

Proposal for a notional funded LTCI reform

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[Abstract]

Ministry of Health, Labour and Welfare (MHLW) is reforming the long-term care insurance (LTCI) progressively. MHLW forced the major LTCI reform in 2005. Both LTCI and the disabled person support have financial weakness. Two systems were expected to be combined into one in 2005. The merger was thought to solve financial problems. However, the merger plan was postponed.

This paper shows the MHLW's reform plan and the financial simulation of LTCI reform. The reform plan would not solve financial problems with two systems. The simulation results points out the difficulty to satisfy the expenditure of LTCI by the new premium income from the younger generations.

Alternative solution emphasizes on the burden of premium. LTCI should change from the pay-as-you-go system to the partially funded system. Only a funded system can realize fairness among the generations. It is not needed an individual funded system, but a notional funded system. The next trial is in 2008.

1. Introduction

Japan's long-term care insurance (LTCI) started in 2000. It is esteemed in that the care services market was opened. Although it is prescheduled, the Japanese government is going to reform LTCI. It should be addressed the urgent task of finance reform of the LTCI. Ministry of Health, Labour and Welfare (MHLW) tried to solve both financial problems with the LTCI and the disabled person support. However, even if MHLW would succeed in system integration, their attempt will end in the failure. This article shows the financial outlook by the model simulation.

Outline of MHLW reform plan is as follows.

- Newly adding Age 20-39 group to insured person as the 3rd group¹⁾
- Premium rate of the 3rd group is a half of the 2nd group.

- LTCI covers the disabled person support in addition to the long-term care.
- The current disabled person support integrates to LTCI.

Many media have pointed out that their purpose is focusing on fiscal issues.

2. Review of the earlier studies

The typical research to introduce about the features of LTCI in Japan is (Ikegami and Campbell 2002). (Campbell and Ikegami 2003) gives the LTCI management results of 2 years high evaluation.

There is a lot of research in the simulation about the social security finance or the aging society in the past. The approach to describing the aging society by the Overlapping Generations (OLG) model has been done by (Auerbach and Kotlikoff 1987). The OLG model includes four sectors, the household sector, the firm sector, the government sector and the public pension sector. It is an idea to incorporate LTCI into the public pension sector. To add the LTCI sector in the OLG model is another idea. (SHIMASAWA 2004), which does not treat LTCI, adds the human capital sector in the OLG model and is analyzing an effect in the policy change. This article doesn't employ OLG model but it is one of the useful methodology. LTCI is based on the pay-as-you-go system.

In 1996 the fiscal and social security issues working group of the economic council (KEIZAISHINGIKAI ZAISEISYAKAIHOSYO working group) argued the fiscal and social security model. That working group implemented estimation in future about the ideal way with public financial burden percentage by long-run macroeconomic model.

The earlier research (Yashiro and Oshio 1997) showed what influence the social security sector had on the economic structure with a macroeconomic model. Furthermore, (Masubuchi et al. 2002) showed the social security model to develop the macroeconomics model which incorporated the main social security system of the

Table 1 Ratio of the people in need of long-term care by age group on March 2004

	Need level 0	Need level 1	Need level 2	Need level 3	Need level 4	Need level 5	Total
The 1st old-old	3.4%	7.1%	3.4%	2.8%	2.8%	2.6%	22.2%
The 1st old	1.0%	2.0%	0.9%	0.7%	0.6%	0.6%	6.0%
The 2nd	0.02%	0.10%	0.07%	0.05%	0.04%	0.05%	0.31%

1) The 1st group is the age 65 and over group and the 2nd group is the age 40-64 group.

public pension, the medical care, the long-term care specifically. He formulated the method of estimation on the cost of long-term care.

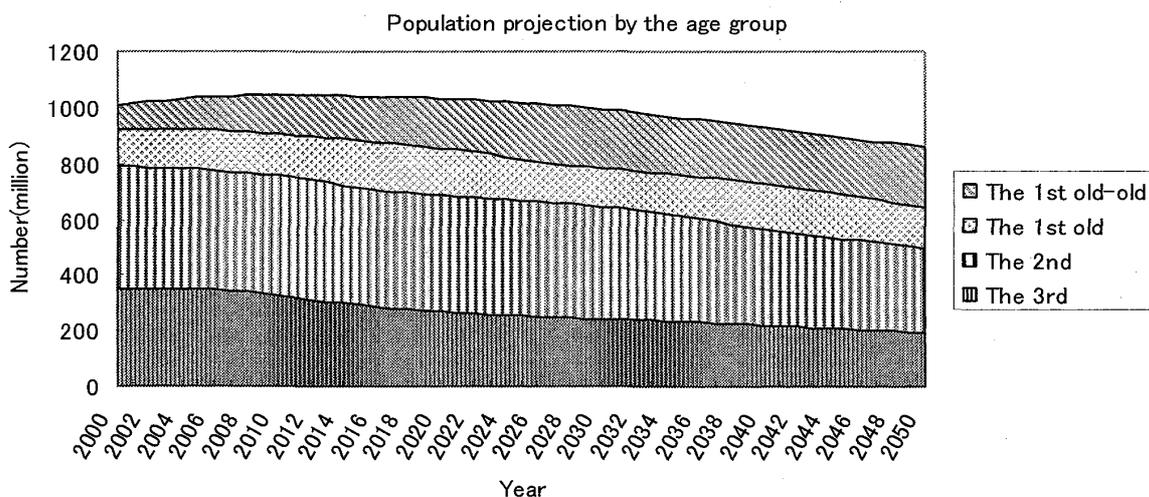
The beneficiary number trend is an important element in the estimation of the long-term care cost. All of the people in need don't become the LTCI beneficiary. Some of the people in need are given family or informal care without LTCI services. The current gap between people in need and actual beneficiaries is 50% in 2001. This gap will be disappearing from 2005 to 2010. That was calculated by (Shimizutani and Noguchi 2003).

The LTCI cost increment is mainly brought about by the increase of the community-based care than the institutional care. In 2002 the demand of the institutional care was up about 1% compared with the same month the year. The demand of the community-based care increased in the pace of about 3% of year-on-year comparison. (Shimizutani and Noguchi 2003)

3. The Model Structure

In this section, it presents the LTCI fiscal simulation model. Core part of the model is a cost estimation, which is based on the future demand of long-term care services for the elderly people. This model also provides an estimate how much who is burdened with the insurance premium. The insured person belongs to either of the 1st-3rd group with the age.²⁾

Figure 1 Population projection by the age group: 2000-2050



*The 1st old-old: 75 years old and over, the 1st old: 65-74 years old, the 2nd: 40-64 years old, the 3rd: 20-39 years old

2) "The 3rd group" will be created for age 20-39 newly. See Figure 1.

The cost at each period is estimated as follows. It multiplies the number of people in need according to the age group and the need level by the cost per capita according to the age group and the need level.

$$\text{The cost of long-term care at period } t = \sum X_{kms,t} * P_{kms,t} \dots\dots\dots (1)$$

X: the number of people in need of long-term care

P: the cost per capita

k: kinds of care services [community-based care, care management, institutional care and disabled person support (if reform)]

m: the age group [1-3]

s: the need level [0-5]

It finds the ratio of the people in need according to the age group and the need level from “Kaigo Kyufuhi Jittai Chosa Geppo (Monthly Report on LTCI payment)”³⁾. This model uses the fixed ratio on March 2004. As for whose using which service, it calculated a trend with ratio between services⁴⁾. It finds the projected population by the age from “Population Projections for Japan: 2001-2050: Medium variant”⁵⁾. *X_{kms,t}* is found out from them.

$$X_{kms,t} = PP_{ms,t} * B_k \dots\dots\dots(2)$$

PP: Population projection by age group

B: Beneficiary ratio by services

It sets the upper limit of beneficiary ratio of community-based care to 90% in 2010. Beneficiary ratio by services since then in 2010 is fixed in 2010.

Aforementioned monthly reports since May 2001 have showed the costs per capita every service according to the need level. It uses three kinds of services, community-based care, care management and institutional care. The future costs per capita are

Table 2 Beneficiary ratio between services

	Community-based care	Care management	Institutional care
Regression coefficient			
constant term	68.931	65.889	30.547
time series [1-38]	0.194	0.149	-0.182
AdjustedR2	0.948	0.899	0.984

3) Source: MHLW

4) See Table 2.

5) Source: National Institute of Population and Social Security Research

computed from the trend of growth.⁶⁾

$$Pkms,t = PPms,t * Pk \quad \dots\dots\dots(3)$$

R : Trends of growth ratio by services

LTCI payment is financed by tax and insurance premium equally. Conceptually the tax comes from a consumption tax. Ideal consumption tax rate increment to contribute LTCI is computed by formula (4).

$$Vt = \frac{Xkms,t * Pkms,t}{2 * v} \quad \dots\dots\dots(4)$$

V : Ideal consumption tax rate increment

v : 1% of ideal amount of consumption tax (1% = JPY 2 trillion.)

As for an insurance premium, 18%⁷⁾ of total cost is burden by the 1st group. 32%⁸⁾ of total cost is burden by the 2nd group. If the 3rd group is created, each proportion of contribution will change. The 1st group: the 2nd group: the 3rd group is 14% : 24% : 12%.

Table 3 Trend of the cost per capita

Cost per capita of community-based care

	Need level 0	Need level 1	Need level 2	Need level 3	Need level 4	Need level 5
Regression coefficient						
constant term	29.630	57.974	79.466	112.238	128.989	152.503
time series [1-38]*	-0.018	0.145	0.472	0.707	0.950	0.951
Adjusted R2	0.010	0.371	0.781	0.788	0.806	0.772

Cost per capita of care management

It became uniformly paid approximately regardless of the need level. It supposes that the growth rate is 3%.

Cost per capita of institutional care

	Need level 0	Need level 1	Need level 2	Need level 3	Need level 4	Need level 5
Regression coefficient						
constant term	28.652	56.496	73.922	102.126	116.712	137.602
time series [1-38]*	0.020	0.202	0.685	1.096	1.422	1.524
Adjusted R2	-0.011	0.353	0.423	0.366	0.397	0.340

*[time series] : since May 2001 monthly

6) See Table 3; as for the disabled person support, the cost is estimated by budget plan.

7) 18% was adjusted to 19 % in 2006.

8) 32% was adjusted to 31 % in 2006.

$$A_m = \frac{X_{kms,t} * P_{kms,t} * a_m}{12 * X_{m,t}} \quad \dots\dots\dots(5)$$

A : Monthly average insurance premium by age group

a : Proportion of contribution by age group [14% : 24% : 12%]

This model doesn't include the elements of an innovation and a workforce supply. If a preventive care were advanced by a technology progress effectively, the future demand of long-term care must be reducing. It is estimated that the labor participation rate rises by the developing of the declining birthrate and a growing proportion of elderly people. Then the income per capita of working generations rises, their LTCI premium rate is suppressed.

To reform this model to a standard form of macroeconomic model is the next study.

4. Simulation Results

Most of the cost increases are due to the growth of community-based care⁹⁾. Because one of model conditions is that the proportion of community-based care to whole LTCI services uprises, it is inevitable result.

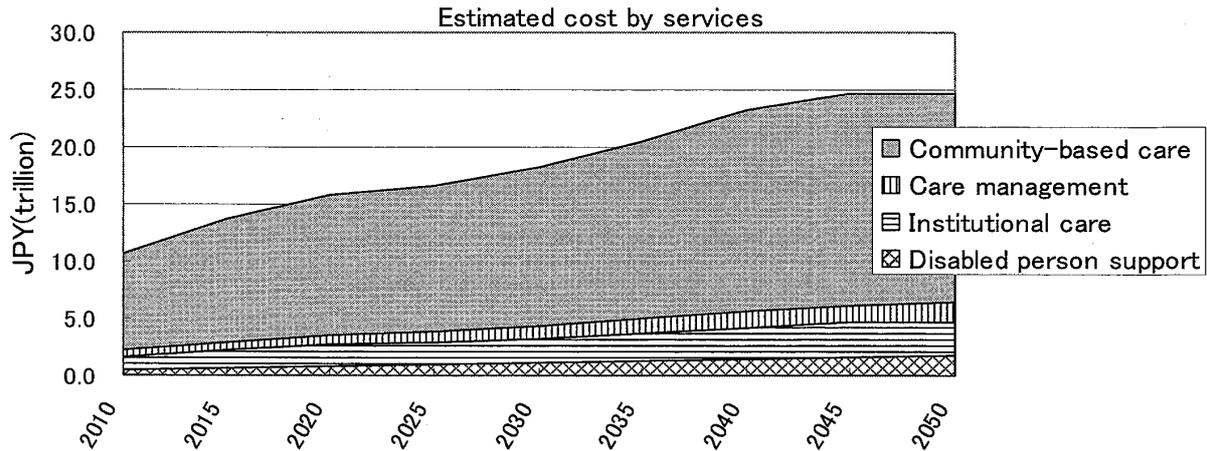
In comparison between those results and the estimate by MHLW, total cost of LTCI is less than MHLW's estimate in 2025. MHLW supposes that the most reason of cost up is the growth of institutional care cost. If it isn't particular about whose managing the institutions for the elderly, the growth will be suppressed. To break the

Table 4 Simulation result: Estimated total cost and number of beneficiary

FY	(Trillion JPY) Community- based care	Care management	Institutional care	Total Cost	(Trillion JPY) Disabled person support	(thousand) Number of Beneficiary
2010	8.3	0.6	1.1	10.1	0.5	5974
2015	10.7	0.8	1.5	13.0	0.7	6383
2020	12.3	0.9	1.8	15.0	0.8	6321
2025	12.8	0.9	2.0	15.7	1.0	5770
2030	13.8	1.0	2.2	17.0	1.1	5542
2035	15.5	1.2	2.5	19.2	1.3	5595
2040	17.6	1.4	2.8	21.8	1.4	5732
2045	18.5	1.6	3.0	23.2	1.6	5545
2050	18.2	1.7	3.0	22.9	1.7	5032

9) See Table 4 and Figure 2.

Figure 2 Estimated cost by services: 2010-2050



entry barrier is the way of cost control.

It emphasizes how much who is burdened with the insurance premium. Although the 3rd group (20-39 years old)’s proportion of contribution to the total cost is 12%, their average amount of insurance premium exceeds the 1st group (65 years old and over)’s average amount until 2020¹⁰⁾. The 1st group’s proportion is 14% only. For whom is it possible to tell a younger generation to be burdened more?

As population aging, a support power to the older generation is reducing. For the person of 20 years old in 2004, he or she must continue to pay an insurance premium for about 60 years. On the other hand, the person of 70 years old now pays an

Table 5 Simulation result: Estimated monthly average premium by age group and ideal consumption tax rate increment

	The 1st group’s average premium/month (contribution ratio: 18%–>14%)	The 2nd group’s average premium/month (contribution ratio: 32%–>24%)	The 3rd Group’s average premium/month (contribution ratio: 0%–>12%)	Ideal consumption tax rate increment (1%=JPY 2 trillion.)
2010	JPY 4,307	JPY 4,944	JPY 3,244	+2.5%
2015	JPY 4,862	JPY 6,477	JPY 4,678	+3.5%
2020	JPY 5,357	JPY 7,593	JPY 5,910	+4%
2025	JPY 5,607	JPY 8,013	JPY 6,607	+4%
2030	JPY 6,094	JPY 9,000	JPY 7,519	+4.5%
2035	JPY 6,805	JPY 10,791	JPY 8,842	+5%
2040	JPY 7,467	JPY 13,445	JPY 10,575	+6%
2045	JPY 7,933	JPY 15,329	JPY 12,010	+6%
2050	JPY 8,010	JPY 16,185	JPY 12,681	+6%

10) See Table 5.

insurance premium for high risk and short term only. Relationship between a risk and a return is upset during the generations. Don't decide to add a younger generation to the insured group without careful consideration.

If MHLW go on reforming LTCI as scheduled, the 3rd group is burdened with JPY 720 billion. By the disabled support is integrated in LTCI, the cost is JPY 350 billion added. According to the recent trend of growth, total cost of LTCI is increasing by JPY 1 trillion annually. Even if MHLW succeeds in the reform, they must tackle the next reform.

The issue which it must not forget is the consumption tax rate. Estimated increment of that shows Table 4. This increment is contributed by LTCI only.

5. Disadvantage of pay-as-you-go system

Public medical insurance in Japan is based on the pay-as-you-go system. It is the way of adjusting revenue and expenditure every fiscal year. The possibility of the medical care needs is distributed over all the ages, but the possibility of the long-term care needs is in specific age group. Even if it is supposed that the young person become the disabled person as MHLW plan, the long-term care needs won't be distributed over all the ages. The less than 40 year-old physically handicapped people are about 5% of the whole. One of the interest groups that agrees MHLW plan is the group of mentally retarded children and people. They know that the period which is added newly by the assured person indeed becomes a beneficiary. However the relation between the risk and the burden isn't clear for a lot of people.

Some features of the pay-as-you-go system and the funded system are as follows.

- Adjusting revenue and expenditure every fiscal year (pay-as-you-go)
- Weakness about the demographic change (pay-as-you-go)¹¹⁾
- Expansion of unfairness among generations in aging society (pay-as-you-go)
- The redistribution not between the generations but in the generation (funded)
- Consideration the receipt qualification by the call term (funded)
- Consideration the benefits incorporated the income incentive (funded)¹²⁾

Social security systems in Japan aren't composed only of LTCI. People thought that the pension reform in 2004 did not succeed in solving unfairness among generations about burden. The LTCI reform should aim for fairness among generations. If

11) (Stiglitz 2000), See Figure 1.

12) (Clasen 2001)

it introduced the partially funded system to LTCI finance as described later, don't worry the lost of solidarity between the generations. The revenue of LTCI is from tax and premium. It explains that the tax revenue derives from the consumption tax which all people paid. It means that the half of revenue is burden between the generations fairly.

6. Proposal for LTCI Reform

This article proposes another reform plan. LTCI reform should provide a fundamental solution to the finance of LTCI and the inequality between the generations. Because the current LTCI is based on the pay-as-you-go system, the finance of LTCI is very weak about the population aging. The main point of the proposal is to rearrange to the partial funded system. It intends to make LTCI the mechanism of the redistribution in the generation. Namely as for a premium, the redistribution between the generations will disappear. As for a contribution from tax, that will continue by a consumption tax.

The current contribution proportion of the elderly (age 65 over) to LTCI total expenditure is 18%. That of the age 40-64 group is 32%. The premium sum of the 1st group is decided by the assurer of the municipality unit as the principle. The monthly average premium is JPY 3190 from 2003 to 2005. If the 1st group burdens the whole premium revenue, their average premium sum will be raised up to JPY 8860 every month. It is the time to change the way of finance of LTCI.

The younger age groups should be burdened premium to being used for themselves. As for technical issue, who manage the reserve fund until their old age? Public managing funds like the pension fund, the government loan and investment program and the postal savings were criticized. Nevertheless the correction of the partiality between the generations is more important than the risk of the fund operation. To build the confidence in a social security system is the first.

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