

Caring like Seen Cared? Intergenerational Transmission of Caregiving

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Abstract

We examine the extent to which caregiving exerts role modelling effect on the supply of informal care by caregivers' children consistently with the 'caring as seeing cared' hypothesis. We exploit a reduction in the public financing of home health care which exogenously increased the supply of caregiving (the Medicare Home Health Reform), and we investigate whether such increased provision of informal care for old age parents increased the reception of informal care from children in old age. We use data from the Health and Retirement Survey and exploit exogenous variation in caregiving brought about by a large decline in financing of Medicare Home health care between 1997 and 2000 with the Interim Payment System (IPS), which lead to a more pronounced dropped in the provision of Medicare home health care in some US states and increased the provision of informal care to ageing parents from adult children. We examine whether when those adult children age, they are more likely to receive care from their own children. We find strong evidence suggesting the presence of intergenerational transmission of caregiving which is heterogeneous across groups that differ on socio-demographic characteristics. More specific, the effect is stronger among single, poor, and less educated individuals. These effects appear to be driven by role modelling, alongside bequest motives and charitable behaviours.

Keywords: caregiving, role modelling effects, Medicare home health reform, family ties, intergenerational transmission.

JEL: I13, Z1

1. Introduction

Norms, beliefs, and preferences are potentially formed through role modelling efforts by parents, transmitting these over generations (Grusec and Hastings, 2007). One common activity that is heavily influenced by social norms is unpaid caregiving. Caregiving duties are a core part of social norms in many western societies, and informal care provided by the family is one of the main sources of care worldwide (Norton, 2016) and the economic value of unpaid caregiving exceeds that of the nursing homes and paid home care budgets (Arno et al, 1999).

As other social duties, caregiving duties are typically transmitted intergenerationally, and role modelling plays a key role in such a process as it provides ‘salience’ to caregiving norms and expectations. That is, children exposed to caregiving parents are arguably more likely to be caregivers themselves. Hence, parents can exert significant effects on their children’s attitudes and behaviours through ongoing role-modelling and its associated social sanctions and rewards, as well as transfers of both information and resources (Glass et al 1986). However, we still know little about what motivates individuals to supply care to their older age family members. Financial incentives such as caregiving allowances can exert an influence alongside the availability of public funded home health care. However, caregiving often results from the presence of caregiving duties, that is family social norms that are formed across generations.

This paper attempts to understand the formation of such *caregiving social norms* by examining the extent to which the supply of care to elderly parents is influenced by the role modelling effect of previous generation provision of care which creates an expectation to younger generations namely a vertical transmission of caregiving duties. We exploit longitudinal evidence from more than four decades of records of Americans over fifty years of age who were followed over time. Identification comes from exploiting exogenous variation in

the supply of care brought about by a large decline in financing of Medicare Home health care between 1997 and 2000 with the Interim Payment System (IPS). The change in reimbursement created a quasi-experiment whereby the drop in the provision of Medicare home health care was more pronounced in some US states compared to others. The IPS caused an increase in the provision of informal care to ageing parents from adult children. Home care is mainly funded by public sources and during the period after the introduction of the IPS it was the fastest growing category of national health care expenditures (Catlin et al. 2007), as which offers respite for families who pay and provide care informally otherwise. Our estimates suggest that children exposed to the IPS are more likely to supply care themselves, in addition to influencing their parent supply of care. We add to the literature in the following way.

First, we add to Golberstein et al (2009) which documents the effect of restrictive payment caps for Medicare home health care with increased informal care, mainly among lower income individuals in need of care. Indeed, we document that such reduction in informal care has spill-over effect's bias role modelling to their children. This is the case because caregiving is very much intergenerationally transmitted, hence an increase in the supply of unpaid informal care exert effect on children supply of care.

Second, we add to the small literature on intergenerational transmission of caregiving (Charles et al, 2015), which is mostly descriptive so far by exploiting evidence from an exogenous policy intervention that influenced their parents supply of care. The importance of a policy intervention is driven by the fact that the supply of care is affected by a series of potential confounders such as family culture, pro-social behaviours, risk and time preference preferences and experience effects all influencing the supply of care (Dohmen et al, 2012).

Third, we add to the literature on the incentives for the supply of care, as we document in the related literature there are several potential drivers of the supply of care. This paper

shows that supply can be stimulated by changes in role modelling by children which ignite the role of social norms, and role models insofar as the exposure to a successful role model might provide information on the effects of such activity, such as caregiving. Other mechanisms include assortative mating namely if one parent provide care out of pro-social preferences then the other parent is also likely to have pro-social preferences, if parents are matched by their pro-social behaviours.

Finally, the paper adds to the literature on role modelling and intergenerational transmission, by examining whether role modelling effects are influenced by gender specific transmission. That is, traditionally, caregivers have been women, hence we specifically examine gender heterogeneities in the supply of care. In addition, we examine whether when those adult children age, they are more likely to receive care from their own children. Next, we examine the heterogeneous effect by groups that differ in family ties, namely Hispanics and Asians compared to Caucasian Americans.

The rest of the paper is organised as follows. Next section reports the main background of the paper. Section three describes the data and empirical strategy. Section four reports the main results. Section five the heterogeneity and a final section concludes.

2. Related literature

This paper examines the intergenerational transmission of caregiving through social learning and role modelling effects, which contributes to a series of findings in the related literature, including the following:

2.1 Intergenerational Transmission of Preferences, Attitudes, and Personality.

The research examining the intergenerational transmission of preferences, attitudes, and personality gained popularity in the recent decade and the existing literature in this line is growing rapidly every passing year. Economics, compared to psychology- for instance- is relatively new to this topic (Zumbuehl et al., 2020) and it includes empirical as well as theoretical contributions. This literature suggests that both nature and nurture play a role in preference transmission in which Cesarini et al. (2009) show that there is a genetic effect on preferences and Dohmen et al.(2012) highlight the importance of socialization in the intergenerational transmission of preferences.

The intergenerational transmission of preferences, attitudes, and preferences arguably influences intergenerational correlation of traits, behavior, and outcomes. For example, the intergenerational transmission of risk and trust attitudes (Dohmen, 2012); cognitive and noncognitive abilities (Grönqvist et al., 2017); the role of parental involvement (Zumbuehl et al., 2020); the role of social environment in the formation of pro-sociality (Kosse et al, 2020); outcomes such as income, education, or health (Bjorklund and Salvanes, 2011; Black and Devereux, 2011; Holmlund et al., 2011; Lindahl et al., 2016); and intergenerational transmission of dependence (Hartley et al., 2022).

2.2 Role modelling and gender assortative preferences.

Parents play a central role in the child's socialization process (Collins et al, 2000), even though not necessarily in the same way. For instance, mothers might exhibit a stronger influence than

parents in the transmission of trust (Dohmen et al., 2012), and this might be especially the case in the transmission of caregiving duties where one might find gender assortative preferences namely mother influence on daughters. The theoretical literature on cultural transmission assumes that parents and the social environment affect the transmission of culture, values, attitudes, and preferences, but it differs in the assumptions about parental motives in shaping the transmission process. Bisin and Verdier (2012) assume that parents have “imperfect empathy”, i.e., that parents are altruistic towards their children but assume that children’s evaluation of choices is like their own subjective evaluation, which is determined by their own utility function. This means that parents cannot ‘perfectly empathize’ with their children and evaluate their children’s choices only through the lens of their own utility function. As a result, they are inclined to inculcate their own values, attitudes and preferences in children, which leads to similarity in these personality traits between parents and their children. The model by Doepke and Zilibotti (2017) perhaps assume that parents are driven by altruism and a paternalistic motive. These parents try to influence their children’s preferences to increase the children’s life-time welfare. They are prepared to incur costs and trade-off their children’s utility during childhood for higher utility as adults. Instilling preferences and traits that foster success, e.g., that are conducive to human capital accumulation, does not necessarily imply that parents want their children to have preferences and traits that are similar to their own, especially if their own preferences do not foster success in life. Such traits include, for example, conscientiousness and an internal locus of control.

Gender assortative behaviour might give rise to additional intergenerational effects on caregiving when the offspring of the caregiver forms their preferences for caregiving after their parents. However, the evidence of such an effect is limited.

2.3 Caregiving as occupation choice.

Previous studies examining the supply of care study using evidence of the general social survey in the United States whether individuals whose parents provided care, either in the market or full-time in the home, are more likely to do care work themselves (Charles et al, 2015). Interestingly, although they find an association, they attribute it to the fact that parents influence occupational choice as opposed to the supply of care. Care instead if conceptualised as a vocational activity resulting from a personal calling, which applied particularly among women and differ across ethnic groups. This involves some moral duty to provide care which in different countries takes the form of ‘filial piety’.

2.4 Supply of care as a proxy for pro-social and other behaviours.

If care-working parents transmit more altruistic values, these values may in turn motivate pursuit of care work by their children. Wilhelm et al (2008) document that parents can influence their children’s generosity. Similarly, Dohmen et al. (2012), have documented parental-child correlations in measures of risk and trust attitudes. Some of those intergenerational correlation might well be influenced by other confounded such as parental cognitive abilities (Grusec and Hastings, 2007), this may underpin both pro-social preferences, alongside the probability of children to supply care.

2.5 Incentives for the supply of care

The effect of informal care supply on labour market participation suggests ‘no causal effect’ of labour market participation on the supply of care (Van Houtven et al., 2013). This can be in part the results of caregiving and employment being influenced by norms. However, we still know little about how such norms do attitudes change over time. For instance, Carmichael et al. (2010) find that future caregivers, are different from significantly from those who have never taken such a role. Hence, it is an empirical question whether changes in social expectation through role modelling exert an influence on the supply of care.

3. Data

The data sample comes from Health and Retirement Study (HRS) Survey. The HRS is a nationally representative longitudinal survey data on individuals (both respondent and their spouses) who were 51-61 years old in 1992. We use the HRS data in two different segments. First, we use data from 1994 through 2000 waves of the HRS for identifying the impact of Interim Payment Reform (IPS) on the care supplied by respondents to their parents. We restrict the first segment of our sample only till 2000, because IPS was replaced by Prospective Payment System in October 2000. The first segment of our sample contains 22,322 observations for 8573 individuals. Subsequently, we use the remaining segment of the sample that consists of waves from 2010 through 2018 of the HRS to find the evidence of intergenerational transmission of caregiving. We do this because it is less likely that the intergenerational transmission would occur immediately and that the caregivers who provided care to their parents during IPS reform need to attain a specific age in which an individual is more likely to need long-term care. The average age of the final segment of our data sample is 69 years old. We map the people who provided care to their parents during 1994 through 2000 and check whether these individuals receive care from their children or grandchildren should they need help with activity of daily living (ADL) or instrumental activity of daily living (IADL) related activities in later years of their life. We restrict our sample to at least one activity of ADL or IADL. In addition, we restrict our sample to individuals with at least one child. The final segment of our sample consists of 1,726 observations.

4. Empirical Strategy

4.1 Cross State Variation in the Policy Change

The IPS imposed a cap based on a blend of each home health agency cost in 1994 and the cost in the census division. Therefore, two agencies with the same cost in 1994 but in states within different census divisions with different utilization may have faced very different caps after the

IPS. The reasoning applied to an agency in a state can be applied to the average of agencies in that state, which allows us (following McKnight, 2004, 2006) to construct a measure of restriction in reimbursement of Medicare home health care at the state level. Therefore, with similar increasing trends between 1994 and 1997, states where aggregate home health agencies have average per patient costs below the census division in 1994 face a reimbursement limit that is less restrictive than the limit faced by states where, on average, the average per patient cost in 1994 is above the average per patient cost in their census division.

McKnight (2004, 2006) constructs a measure that captures a cross-state component of the variation implied by the IPS with the main focus of identifying the impact of the IPS introduced in 1997 by the BBA on the number of Medicare home care visits received by Medicare beneficiaries. Here we use the same measure to study whether the IPS affected caregiving to parents.

To create the variable used by McKnight (2004, 2006) to capture the cross-state variation in reimbursement, we need to use a measure of cost. Here we follow McKnight (2006) and identify the average number of visits per user as the most appropriate measure of cost to use. More formally, McKnight (2004, 2006) defines the following measure of restriction in reimbursement generosity:

$$\text{Restrictiveness}_{sc} = \bar{A}_S - \bar{A}_C \quad (1)$$

where \bar{A}_S is the average number of Medicare home care visits per user in 1994 in state s , and \bar{A}_C is the average number of Medicare home care visits per user in 1994 in state s 's census division. The restrictiveness measure is between -40.9 (Kentucky) and 34.7 (Utah).

4.2 Difference-in-Differences Specification

Equation 2 presents the difference-in-differences strategy that compares changes in care supply to parents in states that were more restricted by the IPS with changes in care supply to parents in states that were less restricted by the IPS:

$$H_{it} = \alpha_t + S_i + S_{it} + Post_t\beta + Post_t * Restrictiveness_{st}\gamma + e_{it} \quad (1)$$

H_{it} is the care supplied by respondents to their parents for the group in state i in year t ; α_t and S_i are year and state fixed effects, and S_{it} are state trends. $Post_t$ is a dummy equal to 1 for years 1998-2000 in which the IPS was in place (McKnight, 2006). $Restrictiveness_{st}$ captures state variation in the policy change; e_{it} is the error term. We cluster the standard errors at the state level (Bertrand, Duflo, Mullainathan, 2004). To test the plausibility of the identification strategy—requiring that, absent the IPS, trends in mortality rates would have been the same in more intensively treated states compared to less intensively treated states — We restrict our sample to years 1994-2000 and interact year effects with the Restrictiveness measure, conditioning on state and year fixed effects. We test the null hypothesis that the interactions of year dummies with the Restrictiveness measure are jointly 0. From this exercise we cannot reject that trend in caregiving to parents were the same for more and less restricted states in the pre-policy period.

4.3 Intergenerational Transfer of Caregiving Specification

Equation 3 presents the regression equation for the impact of caregiving to parents by respondents on the care provided to respondent by their children/grandchildren:

$$R_{ist} = \alpha_t + S_s + S_{st} + \gamma Caregiver + \beta X_{ist} + e_{ist} \quad (2)$$

R_{it} is the care received by respondents from their children/grandchildren for individual i in state s in year t (R takes the value 1 if Yes, otherwise 0); α_t and S_s are year and state fixed effects, and S_{st} are linear-trends. γ is the effect of intergenerational transmission of caregiving,

whereas the variable ‘Caregiver’ takes the value ‘1’ if a respondent provided care to her parent during the IPS reform, otherwise it equals ‘0’. X is a set of individual level controls, which includes demographic indicators, a set of chronic conditions, and a health status.

5. Results

Table 1 indicates summary statistics for the two different segments of the sample depicted in Panel A and Panel B, respectively. The average age of an individual during the IPS reform as represented in Panel A was 57 years old, whereas Panel B indicates that the average age of the older sample is 74 years. We also observe that females occupy a major share (64%) of respondents who provided care to their parents during the period of IPS reform. Also, the White Americans forms the majority in both the samples, however, their proportion decreased from 82% to 72% in the older sample. The Panel B also indicates that the average income of the older sample is close to \$40k annually and forms a majority of low- and middle- income populations. The Panel B sample also has close to 23% enrolled in Medicaid insurance. Finally, close to 2/3rd of the sample in Panel B has poor or worst health outcomes and close to 90% of individuals suffer from Arthritis. At least 1 in 4 individuals from the older sample suffers from the chronic health conditions.

Table 1: Summary Statistics (Panel A and B)

<i>PANEL A: HRS Sample, 1994 - 2000</i>					
Variable	Obs	Mean	SD	Min	Max
Helped Parent with Care	22,366	0.35	0.48	0	1
Sib Helped Parent with Care	19,450	0.18	0.38	0	1
Sib Financially Helped Parent	18,709	0.13	0.34	0	1
Age	22,366	56.8	6.9	23	88
Male	22,366	0.36	0.48	0	1
College Education	22,358	0.43	0.5	0	1
Married	22,333	0.76	0.43	0	1
Income	22,366	66205	86321	0	1836410
White American	22,353	0.82	0.39	0	1
Fair/Poor Health	22,361	0.21	0.41	0	1

PANEL B: HRS Sample, 2010 - 2018					
Variable	Obs	Mean	SD	Min	Max
Received Care from Children	1,726	0.53	0.5	0	1
Hours of Care Received from Children	1,726	3.44	6.35	0	48
Average Days/Month Cared by Children	1,726	7.8	15	0	94
Age	1,726	74.22	7.4	46	101
Male	1,726	0.31	0.46	0	1
College Education	1,726	0.3	0.46	0	1
Married	1,726	0.47	0.5	0	1
Income	1,726	39609	74055	0	1993984
White American	1,726	0.72	0.45	0	1
Fair/Poor Health	1,726	0.68	0.47	0	1
Mental Health Score (CESD) ¹	1,726	2.95	2.4	0	8
Diabetes	1,726	0.44	0.5	0	1
Stroke	1,726	0.23	0.42	0	1
Lung Disease	1,726	0.24	0.43	0	1
Arthritis	1,726	0.88	0.33	0	1
Cancer	1,726	0.26	0.44	0	1
Psychological Problems	1,726	0.38	0.49	0	1
Heart Disease	1,726	0.46	0.5	0	1
Private-LTCI	1,726	0.11	0.31	0	1
Medicaid	1,726	0.23	0.42	0	1

Note: The Panel A represents the sample of Health and Retirement Study (HRS) from 1994 to 2000, whereas the Panel B carry-forward the respondents from the Panel A and forms an older sample that includes observations from year 2010 through 2018. The Panel B sample includes only those respondents from the Panel A who need help with ADL and IADL activities between year 2010-2018.

Baseline Estimates: We initially estimate the model focused on the first segment of our sample that uses exogenous variation from the IPS Medicare reform to identify the impact of the IPS reform on the likelihood of respondents providing care to their parents. Table 2 represents the linear estimates in which Column 1 indicates the result from the simplest form of the model and it is not statistically significant. Column 2 adds state as well as year level fixed effects along with linear trends into the model. The results from Column 2 are statistically significant and indicates that the IPS reform was positively associated with the likelihood of providing

¹ Source: HRS RAND Longitudinal File, CESD stands for the Center for Epidemiologic Studies Depression (CESD) scale. The CESD score ranges from 0 to 8. Thus, the lower CESD score indicates better mental health outcome in the past week.

care to parents and increased the likelihood by almost 9%. Subsequently, we run a fully specified model that incorporate wide range of control variables into the model. Column 3 represents the estimates from a fully specified model indicating that the IPS reform was significantly associated with 4.6% increase in the likelihood of providing care to parents. We also run the model that adds individual level fixed effects in Column 4 and find that the effect magnitude increases to 7%, but it comes at the cost of reduction in the level of statistical significance to $p < 0.1$ from $p < 0.01$ in Column 3. Similarly, we also estimate the impact of IPS reform on the likelihood of sibling providing informal care and financial help to parents. Column 1 and 3 of Table 3 report the results from our fully specified diff-in-diff models indicating that the reform increased the probability of sibling providing informal care and financial help to parents by slightly greater than 3% each, respectively.

Next, we use another segment of our sample that includes data from the year 2010 through 2018 to identify the evidence of intergenerational transmission of caregiving. We attempt to identify if respondents provided care to their parents during IPS reform, then check whether or not they receive care from their own children should they need help to carry-out their day-to-day activities in the future, as evidence of the occurrence of intergeneration transmission of caregiving from one generation to another. Table 4 shows the baseline results for the intergenerational transmission of caregiving which consists of estimates obtained by incorporating various specifications into our baseline model. Column 1 of Table 4 represents the model without any added controls or fixed effects, and we find positive evidence of transmission of caregiving. Column 2 adds state and year fixed effects into our model which leads to change in the magnitude of the effect of respondent provided care to their parents in the past on the likelihood of receiving care from their children. Further, Column 3 adds various controls into the model along with state and year fixed effects making it a fully specified model for analysis in which we find that the strong and statistically significant evidence of the

presence of intergenerational transmission of caregiving. The estimates from Column 3 indicates that respondents are 5% more likely to receive care from their children if they provided care to their parents in the past. The robust standard errors are obtained after clustering at the state level. Finally, we also test our specification after adding linear trends into our model as represented in Column 4 of Table 4. We find that inclusion of linear change does not affect the magnitude of the effect of providing care in the past on receiving care from children in the future. The effect remains same that is slightly more than 5%.

Table 2: Impact of Medicare Interim Payment Reform on Caregiving to Parents

	Dependent Variable: Caregiving to Parents			
	(1)	(2)	(3)	(4)
IPS (Medicare Restrictions)	-0.0032	0.0916***	0.0462***	0.074*
	(0.00082)	(0)	(0.0586)	(0.0435)
State + Year FE & Lin Trends	NO	YES	YES	YES
Controls	NO	NO	YES	YES
Individual Fixed Effects	NO	NO	NO	YES
N	22,402	22,402	22,322	22,322
Number of Persons				8,573

*Significant at 10%; ** significant at 5%; *** significant at 1%, robust standard error clustered at the state level.

Note: The estimates are obtained using the sample from Health and Retirement Study, Waves 2-5 (1994-2000). Each coefficient indicates OLS estimates of equation (2). The variable IPS is a treatment variable, which is a binary indicator for whether Medicare restrictions were enforced in the state after 1997. We estimate the impact of IPS (Medicare restrictions) on the likelihood of providing care to parents in which Column (1) includes no variables other than treatment or IPS. Column (2) introduces state as well as years fixed effects into the model. Column (3) adds control variables namely age, gender, age², income, health status, marital status, race, and education. Column (4) includes individual level fixed effects.

Table 3: Impact of Medicare the IPS Reform on Caregiving to Parents & Fin Help by Sibling.

	Caregiving to Parents (Sibling)		Financial help to Parents (Sibling)	
	(1)	(2)	(3)	(4)
IPS (Medicare Restrictions)	0.0326***	0.112**	0.0331***	0.0295
	(0.0034)	(0.045)	(0.0056)	(0.0402)
State + Year FE & Lin Trends	YES	YES	YES	YES
Controls	YES	YES	YES	YES

Individual Fixed Effects	NO	YES	NO	YES
N	21,716	21,716	20,966	20,966
Number of Persons				7,791

*Significant at 10%; ** significant at 5%; *** significant at 1%, robust standard error clustered at the state level.

Note: The estimates are obtained using the sample from Health and Retirement Study, Waves 2-5 (1994-2000). Each coefficient indicates OLS estimates of equation (1). The variable IPS is a treatment variable, which is a binary indicator for whether Medicare restrictions were enforced in the state after 1997. We estimate the impact of IPS (Medicare restrictions) on i) the likelihood of providing care to parents by siblings and ii) financial help given by siblings. All models include state, year, and person level fixed effects, along with control variables namely age, gender, age², income, health status, marital status, race, and education.

Table 4: Intergenerational Transmission of Caregiving to Parents (ADL or IADL)

	Dependent Variable: Respondent receiving care from Children/Grandchildren			
	(1)	(2)	(3)	(4)
Caregiver	0.564***	0.0687**	0.0537**	0.0532**
	(0.028)	(0.034)	(0.0226)	(0.025)
State + Year FE	NO	YES	YES	YES
Controls	NO	NO	YES	YES
Linear Trends	NO	NO	NO	YES
N	1,726	1,726	1,726	1,726

*Significant at 10%; ** significant at 5%; *** significant at 1%, robust standard error clustered at the state level.

Note: The estimates are obtained using the sample from Health and Retirement Study, Waves 10-14 (2010-2018). Each coefficient indicates OLS estimates of equation (2). The variable Caregiver is a treatment variable, which is a binary indicator for whether a respondent provided care to their parents between 1994 and 2000. We estimate the effect for those who provided care to parents (between 1994 and 2000) on the likelihood of receiving care in the future (between 2010 and 2018) from their children as evidence of the presence of intergenerational transmission of caregiving. Column (1) includes no variables other than treatment variable (Caregiver). Column (2) introduces state as well as years fixed effects into the model. Column (3) adds control variables namely age, gender, income, health status, marital status, race, education, and existence of multiple chronic health conditions. Column (4) includes linear trends.

Intensive Margins: We also obtain more evidence of intergenerational transmission of caregiving after running our fully specified model on the intensive margins of the care provided to respondents by their children. We mostly consider two variables namely hours of care received by respondent per day and the number of days per month they receive such care from their children. Table 5 represents the results on the intensive margins. Both Column 1 and Column 2 uses our fully specified model that includes controls and state as well as year fixed

effects. We find that respondent who provided care in the past to parents is positively associated with the daily hours of care received from her children. However, these estimates from Column 1 of Table 5 are not statistically significant because this outcome variable, daily hours of care received from children, suffers from the measurement errors problems. Next, we report that the effect on the number of days per month care received from children is positive and statistically significant. Column 2 of Table 5 shows that if respondents provided care to their parents in the past then they are likely to see 1.26 days increase per month in the number of days care received per month from their children. Thus, these estimates indicate the evidence of the existence of the intergenerational transmission of caregiving in the US.

Table 5: Intergenerational Transmission of Caregiving to Parents (Intensive Margins)

	Hours of Care by Ch/Gchild	Freq of Care by Ch/Gchild
	(3)	(4)
Caregiver	0.352	1.264*
	(0.424)	(0.735)
State + Year FE	YES	YES
Controls	YES	YES
N	1,726	1,726

*Significant at 10%; ** significant at 5%; *** significant at 1%, robust standard error clustered at the state level.

Note: The estimates are obtained using the sample from Health and Retirement Study, Waves 10-14 (2010-2018). Each coefficient indicates OLS estimates of equation (2). The variable Caregiver is a treatment variable, which is a binary indicator for whether a respondent provided care to their parents between 1994 and 2000. We estimate the effect for those who provided care to parents (between 1994 and 2000) on the on the intensive margins (Hours of care per day provided as well as days/month such care is provided) from their children as evidence of the presence of intergenerational transmission of caregiving. All models include state as well as year fixed effects, and linear trends, along with control variables age, gender, income, health status, marital status, race, education, and existence of multiple chronic health conditions.

Robustness Check: Further to check the robustness of our main baseline estimates, we check whether the estimates obtain using the non-linear model such as probit model can be compared. We estimate the impact on the extensive margin using probit model and obtain the marginal effects to compare with the average treatment effect from our fully specified model from Table

4. The marginal effect, obtained using probit model, shown in Table 7 shows that the for those who provided care to their parents in the past are 4.5% more likely to receive care from their children. The marginal effect from Table 7 is slightly lower than the ATE from table 4. This is because we lose few observations because singleton observations are not considered by probit models. Nevertheless, the marginal effect is statistically significant, and it closely matches with the effect from our baseline estimates. Thus, our main results is robust to non-linear specification change.

Table 6 : Robustness Check: Intergenerational Transmission of Caregiving	
	Respondent receiving care from Children/Grandchildren
	(1)
<i>I) Probit Model</i>	
Caregiver	0.045** (0.021)
State + Year FE	YES
Control Variables	YES
N	(1) 1,710

*Significant at 10%; ** significant at 5%; *** significant at 1%, robust standard error clustered at the state level.

Note: The estimates are obtained using the sample from Health and Retirement Study, Waves 10-14 (2010-2018). Each coefficient indicates OLS estimates of equation (2). The variable Caregiver is a treatment variable, which is a binary indicator for whether a respondent provided care to their parents between 1994 and 2000. We estimate the effect for those who provided care to parents (between 1994 and 2000) on the likelihood of receiving care in the future (between 2010 and 2018) from their children as evidence of the presence of intergenerational transmission of caregiving. Column 1 uses probit model as a part of robustness check that include state as well as year fixed effects, and linear trends, along with control variables age, gender, income, health status, marital status, race, education, and existence of multiple chronic health conditions.

Heterogeneity: The US population differs across various socio-demographic characteristics. The level of urbanization in the east and the west coast areas of the US are different than the mid-west and southern regions and the populations vary across households and socio-economic characteristics in terms of caregiving at the family level. The data from the Health and Retirement Survey of the US includes extensive information on various socio-demographic characteristics. Therefore, we estimate our fully specified specification after including the interaction of our treatment variable with various observable socio-demographic characteristics

including gender, ethnicity, education, marital status, and health. Table 7 represents the heterogenous effect for the intergenerational transmission of caregiving from one generation to another across different socio-demographic groups. We find that male respondents who provided care to their parents between 1994 and 2000 are twice as likely as their female counterparts to receive the care from their children. One of the reasons to explain this finding is that males relatively have lower life-expectancy at birth than females and are more likely to need help with ADL or IADL activities earlier than female caregivers. In terms of education, we find that the intergenerational transmission of caregiving is more dominant among less educated household compared to college degree holders. This explains that highly educated individuals as opposed to less educated ones are better at planning as well as funding their care requirements rather than relying on family members to take care of such requirements. The effect for intergenerational transmission of caregiving is slightly lower in white Americans as compared to other ethnic groups. Furthermore, we find that single individuals are approximately three times more likely to receive care from their children than married individuals. This is because married individuals are mostly supported by their spouses given that the spouses are healthy. Thus, married individuals are more likely to rely on their partners than their children. Further, as expected, we find that individuals with poor health conditions are more likely to receive care from the children than their healthy counterparts. At last, we observe that people enrolled in Medicaid are more likely to witness intergenerational transmission of caregiving than others without Medicaid. Majority of our sample comprise of low-income individuals and almost a fourth of them have Medicaid insurance. However, we also find that the uptake of private-LTCI is negatively related to intergenerational transmission of caregiving, whereas individuals without private-LTCI witness positive intergenerational transmission.

Table 7 : Heterogeneity in Intergenerational Transmission of Caregiving

		Dependent Variable - Respondent receiving care from Child/Grandchild
State & Year FE		YES
Controls		YES
ALL		
(1)		(2)
Gender	Female	0.041
	Male	0.084* †
Education	High School/Less	0.065**
	Some/More College	0.028
Ethnicity	White	0.05*
	Others	0.062
Marital Status	Married	0.029
	Single	0.075**
Health	Good/Best/Excellent	0.029
	Fair/Poor	0.0655**
Medicaid	NO	0.033
	YES	0.125**
Private-LTCI	NO	0.067***
	YES	-0.071

*Significant at 10%; ** significant at 5%; *** significant at 1%, robust standard error clustered at the state level.

Note: The estimates are obtained using the sample from Health and Retirement Study, Waves 10-14 (2010-2018). Each coefficient indicates OLS estimates of equation (2). The variable Caregiver is a treatment variable, which is a binary indicator for whether a respondent provided care to their parents between 1994 and 2000. Column 1 shows different sub-populations across a specific socio-demographic characteristic. Column 2 represents the impacts across various subpopulations. All models include state as well as year fixed effects, and linear trends, along with control variables age, gender, income, health status, marital status, race, education, and existence of multiple chronic health conditions.

6. Mechanisms

In this section, we attempt to identify potential mechanisms driving the intergenerational transmission of caregiving. We find that the probability of respondent leaving a considerable amount of bequest increases for those who provided care to their parents between 1994 and 2000 than non-caregivers of that time. Table 8 reports the potential mechanisms in which we

find that respondent who cared for their parents between 1994 and 2000 are 7% more likely to leave bequest for their children between 2010 and 2018. We also plan to investigate whether or not respondent shared close bond with their children than their non-caregiver counterparts from 1994-2000. Thus, we plan to find impact on frequency of contact with children as well as probability of living in the vicinity of parents. We also try to find if individuals engaged with any form of charitable activities can make them influence their children to copy such behaviours as it is found to stimulate their children to follow similar behaviours. Thus, it can lead to intergenerational transmission of such values that can lead to the transmission of caregiving from one generation to another.

Table 8: Mechanisms Driving the Intergenerational Transmission of Caregiving

	Bequest10k	Provide Charitable Help
	(1)	(2)
Caregiver	0.065**	0.048**
	(0.026)	(0.019)
N	1,596	1,723
State & Year FE	YES	YES
Controls	YES	YES

*Significant at 10%; ** significant at 5%; *** significant at 1%, robust standard error clustered at the state level.

Note: The estimates are obtained using the sample from Health and Retirement Study, Waves 10-14 (2010-2018). Each coefficient indicates OLS estimates of equation (2). The variable Caregiver is a treatment variable, which is a binary indicator for whether a respondent provided care to their parents between 1994 and 2000. Column 1 shows the impact of whether or not a respondent provided care to their parents between 1994 and 2000 on the likelihood of leaving a bequest of at least \$10K for their children between 2010 and 2018. Column 2 represents the impact on the likelihood of spending time providing unpaid help to friends, relatives, and other entities. All models include state as well as year fixed effects, and linear trends, along with control variables age, gender, income, health status, marital status, race, education, and existence of multiple chronic health conditions.

7. Conclusion

This paper studies the intergenerational transmission of caregiving. We examine how the Interim Payment System (IPS) Medicare restriction reform impacted respondents' likelihood of providing care to parents, and we document that in turn exerts an intergenerational caregiving effect by estimating the effect on the likelihood of receiving care in the future from their children. We use panel data from the Health and Retirement Survey to analyse both the initial and the last segments of the sample to identify two different impacts. We document the evidence using the first segment of the HRS sample that the IPS Medicare restriction reform, which reduced the access to publicly subsidised home care, led to an increase in the likelihood of providing care to parents. The effect of the IPS reform is approximately 5% and statistically significant. Further, we track these respondents from the initial segment of the sample (1994-2000) to later years (2010-2018) to identify the presence of intergenerational transmission of caregiving in the family. We find that respondents' caregiving behaviour in the past influences their children to provide care, in the present, should respondents need help with ADL or IADL activities as they age. The magnitude of the effect is slightly greater than 5% and the estimates are statistically significant. We also estimate that the intergenerational transmission of caregiving effect is driven by multiple factors including bequest motives in the family, the level of interpersonal bonding in the family, and the level of helping or charitable involvement in the society. These results provide us with richer evidence of how individuals plan on funding their care requirements in the absence of adequate public support, and how individual caregiving decisions can exert signalling or role modelling effects on behaviours in other generations. Our study suggests evidence of inter-generational spill-overs of caregiving decisions, which if unaccounted for underestimates the effects of policy interventions (both positive and negative) influencing care across generations.

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Appendix