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Nursing Care of Parents in the 30s and 40s: How it Hinders the Careers and Marriages of Japanese Carers

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Abstract

Along with a delayed maternal age, more and more Japanese begin caring for elderly parents in their 30s or 40s. According to government statistics, the number of family caregivers in their 30s or 40s rose as much as 11% in the last five years, from 1.10 million in 2012 to 1.22 million in 2017. Since the 30s and 40s are typically regarded as a critical time for career development and family formation, early caring responsibilities could pose huge challenges for caregivers' life prospects.

Using a large-scale specially designed survey, this paper investigates how elderly parent caring responsibilities arise during the 30s or 40s and affect the earnings and marriages of caregivers when they enter their 50s. Our results indicated that early caring responsibilities have no significant impact on the earnings of either males or females, whereas they have a pronounced impact on the marriage prospects of young female carers. Young female carers in their 30s were almost 30 per cent less likely to marry. We also found that the usage of long-term care facility services alleviated the negative impact of early caring responsibilities on young women's marriage prospects.

Keywords: long-term family care, early occurrence, earnings, marriage

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1. Introduction

In traditional Japanese society, a senior female aged 50 or older is usually the main nursing care provider for elderly family members. Particularly, daughters-in-law and female spouses were the two most important sources of caregiving in the past.

Recently, however, there has been an increasing number of young carers, especially young male carers in their 30s and 40s caring for their elderly parents. According to government statistics, the number of carers in their 30s and 40s rose as much as 11% (or 120 thousand in number) in the last five years, from 1.10 million in 2012 to 1.22 million in 2017. The recent increase includes 120,000 young carers with nearly 56% being males (Figure 1a). The asymmetric rapid growth in male carers is suspected to be a result of weakening traditional nursing care arrangements (Ochiai 2004, Hirayama 2017).

Nowadays, roughly 5% of Japanese females in their 30s and 40s care for elderly family members. However, among young males the ratio is 3% (Figure 1b). When former caregivers are additionally considered, we find young carers are quite common in contemporary Japanese society.

In most advanced countries, ages 30 to 49 are generally supposed to be free of nursing care responsibilities. The parents of men and women of this age are more likely to be early-stage elderly, with very few in need of nursing care.

The increase in young carers, although a somewhat unexpected event, has developed alongside late childbirth to older mothers and late marriage. In fact, before 1980 late child-bearing (child-bearing after age 35) was rarely seen in Japan. The ratio of late child-bearing was under 5% for a long period. However, the ratio of late child-bearing climbed thereafter: up to 10% in the 1990s, over 10% in 2000s, over 20% in 2010s and has now reached a record high of 29% in 2016 (Figure 2). Put differently, it has taken only four decades for Japan to transit from an ‘early child-bearing society’ to an ‘ultra-late child-bearing society’.

Accordingly, the number of young carers is likely to grow at an accelerating pace in the near future, especially from 2040 onwards, when a large number of late child-bearing couples will enter the life-stage when they need care.

Young carers generally face more challenges than their older counterparts. For older carers, the physical burden, mental tension and induced early retirement are the main problems (Niimi 2008).

However, for younger carers, career development and marriage tend to be additional issues that need to be addressed.

First, Japan is well-known as a society that emphasises seniority and permanent employment. Most Japanese companies set the mandatory retirement age at 60 and begin screening candidates for a career track around the age of 30 (Imada and Hirada 1995). Therefore, work effort and performance in the 30s and 40s may be critical for long-term career development. Given that long-term care responsibilities hinder work effort and performance, young carers could lag behind on the career ladder and earn less when they enter their 50s.

Next, the 30s to 40s is a critical age for family formation. According to the 'Census 2015' conducted by the Bureau of Statistics, the percentage of married males is 26% in the late 20s, 51% in the early 30s, 62% in the late 30s, 65% in the early 40s, 68% in the late 40s and 72% in the early 50s. For females, the marriage rate is 36% in the late 20s, 61% in the early 30s, 70% in the late 30s, 72% in the early 40s, 73% in the late 40s and 75% in the early 50s[1]. Although both males and females are highly likely to get married in their 30s and 40s, female marriages are more heavily concentrated in the 30s.

In sum, the 30s and 40s are a career and marriage crossroads. As Sangu (2017) warned in her qualitative study of young carers, taking care of elderly parents in the 30s and 40s could undermine carers' career development and family formation.

Nevertheless, there have been very few empirical studies testing the above hypotheses. The lack of sufficient academic concern about this newly arising issue, as well as difficulty collecting suitable data from young carers, could be the main reasons.

The present study administered a large-scale specially designed survey to assess the disadvantages faced by young carers. Specifically, this paper investigates how caring responsibilities that arise during the 30s and 40s affects caregivers' earnings and marriage prospects when they enter their 50s.

2. General Backgrounds and Institutional Arrangements

With the highest percentage of senior citizens in the world, Japan has been struggling to meet the surging care needs of its ageing population for over half a century.

Nevertheless, until the late 1990s, the burden of nursing care primarily fell on the shoulders of family members. Public nursing care facilities were a highly regulated welfare business, and many families suffered from a chronic shortage of affordable facility services (Fukui and Iwamoto 2006). Without sufficient social support, family caregivers generally had to tolerate many months or even

[1] Source: National Institute of Population and Social Security Research (Japan) 'Pamphlet of Demographic Statistics 2019' (Table 6-25).

years of exhausting care work. This tough situation has often resulted in the so-called 'KAIGO JIGOKU' (long-term care hell) in families (Suzuki, Ogura and Izumida 2008). Shocking news such as abuse of the elderly and suicides of caregivers have been reported frequently in the mass media (Ogura, Suzuki and Zhou 2005).

To relieve the burden of family caregivers, two important support systems were introduced around 2000: the Long-Term Care Insurance system (hereafter LCI) and Long-Term Care Leave system[2] (hereafter LCL).

Together with the introduction of the LCI system in 2000, funding for nursing care services was enrichened considerably, either through collecting insurance premiums from all citizens over 40 or through injecting larger public subsidies. Meanwhile, bold deregulation reforms were enacted. These reforms included permitting for-profit companies to enter the at-home care market and letting consumers contract with service suppliers directly (Zhou and Suzuki 2006).

Following the introduction of LCI, the expansion of nursing care services has been very impressive (Campbell, Ikegami and Martin 2010). The total consumption of LCI services has grown threefold in the past two decades, from 3.6 trillion Yen (about US$32.7 billion) in 2000 to 10.8 trillion Yen (about US$98.1 billion) in 2017[3]. The at-home care services sector has sustained especially rapid growth. Meanwhile, the facility services sector has grown at only a mild pace. There are two main reasons for that: restrictions on the entry of facility services suppliers and the shortage of facility nursing workers (Zhou 2009).

As a result, facility services still suffer from severe shortages. For instance, in March 2014, there were 524,000 applicants on the waiting list for '*TOKUYO'* (Intensive-Care Senior Citizen's Home) services, which even outnumbered the monthly average of 489,000 *TOKUYO* users. Due to the long-lasting undersupply of facility services, at-home care remains the dominant provision in contemporary Japan society.

In 2018, there were 5.18 million senior citizens (accounting for 75.2% of the citizens certified as in need of care) using some kind of LCI service. Meanwhile, only 1.29 million (or 24.8% of all users) were using facility services.

Fortunately, owing to the LCI system, at-home caregivers today can use various kind of at-home care services, such as home-helps, home-bathing, nurse-visits and some quasi-institutional services at low prices. Out-of-pocket payments for these authorised care services comprise only 10% of the total cost.

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[2] This system was launched as a part of the amended Child Care and Family Care Leave Act (FCLA).
[3] Source: Announcement of HLWM.

In addition to the LCI system, the LCL system was another important support enacted in 1999. LCL aims to provide workplace support to employed caregivers to help them balance caring responsibilities and salaried work. Specifically, those people eligible[4] are granted 93 days paid leave[5] maximum. Since 2016, caregivers have also been permitted to split their paid leave into several shorter periods instead of one extended period. Moreover, employees engaged in long-term family care have the right to ask for 'family care leave on a daily basis' (5 days per year maximum), 'shortened work hours' and 'exemption from overtime work and holiday work'.

However, the uptake of LCL provisions is not as wide-spread as LCI service use. A recent government survey indicated that only 4.3% of employed caregivers use some LCL provisions. Even among young working carers aged between 30 and 49, only 5.8% use LCL provisions (source: 'Basic Survey on Employment Structure 2017' conducted by the Ministry of Internal Affairs and Communications).

3. Research Approach and Hypotheses

The best approach to verifying the disadvantages that young carers face is a longitudinal survey of caregivers. Employment outcomes and marriage prospects at various life-stages could be measured to compare the effects of caring responsibilities on the treatment group (young carers) with the comparison group (older carers or non-carers). Unfortunately, it is costly and almost impossible to obtain longitudinal survey data for carers, especially young carers.

This paper tries to cope with the limitations of cross-sectional data by focusing on a particular age group of caregivers. We chose to focus on carers or former carers aged 50 to 59, an age phase when career development and family formation are mostly settled. We then took those who started caring for their elderly parents at a relatively young age (30s–40s) as the treatment group, and those who began giving nursing care during an older age (50s) as the comparison group.

Our major hypotheses were as follows.

(1) **Hypothesis of career disadvantage**: the early occurrence of caring responsibilities will have a negative impact on the career development of carers. Male carers would face more pronounced

[4]Eligible persons generally refer to the workers being employed on a regular base. The following employees are beyond the coverage of the LCL: (1) On-call workers, (2) fixed-term workers with less than one year tenure, (3) fixed-term workers whose contracts are planned to be terminated within 6 months after returning from the leave. Additionally, employee who meets any one of the following conditions can be excluded from the coverage based upon specific labor-management agreement: having less than one year tenure, being employed less than two days per week, to be terminated a contract within 6 months after returning from the leave.

[5] During the long-term care leave period, the caregivers are eligible for an employment insurance benefit that covered up to 67 percent of their salaries.

career disadvantages than females due to being more active in the occupational field.

(2) **Hypothesis of a lower likelihood of marriage**: early caring responsibilities will have a negative impact on the marriage prospects of carers. Female carers' marriageable age and child-bearing age fall into a narrower range than male carers; therefore they likely face a larger difficulty getting married if caring occurs at an earlier age than usual.

(3) **Hypothesis of supportive systems' boost**: the supportive systems of LCI and LCL alleviate the negative consequences of early caring responsibilities on carers' career development and marriage prospects.

4. Data

This study used data collected from 808 Japanese citizens aged 50–59 who were providing or had provided nursing care for their parents. Specifically, these samples were taken from the 'Survey on Work and Long-Term Family Care' (SFC), a large-scale nationwide survey conducted by the Japan Institute of Labour Policy and Training (JILPT) in February 2019.

SFC was originally designed to investigate family caregivers' living and work conditions in Japan. An online survey was adopted to collect observations efficiently. As we mentioned above, family caregivers account for only several percent of the population. Using a traditional paper-based survey would mean a lot of time and money would be wasted screening the caregivers. An online survey is more cost-efficient, although one shortcoming is that some caregivers may be less receptive to online surveys. In fact, we wondered whether the SFC would suffer from a low response rate from non-working females, people of medium to high earnings, and the married. We will mention these suspected biases later.

4,000 valid samples were obtained in three stages. First, we recruited individuals as prospective investigation targets from monitored members aged 20-69 of Lakuten Insight Inc., a professional internet survey company contracted to JILPT. Second, we sent messages to these individuals to ask them to complete the survey online. When the number of eligible respondents reached our target number of observations, 6,418 respondents in this case, we terminated the survey. Finally, we selected 4,000 valid samples from the 6,418 observations, adjusted according to the age, gender and employment status of the 'Basic Survey on Employment Structure 2017'.

In addition, the number of observations was further reduced to 808 in three stages. First, we excluded all respondents who were taking care of families other than their own parents (n=1,472). Next, respondents aged under 50 or over 60 were excluded (n=1,703). Finally, we dropped 17 observations who were too old to be regarded as real children of their parents. The basic characteristics of the 808 observations are summarised in Appendix Table 1.

5. Descriptive Statistics

5.1 Early Occurrence of Care Responsibilities and Earnings in the 50s

The employment rate in the 50s seemed barely correlated with the early occurrence of caring responsibilities. Put differently, the percentage of people with no earnings did not differ very much between those who began offering family care in their 30s and 40s (namely 'young carers') and those who began offering family care in their 50s (namely 'older carers'). The specific ratio of no-earnings was 16.5% versus 17.4%, for young carers and older carers respectively. Contrary to our expectations, we found that older carers had a one percentage point higher ratio of no-earnings than the young carers (Table 1).

The average earnings and the earnings distribution in the 50s between young and older carers were also very similar. Their average annual earnings were almost the same level: 3.68 million Yen (about US$33,400) for young carers and 3.67 million (about US$33,400) Yen for older carers (Table 1). Taking a further look at the Kernel density estimation of earnings, we found the same kind of similarity. The density curves of young and older carers closely overlapped with each other and both had a centred point of around 1 million Yen (about US$9,100) (Figure 3).

However, the percentage of family caregivers with no earnings in their 50s was 12.6% for males and 35.7% for females, according to 'Basic Survey on Employment Structure 2017'. In other words, the online survey recruited a disproportionally low percentage of non-working females.

Additionally, both young and older carers seemed to have much lower average earnings than the national average in the early 50s, which is 7.01 million Yen (about US $63,700) for male workers and 4.17 million Yen (about US $37,900) for female workers (Source: 'Wage Census 2017' conducted by Ministry of Health, Labour and Welfare). We suspected twofold reasons accounted for these huge earnings discrepancies between SFC respondents and the census data. The soundest reason is that caring responsibilities hurt earnings, in both young carers and older carers. The second reason is the over-representation of low-earners in the SFC sample who are more likely to be attracted by the pecuniary reward of online surveys.

5.2 Occurrence of Care Responsibility and Marriage Rate in the 50s

Marriage rates in the 50s seem to be highly correlated with early caring responsibilities. The marriage rate was 6 percentage points lower for young carers than older carers (55.9% versus 61.8%). Young female carers who began caregiving in their 30s had a marriage rate as low as 39.1% (Table 2).

Young carers also lagged behind in average marriage age. The average marriage age was 29.6

years for older carers, 30.5 years for young carers, and 33.3 years for female young carers who began caregiving in their 30s (Table 2). The Kernel density estimation of marriage age exhibited an even clearer tendency to late marriage among female young carers who began caregiving in their 30s (Figure 4).

In addition, both older carers and young carers seem to have much lower marriage rates in their 50s than the national average, which was 71.5% for males and 75.2% for females (Source: 'Census 2015'). However, we were unclear about whether this was simply because caring responsibilities inhibited marriage or because the SFC sample over-represented single people, or both.

6. Estimation Results

6.1 Estimation of Annual Earnings

Using the standard Tobit model, Table 3 shows the estimation results of annual earnings in the 50s by controlling for a set of important personal and family characteristics, as well as a bunch of dummy variables concerning usage of support systems.

As a whole, we found no evidence supporting the 'hypothesis of career disadvantage' (Case 1). For males, caring responsibilities in their 30s and 40s seemed to drive down earnings to some extent, but the earnings difference between young and older carers were not statistically significant (Case 3). For females, caring responsibilities in their 30s surprisingly drove up their earnings (Case 2)[6].

'Hypothesis of support systems' boost', on the other hand, was partially supported by the estimation results. Carers working in companies with 'family care leave on a daily basis' (support system 2) or 'shortened work hours' (support system 3) seemed to receive higher earnings than their counterparts without those support systems. In contrast, LCI and two other LCL provisions seemed to have no significant effect on earnings.

6.2 Estimation Results of Possible Marriage

Table 4 presents the estimation results of possible marriage while the set of covariates were controlled.

The estimation results indicated that the 'hypothesis of a lower likelihood of marriage' was fully supported in the case of female carers. Specifically, female young carers were 10.8% (40s carers) to 28.8% (30s carers) less likely to be married when they turned 50 than female older carers (Case B).

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[6] Possibly because most Japanese women are non-regular workers and are beyond the scope of age-based remuneration system, their earnings might be affected only when the long-term care is on-going. If the care occurred in their 30s or 40s, they would more likely be liberated from care responsibility and earn more payment when they turn 50s.

These results coincided with the descriptive statistics shown in Table 2 and Figure 4: females with early caring responsibilities, especially in the 30s, had dramatically lower marriage prospects. For male carers however, providing parental nursing care in their 30s or 40s had no significant impact on their opportunities for marriage (Case C).

In addition, the use of long-term care facility services boosted the marriage potential of both female and male carers by 20.8% and 16.2% respectively. Users of at-home care services also seemed to have a slightly (but statistically insignificant) higher chance of marriage.

6.3 Robustness Test

Multiple other models were estimated to test the stability of the baseline models' estimation results.

First, we replaced the standard Tobit model with the Heckman selection model when estimating earnings, with marital status and the child dummy variable added as covariates during the first-step selection function. The results of the Heckman selection model were very similar to those of the Tobit model. Moreover, we found that early caring responsibilities had no significant effects on carers' work participation.

Second, we expanded explanatory variables to include occupation, unearned income and the prefecture of residence in estimations of both earnings and possible marriage. The results obtained from the expanded models were also in accordance with those we obtained in Table 3 and Table 4.

7. Concluding Remarks

This paper used a large-scale specially designed online survey to analyse whether early caring responsibilities for parents during the 30s and 40s had an adverse effect on the earnings and marriage potential of caregivers when they entered their 50s.

Our estimation results indicated that early caregiving has no significant impact on either male or female earnings, whereas it had a pronounced impact on the marriage prospects of female carers. Early caring responsibilities among young females in their 30s drove down their marriage prospects by almost 30 percent.

Nevertheless, we found that the usage of long-term care facility services alleviated the negative consequences of early caring responsibilities to a significant extent. Moreover, support systems in the workplace such as 'family care leave on a daily basis' and 'shortened work hours' have a positive effect on carers' earnings.

In sum, through comparing younger and older carers' earnings and marriage outcomes we found that young female carers face much greater difficulty getting married. Although early caregiving had no adverse effects upon earnings, we hesitate to conclude that it does not damage young carers' career

development. The online survey may suffer from an inherent sample selection bias; therefore further analysis based on a paper-based random survey should be conducted. Other proxies of career attainment such as managerial promotion should also be considered.

In addition, due to the data limitations, non-caregivers went beyond the research scope of this paper. Family carers were more likely to face dramatic disadvantages in career attainment than non-carers, and young female carers especially were more likely to suffer from delayed or no family formation than non-carers. We leave the above puzzles for further investigation in the future.

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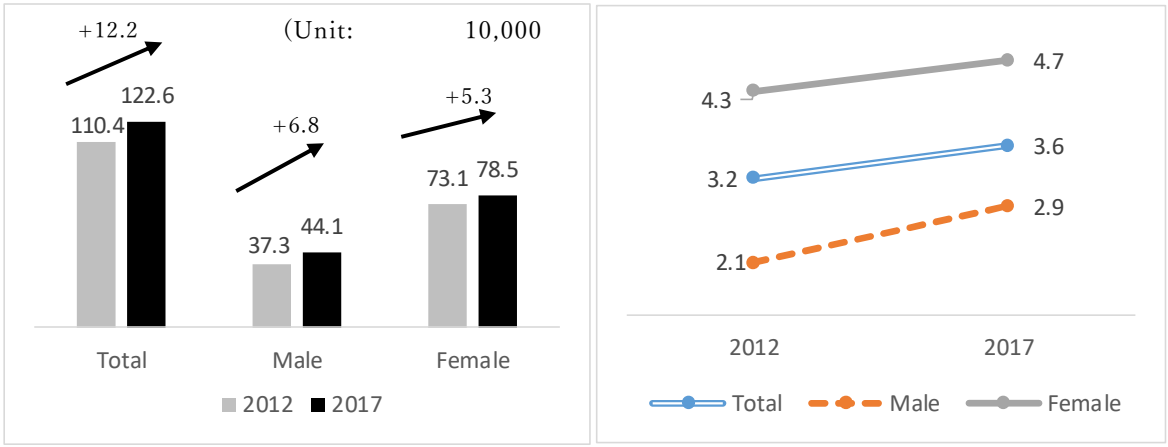
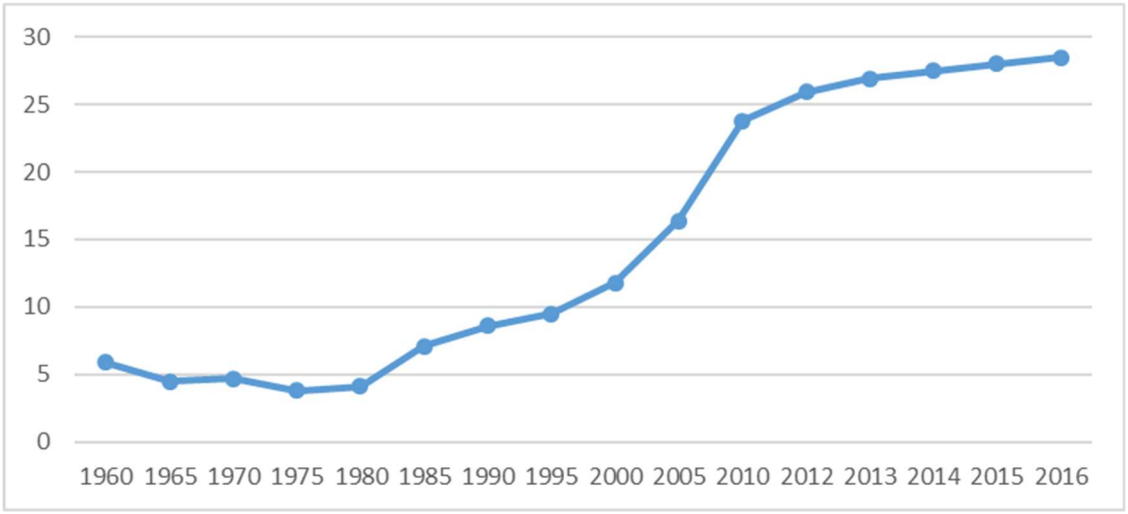
Figure1a. Number of carers in 30s– **Figure1b. Percentage of carers among the 30s–40s**



Source: 'Basic Survey on Employment Structure (*Shugyo Kozo Kihon Tokei Chosa*)' conducted by Ministry of Internal Affairs and Communications (MIC), Japan.

Figure 2. Percentage of new births by women aged 35 or over (1960–2016)



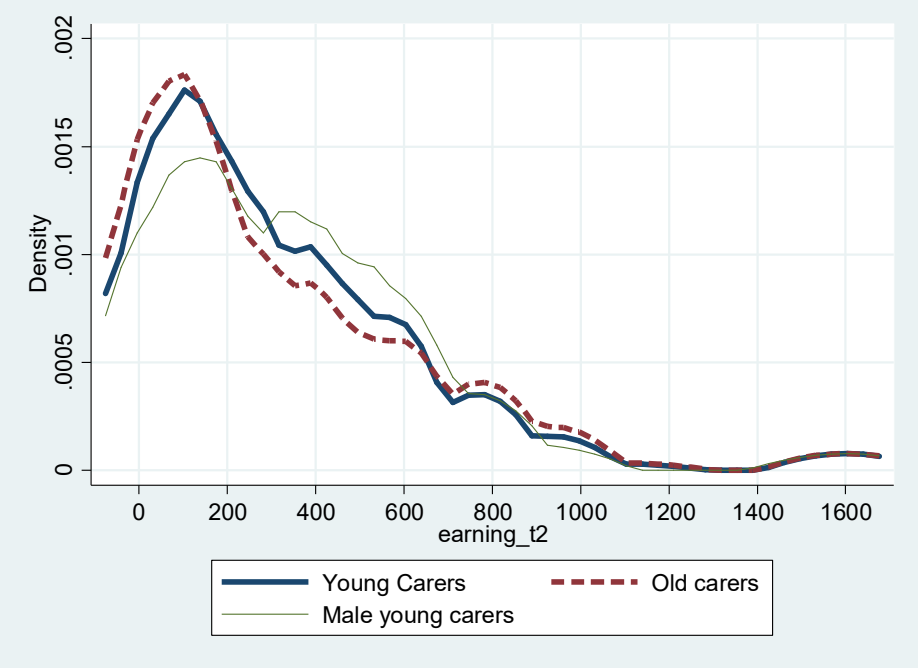
Source: 'Vital Statistics (*Jinko Doutai Chosa*)' conducted by Ministry of Health, Labour and Welfare (MHLW), Japan.

Table 1. Annual earnings by gender and age phase of care occurrence in 50s

	Care occured in 30s or 40s (Young carers)			Care occurred in 50s (Old carers)			Subgroup 1: female on-going care	Subgroup 2: male on-going care
	Total	Female	Male	Total	Female	Male		
Zero （No earnngs） (%)	16.5	16.5	16.5	17.4	19.1	14.7	18.9	14.0
Less than 3M Yen(%)	42.6	47.1	37.1	43.5	45.8	40.0	45.3	38.4
3M～6M Yen(%)	26.3	21.8	31.8	22.2	21.8	22.9	21.1	18.6
6M Yen or more(%)	14.6	14.6	14.7	16.9	13.4	22.4	14.7	29.1
Average earnings (10,000Yen)	368.3	349.7	390.8	366.5	334.7	413.1	339.3	462.2
Sample size	376	206	170	432	262	170	190	86

Note: Average annual earnings is statistics limited to the working people.

Figure 3. Kernel density estimation of annual earnings (Unit: 10,000 Yen) in 50s



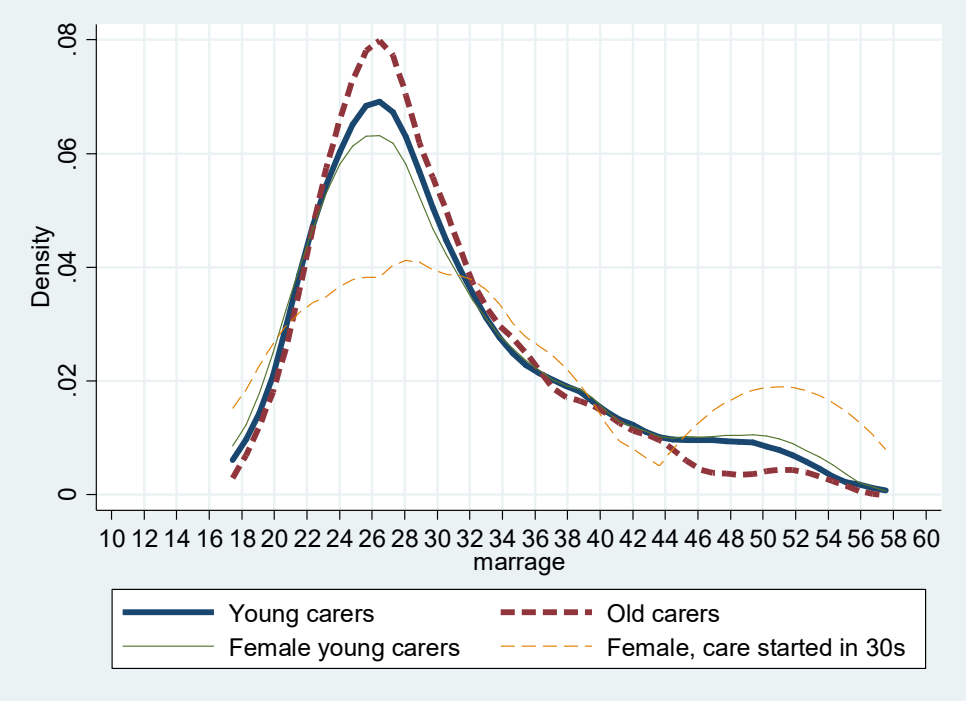
Note: Estimation results limited to the working people.

Table 2. Marital status in 50s by gender and age phase of care occurrence

		Care occured in 30s or 40s (Young carers)			Subgroup: female, care started in 30s	Care occurred in 50s (Old carers)		
		Total	Female	Male		Total	Female	Male
Single (%)		44.1	44.7	43.5	60.9	38.2	36.6	40.6
Married (%)		55.9	55.3	56.5	39.1	61.8	63.4	59.4
Marriage age	below age 29 (%)	32.7	32.0	33.5	17.4	38.0	38.5	37.1
	aged 30～34(%)	8.8	7.3	10.6	4.3	11.8	11.5	12.4
	aged 35 or over(%)	14.4	16.0	12.4	17.4	12.0	13.4	10.0
Average marriage age		30.5	30.7	30.2	33.3	29.6	29.8	29.3
Sample size		376	206	170	23	432	262	170

Note: Average marriage age is statistics limited to the married.

Figure 4. Kernel density estimation of marriage age in 50s



Note: Estimation results limited to the married.

Table 3. Estimation of annual earnings (Standard Censored Tobit Model)

	Case1：Total			Case2：Female			Case3：Male		
	Coef.	Std. Err.		Coef.	Std. Err.		Coef.	Std. Err.	
Annual earnings when care started	0.947	0.019	***	0.905	0.025	***	1.009	0.028	***
Age phase of care occurence（Base=50s）									
30s	19.214	25.198		64.967	38.157	*	-6.733	32.934	
40s	-0.017	12.316		24.433	16.383		-24.549	18.273	
Female	-10.012	10.798		0.000	(omitted)		0.000	(omitted)	
Educational attainment（Base=high school or less）									
Junior college	-19.083	13.141		-24.814	16.962		-20.676	20.136	
College or graduate school	15.565	12.970		39.028	17.123	**	-15.451	19.295	
On-going care involvement	-20.769	11.873	*	-18.172	15.515		-31.277	18.241	*
Deeply involved in care	7.708	11.304		-6.020	14.230		35.845	18.186	**
The cared：dementia	-0.146	10.966		7.671	14.257		-6.213	16.667	
The cared：need medical treatment	-7.534	14.064		-11.418	18.761		-6.798	20.659	
Span of care involvement (years)	2.381	1.779		-1.917	2.406		6.313	2.602	**
Never live separately with parents	4.253	12.237		19.009	16.072		-9.012	18.363	
Utilization of long-term care insurance services (Base＝None)									
Ever used long-term care facilities	-12.190	17.712		-6.241	23.235		-18.318	26.587	
Ever used at-nome care services, etc	-7.298	17.238		8.317	22.483		-22.399	26.019	
Supportive system 1 in the workplace	-41.364	21.219	**	-51.314	28.022	*	-36.656	31.943	
Supportive system 2 in the workplace	58.399	23.441	***	97.905	30.420	***	-8.512	36.575	
Supportive system 3 in the workplace	47.572	20.551	**	67.471	29.756	**	56.688	29.721	*
Supportive system 4 in the workplace	9.192	21.974		-58.795	32.208	*	77.330	30.910	***
Constant	-0.655	20.299		-12.322	26.067		-0.645	28.805	
Pseudo R2	0.1336			0.1311			0.1426		
Log likelihood	-4377.9			-2501.5			-1860.2		
Sample size	808			468			340		
left-censored observations	137			84			53		

*, **, *** Significant at the 10, 5 and 1% levels, respectively.

Notes: Supportive system 1: Long-term care leave on a continuous period (93 days in maximum)
Supportive system 2: Family care leave on a daily basis (5 days per year in maximum)
Supportive system 3: Shortened work hours
Supportive system 4: Exemption from overtime work and holiday work.

Table 4. Estimation of marriage probability (Probit Model)

	CaseA：Total			CaseB：Female			CaseC：Male		
	dy/dx	Std. Err.		dy/dx	Std. Err.		dy/dx	Std. Err.	
Age phase of care occurence（Base=50s）									
30s	-0.062	0.083		-0.288	0.125	**	0.157	0.114	
40s	-0.030	0.040		-0.108	0.053	**	0.046	0.060	
Female	0.030	0.035							
Educational attainment（Base=high school or less）									
Junior college	0.129	0.042	***	0.143	0.054	***	0.131	0.067	**
College or graduate school	0.098	0.042	**	0.039	0.056		0.192	0.062	***
On-going care involvement	0.030	0.039		-0.071	0.051		0.165	0.059	***
Deeply involved in care	-0.101	0.036	***	-0.129	0.045	***	-0.078	0.059	
The cared：dementia	-0.012	0.036		-0.001	0.046		-0.032	0.055	
The cared：need medical treatment	0.044	0.046		0.020	0.061		0.070	0.069	
Span of care involvement (years)	-0.007	0.006		0.006	0.008		-0.022	0.009	***
Never live separately with parents	-0.015	0.040		0.001	0.052		-0.044	0.060	
Utilization of long-term care insurance services (Base＝None)									
Ever used long-term care facilities	0.208	0.058	***	0.208	0.077	***	0.162	0.088	*
Ever used at-home care services, etc.	0.090	0.057		0.076	0.076		0.077	0.087	
Supportive system 1 in the workplace	-0.062	0.070		-0.012	0.092		-0.114	0.108	
Supportive system 2 in the workplace	0.050	0.079		0.003	0.103		0.068	0.127	
Supportive system 3 in the workplace	0.057	0.069		0.014	0.100		0.069	0.103	
Supportive system 4 in the workplace	-0.033	0.074		0.030	0.108		-0.035	0.108	
Pseudo R2	0.0422			0.0588			0.0639		
Log likelihood	-523.7			-296.8			-216.6		
Sample size	808			468			340		

*, **, *** Significant at the 10, 5 and 1% levels, respectively.

Notes: Supportive system 1: Long-term care leave on a continuous period (93 days in maximum)
Supportive system 2: Family care leave on a daily basis (5 days per year in maximum)
Supportive system 3: Shortened work hours
Supportive system 4: Exemption from overtime work and holiday work.

Appendix Table 1. Descriptive statistics of main variables

	Total	Female	Male
Percentage of people with no earnings	17.0%	18.0%	15.6%
Average annual earnings (10,000 Yen)	367.4	341.4	402.1
Married	59.0%	59.8%	57.9%
Educational attainment: high school or less	35.8%	36.5%	34.7%
Junior college	29.7%	30.8%	28.2%
College or graduate school	34.5%	32.7%	37.1%
On-going care involvement	51.5%	60.0%	39.7%
Deeply involved in care	34.7%	39.1%	28.5%
The cared：dementia	43.9%	46.4%	40.6%
The cared：need medical treatment	17.7%	16.7%	19.1%
Span of care involvement (years)	3.7	3.8	3.5
Never live separately with parents	24.0%	23.9%	24.1%
Usage of long-term care insurance services:None	11.6%	11.8%	11.5%
Ever used long-term care facilities	44.1%	42.7%	45.9%
Ever used at-home care services, etc.	44.3%	45.5%	42.6%
Supportive system 1 in the workplace	18.9%	18.2%	20.0%
Supportive system 2 in the workplace	15.2%	15.0%	15.6%
Supportive system 3 in the workplace	15.8%	13.5%	19.1%
Supportive system 4 in the workplace	10.3%	9.4%	11.5%
Sample size	808	468	340

Note: Average earnings is statistics limited to the working people.

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