Effects of population ageing on public health and long-tem care insurances in Japan and Germany

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Summary

Japan and Germany are still experimenting with various approaches to health reform in order to contain health expenditure and to realize more effective use of health service resources. Both countries have public long-term care insurances. Long-term care expenditure is quite related to ageing and it is important to reduce the number of dependent elderly in future. In the fields of health care and long-term care for the elderly, it is important 1) to emphasis on prevention, 2) to put right incentives in the system, and 3) to give choice to the service users.

Keywords: ageing, health expenditure, long-term care, incentive, Japan-Germany comparison

1.Ageing of the population

The proportion of the population aged 65 years old or over (65+), 16.3 percent in Germany and 17.4 percent in Japan in 2000, is projected to increase markedly to more than 30 percent in both countries (Table 1). Each demographic indicator shows that the burden of society to support the older generations will be larger in Japan. The living arrangements of the elderly are amongst the important factors to be considered in policy formulation and comparison in ageing societies. The proportion of the population aged 65+ who were institutionalized (institution rate) was lower both in Japan and Germany compared with the other developed countries (Table 2). However, the proportion of those non-institutionalized elderly who live alone was 14 percent in Japan compared with 41 percent in Germany (Table 2). This is because about half

Table 1. Population

	Japan						Germany					
	1970	1980	1990	2000	2020	2040	1970	1980	1990	2000	2020	2040
Total population (million)	103.7	117.1	123.6	126.9	124.1	109.3	78.1	78.4	79.8	82.2	79.9	74.5
Elderly population 65+ (million)	7.3	10.6	14.9	22.0	34.6	36.3	10.8	12.2	11.9	13.4	18.0	23.0
65+/total (%)	7.1	9.1	12.0	17.4	27.8	33.2	13.8	15.5	14.9	16.3	22.5	30.9
80+/total (%)	0.9	1.4	2.4	3.8	8.8	12.7	1.9	2.8	3.8	3.6	6.9	9.8
Total Fertility Rate	2.13	1.75	1.54	1.36	1.38	1.39	2.02	1.44	1.45	1.36	1.38	1.57
Life expectancy at birth(years)												
Males	69.3	73.4	75.9	77.7	79.4	80.6	67.9	69.7	72.3	74.5	77.8	80.0
Females	74.7	78.8	81.9	84.6	87.1	88.6	73.7	76.2	78.8	80.7	83.5	85.5

Source : IPSS(2002). Population Projections for Japan : 2001-2050.

Table 2. Elderly people (65+) in 6 countries

(In percent)

	France		Germany		Japan		Sweden		UK		USA	
	m	f	m	f	m	f	m	f	m	f	m	f
The proportion of those who live alone	1982		1985		2001		190		1991		1991	
	32		41		14		41		37		31	
Co-residence rate with children	1990		1987		2001		1986		1980		1987	
	17		14		48		5		16		15	
ADL-dependent rate of non-institutional elderly	1.5	3.1	7.0		4.3	5.3	14.7	20.5	6.6	10.2	8.9	14.8
Institution rate	3.8	8.3	1.5	3.8	2.9	5.4	4.2	6.3	3.0	6.2	3.2	6.4

Source : OECD (1998), Alber (1994), Fukawa (2002b)

of the Japanese elderly aged 65 or over still live with their children.

The death rate of the German elderly was higher than that of the Japanese elderly for each age group, resulting in a difference in life expectancy (Table 3). Life expectancies for Japanese elderly at age 65, for example, were longer than those of their German counterparts by 2 years for males and by 3 years for females. According to the Japanese Patient Survey, about 4 percent of the elderly population aged 65 or over was hospitalized at one survey day in 1999. This inpatient rate increased with age from 2.1 percent for age group 65-69 to 12.4 percent for age group 90+. The proportion of dependent among non-institutional elderly seems rather similar between Japan and Germany (Table 3). The ADL dependent rate, the proportion of those who had difficulty in at least one activity of daily living (ADL) such as eating, dressing, bathing, and walking, among non-institutional elderly 65+ was 4.9 percent in Japan (1995) and 6.8 percent in Germany (1993). It is common in both countries that the ADL dependent rate increases with age, especially rapidly at age group 85+ (Fukawa, 2000 ; Alber, 1994).

2.Ageing and health expenditure

(1) Health insurances (Note 1)

According to OECD (2001), the number of beds per 1,000 populations was very high and the number of physicians was relatively low (1.9 per 1,000) in Japan, and, as a consequence of the high number of beds, the average length of stay in hospitals was very long. In Germany, on the other hand, the number of physicians was high (3.1 per 1,000) and the number of nurses was relatively high. Health expenditure as a percentage of GDP was low in Japan and in the United Kingdom and higher in Germany (1.4 times higher than that of Japan). The percentage of pharmaceuticals to total health expenditure is quite high in Japan (29.5 percent) compared to Germany (17 percent) or the United States (11 percent). However, annual pharmaceutical prescriptions as a percentage of GDP were 1.20 percent in Japan and 1.48 percent in Germany. With regard to the source of funding of health expenditure, patient cost sharing is one of the key questions, especially for the elderly, regardless of whether the system is financed mainly by social insurance or by tax.

Among European countries, Germany is characterized by 1) a high density of practicing physicians, 2) a comparatively long average length of stay together with a high admission rate, and 3) high price of pharmaceuticals. The amount of medicines prescribed by doctors is relatively high, and there are indicators of significant wastage (OECD, 1997). However, the same problems exist in Japan, indeed, in a more serious manner. Japan is characterized by 1) a high density of beds and a low density of physicians, 2) an exceptionally long average length of stay (ALS) in hospitals, and 3) a high ratio of pharmaceutical prescriptions. Public funds play a much larger role in Japan to finance health expenditure, which explains why health system reform is discussed in relation to the government budget formation each year.

Since the universal coverage of the nation through public health insurance in 1961, the benefit level has been improved considerably in 1960s and 1970s in Japan. Cost containment has become the main purpose of health system reforms in 1980s, and quality care has emerged among important objectives in health system reforms in 1990s. Most health services are reimbursed through fee-for-service basis in Japan, and the price of each service is specified on the Medical Fee Schedule, which is revised every two years. There are two Medical Fee Schedules for the elderly and for the non-elderly (Note 2), not according to

Table 3. Health indicators of the elderly by age group

		Japan						Germany				
		65-69	70-74	75-79	80-84	85-89	90+	65-69	70-74	75-79	80-84	85-89
Death rate (%) J 2000, G 1999	m	1.8	2.9	4.6	8.1	13.2	22.5	2.5	3.9	6.4	10.3	16.6
	f	0.8	1.3	2.3	4.3	8.2	16.3	1.2	2.0	3.8	7.0	12.6
Life expectacy (years) J 2000	m	17.5	14.0	10.8	8.0	5.8	4.1	15.4	12.1	9.3	6.9	5.1
G 1997/99	f	22.4	18.2	14.2	10.6	7.6	5.3	19.1	15.1	11.5	8.4	5.9
Inpatient/population (%) J 1999		2.1	2.8	4.1	6.0	8.7	12.4					
ADL-dependent rate of the domiciliary elderly (%) J 1995, G 1993		1.6	2.7	4.7	10.2	16.7	32.1	1.7	3.2	6.3	10.8	22.6

the function of medical facilities, and the Schedule has become increasingly complex after every revision. The Medical Fee Schedule plays a central role in the Japanese health insurance system, in influencing the gamut of activities from economic evaluation of medical technology to delineation of the role of public system. Main reform issues in Japanese health care system are: 1) reorganization of health service delivery system; 2) reforms on reimbursement system of medical fees and pharmaceutical pricing system; 3) financing of health care for the elderly; and 4) quality assurance of health services and empowerment of patients.

Although Japan followed the German model, which is based on the social insurance model, for the provision of health care, there are several differences between the two countries. Public health insurance covers the total population, but there are different schemes for employees and for the self-employed in Japan. These schemes are different in terms of contribution, national subsidy, and benefit level (Note 3). There is a special program for the elderly in Japan, which reduces patient cost-sharing remarkably. Therefore, it could be said that risk adjustment is done in Japan according to age, although non-elderly people are not subject to this adjustment. Private health insurance in Japan has, so far, played a marginal role. In Germany, about 90 percent of the population are covered by public health insurance, and employees and self-employed are treated equally. Those employees with income above a certain level and the self-employed may stay in the public system or opt out of the system to join private health insurance. Coexistence of private risk-based health insurance with the solidarity-based public system in Germany is quite different from Japanese situation. Consumers in Germany have been able to choose their own sickness fund since 1996. Employees and self-employed are covered by the same schemes in Germany, which provides a basis for the insured to choose an insurer. A risk structure adjustment has been implemented in Germany to make the competition among insurers fair, and risk adjustment is done according to age, sex, number of dependents, and income of the insured. Pensioners remain in the same sickness fund they used to join during their active life.

Benefits are more comprehensive in Germany, especially for preventive services and rehabilitation, and accordingly, the effective benefit level was higher in Germany than in Japan. Access to physicians and hospitals is free in both countries. Patients can go directly to hospitals in Japan, which is not the case in Germany; however, both countries share the same characteristic in terms of free choice of GPs and hospitals.

Health expenditure as a percentage of GDP was 10.3 percent in Germany and 7.4 percent in Japan in 1998 (OECD, 2001), and health expenditure for those aged 65+ was 2.6 percent of GDP in Germany compared to 2.7 percent of GDP in Japan (Fukawa, 2001). Health prices relative to economy-wide prices were 1.4 in United States, 1.0 in Germany and 0.6 in Japan (OECD, 1995).

The same nationwide fee schedule is applied to both GPs and hospitals in Japan. The Japanese reimbursement system is still basically fee-for-service with partial price bundling, mainly for chronic diseases of the elderly. The degree of prospective payment in the reimbursement system is still low in Japan. Different reimbursement systems are applied to GPs and to hospitals in Germany. Hospital fees are based on a system of per diem by hospital branch, special fee (medical fees for high cost medical services), and case payment (a kind of DRG; 94 groups). This prospective payment is applied only to hospital fees in Germany, and the share is intended to be 100 percent in near future.

Another important issue in both countries is reducing the improper use of hospital beds. In Japan, this is generally known as a social hospitalization. Among elderly (aged 70+) patients for inpatient care in Japan, the proportion of those patients who required hardly any medical treatment was about 17 percent in terms of the number of patients and about 13 percent in terms of health expenditure of the elderly (Fukawa, 1998). In Germany, it was reported that about 20 percent of bed-days were improperly used (Schneider, 2000).

(2) Impact of ageing

There is a sharp contrast between the two countries in the treatment of the elderly. A special program for the elderly which reduces patients' cost sharing considerably, has been a hot issue in Japan. In Germany, on the contrary, there is no special arrangement for the elderly, and health insurance contribution of the pensioners is deducted from their pension benefits (employer's share is borne by the pension insurers). Forty eight percent of health expenditure is now consumed by the elderly aged 65 or over in Japan in 2000, and the rate is expected to increase further. Therefore, the quality and efficiency of the health expenditure of the elderly will continue to be central issues.

Elderly people consume much more health resources than younger generations, which is shown in elderly expenditure ratio (per capita health expenditure of

those aged 65+ divided by per capita health expenditure of those aged 0-64). Elderly expenditure ratio in Japan was 4.8 in 1998, which is much higher than that in Germany (2.6 in 1995; Fukawa, 2002a). Fig.1 illustrates per capita health expenditure by age group. German figures are based on GKV (gesetzlichen Krankenversicherung) data, which represents about 70 percent of the health expenditure. Per capita health expenditure by age group shows quite different patterns between the two countries, which, of course, reflects varying conditions in health services for the elderly in each country. In Japan, per capita expenditure of the elderly relative to age group 0-9 was very high compared with that in Germany. Moreover, per capita health expenditure increased with age until age group 85-89, but it decreased afterwards in Japan. Fig.1 suggests two important points among others: 1) younger generations consumed relatively more health resources compared to the elderly in Germany than in Japan; 2) there is some possibility even in Germany to reduce unnecessary health expenditure for very old age groups.

On the basis of a Japan-Germany comparison, this age-specific spending pattern raises the following questions:

1) Are the elderly in Japan making too much use of health services?

2) If the elderly in Germany use about the same amount of, or more of, health services than the elderly in Japan, are younger generations in Japan making insufficient use of health services?

Because of this spending pattern, and the very rapid ageing of the population, much more attention is paid to the health expenditure of the elderly in Japan than in Germany. However, it is also true in Germany that health expenditure of the elderly is increasing more rapidly than that of non-elderly, and it is considered that technology developments in health services are biased towards elderly (Knappe, 2001). Due to the increase in the number of elderly population together with the reduction of working population, the contribution rate to the public health insurance is estimated to increase from present 14 percent to 25 percent in 2030 in Germany (Knappe, 2001).

As shown in Table 4, per capita health expenditure of the elderly H is composed from X (average yearly health expenditure of surviving elderly) and Y (average health expenditure of deceased elderly for 1 year prior to death) using death rate q (Knappe, 2001):

$H = X (1 - q) + Y q$

Y was much higher than X in both countries, but the difference between X and Y reduced remarkably with age increase (Fig.2).

3.Ageing and long-term care of the elderly

(1) Long-term care insurances

The rapid aging of the population has also been increasing the demand for formal long-term care services in Japan, and public long-term care insurance has been implemented since April 2000. The principles underlying this new program are universality of coverage (although benefits are available mainly for the elderly), financing through social insurance (although the public fund finances about 45% of the cost), freedom of choice by service users, and reliance on a service market (Fukawa, 2001). The main purposes of the program are to share the burden of caring for the elderly among all members of the society

Fig.1 Per capita health expenditure ratio (0-9=1.0)

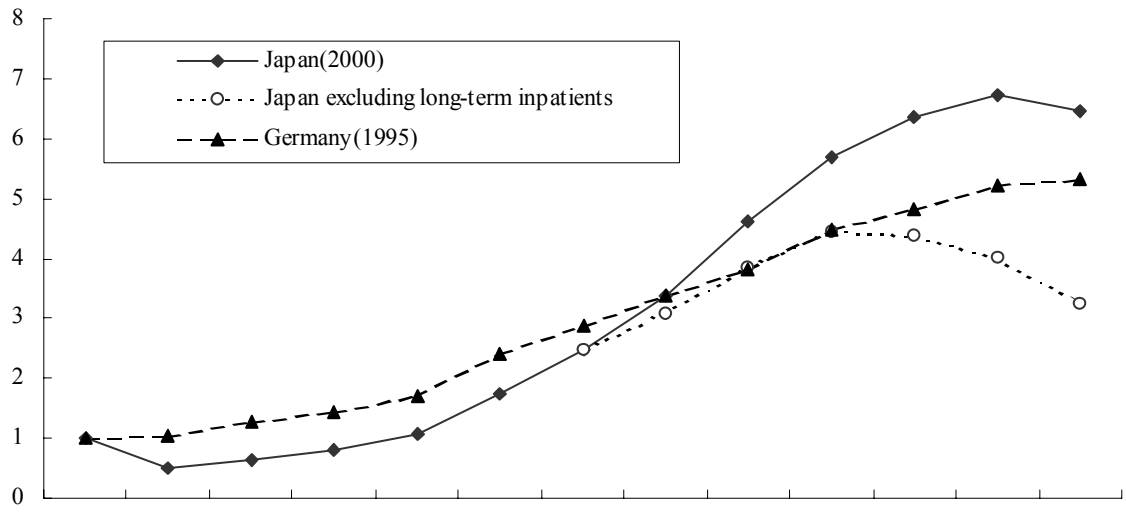
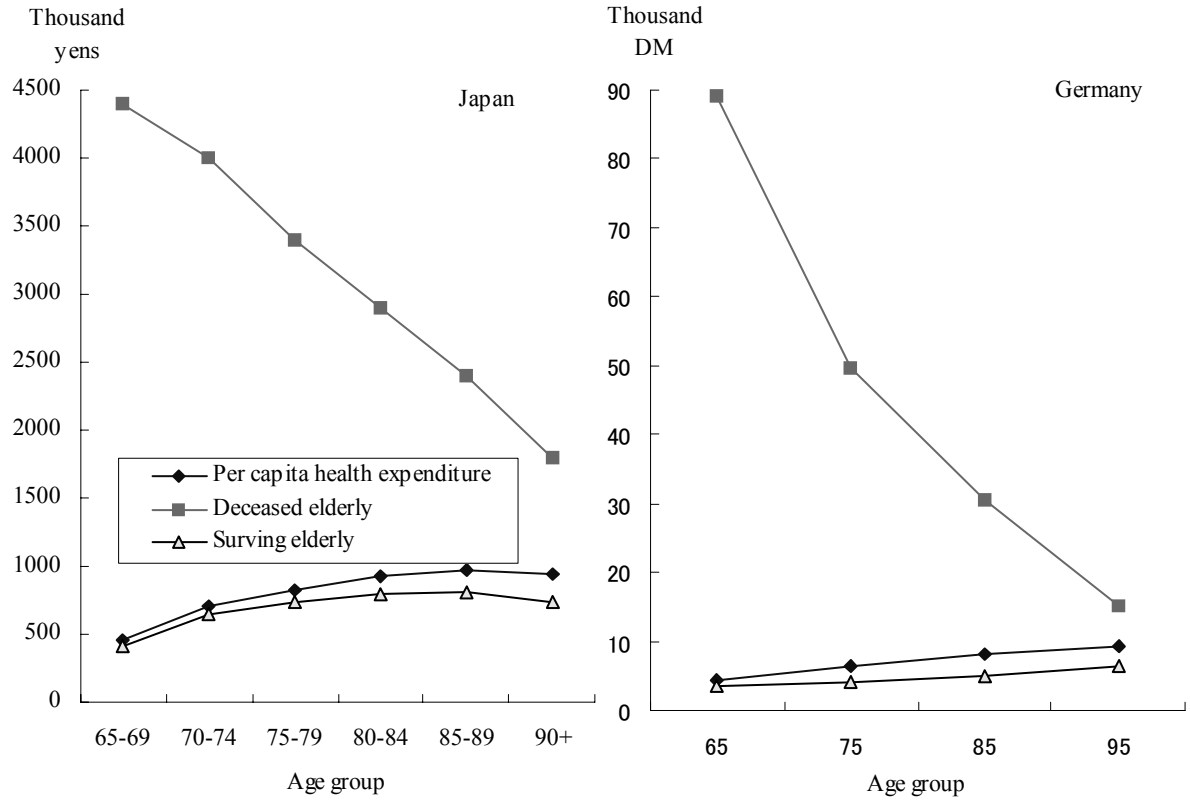


Table4. Per capita health expenditure of the elderly

Japan (2000)				
Age group	Death rate (%) q	Per capita health expenditure (Thousand yen) H	Average health expenditure of deceased elderly for 1 year prior to death (million yens) Y	Average yearly health expenditure of surviving elderly (Thousand yen) X=(H-Yq)/(1-q)
65-69	1.3	464	4.4	412
70-74	2.0	631	4.0	562
75-79	3.2	780	3.4	693
80-84	5.6	874	2.9	754
85-89	9.7	920	2.4	761
90+	17.8	884	1.8	686
65+	3.5	662	3.1	573
Germany				
Age	Death rate (%) q	Per capita health expenditure (DM) X(1−q)+Yq	Average health expenditure of deceased elderly for 1 year prior to death (DM) Y	Average yearly health expenditure of surviving elderly (DM) X
65	1	4429	89000	3575
75	4.6	6293	49765	4198
85	13	8188	30413	4868
95	34	9395	15000	6507

Source: Fukawa (2002 c) for Japan, Knappe (2001) for Germany.

Fig.2. Per capita health expenditure of the elderly



Source : Knappe (2001) for Germany

and to lessen the burden of family caregivers. But it is also implied to relieve some of the financial pressures on the health expenditure of the elderly, in which long-term stays of the elderly patients in hospitals have been included (Fukawa, 2001). Many geriatric hospitals in Japan have so far functioned just like nursing homes because of the shortage of facilities for institutional care on the one hand, and because of the excess of hospital beds on the other

hand. The conversion of surplus hospital beds from health insurance coverage to long-term care insurance coverage is one of the key issues for the successful development of the Japanese long-term care insurance (Fukawa, 2001).

The Japanese system was influenced strongly by the German system, but there are several important differences between the two systems (Fukawa, 2001): a) Main beneficiaries in the Japanese system are those aged 65 and over; b) Cash options are not available in the Japanese system; c) Contribution rate is determined by the law and universality in terms of benefits is intended in the German system, while this is not the case in Japan; d) Ten percent of the cost is charged at the point of service use in the Japanese system; e) Total costs are covered by the contributions in the German system, while more than 45 percent of the costs are financed by the public fund in the Japanese system.

Among those who are aged 65 or over, about 9 percent received home-care services or facility-based services in 2000 in Japan, compared to 10.5 percent in Germany (Table 5). In terms of the cost for long-term care services, both countries used about 0.8 percent of GDP. However, the share of facility-based services is quite different between the two countries. The number of beneficiaries is increasing especially rapidly in home-care services, and a considerably more number of elderly will use long-term care services in Japan.

(2) Impact of ageing

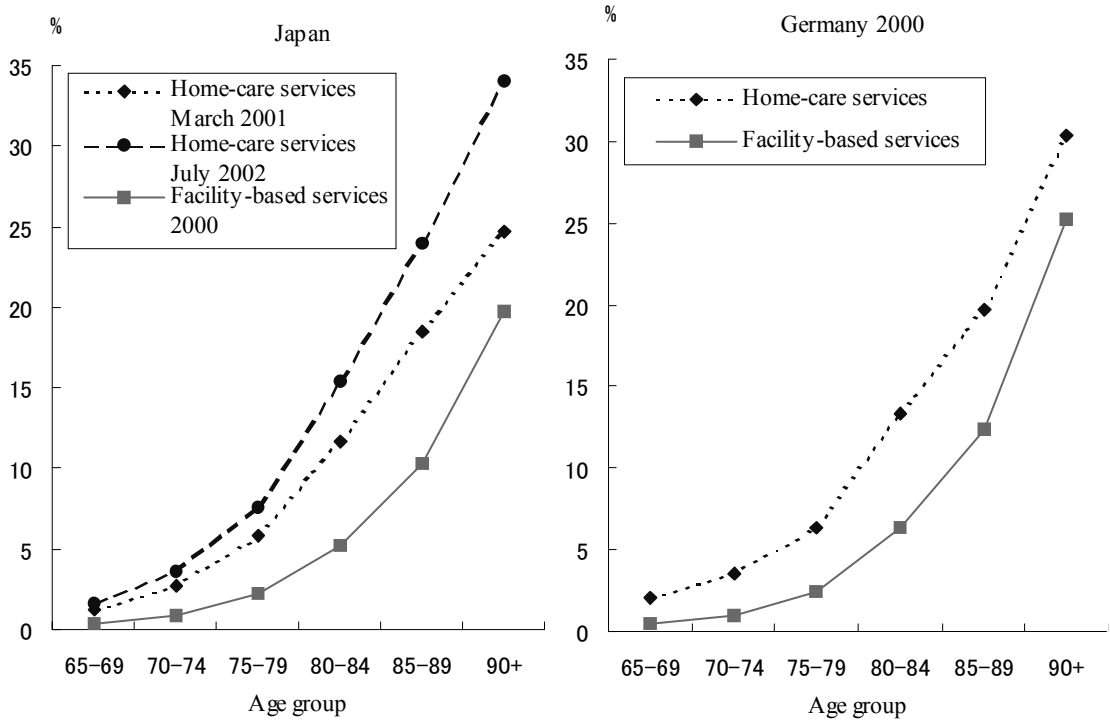
The cost of long-term care for the elderly is around 1% of

Table 5. Cost and number of beneficiaries in the long-term care insurance in 2000

	Japan			Germany		
	Total	Home	Facility	Total	Home	Facility
Number of beneficiaries (thousand)						
Total	1,972	1,337	613	1,822	1,261	561
65+	1,906	1,305	601	1,410	936	474
Proportion of beneficiaries	8.7	5.9	2.7	10.5	7.0	3.5
Cost (trillion yen, billion DM)	3.9	1.3	2.6	31.0	16.0	15.0
% of GDP	0.76	0.25	0.51	0.78	0.40	0.38

Source : Ministry of Health, Labor and Welfare for Japan,
Bundesarbeitsblatt 4/2001 for Germany.

Fig.3. Proportion of beneficiaries among elderly population



Note : Such services as Day-care and Short-stay are included in Home-care services.
Source : Prepared by the author based on the same source data as Table 5.

GDP in many countries, although it is quite high in Nordic welfare states (OECD, 1999a). According to OECD(1998), the future public cost (compared to GDP) of long-term care for the elderly will not increase remarkably in developed countries except Japan.

Fig.3 shows the proportion of long-term care beneficiaries among elderly population for home-care services and facility-based services in Japan and Germany. The proportion of beneficiaries increased rapidly with age increase in both countries, and the proportion of the elderly who were institutionalized was about the same for each age group in Japan and Germany. Japanese long-term care insurance has been implemented since April 2000, and a significant increase in the proportion of beneficiaries for home-care services is observed between March 2001 and July 2002 (Fig.3).

National health expenditure in 2000 was about 6 percent of GDP (Note 4), of which elderly people aged 65 or over used 2.8 percent of GDP in Japan. The cost of long-term care, almost exclusively used by the elderly, was about 0.8 percent of GDP in 2000. According to an assessment of a potential scale of health and long-term care expenditures of the elderly in Japan, even if the conversion of surplus hospital beds to long-term care beds had proceeded well, Japanese long-term care expenditure would rise to 2-3 percent of GDP in 2030 (Fukawa, 2002b). Ageing of the population alone would raise the contribution rate of public long-term care insurance in Germany from present 1.7 percent to 2.7 percent in 2030 (Knappe, 2001). Long-term care expenditure is quite related to ageing (sometimes much more sensitive to ageing than health expenditure), and it is quite important to reduce the number of dependent elderly in future through better prevention, in order to contain the total cost of health and long-term care under circumstances of ageing of the population (Fukawa, 2001).

4.Discussion

(1)The cost to support elderly population

Viewing the elderly aged 65+ as a whole, the elderly in Japan seem to be enjoying a healthier life than their German counterparts in terms of morbidity. The proportion of the institutional population among the elderly is more or less the same in Japan and in Germany, probably because both countries have fewer welfare institutions compared with the other developed countries. If the Japanese people are healthier than the German, it is understandable that health expenditure as a percentage of GDP in Japan is smaller than that of Germany. The density of medical and paramedical personnel is much higher in Germany than it is in Japan, and it could be one of the major reasons for the higher health expenditure in Germany.

The quality of health services in both Japan and Germany is high and access to them is universal. Policy measures to reform the health system over the past 20 years in Germany have been driven by a concern to preserve these benefits, while avoiding an increase in contribution rates (OECD, 1997). After the reforms of 1989 and 1993, more fundamental reforms designed to increase the efficiency of health care delivery are required in Germany. Addressing issues related to the elderly is of high relevance for health insurance systems in order to coordinate health services and welfare services for the elderly, and to maintain a fair distribution of the burden of health expenditure for the elderly. Now, the increase in patient cost sharing is one of the major issues in recent health reforms, and substantial research works on this issue are needed in Japan.

A large part of health expenditure is consumed by the elderly in Japan and Germany, and the rate is expected to increase in the future. Nevertheless, at least for Japanese data, per capita health expenditure has not continued increasing with age, and it has become clear that the relation between population aging and health expenditure should be viewed carefully (Fukawa, 2000). Moreover, if we can eliminate the expenditure of long-term inpatients completely, the spending pattern of per capita health expenditure by age group would change drastically, which has a significant importance for the health care reform in Japan. The proportion of health expenditure allocated to the deceased was larger in the United States, and therefore terminal care cost was more expensive in the United States than it was in Japan (Fukawa, 1996). Although, even in the United States, it is not assumed that saving at terminal care period will contribute much toward saving from total health expenditure. Annual health expenditure per deceased elderly patient decreased with age in the United States (Lubitz et.al., 1995). Busse and Schwartz (1997) reported annual inpatient days per deceased person peaked at age group 55-64 and decreased afterwards with age. Fig.2 indicated that health expenditure per deceased elderly patient for one year prior to death decreased with age increase in Japan and Germany. We therefore assume that this phenomenon appears universally regardless of health care system for the elderly.

In addition to the cost of retirement benefits, a society should bear the cost of health and welfare services

for the elderly. The social cost of the elderly, social security benefits as percentage of GDP committed to those who are aged 65+, was higher in Germany than it was in Japan. About 11 percent of GDP was devoted to pension, health and long-term care of the elderly in Japan (pension 7.4, health 2.7, long-term care 0.8) around 2000, compared with 15.5 percent of GDP in Germany (pension 11.9, health 2.6, long-term care 1.0; Fukawa, 2001). However, Japanese pension benefits will inevitably increase to more the 10 percent of GDP in near future, and there is a strong pressure to increase the cost of long-term care. Both countries face population ageing and share the same issue as to make social security systems more affordable.

After reflecting on a comparison between the situations in Japan and Germany, it might be possible to say that Japan can reduce inpatient care of the elderly further without deteriorating health outcomes of the elderly. It might be also necessary to introduce cost containment mechanisms in the Japanese long-term care insurance, in view of the fact that long-term care cost is more sensitive to population ageing than health expenditure.

(2)Real solution: prevention, right incentives, and choice

Health care reform has been a big issue in Japan and in many other OECD countries. Both countries are still experimenting with various approaches to health reform in order to contain health expenditure and to realize more effective use of health service resources. Preventive services and rehabilitations have been valued in the German health insurance system. However, many preventive measures such as health check and cancer screening are conducted outside health insurance, and preventive care is still paid relatively little attention within health insurance in general in Japan. Concerning long-term care of the elderly, the only positive way to contain the expansion of the cost is to prevent the elderly from becoming dependent.

One salient aspect of the Japanese health system is its achievement of low health expenditure through regulated fees. Both inpatient and outpatient services are provided in Japanese hospitals. On the one hand, hospitals can enjoy economy of scope; however, on the other hand, there is severe competition in outpatient services between hospitals and GPs. In order to correct excessive competition, consideration has been given to classifying hospitals by function and to streamlining patient flows. Japan is trying to correct false incentives in the fee-for-service system through introducing partial price bundling, but actual payment scenario is far from prospective payment. Now, an experiment has been conducted in Japan to use a DRG type reimbursement system for hospitals. Starting from a clear division between inpatient and outpatient services, greater coordination is sought between primary and secondary care in Germany. A recent effort in Germany to implement a DRG approach for hospital payment is a typical example to introduce correct incentives in the system, although such approach would be effective for standardizing health services and improving the quality of health services, but not very effective for containing health expenditure. As OECD (1997) mentioned, a central theme applicable to both countries is the lack of integration in health service delivery and the weak and sometimes distorted pattern of incentives for efficiency.

Many elderly people with chronic conditions need more care services than health services. It is more reasonable for the elderly themselves to decide which services they use, if they have enough knowledge and information about these services. It is a common challenge for both countries to make social security systems neutral to the choice of individuals in their life style in order to increase responsiveness of the system and to improve the quality and efficiency of services provided.

In sum, it is important in the fields of health care and long-term care for the elderly 1) to emphasis on prevention, 2) to put right incentives in the system, and 3) to give choice to the service users. Reducing the role of public system and shifting the fund from contributions to taxes change the distribution of burden, but do not change the total burden of the nation. The only ways to reduce the total burden are to reduce the number of service users and to deliver services efficiently. Which means a) prevention is important, b) service providers and service users should face right incentives, and c) services are provided under competitive circumstances, for both health services and long-term care services.

(Note 1) This part is rewritten based on Fukawa(2001).
(Note 2) Previously there was only one Medical Fee Schedule for everybody. In order to cope with features of elderly patients, Medical Fee Schedule for the elderly was created and implemented since 1994. However, the performance of this elderly-version Schedule is said to be lower than expected.
(Note 3) The difference in benefit level among schemes has been reduced by recent reforms, and is intended to eliminate eventually.
(Note 4) The figure from national source is lower than

OECD Health Data because of the differences in coverage.

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