

Reforming Public Long-term Care Insurance and Caregiver Burden in Japan: How to Relieve Care Cost

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Abstract

Public long-term care insurance was first introduced in Japan in 2000. Along with increasing the volume of benefits provided by insurance, a recent reform of public long-term care insurance de-emphasized home care for elderly individuals and eliminated coverage for housing and food expenses. At the same time, income has decreased in elderly households and the income gap among Japanese has gradually expanded. Introduction of policies reducing the number of hospital beds and promoting home care settings is narrowing individuals' opportunities to receive insurance benefits while simultaneously increasing the economic burden placed on caregivers.

In this paper, I aim to identify the possible actions caregivers faced with increasing care costs may take in order to alleviate their care burden, and clarify whether private long-term care insurance can relieve caregiver burden. Econometric analysis revealed that 1) for those caring for elderly relatives, withdrawing money from savings, changing jobs, and purchasing private insurance have no significant effect on net income level; 2) younger individuals tend to change jobs in order to improve their situation; 3) changing jobs is selected significantly more often than withdrawing money from savings in home care cases; 4) those not requiring care tend to favor high premium-high reimbursement private long-term care insurance; and 5) private long-term care insurance plans providing sufficient compensation and approval-related benefit schemes may be favored by caregivers

Preparing for the huge costs of long-term care by saving or changing jobs may be quite unpredictable under the current trends of economic instability and differences in income expansion. Therefore, the role of private long-term care insurance in supplementing public insurance may be significant. However, no new private long-term care insurance plans exist in the market. It is therefore necessary to examine the reform of public long-term care insurance and introduce flexible measures such as cash payment schemes.

[**Keywords**] public long-term care insurance, private long-term care insurance, supplemental insurance, savings, multinomial logit model

1. Introduction

Public long-term care insurance was introduced in Japan in April 2000. Under the new system, the volume of benefits has expanded, as the supply system was established over time. The data from the Ministry of Health, Labour and Welfare indicate that payments reached some 6,500 billion yen in 2006, including both care services (totaling insurance benefits + public payment + self-coverage) and preventive benefits. Although this situation suggests that the public long-term care insurance system has come into maturity, it also reveals a serious problem in the increasing

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financial burden needed to sustain care services, which will at some point be necessary for all individuals. “Incremental burdens of long-term care” refers not only to the increasing costs and insurance premiums for those receiving care, but also to the increased financial and emotional burdens caused by changing household structure, the shifting balance between work and home life, and fluctuating income levels, and the resulting actions taken by those receiving and giving care.

In principle, public long-term care insurance (through an insurance scheme) serves to support individuals in the event of health problems during the course of aging. In reality, however, the economic burdens accrued by persons requiring care are not necessarily paid completely by the individual receiving the care—burden is often transferred to children, grandchildren, siblings, and other relatives. Although care services are provided to those requiring care based on the principle of benefits in kind, it is clear that the essence of care services lies in relieving families’ burdens (both financial and non-financial). The current public long-term care insurance policy, however, does not allow family members to receive direct cash payment due to mistrust of families’ and spouses’ interests.

Consequently, the issue of care burden is more precisely an issue of burden on the families (or household members) of persons requiring care. Therefore, the question of how to relieve this burden has become an important focus of current discussions on public long-term care insurance.

The present study aims to clarify the extent to which household members of persons receiving public care services feel financially burdened, and what specific measures household members can take to alleviate this burden. In particular, if the costs of public care services are large, several financial options are available. Among these, this study seeks to examine the plausibility and effectiveness of private insurance as a supplement to public long-term care insurance by clarifying the practicality of private insurance compared to other options such as withdrawing savings money and changing jobs.

In the first section of this article, I will review recent changes in Japan’s household structure (especially in elderly households) and income level, and other basic values concerning trends in long-term care costs. In the second section, I will examine the progress of public long-term care insurance in Japan and the actual status of care costs. The third section presents simplified models of caregivers’ behavioral responses to care burden, and the results of econometric analysis using individual data obtained through an original questionnaire survey, as well as several policy implications, will be discussed in the fourth section. I will conclude with a discussion of requirements for future public policy and private markets in response to the expected expansion of care burden based on the analytical results.

I. Socio-economic Circumstances of Long-Term Care in Japan

In the 8 years since public long-term care insurance was established in Japan, the care service supply system has developed steadily; however, fears have emerged that the financial resources for this scheme will soon run short due to expanding care costs. This is not only due to an increase in the number of persons requiring care, but also because demand for care has expanded along with the development of the care service supply system and improvements in the availability of services. It must also be noted that elderly households of singles and couples are increasing in number in Japan, and, as the average income level of elderly households in Japan is declining, these households are often barely able to survive on the maximum level of care services.

Table 1 shows changes in Japan’s household structure stratified by household type. Since 1972, the total number of households has increased consistently. The largest cause for this increase is expansion in elderly households. Table 2 shows changes of elderly households. Clearly, the rapid increase in elderly households observed since 1975 has comprised primarily households of singles or couples only. Although not all elderly households (of singles or couples only) have health problems or require care, many potential care recipients live by themselves or with only their spouse to support them. In this sense, it can be said that Japan’s rapidly aging society is less a problem of aging individuals than of aging households and families.

Table 1. Annual changes in number of households (by household type)

Year	Total households	Aged households	Mother and child	Father and child	Other households
Estimated number (Unit: thousand households)					
1972	31,925	1,380	363	74	30,108
73	32,314	1,521	359	76	30,359
74	32,731	1,520	381	81	30,750
75	32,877	1,089	374	65	31,349
76	34,275	1,282	416	70	32,508
77	34,414	1,288	399	82	32,645
78	34,466	1,368	432	82	32,584
79	34,869	1,577	442	78	32,771
80	35,338	1,684	439	95	33,121
81	36,121	1,779	465	90	33,787
82	36,248	1,851	463	97	33,837
83	36,497	1,949	485	106	33,956
84	37,338	2,100	514	107	34,616
85	37,226	2,192	508	99	34,427
86	37,544	2,362	600	115	34,468
87	38,064	2,517	526	98	34,922
88	39,028	2,704	567	119	35,637
89	39,417	3,057	554	100	35,707
1990	40,273	3,113	543	102	36,515
91	40,506	3,592	537	95	36,282
92	41,210	3,688	480	86	36,957
93	41,826	3,913	493	83	37,338
94	42,069	4,252	491	90	37,236
95	40,770	4,390	483	84	35,812
96	43,807	4,866	550	85	38,306
97	44,669	5,159	535	79	38,895
98	44,496	5,614	502	78	38,302
99	44,923	5,791	448	88	38,596
2000	45,545	6,261	597	83	38,604
2001	45,664	6,654	587	80	38,343
2002	46,005	7,182	670	86	38,067
2003	45,800	7,250	569	73	37,908
2004	46,323	7,874	627	90	37,732
2005	47,043	8,349	691	79	37,924

Source: National Livelihood Survey 2006, Ministry of Health, Labour and Welfare

If elderly singles are able to receive social services at any time, their socioeconomic risks may be hedged. In reality, the income of elderly households is expected to decline or be dispersed among more individuals as individuals age (Tables 3 and 4).

Table 2. Annual changes in number of elderly households (by household structure)

Year	Total number	Singles			Couples	Others
		Sub-total	Male singles	Female singles		
Estimated number (Unit: thousand households)						
1975	1,089	611	138	473	443	36
1980	1,684	910	192	718	722	52
1986	2,362	1,281	246	1,035	1,001	80
1989	3,057	1,592	307	1,285	1,377	88
1992	3,688	1,865	348	1,517	1,704	119
1995	4,390	2,199	449	1,751	2,050	141
1998	5,614	2,724	555	2,169	2,712	178
2001	6,654	3,179	728	2,451	3,257	218
2002	7,182	3,405	755	2,650	3,563	214
2003	7,250	3,411	776	2,635	3,594	245
2004	7,874	3,730	906	2,824	3,899	245
2005	8,349	4,069	1,010	3,059	4,071	209

Source: National Livelihood Survey 2006, Ministry of Health, Labour and Welfare

Table 3. Annual changes in average income per household and per household member

Year	Average income per household (thousand yen)	Average income per household member (thousand yen)	Average number of household members (persons)
1985	4,933	1,446	3.41
86	5,056	1,492	3.39
87	5,132	1,551	3.31
88	5,453	1,640	3.33
89	5,667	1,746	3.25
90	5,966	1,836	3.25
91	6,288	1,978	3.18
92	6,478	2,071	3.13
93	6,575	2,111	3.12
94	6,642	2,164	3.07
95	6,596	2,192	3.01
96	6,612	2,258	2.93
97	6,577	2,227	2.95
98	6,552	2,226	2.94
99	6,260	2,198	2.85
2000	6,169	2,121	2.91
2001	6,020	2,135	2.82
2002	5,893	2,047	2.88
2003	5,797	2,034	2.85
2004	5,804	2,033	2.85

Source: National Livelihood Survey 2006, Ministry of Health, Labour and Welfare

Table 3 indicates that the average income level per household declined by as much as 12.6% in 2004 from its peak in 1994. The income level per household member also declined by nearly 10% from its peak in 1996. The income level remained relatively high until around 1997, reflecting the upward trend in consumer prices seen during those years¹. However, consumer prices have been declining by around 1% per year over the past few years, while the income level has declined by over 10%, presumably tightening living costs and escalating care burden.

II. Trends in Care Costs and Long-term Care Insurance Reform

Let us now review the present status of public long-term care insurance. Japan's public long-term care insurance scheme went into effect in April 2000, providing care services either at recipients' homes or at care facilities. Figures 1a and 1b show changes in care insurance benefits over the 3 years between April 2000 and January 2003, at an early stage of the scheme, and over the 1 year between May 2005 and April 2006. The monthly amount of insurance benefits totaled some 200 billion yen, including home and facility services, during the early stage, rising to 400 billion yen after 2 and a half years. Subsequently, the monthly benefits increased gradually, reaching some 530 billion yen in May 2005, peaking at 570 billion yen in September 2005, and then taking a temporary downward turn. This downward turn of benefits in FY2005 was caused by the revision of the Long-Term Care Insurance Law, which shifted housing and food expenses in facility care (especially at special care nursing homes, health care facilities for the elderly, and medical care facilities) to uncovered services. Naturally, this revision succeeded in reducing insurance benefits, but residents suffered a sudden expansion in basic housing expenses. One estimate suggests that the monthly coverage rose from 56,000 yen to 104,000 yen for residents of conventional private rooms at special care nursing homes, and to 81,000 yen for residents of twin rooms.

Another trend is that the present pattern of benefit allocation differs from the early days of public long-term care insurance, when benefits paid to recipients of facility care were nearly 250% larger than those paid to home care recipients. Recently, this difference has diminished, and the proportions of facilities and homes were reversed—at least in terms of insurance benefits—following the revision. This change is significant for two reasons. First, the balance of financial resources for care services should be restored by reviewing the allocation of long-term care insurance benefits. Second, the financial resources required to support Japan's long-term care scheme should be shifted to family labor and financial power. In other words, options available to caregivers for responding to increasing financial burdens will become increasingly important.

Following the shift of housing and food expenses to uncovered services in October 2005, additional review and revision of care services took place in 2006. Again, the basic principle of the revision was the improvement of “self-support” by caregivers. More specifically, Regional Comprehensive Support Centers reviewed past preventive benefits (service benefits to persons certified as requiring support) and shifted these benefits to rehabilitation services at facilities and care services provided at home. Another new development was reinforced emphasis on “local” care services, which were reorganized local community-based services. This revision aimed to accelerate the shift from facility to home care by establishing a home care service environment.

Looking at these reforms of the long-term care insurance scheme, it is expected that the emphasis on home care services will continue to increase in the future, meaning elderly individuals requiring care will need to find an adequate care facility after leaving the hospital or nursing home. From the point of view of family members, this is equivalent to a lack of “shelter” in the case of an emergency, as well as a “respite” for caregivers, whatever its political justification may be. It is anticipated that family members will suffer mental burden due to uncertainty and worry in addition to increased financial burden.

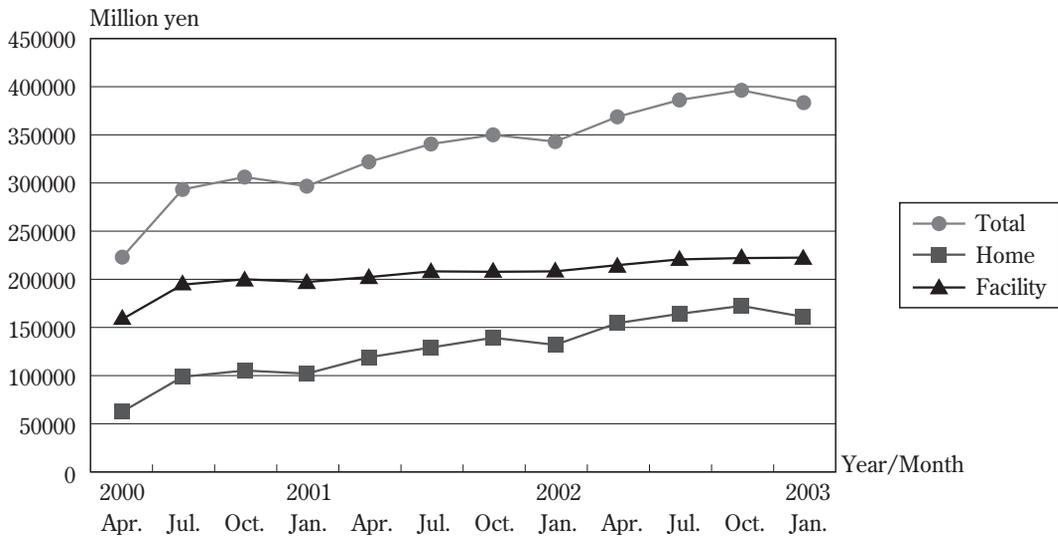
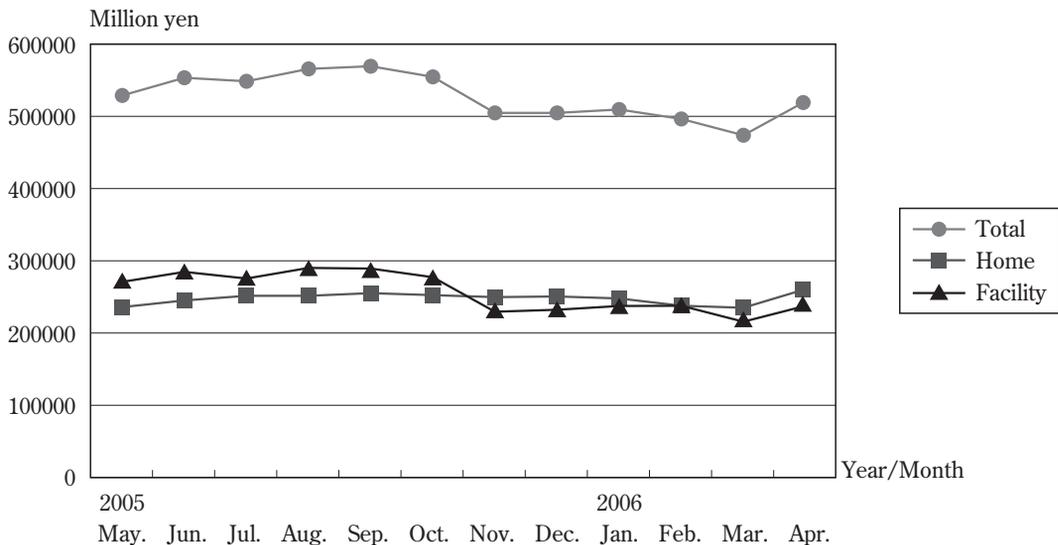


Figure 1a. Sequential changes in public long-term care insurance benefits (April 2000 – January 2003)



Data: Public Long-Term Care Insurance Report, Ministry of Health, Labour and Welfare

Figure 1b. Sequential changes in public long-term care insurance benefits (May 2005 – April 2006)

III. Increasing Caregiver Burden and Behavior Models

1) Systematic response to increased care burden

Possible options to relieve care burden include reduction of self-coverage for service benefits and providing separate financial assistance to caregivers (families). An example of the former is setting a limit for housing expenses in facility care according to the family’s income level, while family care benefits provided by the German long-term care insurance system are an example of the latter. Under the current Japanese system, most care benefits

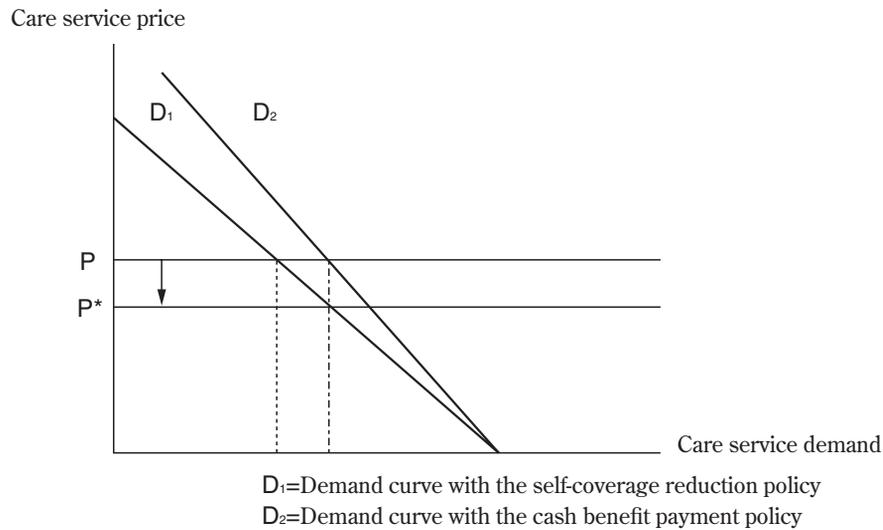


Figure 2. Relationship between care cost and demand for care services

are not provided in cash to prevent misuse of benefits by caregivers; the only benefit services provided in cash are home remodeling and welfare equipment expenses, which, according to recent data, make up only about 1.1 and 0.4% of home care service expenses, respectively². Occasionally, however, local governments provide very small amounts of supplemental cash benefits that are not provided by public long-term care insurance. This system is targeted at families caring for persons certified as requiring care Level 3 or above for at least 15 days at home. The amount allocated under this system varies widely, ranging from 5,000 yen to over 20,000 yen per month. This service is estimated to have several hundreds of thousands of recipients throughout Japan³.

The respective effects of reduction of self-coverage and cash benefit payment are shown, in simplified form, in Figure 2. With the self-coverage reduction policy, care service prices will change from p to p^* , causing an increase in demand for services without changing the users' demand curve itself. In contrast, with the cash payment policy, prices remain unchanged, though the slope of the users' demand curve itself changes. The reason the current scheme does not provide cash benefits is likely to avoid enlargement of the slope of the demand curve, and because prices and service demand are more difficult to control when using cash payments

2) Caregiver behavior models in response to increasing care costs

The above argument focuses only on the relationship between care service prices and service demand, and does not provide any information on how to relieve mid- and long-term financial care burden on caregivers. The present paper seeks to determine ways to relieve the financial burden caused by continuous care, and to clarify the options available to caregivers themselves. More specifically, the present analysis aims to elucidate the optimal combination of assets and consumption for families or households in the event that a household member requires long-term care.

Figure 3 illustrates the scenario of a household facing the need for care at a specific point within the period t . The household member who is a potential recipient of care services has paid cost C to receive care services. In this household, the caregiver is the only income earner and has earned a specific income Y . The income earner has also taken out a private supplemental insurance (such as care service cost insurance) I to cover costs until the receipt of public insurance is approved. The potential care recipient actually begins to receive care at point t^* , after which the care cost changes. The actual cost is determined by the benefit levels of the public long-term care insurance and supplemental insurance. At this point, the income earner and caregiver face the problem of minimizing financial

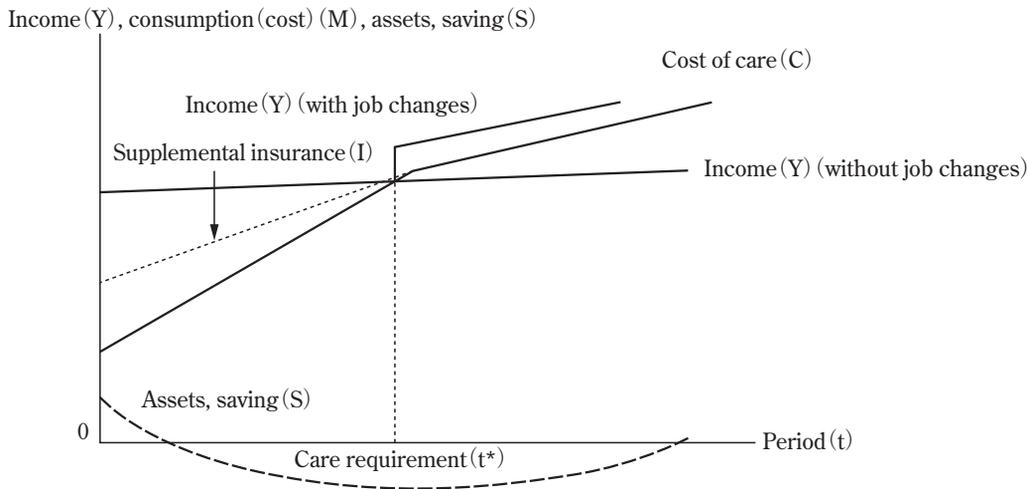


Figure 3. Care cost and financial burden in terms of life events

burden (= maximizing Y minus M) given a specific care service cost. To this end, the income earner could look for a new job with a higher salary (=obtain additional income by changing jobs), withdraw savings or liquefy assets, purchase additional insurance, and/or take other measures.

Using the decision-making variables described above, the budget conditions of a household are given by:

$$Y = W + S + I - M \tag{1}$$

Where **Y** is the total income of the household, **W** is income received from employment, **S** is savings and other assets, **I** is benefits obtained from private insurance, and **M** is household consumption (for simplicity, taxes and public duties such as public long-term care insurance premiums are ignored). Income received from employment refers to the total income paid by the income earners employer opted in the probability **q**, and is given by:

$$W = \sum q_{iw} \quad i = 1, 2, \dots, n \quad \sum_i = 1 \tag{2}$$

Where **a** represents the care requirement expression probability, and **Z** is the total consumption on goods and services other than care. Household consumption is given by:

$$M = aC + Z \tag{3}$$

Where **r** represents the probability that the request for care services is approved, **H** is the relevant benefits, and **p** is the relevant premiums. The total benefits paid by private insurance are given by:

$$I = rH - p \tag{4}$$

The caregiver, who must look after the care recipient, is required to maximize the performance of the provided care services, under the restriction that the household's total consumption, including care costs, does not exceed the household's total income. For simplicity, the household in this scenario is assumed to have no debts or loans; however, in reality, many households do have debts and loans, which might cause the net savings amount to become

negative after balancing with care costs.

$$\begin{aligned} \text{Max } (qw + rH + S - (p + \alpha C = Z)) \\ \text{s.t. } Y \geq \alpha C + Z \end{aligned} \quad (5)$$

When an actual caregiver faces increases in care costs, realistic options include:

- 1) Withdrawal of savings to supplement increased expenses (Operation S*)
- 2) Changing to a job with higher salary (Operation W*)
- 3) Purchasing private insurance (Operation H*)

Note that care costs are not necessarily a “passive” burden. If children care for their aging parents, the strong ties and motivation to provide care among family members could be evaluated positively. In such cases, the “active” coverage of care burden and its maximum use should be examined in detail.

Based on the above formulae, the following sections will analyze the present status of caregivers’ decision-making concerning S^* , W^* and H^* , using micro data including care costs and income information from actual households requiring care.

IV. Verification of caregiver responses to care costs

1) Preceding literature

Many researchers have studied the financial effects and requirements of long-term care insurance. The fundamental points of interest of these previous studies can be categorized as:

- The influence of care costs on demand for care services;
- The influence of financial burden on household living and how to relieve care burden; and
- The influence of the financial status of the insurer and the soundness of household living on supply and demand for care services.

Regarding care cost as the price of care services, the first point requires examination of the price resilience of care service demand (in other words, actual measurement of the rate of change in the demand curve in Figure 2 in proportion to the price). Preceding studies on the resilience of care service price (and income) include Suzuki and Ohkusa (1999), Ohkusa (2002^a) (2002^b), and Shimizutani and Noguchi (2004).

The second point asks to what extent care insurance can relieve increases in financial burden, assuming that demand for care services exists at a specific level regardless of its price. The second point also asks what supplemental measures should be taken to satisfy care demands not met by care insurance alone, how caregivers should make decisions regarding such measures, and what measures caregivers should take on their own. Few analyses have been conducted regarding these questions using objective data.

Preceding studies on the third point include Iwamoto, Obara, and Saito (2000), Shimizutani and Inakura (2006). The analysis by Iwamoto et al. was conducted before public long-term care insurance was introduced in Japan. The study by Shimizutani and Inakura focused on the suspected influence of the insurer’s financial status on the approval of care and the use of care services, and its negative effect on the principle of national integration.

2) Verification analysis pertaining to care costs and reduction of caregiver burden

(1) Estimation models

This subsection will confirm, using actual data, caregivers’ efforts to relieve increasing financial burden, and the maximization of the effect of care through caregivers’ decision-making. In particular, this section focuses on factors affecting the three options introduced in the previous section (**withdrawing savings money, changing to a job**

Table 4. Hypothesis on results of analysis

		Expected effect		
		Withdrawal of savings	Changing jobs	Taking out insurance
Explaining variable	Explained variable	A person who need care in the household		
	Sex (Female)	?	?	?
	Age	+	-	- ?
	Attribute of the person who need care (Father)	+	?	?
	Ditto (Parents)	+ ?	?	?
	Net income	-	+ ?	+
	Place of care (home)	-	+	?
	Certified level of care requirement	?	?	+ ?
	Will to pay insurance premiums	?	?	+
	District dummy (Tokyo)	+	+	+
	District dummy (Kyushu)	-	- ?	- ?
		No person who need care in the household		
	Sex	?	?	?
	Age	+ ?	-	-
	Income	- ?	- ?	+
	Reason for taking out insurance			
	Inexpensive premium			+ ?
	Lifetime insurance			+ ?
	Sufficient compensation			+
	Saving type			?
Easy insurance conditions			+ ?	
Approval-related benefits scheme			+	
District dummy (Tokyo)	?	?	?	

with a higher salary, and purchasing private insurance). As described below, it is impossible to clearly determine whether decisions made by caregivers have been already put into practice through available data. Therefore, it is assumed that caregivers choose their behaviors depending on the current status of care. As an estimation model that matches this objective, a Multinomial Logit Model was used for analysis.

(2) Data

At present, the monthly amount of insurance benefits by service type can be obtained from the Monthly Report of Long-Term Care Benefits Status Survey of the Ministry of Health, Labour and Welfare of Japan. However, there are no statistics enabling objective identification of actual care costs for households or heads of households, or the actual behaviors of household members. Therefore, in this study, required data were collected using an original questionnaire. The questionnaire survey asked questions on the individual attributes of caregivers; present income level; types of care services used; care costs (covered by the households themselves) in the previous month; specific responses to increases in care costs (choice of one response); additional costs (covered by the households themselves) that households are willing to pay to receive the same level of care they are currently receiving; and expectations of future increases in care costs (a kind of "Will to Pay (WTP)").

Between October and early November 2007, questionnaire surveys were sent to 1,000 research monitors

Table 5. Descriptive statistics of collected data and simple tabulation (1)

Age	Oldest	69	Place of care	Home	166
	Youngest	20		Facility	122
Sex	Female	318		NA	6
	Male	311	Type of service received		
Care recipient	Yes	294	Service	Number	%
	No	335	Home help	66	60.2
Income class	number	%	Visiting care	30	18.1
			Visiting rehabilitation	18	10.8
Below 5 million	233	37.0	Visiting bath	23	13.9
5 million to below 6 million	72	11.4	Nursing instruction	20	12.0
6 million to below 7 million	61	9.7	Day service	99	59.6
7 million to below 8 million	55	8.7	Facility rehabilitation	28	16.9
8 million to below 9 million	33	5.2	Short stay	42	25.3
9 million to below 10 million	38	6.0	Rental welfare equipment	63	38.0
10 million to below 12 million	36	5.7	Welfare equipment purchase expenses	40	24.1
12 million to below 15 million	27	4.3	Home remodeling expenses	36	21.7
15 million to below 20 million	20	3.2	Paid home housing expenses	2	1.2
20 million or over	15	2.4	Group home housing expenses	0	0.0
NA	39	6.2	Home care expenses	42	25.3
Care status	Number	%	Preventive visits	2	1.2
Support required 1	16	5.4	Special nursing home	44	36.1
Support required 2	29	9.9	Health centers for the elderly	37	30.3
Care required 1	31	10.5	Nursing care beds	19	15.6
Care required 2	40	13.6	NA	22	18.0
Care required 3	56	19.0	Person (s) who need care	Number	%
Care required 4	41	13.9			
Care required 5	46	15.6	Father	70	23.8
Unknown	35	11.9	Parents	12	4.1
			Grandfather	15	5.1
			Grandmother	44	15.0
			Other	15	5.1

registered at an Internet research company. Responses were obtained via the Internet and entered into a database as a data set for this analysis. Six hundred and twenty-seven valid responses were obtained, with a response rate of 62.7%. Respondents included both those with and without persons requiring care in their households; these two groups were distinguished and estimated separately in the analysis.

Prior to analysis, the expected results were drafted; the hypothesis on the results of analysis is shown in Table 4. The symbol “+” represents a positive effect, “-” a negative effect, and “?” an unknown effect.

(3) Descriptive statistics

Descriptive statistics of collected data (Descriptive replies + Simple tabulation) were as shown in Table 5.

descriptive statistics (2)

Range of benefits	Number	%	Response to burden	Number	%
Well in range	89	30.3	Withdrawal of savings	103	35.0
Barely in range	103	35.0	Taking out private insurances	3	1.0
Exceeding the range of approval	86	29.3	Using public services	22	7.5
Other	16	5.4	Using mutual aid organizations	4	1.4
Perceived burden	Number	%	Taking care leaves	3	1.0
Not at all	43	14.6	Changing jobs etc.	12	4.1
Relatively low	104	35.4	Receiving family assistance	69	23.5
Neither	65	22.1	Other	12	4.1
Relatively high	64	21.8	None	117	39.8
Extremely high	18	6.1	Preparation for the future	Number	%
Cost / month	Number	%	Savings	31	9.3
Below 5000 yen	24	8.2	Taking out private insurances	18	5.4
5000 to below 11000	29	9.9	Changing jobs etc.	11	3.3
11000 to below 17000	30	10.2	Promoting health	72	21.5
17000 to below 20000	22	7.5	Purchasing inexpensive home	0	0.0
20000 to below 27000	18	6.1	Other than the above	9	2.7
27000 to below 31000	12	4.1	No preparation	224	66.9
31000 to below 36000	14	4.8	Conditions for attractive private insurances		
36000 to below 40000	13	4.4	Inexpensive premiums	233	69.6
40000 to below 50000	19	6.5	Lifetime guarantee	203	60.6
50000 yen or over	40	13.6	Sufficient compensation	190	56.7
Don't want to tell	72	24.5	Savings	137	40.9
Unknown	1	0.3	Privileges	80	23.9
			Easy insurance conditions	103	30.7
			Approval-related benefits scheme	93	27.8
			Other	6	1.8
Will to additional payment	Number	%	Insurance plan	Number	%
Below 5000 yen	354	56.3	Low premium – low reimbursement	385	61.2
Below 10000 yen	197	31.3	Medium premium –medium reimbursement	103	16.4
Below 15000 yen	30	4.8	High premium - high reimbursement	39	6.2
Below 20000 yen	44	7.0	Maximum premium – maximum reimbursement	14	2.2
20000 yen or over	4	0.6	Lump sum payment only	67	10.7
			Other	21	3.3

Through these simple tabulations of data samples, the income class distribution seems to generally approximate the average income distribution in Japan. Places of care were split approximately equally between home and facilities. More than 70% caregivers seemed to be encountered difficulty in meeting their economic needs for care giving. In

Table 6. Estimated decision-making for relieving care costs for households requiring careLogit (L) & Multinomial Logit (ML)

Variables	Withdrawal of savings (L)		Changing jobs (L)		Taking out private insurances (ML)	
	Coeff	S.E	Coeff	S.E	Coeff	S.E
Sex (Female = 1)	0.2991	0.2804	0.6428	0.7009	-0.3667	0.2546
Age	0.0233	0.0142 *	-0.0996	0.0448 **	-0.0088	0.0128
Person who need care dummy (Father = 1)	-0.1558	0.3356				
Persons who need care dummy (Parents = 1)	1.6783	0.7094 ***	1.7905	1.2698	-0.3574	0.6071
Net income (logarithm)	-0.0945	0.2258	-0.2091	0.4962	0.3722	0.3141
Burden ratio (1 – cost of care / total income)	-1.9201	2.0697	-3.6863	3.6133	-3.6731	1.7041 **
Place of care dummy (Home = 1)	-0.5133	0.2849 *	1.5592	0.6491 **	0.3133	0.2409
Level of care requirement	0.0461	0.0716	-0.2944	0.1871	-0.0528	0.0633
Perceived burden “Yes” dummy	0.9373	0.3191 ***	0.8962	0.7064	-0.1687	0.2972
District dummy (Tokyo = 1)	-0.4889	0.3922	0.5359	0.9819	0.7367	0.3282 **
District dummy (Kyushu = 1)	0.6601	0.6101				
Log likelihood	-161.7441		-34.3394		-285.8259	

n = 294

Level of significance: * < 0.1 ** < 0.05 *** < 0.01

addition, a substantial number of respondents did not take any particular actions to relieve care burden, nor were they prepared for future increases in care burden.

(4) Estimation results

Estimations for households with and without members requiring care are shown in Tables 6 and 7.

<Measures for relieving care costs for households requiring care>

A: *Withdrawing savings money*

- Effects of age: As expected, the caregiver’s likelihood of withdrawing savings money to alleviate care costs increased with age; however, the likelihood increased only about 0.02 points per year.
- Effects of attributes of care recipient: If only the caregiver’s father required care, the caregiver was not likely to withdraw savings money. However, if both parents required care, the likelihood of withdrawing savings money increased by 1.6 points.
- Effects of net income: Contrary to the hypothesis, net income did not directly influence the caregiver’s withdrawal of savings money to alleviate care costs.
- Effects of place of care: As expected, savings money was used most often in cases of facility care. The likelihood of withdrawing savings money to supplement care costs was about 0.5 points higher in cases of facility care, suggesting that place of care depends on the savings of caregivers (or care recipients).
- Effects of level of care requirement: No statistically significant relationship between level of care requirement and the withdrawal of savings money was identified.
- Effects of perceived burden of care costs: A statistically significant relationship was identified between the perceived size of financial burden and the withdrawal of savings money—caregivers were more likely to use savings money if they believed their financial burden to be large.

Table 7. Estimated decision-making for relieving care costs for households not requiring care Logit (L) & Multinomial Logit (ML)

Variables	Conditions for taking out insurances (ML)		Opting private insurances (L)	
	Coeff	S.E	Coeff	S.E
Sex (Female = 1)	-0.8751	0.2504 ***	0.3492	0.4829
Age	-0.0163	0.0109	0.0297	0.0205
Income (logarithm)	0.6651	0.3022 **	0.0289	0.3073
District dummy (Tohoku)	-0.7001	0.6004		
District dummy (Kanto)	-0.7571	0.4238 *		
District dummy (Tokyo)	-0.1384	0.4610	-0.0586	0.6609
District dummy (Nagoya)	-0.7083	0.6232		
District dummy (Chubu)	0.0379	0.5687		
District dummy (Kinki)	-0.7136	0.4911		
District dummy (Osaka)	-0.2076	0.4890		
District dummy (Chugoku)	-0.3842	0.5499		
District dummy (Shikoku)	-2.1500	0.9999 **		
District dummy (Kyushu)	-0.2339	0.6358		
Inexpensive premiums			-0.3032	0.4868
Lifetime guarantee			0.6722	0.5336
Sufficient compensation			0.9615	0.5313 *
Saving type			0.2511	0.4705
Easy insurance conditions			0.4241	0.4784
Approval-related benefits scheme			0.8852	0.4865 *
Log likelihood	-300.8695		-73.2546	

variables	Withdrawal of savings		Changing jobs	
	Coeff	S.E	Coeff	S.E
Sex (Female = 1)	0.1718	0.3687	-0.5520	0.6269
Age	0.0031	0.0166	-0.0592	0.0348 *
Income (logarithm)	0.0476	0.2332	0.3186	0.4071
District dummy (Tokyo)	-0.3009	0.5633	0.4561	0.8146
Log likelihood	-109.7794		-45.7508	

n = 335

Level of significance: * < 0.1 ** < 0.05 *** < 0.01

- Geographic effects: No significant differences were observed due to geographic conditions (i.e., between urban and rural areas).

B: Changing to a job with higher salary

- Effects of age: As expected, the rate of changing jobs was higher for younger income earners, and this effect was considerably larger than that of withdrawing savings. Changing jobs or starting part-time work seems to be quite difficult for older income earners.
- Effects of attributes of care recipient: No statistically significant relationship was identified between the attributes of the care recipient and the income earner's choice to change jobs.

- Effects of net income: Although positive effects were expected, no statistically significant relationship between income level and changing jobs was identified.
- Effects of place of care: Although positive effects were expected for home care, the results indicated that home care had a significant negative effect on the caregiver's choice to change jobs, suggesting that caregivers are able to change jobs more easily in cases of facility care.
- Effects of level of care requirement: A negative effect was observed, but with questionable statistical significance. It is possible that changing jobs becomes easier at lower levels of care requirement.
- Effects of perceived burden of care costs: Unlike the withdrawal of savings money, the level of perceived burden did not seem to affect changing jobs.
- Geographic effects: Although the labor market in urban areas was expected to have an effect on changing jobs, no such effects were observed in the present results.

C: Purchasing private care insurance (opting for preferable plans)

- Effects of age and attributes of care recipient: Neither age nor attributes of care recipient was observed to have a statistically significant effect.
- Effects of net income: Although income level itself was not found to have an effect, the mental effects of care costs on income (burden ratio $(1 - \text{care cost} / \text{total income})$) suggested that high premium-high reimbursement insurance was preferred when the perceived burden was light. In other words, it is possible that caregivers who perceive a strong care burden also perceive a strong burden due to care insurance premiums.
- Effects of place of care and level of care requirement: Neither place of care nor level of care requirement was observed to have a statistically significant effect on purchasing private insurance or on plan options. Consequently, it is possible that high premium-high reimbursement plans are chosen more often in those who have chosen home care setting.
- Effects of perceived burden of care costs: No statistically significant relationship was observed between perceived burden of care costs and private insurance plans.
- Geographic effects: In urban areas (represented by Tokyo), high premium-high reimbursement plans were significantly more common than in other areas. This is an indirect effect of income—such plans are favored in urban areas, where the average income is higher than in rural areas.

<Measures for relieving care costs for households not requiring care>

A: Purchasing private care insurance (opting for preferable plans)

- Effects of sex and age: Effects of sex, which were not observed in the estimation for sample households requiring care, were observed for households not requiring care—male respondents preferred high premium-high reimbursement plans more strongly than female respondents. This is considered to reflect the higher proportion of male income earners compared to female income earners. As for the effects of age, younger respondents preferred high premium-high reimbursement plans more strongly, but the difference was not statistically significant.
- Effects of present income level: Similar to the results given above, respondents with higher income levels preferred high premium-high reimbursement plans significantly more often than those with lower income levels.
- Geographic effects: Using Hokkaido as a base region, the dummy values of other regions were estimated. A significant preference for low premium-low benefit or lump sum payment plans was noted in the Kanto area, excluding Tokyo and Shikoku. In other regions, no significant differences were observed as compared with Hokkaido.

Table 8. Factor analysis for households taking no measures in response to increasing care costs Logit

Variables	No measures (with care need)		No measures (with no care need)	
	Coeff	S.E	Coeff	S.E
Sex (Female = 1)	-0.5152	0.2785 *	-0.3559	0.2484
Age	-0.0061	0.0136	-0.0220	0.0111 **
Persons who need care dummy (Parents = 1)	-1.8561	1.0830 *		
Net income (logarithm)	-0.1781	0.1521		
Present income (logarithm)			0.0187	0.1216
Burden ratio (1 – cost of care / total income)	3.1492	2.1999		
Place of care dummy (Home = 1)	-0.0711	0.2556		
Level of care requirement	0.0028	0.0691		
Perceived burden “No” dummy	1.4165	0.4076 ***		
Perceived burden “Yes” dummy	-0.8956	0.3650 **		
District dummy (Tokyo = 1)	0.4317	0.3575	0.1482	0.4242
District dummy (Kyushu = 1)	-0.4904	0.7103	1.2882	1.6682 *
Log likelihood	-163.401			

Level of significance: * <math>< 0.1</math> ** <math>< 0.05</math> *** <math>< 0.01</math>

B: Withdrawing savings money

C: Changing to a job with a higher salary

- Except the effects of age on changing jobs, no clear effects were observed for sex, present income level, or geographical region. Younger respondents were more likely to change jobs; however, this tendency is considered a general employment trend rather than a phenomenon particular to the cases examined in the present study.

<Factor analysis for households taking no measures in response to increasing care costs>

The objective of the present analysis was to identify the measures caregivers take in response to increasing care costs. However, many caregivers did not take any measures to alleviate care costs. Of the surveyed households, some 40% of those requiring care replied that they would “do nothing” in response to increasing financial burden. Of households not currently requiring care, nearly 70% replied that they are unprepared for future increases in financial burden. For this reason, it is important to identify the factors affecting the decisions of these households.

As for the analysis of households’ actions in response to increased care burden, the analysis of households that did not take action was made separately for households with and without members requiring care using a logit model, as shown in Table 8.

As for the effects of sex and age, younger samples tended to take fewer measures in both groups. In particular, this trend was significant for households not currently requiring care. For households requiring care, caregivers were likely to take no measures if both parents required care. Naturally, caregivers were likely to take no measures if the perceived burden was minimal, while caregivers tended to take at least some measures when they perceived a strong burden. No clear differences between urban and rural areas were noted for households requiring care. In contrast, for households not currently requiring care, significantly fewer persons took measures in rural areas (represented by Kyushu).

3) Discussion and Implications

(1) What are the most realistic ways to relieve care costs for caregivers?

There is a clear trend for caregivers to withdraw savings money to alleviate care costs when they perceive a strong burden, regardless of their present net income level. However, withdrawing savings money is chosen less frequently in cases of home care. One characteristic of home care is that the caregiver and care recipient support one another within the household, making it difficult for the caregiver to withdraw savings only to cover care costs unless the care recipient also agrees (Parents dummy showed a significant positive effect). At the same time, a positive correlation is expected between the amount of savings and the caregiver's age—only relatively older persons have a substantial amount of money in savings that they can use to supplement care costs. In addition, elderly individuals are more likely to receive care at facilities and have a higher level of care requirement. Withdrawing savings money is considered to become a realistic way of coping with care costs if the caregivers themselves are relatively older and perceive a strong financial burden, and if the shift to facility care is possible using the savings of care recipients themselves. The option of changing jobs, in contrast, is closely tied to labor market conditions, and is more realistic when the caregiver is relatively young (age has a significant negative effect on the likelihood of changing jobs).

The present results suggest that, in order to alleviate care burden, changing to a job with a higher salary is a realistic option if the caregiver is relatively young; however, for a older caregivers, withdrawing savings money (including the parents' or care recipient's savings) may be the only viable option. Therefore, it is desirable to plan for such an eventuality as early as possible, since many persons fail to adequately prepare for the possibility of a family member requiring long-term care in the future when a strong financial burden is not immediately apparent.

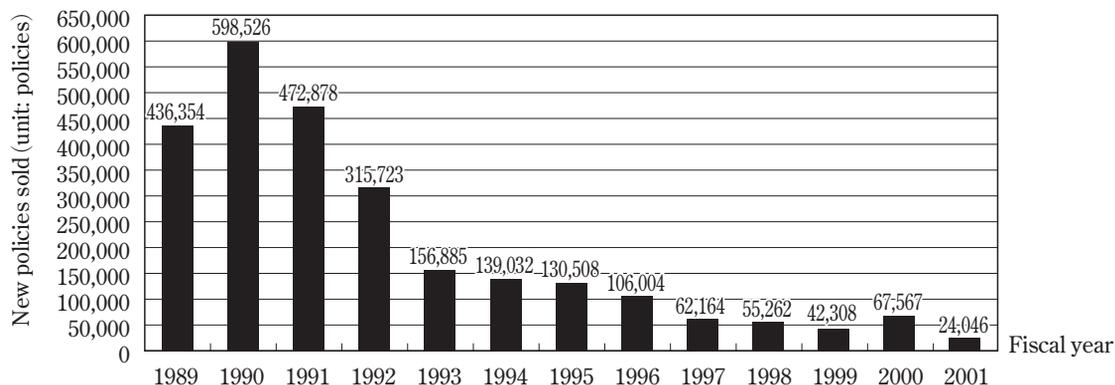
(2) What preparations should persons who may face the problem of caring for a family member in the future make?

For persons who are not currently caregivers but are likely to provide care to a family member in the future, it is extremely important to make a plan for relieving care costs in advance. The results of logit model analysis indicate that people's expectations of private insurance are as follows:

- 1) Guaranteed coverage if a family member develops a condition requiring care; and
- 2) Care benefits are paid automatically as soon as the care requirement is certified.

The multinomial logit analysis of preference for premium-benefit plans indicated that persons with higher income were significantly more likely to favor higher benefits, and that females were significantly less likely to prefer premium levels linked to a high level of benefits (e.g., monthly paid insurance benefits). This suggests that, for private long-term care insurance to operate effectively in the insurance market with the required number of policy holders and thereby contribute to the alleviation of care burden, it is necessary to provide plans covering care costs to a specific level as soon as care requirement is certified and with relatively low premiums. Private long-term care insurance was put on the market for the first time in 1989, reaching a peak after a very short period, and was phased out after 2001 (the year after the introduction of public long-term care insurance) due to its poor performance (Figure 4). As this incident suggests, if the private long-term care insurance market cannot provide sufficient insurance products, steady savings may be a realistic means of preparing for potential care burden.

As suggested earlier, considering declining income levels and expanding income gaps, it is difficult for younger generations to accumulate savings substantial enough to prepare for future care burden. Although younger people can change jobs relatively easily, there is no guarantee that changing jobs will help individuals to prepare for their own and their families' future care demands, even when corporate pension funds are shifted to defined contribution plans.



Source: Data from the General Insurance Association of Japan

Figure 4. Number of new long-term care insurance policies sold by non-life insurance companies

(3) How should the burdens and benefits of public long-term care insurance be changed in the future?

In both households with and without members requiring care, income level had no significant effect on withdrawing savings or on changing jobs. In other words, the income resilience of households' response to care burden is small. Therefore, it is reasonable to expect that care service demand does not vary substantially by income level. In contrast, many persons were likely to take no measures, even if they were experiencing care burden. This non-resilience of care service demand suggests that caregivers might not recognize potentially serious burden until they suddenly find themselves in a critical situation. Under the current long-term care insurance scheme, which does not provide a "shelter" of cash benefit payments to family members, the only alternatives are self-coverage or insurance premiums in line with income level, and there are no public relief systems for substantial subjective financial care burden, which is not linked to income level. If the present system is not reformed, Japanese people will be required to prepare for future care burden on their own or without close assistance from insurance schemes. In the examination stage before the establishment of public long-term care insurance, some commentators argued for the simultaneous implementation of both public and private long-term care insurance schemes⁴. This suggests that the limits of public long-term care insurance, as pointed out above, have been recognized to some extent.

Nevertheless, if it is difficult to develop insurance products that satisfy people's preferences for private long-term care insurance, as suggested by the present analysis, the incorporation of flexible benefit systems similar to those used in private long-term care insurance schemes may be beneficial. For example, if cash benefit payments to family members equivalent to the lump sum payments from private long-term care insurance are introduced, and if conditions for payment and the correlation with the range of subsequent benefits in kind are stipulated (for example, service benefits will be reduced by 10% for the 6 subsequent months to persons who have received a specified amount of lump sum payment), caregivers will have additional options for alleviating care burden. At the same time, accelerating the development of private long-term care insurance products that truly supplement public long-term care insurance, supported by adequate marketing, is a short-term measure that could help relieve caregivers' financial burden.

Conclusion

Using data collected through an original survey, the present study analyzed and quantitatively reviewed the ways in which caregivers alleviate the increasing financial burden of care, the measures caregivers consider for addressing

care burden, and relevant factors amidst the rising number of individuals requiring care and the declining income levels and expanding income gaps in Japan's aging society.

To relieve the financial burden of care, a number of actions are required in addition to efforts on the caregiver's side, such as promoting the health of elderly persons and developing equipment and systems that help individuals requiring care to live independent lives. The present study has several limitations in that it analyzed the financial burden of care only from the viewpoint of caregivers; the scale of data for analysis was small; and it did not examine changes in financial burden on the same caregiver over time. In the future, the relationship between care insurance systems and care costs, which have been analyzed primarily in the context of changes in care service demand, should be examined from the perspective of perceived financial burden and caregivers' responses to perceived financial burden. In the process, the characteristics of an ideal care environment for both caregivers and care recipients should be elucidated.

Acknowledgement

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Footnotes

- 1 Data are from the Ministry of Internal Affairs and Communications and NIKKEI NET.
- 2 "The Policy Making Process of Long-term Care Insurance" (2007), Masaru Wada, ed.
- 3 Ibid., p.390
- 4 Ibid., p.440

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