of Adult Children and Spouses' Wage Rates
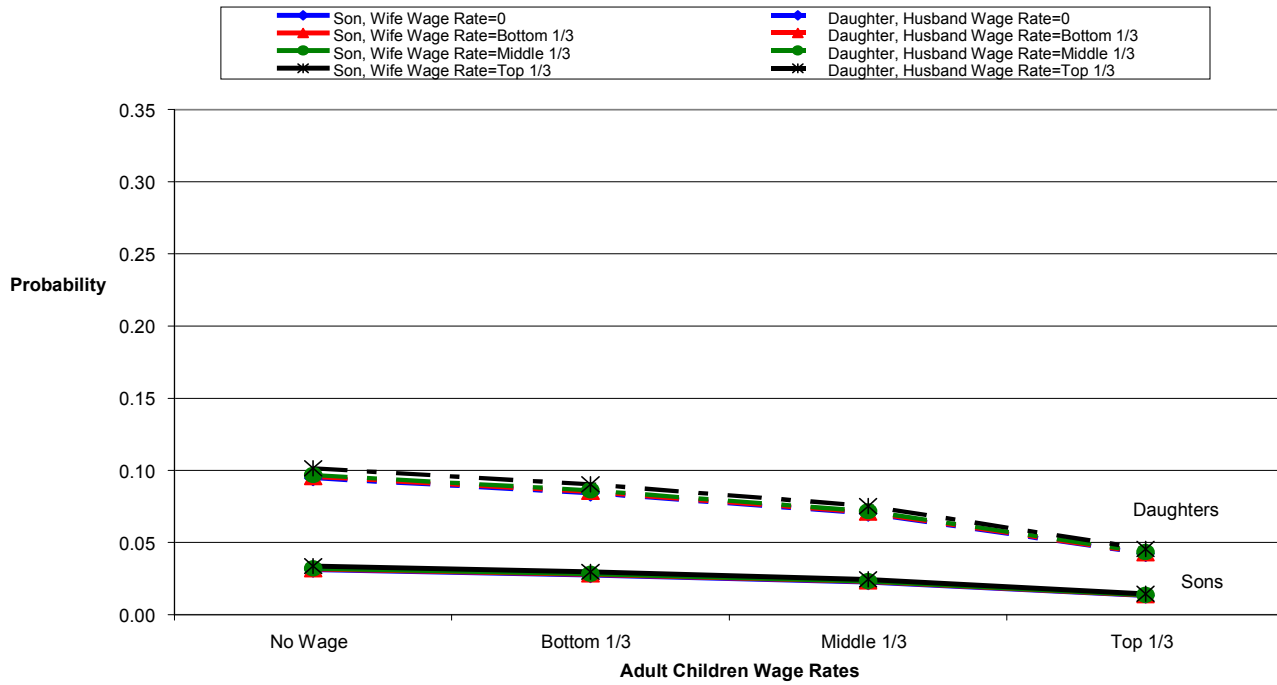
Figure 2: Probability of White Adult Children Provide 100 Hours or More IADL/Errand Time Transfers
Effects of Adult Children and Spouses' Wage Rates

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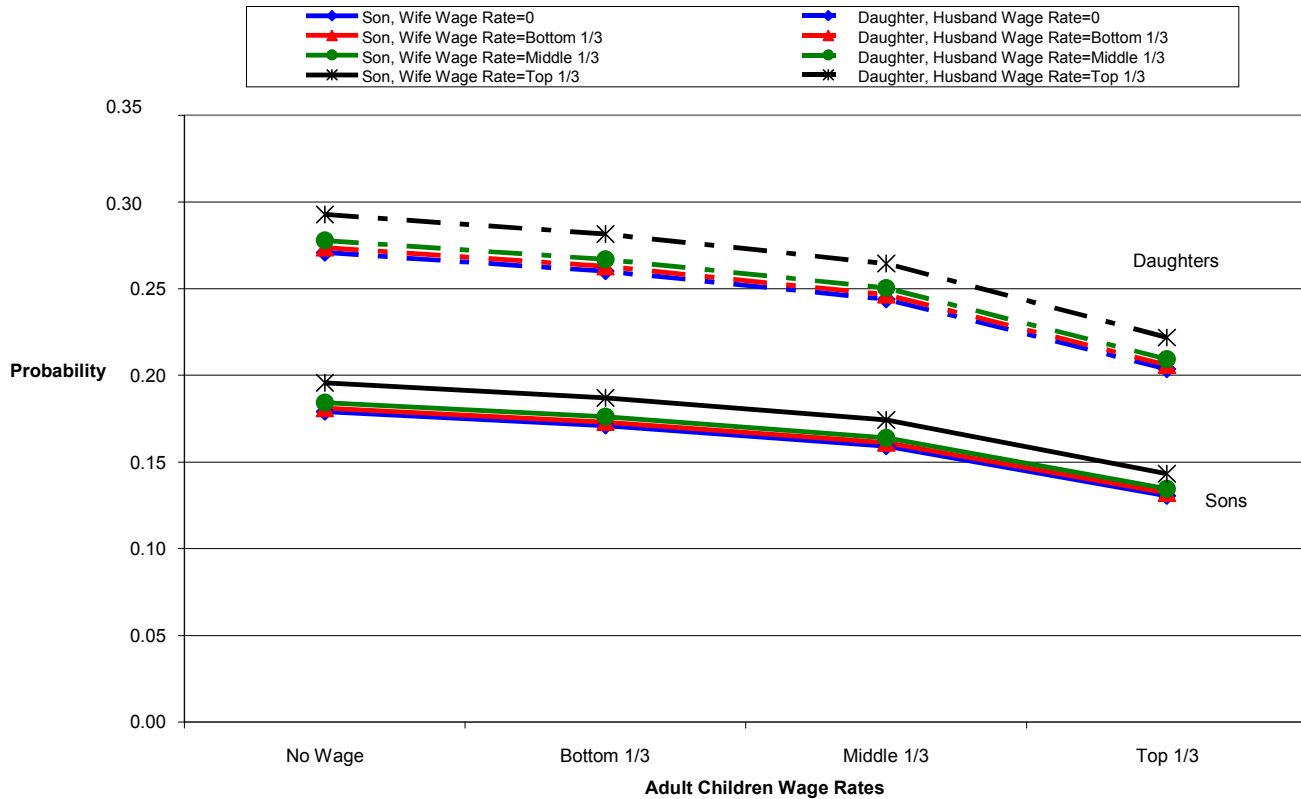
Figure 3: Probability of White Adult Children Provide 100 Hours or More ADL/Care-giving Time Transfers
Effects of Adult Children and Spouses' Work Hours

Son, Wife Works 0 Hour	Daughter, Husband Works 0 Hour
Son, Wife Works 20 Hours	Daughter, Husband Works 20 Hours
Son, Wife Works 35 Hours	Daughter, Husband Works 35 Hours
Son, Wife Works 40 Hours	Daughter, Husband Works 40 Hours
Son, Wife Works 60 Hours	Daughter, Husband Works 60 Hours

Figure 4: Probability of White Adult Children Provide 100 Hours or More IADL/Errand Time Transfers
Effects of Adult Children and Spouses Work Hours

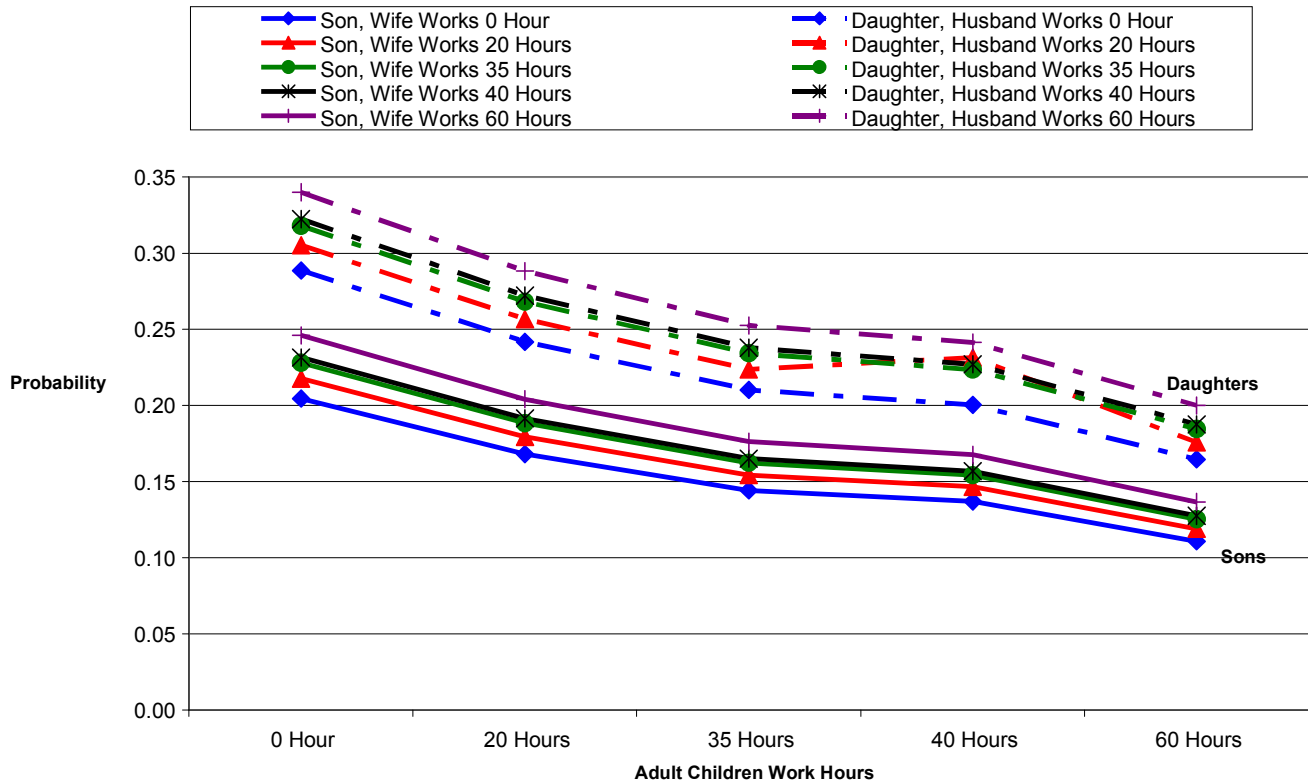| Son, Wife Works 0 Hour | Daughter, Husband Works 0 Hour |
Son, Wife Works 20 Hours	Daughter, Husband Works 20 Hours
Son, Wife Works 35 Hours	Daughter, Husband Works 35 Hours
Son, Wife Works 40 Hours	Daughter, Husband Works 40 Hours
Son, Wife Works 60 Hours	Daughter, Husband Works 60 Hours

Figure 5: Probability of White Adult Children's Spouses Provide 100 Hours or More ADL/ Care-giving Time Transfers
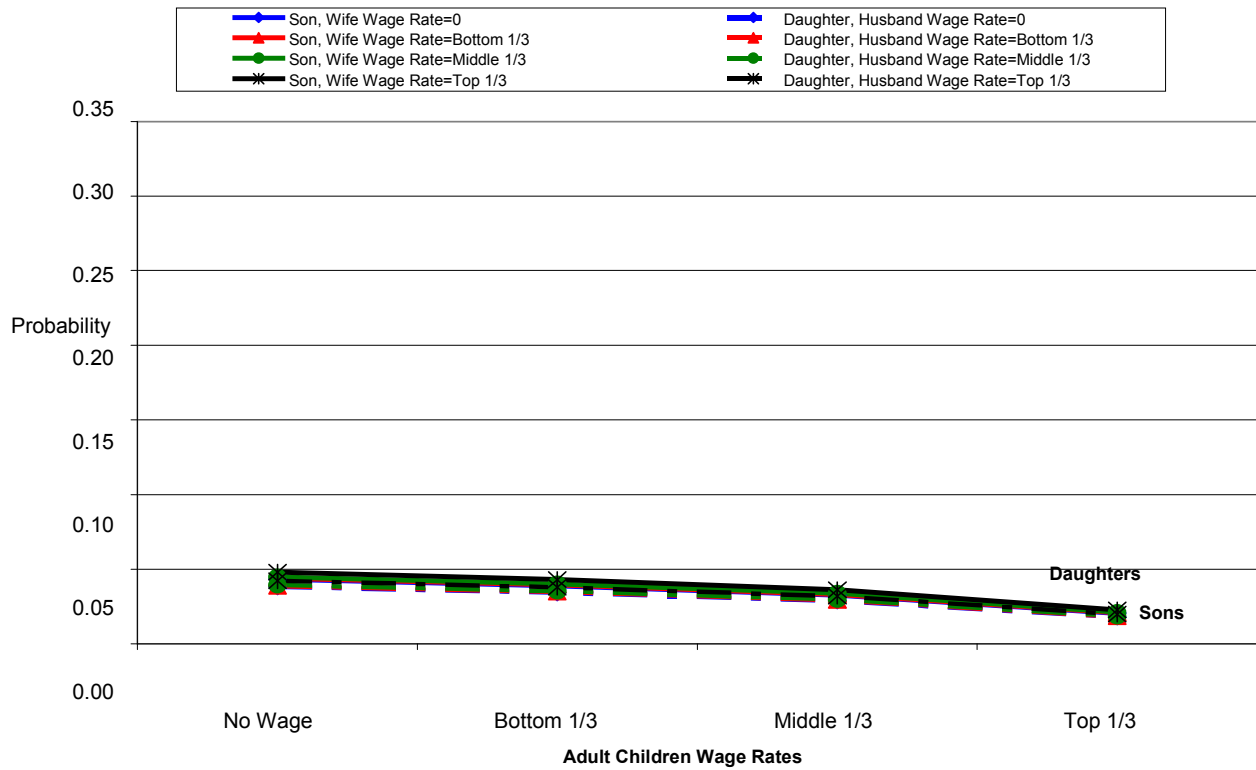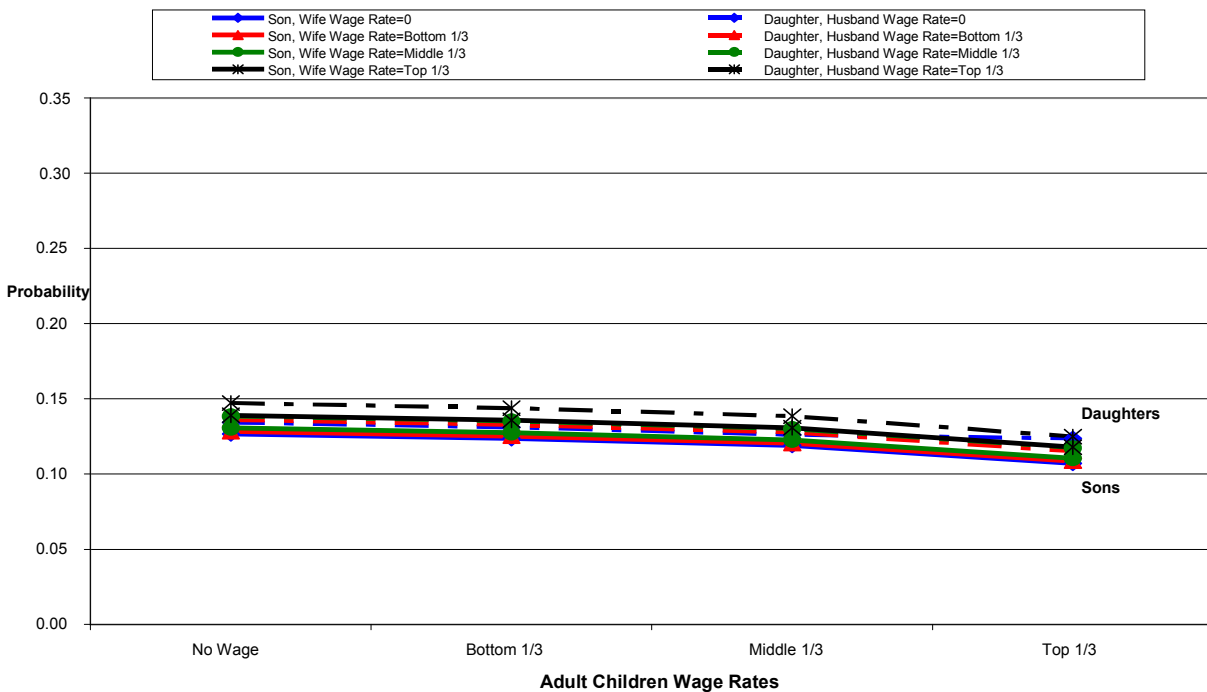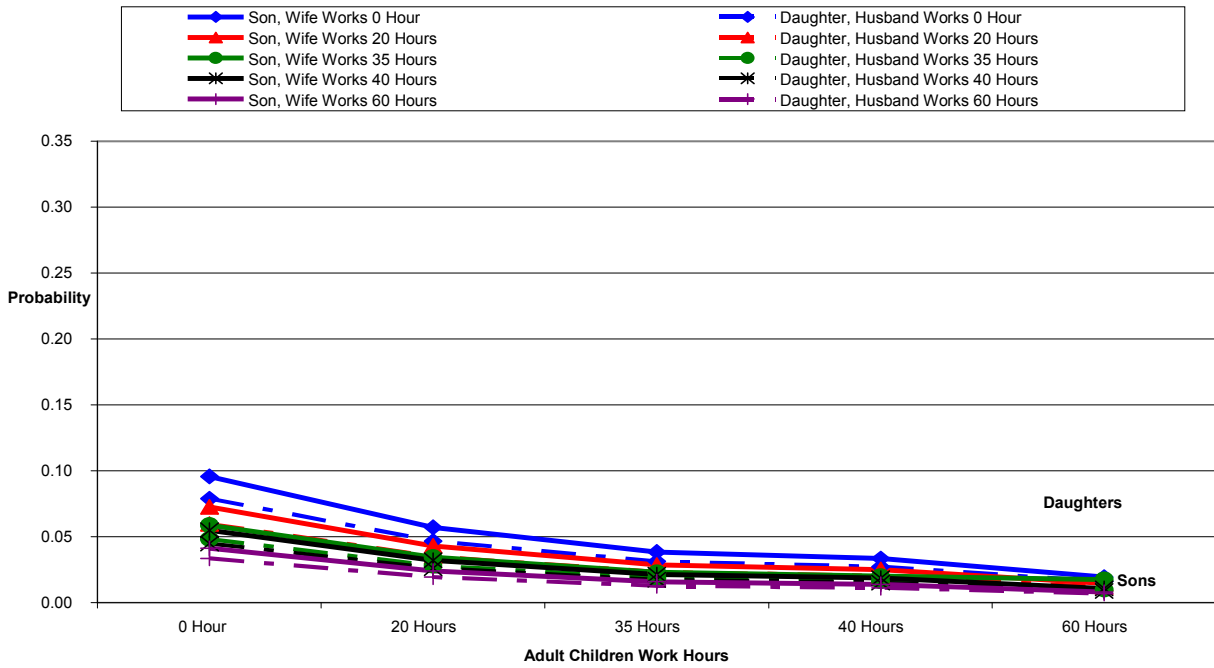Effects of Adult Children and Spouses' Wage Rates

Figure 6: Probability of White Adult Children's Spouses Provide 100 Hours or More IADL/Errand Time Transfers
Effects of Adult Children and Spouses' Wage Rates

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Figure 7: Probability of White Adult Children's Spouses Provide 100 Hours or More ADL/Care-giving Time Transfers Effects of Adult Children and Spouses' Work Hours

Figure 8: Probability of White Adult Children Provide 100 Hours or More IADL/Errand Time Transfers Effects of Adult Children and Spouses' Work Hours
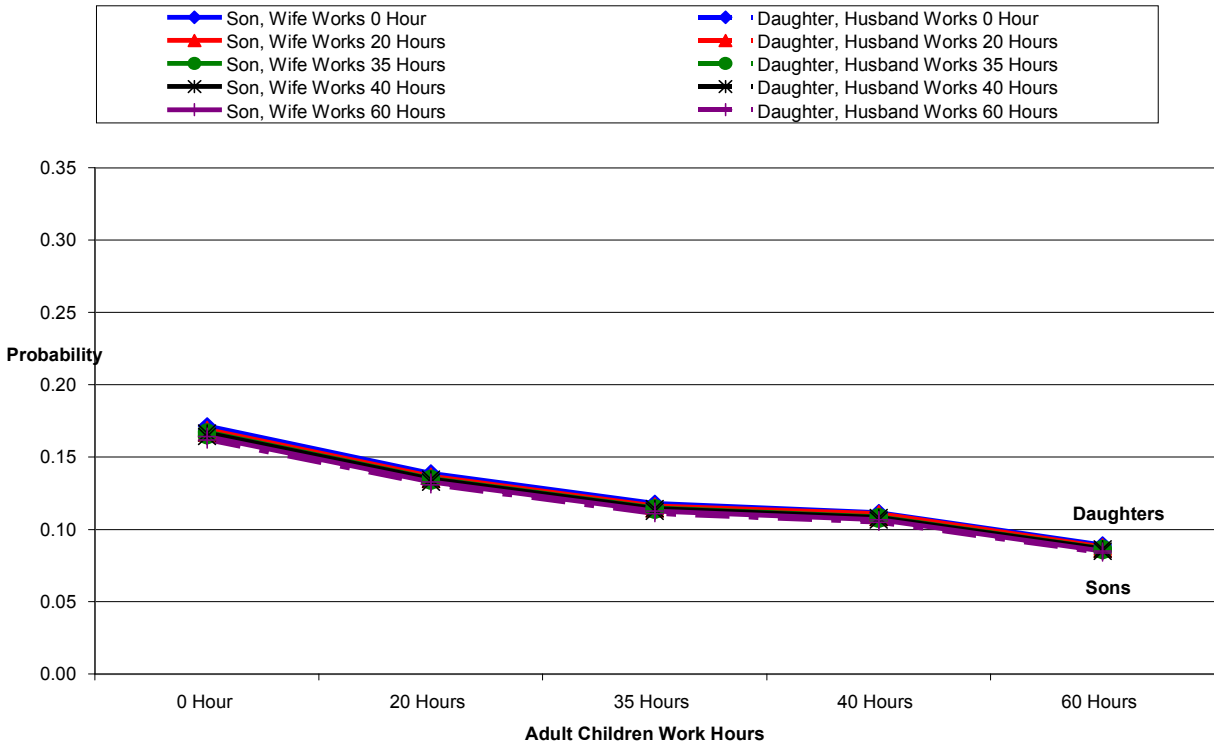
References

Allen, K. R, R. Blieszner, and K. Roberto. 2000. "Families in the Middle and Later Years: A Review and Critique of the Research in the 1990s." *Journal of Marriage and the Family* 62: 911-926.

Aronson, Jane. 1992. "Women's Sense of Responsibility for the Care of Old People: But Who Else is Going to Do It?" *Gender and Society* 6 (1): 8-29.

Boaz, Rachel F., Jason Hu, and Yongjia Ye, 1999. "The Transfer of Resources from Middle-Aged Children to Functionally Limited Elderly Parents: Providing Time, Giving Money, Sharing Space." *The Gerontologist* 39 (6): 648-657.

Couch, Kenneth A, Mary C. Daly and Douglas A. Wolf. 1999. "Time? Money? Both? The Allocation of Resources to Older Parents." *Demography* 36 (2): 219-232.

Elwert, Felix, and Nicholas A. Christakis. 2008. "The Effect of Widowhood on Mortality by the Causes of Death of Both Spouses." *American Journal of Public Health* 98 (7):1-7.

Furstenberg, Frank F, Saul D. Hoffman, and Laura Shrestha. 1995. "The Effect of Divorce on Intergenerational Transfers: New Evidence". *Demography* 32 (3): 319-333.

Gerstel, Naomi and Sally K. Gallagher. 2001. "Men's Caregiving: Gender and the Contingent Character of Care." *Gender and Society* 15 (2): 197-217.

Globerman, Judith. 1996. "Motivations to Care: Daughters and Sons-in-Law Caring for Relatives with Alzheimer's Disease." *Family Relations* 45 (1): 37-45.

Kohli, Martin and Harald Künemund. 2003. "Intergenerational Transfers in the Family: What Motivates Giving?" in V.L. Bengtson and A. Lowenstein (eds.) *Global Aging and Challenges to Families*. New York: Walter de Gruyter, Inc.

Lee, Eunju, Gary Spitze, and John Logan. 2003. "Social Support to Parents-in-Law: The Interplay of Gender and Kin Hierarchies." *Journal of Marriage and Family* 65: 396-403.

Maddala, G.S. 1999. *Limited Dependent and Qualitative Variables in Econometrics*. Reprinted Edition. United Kingdom: Cambridge University Press.

Martikainen, Pekka, and Tapani Valkonen. 1996. "Mortality after the Death of a Spouse: Rates and Causes of Death in a Large Finnish Cohort." *American Journal of Public Health* 86 (8):1087-1093.

Pezzin, Liliana and Barbara S. Schone. 1999a. "Parental Marital Disruption and Intergenerational Transfers: An Analysis of Lone Elderly Parents and Their Children." *Demography* 36 (3): 287-297.

Sarkisian, Natalia and Naomi Gerstel. 2004. "Explaining the Gender gap in Help to Parents: The Importance of Employment." *Journal of Marriage and Family* 66: 431-451.

Silverstein, Merril, Tonya M. Parrott, and Vern L. Bengtson. 1995. "Factors That Predispose Middle-Aged Sons and Daughters to Provide Social Support to Older Parents." *Journal of Marriage and the Family* 57 (2): 465-475.

Weinick, Robin M. 1995. "Sharing a Home: The Experiences of American Women and Their Parents over the Twentieth Century". *Demography* 32 (2): 281-297.

Wolf, Douglas A. , Vicky Freedman, and Beth Soldo. 1997. "The Division of Family Labor: Care for Elderly Parents." *Journal of Gerontology: Social Sciences* 52B: 102-109.

Wong, Rebeca, Chiara Capoferro, and Beth J. Soldo. 1999. "Financial Assistance from Middle-Aged Couples to Parents and Children: Racial-Ethnic Differences." *Journals of Gerontology, Series B: Psychological Sciences and Social Science* 54B (3): S145-S153.