Comparison of the LTC expenditures for the elderly in Japan and the Netherlands

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1 Introduction

In many developed countries, expenditure on long-term care for the elderly is a matter of great concern due to the aging of the population. The Netherlands was the first country that introduced a universal mandatory social health insurance scheme (AWBZ) for covering a broad range of long-term care (LTC) services, and among developed countries the LTC expenditure in the Netherlands is the highest.

In view of the aging of the population and rising consumer expectations about the quality and quantity of LTC services, it is a common concern among developed countries as to how to increase incentives for efficiency and consumer direction in the LTC system, as well as how to finance LTC expenditure.

Public LTC Insurance has been implemented since 2000 in Japan. Japan followed the German model, but there are many important differences between the two systems. The main beneficiaries of the Japanese LTC Insurance are the elderly aged 65 or over, and LTC expenditure has increased quite rapidly. As Japan faces a serious population aging currently, and on an unprecedented level in future years, how to control the LTC expenditure for the elderly is a formidable challenge for Japan.

The main aims of this paper are (1) to describe the basic features of medical and LTC expenditures in Japan and the Netherlands from international perspectives (Section 2); and (2) to assess the demographic factors on medical and LTC expenditures in future years in both countries, through using a micro-simulation model (Section 3). In Section 4, we discuss the sustainability of the elderly LTC systems in both countries, in view of the aging of the population and the expected increase in demand for LTC services.

By using a dynamic micro-simulation model named INAHSIM, Fukawa (2013b) did a household projection in Japan for the period of 2010-2060. As an application of the model, a projection of medical and elderly LTC expenditures was made for the years 2010-2060 for Japan. In this paper, we tried to produce similar results for the Netherlands. Although a comprehensive definition of LTC is used in the Dutch AWBZ system, including care for the mentally and physically handicapped and care for chronic psychiatric patients, we focus on the LTC for the elderly in this paper.

2 Basic features of medical and LTC expenditures in Japan and the Netherlands

(1) Comparison of medical and LTC expenditures in seven countries

Table 1 shows basic indices related to the medical and LTC expenditures in seven countries. In Table 1, among seven countries, only in Germany and Japan will the total population decrease from 2010 to 2050. While aging of the population is common in all seven countries, Japan will experience

the most serious aging rate (the proportion of those who are 65 years old or over to the total population) of about 40 percent in 2050, due to its very low fertility rate and its long life expectancy. The proportion of those receiving LTC services among the elderly population aged 65 or over was highest in the Netherlands, and LTC expenditure as a percent of GDP was also highest in the Netherlands (3.8%).

Table 1 Comparison of population, health and long-term care expenditures in seven countries

		France	Germany	Japan	NL	Sweden	UK	USA
Total population (million)	2010	62.6	81.9	127.5	16.5	9.4	61.3	309.1
	2050	70.0	74.4	95.2	16.8	10.5	77.0	439.0
Ageing rate (%)	2011	16.8	20.7	23.3	15.6	19.3	16.2	13.1
	2050	24.9	30.9	38.8	26.4	24.6	23.6	21.2
Life expectancy at birth (both sex, year)	2010	81.8	80.5	82.9	81.0	81.6	80.7	78.7
Total health expenditure (% of GDP) a	2010	11.7	11.5	9.6	12.1	9.5	9.6	17.7
Health expenditure by function (%) b	2010							
Inpatient care		37.0	29.0	32.0	34.0	28.0	-	19.0
Outpatient care		22.0	29.0	34.0	18.0	42.0	-	51.0
Long term care		10.0	12.0	9.0	24.0	8.0	-	6.0
Medical goods		21.0	20.0	21.0	14.0	16.0	-	14.0
Collective services		9.0	9.0	4.0	10.0	6.0	-	11.0
LTC related indices b	2009							
Life expectancy at 65 (year) male		18.2	17.6	18.9	17.4	18.0	18.1	17.3
female		22.5	20.8	24.0	20.8	21.0	20.8	20.0
Limitations in daily activities (%) 65-74		42.3	53.6	-	38.9	22.2	35.4	-
75+		66.0	75.3	-	56.8	34.0	46.9	-
Prevalence of dementia among 60+ population (%)		6.5	5.8	6.1	5.4	6.3	6.1	6.2
Recipients of LTC among 65+ population (%)		11.1	11.3	12.6	19.4	17.6	-	6.5
Share of LTC recipients receiving care at home		62.0	68.7	77.0	64.0	67.7	-	50.6
Proportion of informal carers among 50+ pop.		10.7	11.0	-	11.4	8.0	15.2	-
LTC beds per 1,000 elderly population aged 65+		72.5	50.3	37.4	68.5	81.7	55.1	42.6
LTC workers per 1,000 elderly population aged 65+		1.6	3.8	5.4	7.7	13.0	-	11.9
LTC expenditure (% of GDP)		1.8	1.0	1.0	3.8	3.7	-	0.6
Elderly LTC expenditure (% of GDP) c	2005	1.1	1.0	0.9	1.7	3.3	1.1	0.9
	2050	2.0-2.8	2.2-2.9	2.4-3.1	2.9-3.7	3.4-4.3	2.1-3.0	1.8-2.7

Note a: OECD (2013) OECD Health Data 2013.

     b: Health at a Glance 2011

     c: OECD (2006) Projecting OECD Health and Long-Term Care Expenditures, ECO/WKP(2006).

Sources: OECD

According to OECD (2006), LTC expenditure for the elderly was around 1 percent of GDP in 2005 for five countries in Table 1, and a large increase is expected in LTC expenditure for the elderly between now and year 2050 for all countries, excepting Sweden. Therefore, how to finance LTC expenditure for the elderly is a big concern in all seven countries, as the elderly population in each is a heavy consumer of both medical and LTC services in those countries.

(2) Medical expenditures in Japan and the Netherlands

Most healthcare services in Japan are provided through the public health insurance system. The entire population has been covered by the public health system since 1961. Japan has three categories of health insurance: employment-based Health Insurance, region-based National Health Insurance, and Health Insurance for the Elderly aged 75 or over (since April 2008). The Japanese reimbursement system used to be fee-for-service with partial price bundling mainly for chronic diseases of the elderly, and the same nationwide fee schedule is applied to physicians and hospitals. The typical contribution rate of employment-based Health Insurance was 10.0 percent of wages in 2013, shared evenly by employers and employees.

Cost-sharing of patients has been unified to 30 percent of healthcare costs for non-elderly patients and 10 or 20 percent for elderly patients. However, there is an upper ceiling on this cost-sharing, and the cap is lower for low-income persons. The control of the health expenditure of the elderly has been targeted, as well as reducing the demand for healthcare by preventing lifestyle-related diseases. Patient-oriented healthcare has been pursued recently in order to increase the sustainability of the system. In accordance with higher patient expectations, the measurement and assurance of quality of healthcare services has become an important policy area in Japan.

Fig. 1 shows the historical trends of total health expenditure as a percent of GDP in seven countries using OECD Health Data. Total health expenditure in the Netherlands was stable in the 1990s, but it increased from 8 percent in 2000 to 12 percent in 2010. Total health expenditure in Japan used to be the lowest next to the UK, but in 2010 the Japanese total health expenditure (9.6 percent) rose to the same level as in the UK. The aging of the population is quite remarkable, but health expenditure has increased slowly in Japan; whereas in the Netherlands, health expenditure has increased quite remarkably between 2000 and 2010 with slower population aging (Fukawa, 2013b).

Table 1 also shows the break-down of health expenditure by function, and some institutional LTC expenditure is included in the total. If we extract this expenditure from the total, then medical expenditures in Japan and the Netherlands in 2010 could be viewed as 8.7 percent and 9.2 percent of GDP respectively.

(3) LTC expenditures in Japan and the Netherlands

Elderly care services had been provided primarily through the tax-based social welfare system, which was targeted to the low-income elderly or those without families in Japan. However, the LTC Insurance implemented in April 2000 has changed the situation completely. The principles underlying this new program are universal coverage (although benefits are available mainly for the elderly), financing through social insurance (although the public fund finances 45 percent of the cost), freedom of choice by service users, and reliance on a service market. One of the main reasons to introduce the LTC Insurance was to reduce the number of so-called socially induced hospitalization (Note 1) cases, especially among elderly patients.

Fig. 1 Total health expenditure as percent of GDP: 1985-2010/11
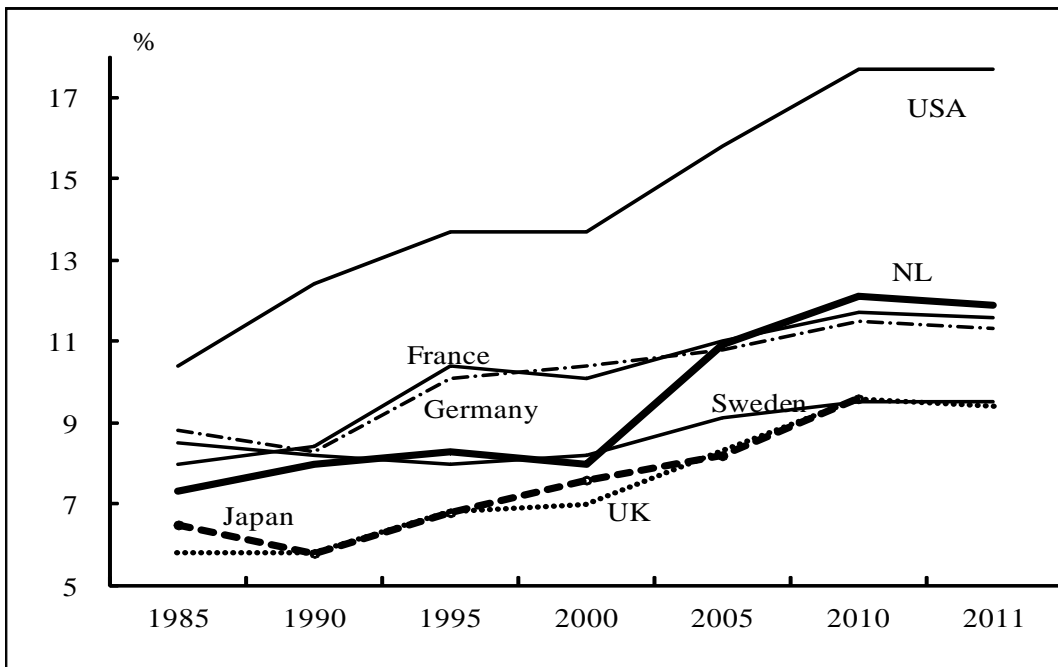
Source：OECD Health Data 2013

The Japanese system is summarized in Table 2. The insured are divided into two categories: persons aged 65 or older (Category 1), and persons aged 40 to 64 years old who are subscribers of health insurance (Category 2). Benefits are available after care need assessment for all in Category 1, but only those who suffer from age-induced illness for Category 2. Assessment of care needs is done by each municipal committee, and beneficiaries are classified into one of seven levels of care needs according to their physical and mental capacity. The income and family situation of the elderly are not considered in determining the level of care needs. Cash options are not available. Elderly assessed with the lowest care needs have been moved to a preventive scheme since 2006. Home care services include personal care, home aid services, respite care for caregivers, day care services, visiting nurse care, rehabilitation at home or a day care center, and group homes for people with dementia. A care management approach has been adopted and a care service plan is to be prepared for each beneficiary. Facility-based services are provided at skilled nursing facilities, health service facilities for the elderly (primarily for rehabilitation), and skilled nursing wings of geriatric hospitals. So-called "hotel costs" (eating and accommodation) have been eliminated from the benefit catalogue of the LTC Insurance since April 2006.

The program is financed through a combination of contributions from the insured, government subsidies, and user charges. Service users must pay 10 percent of expenses, although there is an upper ceiling for this user charge. Apart from user charges, a half of the benefits are financed by insurance contributions and the other half by the public tax revenues. For Category 1, the level of contribution is determined by each municipality, and thus differs depending on facilities and services

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available and the adoption rate of insured persons within the municipality. However, it is income-related, and there are some measures to reduce the contribution for low-income persons. Regional differences are allowed to leave the management of the system to each municipality's discretion. The average monthly contribution is about 5,000 yen for Category 1. For institutional care, the beneficiary also pays for meals based on the average amount consumed by the elderly at home (23,000 yen per month). The total long-term care expenditure was 7.4 trillion yen in 2010 (1.6 percent of GDP), and 97 percent of them was spent for Category 1 insured (namely aged 65 or older).

Table 2 Long-term Care Insurances in Japan and the Netherlands

	Japan (since April 2000)	The Netherlands (since 1968)
Name	Long-term Care Insurance (LTCI)	AWBZ
Insurer	Municipality	Central Government
Insured	Persons aged 65 or older (Category 1), and perons aged 40 to 64 years old and subsribers of health insurance (Category 2)	Total population
Contribution (rate)	Category 1: about 5,000 yen per month on average Category 2 　Health Insurance Association: 1.55%	12.65% of taxable income
Financial source	User charge: 10% Government subsidy: 50% of LTC benefits Contribution: 50% of LTC benefits (21% by Cat. 1)	Contribution: 68% Government subsidy: 24% Income-related co-payment: 8%
Beneficiaries	All Category 1 after care assessment + those Category 2 who suffer from age-induced illness (exceptional), both after care assessment.	Those who are entitled through care needs assessment
Care needs assessment	Municipal committee	CIZ (Center for Needs Assessment)
Care management	since April 2000	
Insurance benefits	Benefit in kind only. Home care services: 　Frail 1 2 　Level 1 2 3 4 5 Facility-based services: 　Skilled nursing facilities 　Health service facilities for the elderly 　Skilled nursing wings of geriatric hospitals	Benefit in kind or personal care budget or a conbination of both Home care services: 　Personal care, nursing care, counceling, treatment Facility-based services: 　Short -term residence 　Long-term residence
Expenditure	Expenditure: 1.7 % of GDP in 2011	Expenditure: 4.2 % of GDP in 2011

Public long-term care insurance called the Exceptional Medical Expenses Act (AWBZ) was introduced in 1968 in the Netherlands. Initially, the AWBZ primarily covered nursing home care, institutionalized care for the mentally handicapped, and hospital admissions lasting more than a year. In due course, however, coverage was expanded, and the expenditure of the AWBZ increased accordingly to about 4 percent of GDP. Every citizen older than 15 years of age with a taxable

income must pay an income-related contribution to the AWBZ. In addition, for most long-term care services covered by the AWBZ, income-related co-payments are required. The Netherlands is divided into 32 care regions, and in each region a single health insurer (known as a "regional care office") carries out the AWBZ on behalf of all health insurers for all residents living in that region. Regional care offices receive a fixed budget for the administrative tasks. Neither regional care offices nor individual health insurers are at risk for long-term expenses covered by the AWBZ scheme. Since 2005, the Centre for Needs Assessment (CIZ) is responsible for the needs assessment, to make needs assessment more objective and uniform.

In 2003, the definition of entitlements was radically changed into seven broad functional care categories. In 2007, one of these categories – domiciliary care – was excluded from coverage and transferred to the responsibility of the municipalities under a new Social Support Act (WMO).

Except for the functional category, "accommodation," clients who are entitled to care have a choice of receiving care "in kind" or in the form of a *personal care budget* (or a combination of both). The rapid expansion of personal care budgets was an effective way to encourage the provision of informal care.

Informal care plays a relatively minor role, but the majority of home care is provided by informal caregivers in the Netherlands. Since 2003, strict protocols were developed regarding needs assessments, taking into account the potential amount of informal care the care recipient's social network could provide. Since 2008, care-severity packages (ZZPs) have been developed for inpatient care in long-term care facilities (i.e. nursing homes, elderly homes, institutions for mentally and physically handicapped and mental care institutions).

The Japanese system belongs to the same type as the German or Dutch systems, namely universal coverage within a single program; but the Japanese system applies primarily to the elderly population, compared to the German and Dutch systems which apply to all people with an assessed need for care regardless of the age-group (OECD, 2011). According to Table 1, the LTC expenditures in Japan and the Netherlands in 2009 were 1.0 percent and 3.8 percent of GDP respectively, and the Elderly LTC expenditures in Japan and the Netherlands in 2005 were 0.9 percent and 1.7 percent respectively. From national data, however, the Elderly LTC expenditure was 1.6 percent of GDP in 2010 in Japan and 2.7 percent (Note 2) in 2011 in the Netherlands.

3 Impact of demographic factors on medical and elderly LTC expenditures in future years in Japan and the Netherlands

(1) Method and assumptions

Events contained in the simulation model include not only such vital events as birth, death, marriage, divorce, and changes in household situations generated by them, but also separation from and return to original household, reuniting of widowed or divorced persons to the parent's household, and the merger of aged parent(s) into the child's household. Various transition

probabilities were used in the model. The death rate is given by age and sex for those who are younger than 65 years old, but it is determined by transition probabilities which are given by age, sex, and dependency for those who are 65 years old or over. We employed four kinds of household mergers: (a) Co-resident rate of adult child with parents upon marriage; (b) Reuniting rate of adult child to the parent's household upon becoming widowed; (c) Reuniting rate of adult child to the parent's household upon divorce; and (d) merger rate of aged parent(s) with the child generation by marital status, average age and dependency of aged parent(s). The operation of each event was carried out once a year. Detailed explanation about the INAHSIM model is found at Fukawa (2010).

The dependency of the elderly aged 65 or over is classified into four levels as follows:

Level 0: No disability and completely independent;

Level 1: Some disability but basically independent;

Level 2: Slightly or moderately dependent; and

Level 3: Heavily dependent.

Levels 2 and 3 correspond to persons eligible for LCI, and Level 3 corresponds to care need levels 4 and 5 in particular for the Japanese LTC Insurance.

The total fertility rate was assumed to remain around 1.4 for Japan and 1.7 for the Netherlands throughout the simulation period. The death rate was assumed to decline gradually, and life expectancy at birth was assumed to be 84.1 years for males and 90.2 years for females for Japan, and 83.7 years for males and 86.6 years for females for the Netherlands in 2060.

Table 3 shows some demographic references for simulation. For the Netherlands, international migration is not negligible. However, we simply neglect international migrations for both countries. We used 2011 data as the baseline for the Netherlands because there was a significant gain in the male life expectancy at birth. On the other hand, we intentionally used 2010 data as the baseline for Japan to avoid any influences caused by the Grate East Japan Earthquake in 2011.

Table 3 Demographic references for simulation

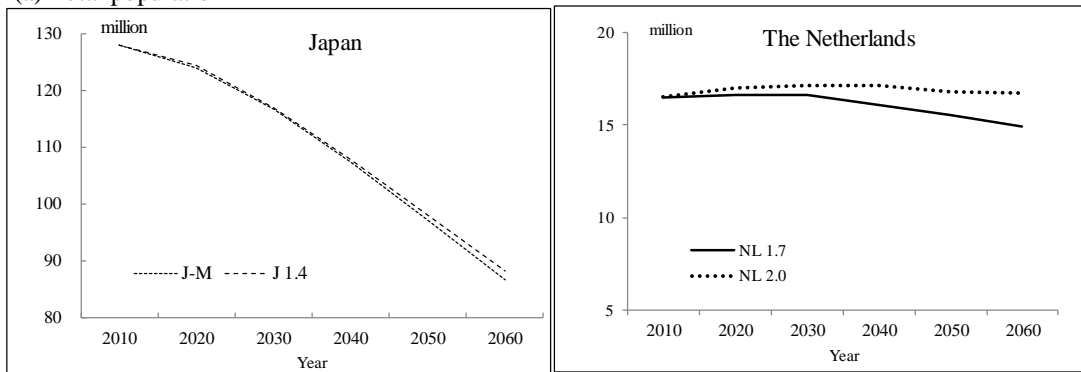|		Japan		Netherlands		
		2010	2050	2010		2050
Total population (million)		128.1	97.1	16.5		16.8
65+ (million)		29.5	37.7	2.5		4.4
Ageing rate (%)		23.0	38.8	15.3		26.3
TFR		1.39		1.79		
Life expectancy at birth (year)	male	79.6	83.6	79.4	a	83.5
	female	86.3	90.3	83.1	a	86.9
Life expectancy at 65 (year)	male	18.7	21.8	18.1	a	21.1
	female	23.8	27.2	21.2	a	23.9
Birth per 1,000 population		8.5		11.1		
Death per 1,000 population		9.5		8.2		
Number of households (million)		51.8		7.3		
One person households (million)		16.8		2.6		
One person households (%)		32.4		35.8		

a: 2011

(2) Future population and demographic indices

The population decline and aging of the population continue during simulation periods in Japan (Fig. 2). The number of total population and aging rate (the proportion of those who are 65 years old or over to the total population) in future years are in line with the result of the latest official population projection published in January 2012 (J-M in Fig.2). The number of those who are aged 65 or over will peak around 2040, and the peak year for the population aged 75 or over will be around 2050. Aging rate in 2060 will be near 40 percent, and the proportion of those who are 75 years old or over will be more than 20 percent in 2040 in Japan.

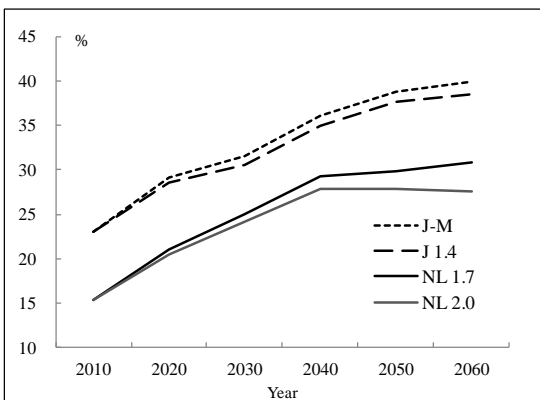Fig.2 Total population and ageing rate

(a) Total population

(b) Population of 65+ and 75+
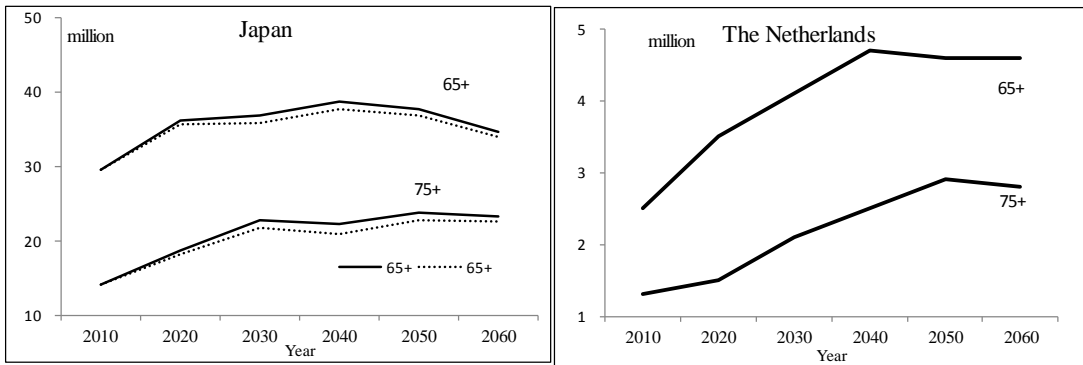
(c) Ageing rate

In the Netherlands, on the other hand, the population decline may happen if we ignore international migration, but it is much slower compared to Japan. If we assume TFR as 2.0 throughout the simulation periods, then total population will remain stable without international migration. Aging of the population will also continue in the Netherlands, but the degree will be much lower.

As already anticipated from the aging rate in future years, demographic situations in Japan will be much more serious than that of the Netherlands. If we define elderly dependency as the number of the elderly relative to the working age population such as 65+/(25-59) or 70+/(25-64), and elderly care burden as the number of the care-receiving age population relative to the care-giving age population such as 80+/(50-69) or 85+/(50-74), then the simulation results clearly show that for both elderly dependency and elderly care burden, the situation in Japan will be 1.5 times more serious than the Netherlands.

(3) Future medical and elderly LTC expenditures

Table 4 shows the distribution of the elderly aged 65 or over according to dependency level for 2010-2060. The difference between the two countries comes from the differences in death rate and age structure. The proportion of those elderly who are completely independent will gradually decrease in both countries, but the share is higher in Japan in 2050 and 2060 although the aging rate is higher in Japan. The share of dependency level 3 will steadily increase in both Japan and the Netherlands. Those elderly in levels 2 and 3 are assumed to use a lot of LTC services.

Table 4 Distribution of the elderly aged 65 or over according to dependency level

(In %)

| Year	Japan				The Netherlands			
	Dependency Level				Dependency Level			
	0	1	2	3	0	1	2	3
2010	74.3	13.7	8.3	3.6	73.5	15.6	6.9	3.9
2020	71.6	14.6	9.4	4.5	73.6	14.8	7.9	3.6
2030	67.5	15.5	11.2	5.8	70.2	16.3	9.0	4.5
2040	67.3	14.9	11.2	6.6	67.9	16.3	10.0	5.8
2050	65.4	15.7	11.7	7.1	63.0	17.2	11.7	8.1
2060	61.3	16.2	13.6	8.9	59.8	17.3	12.8	10.1

Japanese medical expenditure was 37.4 trillion yen, or 7.8 percent of GDP, in FY2010. The proportion of medical expenditures used by the elderly aged 65 or over was 20.7 trillion yen, or 55 percent of the total. Japanese LTC expenditure in FY2010 was 7.56 trillion yen, or 1.6 percent of GDP, of which elderly LTC expenditure was 7.36 trillion yen.

Fig.3 shows Japanese age-related expenditure profiles for medical expenditure and elderly LTC expenditure as percentage of GDP per capita in 2010. For the ages 65 or over population, LTC

expenditure makes up about one-third of medical expenditure. However, for ages 90 or over population, LTC expenditure is greater than medical expenditure.

By applying future age-group population to the age-related expenditure profiles for medical expenditure in Fig.3, future medical expenditures can be estimated. The same age-related expenditure profiles (Fig. 3) are also applied to the Netherlands, because age-related expenditure profiles in the Netherlands are more or less similar to Fig. 3 according to the European Commission (2006). Estimated future medical expenditure by this method is in 2010 prices, and no future developments such as technology advances and price increases are considered.

Figure 3 Age-related expenditure profiles for medical expenditure and elderly LTC
        expenditure in Japan, % of GDP per capita, 2010
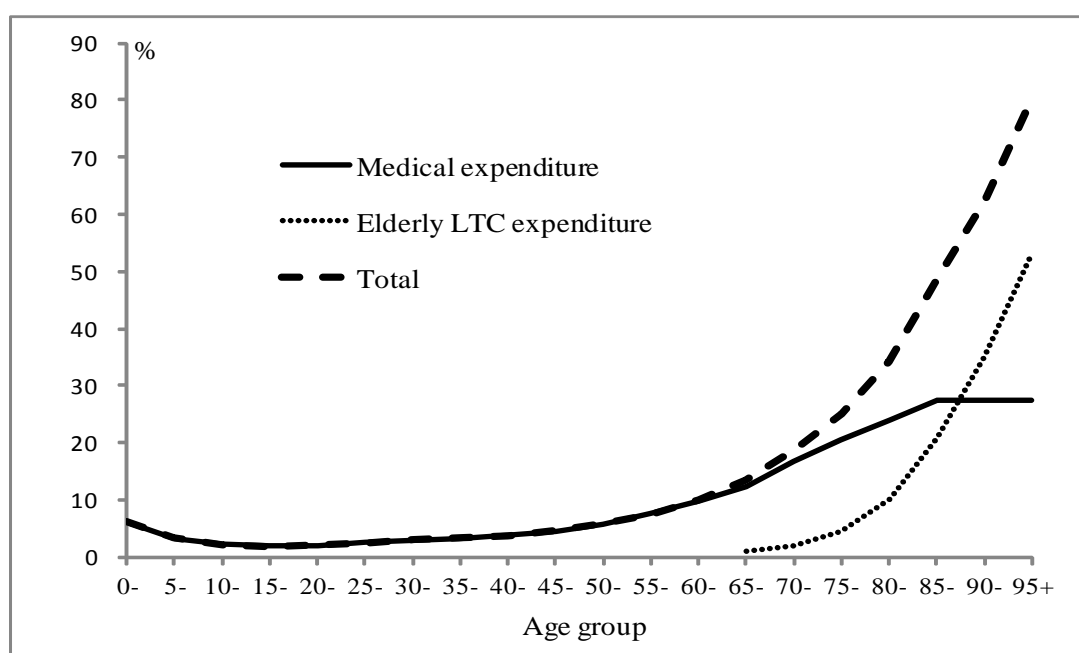
Source: Ministry of Health, Laboue and Welfare.

For future elderly LTC expenditure, we assumed two cases. In Case 1, future elderly LTC expenditure was calculated by using the number of age-group population and the age-related expenditure profiles for elderly LTC expenditure in Fig.3, for both Japan and the Netherlands. In Case 2, elderly LTC expenditure was assumed to occur only from those whose dependency levels are 2 or 3, and level 2 is as expensive as one-third of level 3. Again, future elderly LTC expenditure is in 2010 prices, and no future developments such as technology advances and price increases are considered.

Table 5 is the results of future medical and elderly LTC expenditures in Japan and the Netherlands. For the Netherlands, we assumed that medical expenditure was 8.7 percent of GDP and elderly LTC expenditure was 2.7 percent of GDP in 2010, based on Rolden and van der Waal (2013). It is interesting to note from this table that medical expenditure will peak in 2030 and

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decline afterwards, and the expenditure level in 2060 will be lower than the level in 2010, if we consider only demographic factors (namely without assuming inflation, technology advances, etc.) in Japan. On the other hand, elderly LTC expenditure will continue increasing until 2060. Consequently, the sum of medical and elderly LTC expenditures will increase until 2040, and slowly decline afterwards in Japan.

Medical expenditure will increase until 2050, and elderly LTC expenditure will continue increasing until 2060, resulting in a continuous increase in the sum of medical and elderly LTC expenditures until 2060 in the Netherlands. It is important to remember that various reforms to contain cost increases in the AWBZ in 2012 and afterwards in the Netherlands are not reflected in the simulation.

Elderly LTC expenditures will be higher in Case 2 than Case 1 in both countries, which means that aging of the population will increase the number of elderly with a high level of dependency, requiring many of LTC services.

Table 5 Medical and ELTC expenditures in 2010-2060

Year	Japan (trillion Yen)					The Netherlands (billion Euro)				
	Medical expenditures	ELTC expenditures		Total		Medical expenditures	ELTC expenditures		Total	
		Case 1	Case 2	Case 1	Case 2		Case 1	Case 2	Case 1	Case 2
2010	37.4	7.6		45.0		51.9	16.4		68.3	
(% GDP)	(7.8)	(1.6)		(9.4)		(8.7)	(2.7)		(11.4)	
2020	40.7	10.5	10.6	51.2	51.3	58.0	19.3	14.8	77.3	72.8
2030	41.5	13.0	13.4	54.5	54.9	64.2	25.5	21.0	89.7	85.2
2040	40.4	14.5	15.2	54.9	55.6	67.4	34.2	30.9	101.6	98.3
2050	38.7	14.7	16.1	53.4	54.8	67.8	41.6	40.5	109.4	108.3
2060	36.5	16.2	17.9	52.7	54.4	67.2	48.6	49.8	115.8	117.0

Note: Data for 2011 are written in 2010 line for the Netherlands.

Medical and elderly LTC expenditures in future years depend on a number of factors, and simulation results may change according to assumptions. However, it is quite clear that controlling the LTC expenditure is indispensable in controlling the total expenditures of medical and LTC expenditures at advanced ages, as shown in Fig.4. Table 5 suggests that the Dutch expenditures will continue to be higher than the Japanese, despite the lower aging rate, and that the increase in both medical expenditure and elderly LTC expenditure should be controlled in both countries in order to make these systems sustainable for years to come.

4 Discussions

Japanese LTC Insurance is a universal program financed by contributions, public subsidies, and user charges, and has relieved considerably the financial pressures on the medical expenditure of the elderly, because long-term stays of the elderly patients in hospitals had been included in the medical expenditures. The Japanese approach is to convert a vertically divided welfare and health care

system for the elderly to a coherent system in terms of institutional and domiciliary services and to separate the long-term care from the medical care insurance (Fukawa, 2013a).

Japanese elderly LTC expenditure was 1.7 percent of GDP in 2011. Elderly LTC expenditure will reach to around 3 percent of GDP in many developed countries, including Japan, in future years. Therefore, how to finance elderly LTC expenditure and how to provide services to the elderly are already a big issue. One of the most sticking issues is the balance between institutional and domiciliary services. Institutional care is usually provided to those who have heavy care needs, but this is not necessarily the case in Japan.

In the Netherlands, the mandatory insurance scheme for curative services was extended to the entire population in 2006. The new health insurance scheme for curative services, based on the model of managed competition, would provide much stronger incentives for efficiency and to meet consumer preferences. However, there are no appropriate risk adjusters available for long-term care, and it is unclear whether adequate risk adjustment is even feasible for many of these services (Schut and van den Berg, 2012).

The AWBZ in the Netherlands is a typical example of integrating long-term medical and social cares into a single scheme. However, because of the high cost structure of the AWBZ, an approach to minimize the AWBZ is being pursued. Quite recently, there is a discussion in Japan to shift the benefits of lowest level care needs to municipality responsibility within the framework of the LTC Insurance. Therefore, a reform plan to transfer social support from the AWBZ (entitlement) to the WMO (welfare) entirely may be seen as a precedent for Japanese reform discussion.

The future expenditure on elderly LTC is very sensitive to the exact growth of the number of elderly, changes in real prices of long-term care, and trends in dependency among the elderly (Fukawa, 2013a). The effects of aging on LTC consumption might be mitigated by a "healthy aging" process if longevity gains are fully or partially translated into additional years in good health. The correlation across countries between LTC spending and aging is rather weak (OECD, 2005), therefore the way of organizing and financing LTC plays an important role.

It is already known from the Japanese data that LTC expenditure is larger than medical expenditure for the very advanced age population, and simulation results clearly show that it is the elderly LTC expenditure which should be controlled in future years. According to our simulation, medical expenditure will reach its peak and decline afterwards in both Japan and the Netherlands, if we consider only demographic factors. Japanese medical expenditure as a percent of GDP is so far low despite the already high aging rate, but medical expenditure will grow under the strong pressures of medical technology advances and people's expectations for better medical services.

Compared to Japan, medical expenditure and elderly LTC expenditure are higher in terms of percentage of GDP in the Netherlands now, and still will be in future years. Whether a reform will lead to a sustainable financing and more consumer-directed provision of long-term care services crucially depends on the ability to develop a clear-cut definition of entitlements, to improve the accuracy of needs assessment, and to develop appropriate "care-severity packages" as a solid basis

for client-based budgeting (Schut and van den Berg, 2012).

Reduction of the AWBZ coverage by transferring a) short-term rehabilitation services to the ZVW and b) provision of social care to WMO in the Netherlands is something which requiring closer look. On the other hand, separation of the financing of residing and care, which is also happening in the Netherlands, has already been implemented in the Japanese system. The Dutch approach to increase incentives for efficiency and consumer direction in the LTC system will be quite relevant for reform discussion in Japan.

(Note 1) There had been frequent use of hospitals instead of long-term care facilities because the accessibility to the latter is limited, and the medically-oriented services are readily accessible to the elderly in Japan. The elderly who stay in hospitals much longer than medically appropriate are deemed to be in "social hospitalization," an induced stay in hospitals caused for social reasons.

(Note 2) According to Rolden and van der Waal (2013), total long-term care and social support expenditure was 5.8 percent of GDP in 2011, and brake-down of it was as follows: elderly care 2.7 %; care for the disabled 1.4 %; day care centers 0.7 %; youth care 0.4 %; etc.

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