

2. Health Insurance System

Key Issues in Japanese Health Care

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I. Introduction

Economies around the world are anxiously searching for better health care systems. The development of health care systems has followed different routes in various economies around the world, influenced by the different cultures, histories, and ideas of each economy. A distinction that is particularly vital when developing a health care system is whether health care is considered to be a merit good (a good that everyone should receive) or a general resource, which should be allocated depending on the ability of the users to pay for it. Since 1961, Japan's health insurance system has been predicated on the first of these two approaches.

National experience shows that when a health system works well, it produces good results. Japan has achieved the world's best health indicators, with low infant mortality rates and very long average life expectancy. Weaknesses of the Japanese health care system include an inefficient primary care system, and a lack of differentiation of health care providers and of standard clinical guidelines.

Both the International Monetary Fund (IMF) and the Organisation for Economic Co-operation and Development (OECD) have recently commended Japan's health care system. In its report entitled *Macro-Fiscal Implications of Health Care Reform in Advanced and Emerging Economies*, the IMF said, "The use of market mechanisms in Germany and Japan is an important factor explaining the low excess cost growth observed in these economies—both of which score relatively high in the indices for choice of insurer, choice of provider, and private provision." Likewise, in the report *Health Care Systems: Efficiency and Institutions*, the OECD stated, "Although estimates of health care spending efficiency should not be taken at face value, Australia, Korea, Japan and Switzerland perform best in transforming money into health outcomes." These were quite surprising quotes for those who know the Japanese health care system. Part of the reason for these quotes is that Japan's health care expenditure is underestimated, which we will discuss in more detail in this report.

Currently, Japan's health care system is facing a financial crisis. Health care costs are increasing partly due to an aging Japanese society, the development and utilization of new health care technologies, and patients' increasing demand for quality and safety in health care. Health sector reforms have been discussed for more than a couple of decades; however, the reform was slow in progress and not very effective because the old decision-making process was preserved. Meanwhile, Korea in 1989 and Chinese Taipei in 1995 adopted national health insurance

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following the Japanese health insurance system and have been moving ahead of Japan through various reforms such as integration in managing health insurance and the introduction of IT infrastructure.

This paper first gives an overview over the health care system in Japan and then discusses current challenges and lessons that can be drawn from the Japanese experience.

II. Overview of the Health Care System

A. Health Care Provision and Financing

One of the characteristics of the Japanese health care system is the high number of hospital beds per capita; therefore, employee-bed or nurse-bed staffing ratios are lower than the OECD average and to maintain the utilization rate of all these beds, hospital stays are also longer than the OECD average (Table 1).

Table 1 International Comparison on Health Care System (OECD Health Data 2010)

	Number of hospital beds per 1,000 people	Number of physicians per 1,000 people (% of GP)	Number of nurses per 1,000 people	Average length of stay in hospital: acute care (days)	Number of doctor visits as outpatient (times/year)	CT per 1 million	MRI per 1 million
U.S.	3.1	2.43 (12%)	10.75 ²⁾	5.5	4	34.3	25.9
Japan	13.8	2.15 (-)	9.54	18.8	13.4	97.3	43.1
Germany	8.2	3.56 (18%)	10.68	7.6	7.8		
U.K.	3.4	2.61 (29%)	9.52	7.1	5.9	7.4	5.6
France	6.9	3.34 ¹⁾ (49%)	7.93 ²⁾	5.2	6.9		
Canada	3.5	2.27 ¹⁾ (48%)	9.2	7.5	5.7	13.9	8
Korea	7.8	1.86 (37%)	4.36	10.6 ³⁾	13	37.1	19
Netherlands	4.3	2.88 (24.9%)	11.24	5.9	5.9	10.3	10.4
Australia	3.9	2.97 (51%)	10.08	5.9	6.4	38.8	5.9

1) Professionally active physician

2) Professionally active nurse

3) 2003

Source: OECD Health Data 2010, WHO.

Most of the OECD nations greatly reduced the number of acute care hospital beds, the average length of acute hospital stay, and the number of acute care hospital per capita during the 1990s. In Japan, the figure is decreasing, but still is the highest. Japanese hospitals are defined as any medical facility with at least 20 beds, including long-term geriatric care facilities. A lack of differentiation of health care providers and of standard clinical guidelines contribute to this rather high figure.

Another characteristic is a free-access system that allows people to be examined and treated at the medical institutions of their choice, regardless of their symptoms. This has led to the

problem of excessive demand from patients who visit doctors too often. The frequency of doctor visits per patient in Japan far outstrips the average for OECD countries.

In Japan, private hospitals dominate the hospital system, accounting for 80% of the hospital market and 70% of the total hospital beds in 2009. Government control over prices for all procedures, drugs, and devices applies uniformly to all physicians and hospitals, both public and private.

Hospitals operate as a closed system, and clinic-based doctors do not have visiting privileges at them. Exclusive specialty board certification is nonexistent and doctors practice in any specialty they choose. Hospitals and physicians freely choose their practice mode and are paid on a fee-for-service basis. Referrals and an organized distribution of functions between facilities have been sorely lacking. Clinics frequently provide both primary and more specialized care. A lack of differentiation of health care providers and a lack of an efficient primary care system are weaknesses of the Japanese health care system. Since Japan does not have a sound system of primary care provided by well-trained family doctors (note that the number of general practitioners [GPs], or family doctors, in Table 1 is missing for Japan), it is quite common for the patients to visit general hospital or even university medical center for minor illnesses without referral.

Japan has no postgraduate training system for primary care. Traditionally, primary care in Japan has been managed by specialists who are self-trained to be generalists. The Japan Medical Association, which represents mainly the doctors working at clinics, has a strong vested political power and this has delayed various health care reforms, including establishing formal training in family practice.

Sophisticated medical technology has spread to small clinics and general hospitals, both of which compete for outpatients. Fee-for-service payment further induced demand for new medical technologies such as computed tomography (CT) and magnetic resonance imaging (MRI) causing its wide proliferation. Although bureaucratic control helps the Japanese government contain health care expenditure, high endowments for CTs and MRIs are extraordinary (Table 1).

The remuneration system is fundamentally a fee-for-service system, but a diagnosis-based per-diem payment system, called diagnostic procedure combination (DPC) in Japan, has gradually been introduced in acute hospital beds. The payments doctors receive for medical services are the same nationwide, with rates set by the central government. Therefore, there are few incentives for quality improvement and little competition among providers on quality (Tatara and Okamoto, 2009).

A comparison of health expenditure data (Table 2) revealed a variation in the ratio between public and private expenditure in health care with Japan at the high end of public expenditure (81.3%), while Korea committed less to public funding (54.7%).

A more detailed breakdown of the sources of health care financing shows that while public expenditure is made up of general taxation and social health insurance, private expenditure is a mix of out-of-pocket spending for coinsurance, and services not covered by health insurance and premiums paid by families and individuals for private health insurance. As shown in Table 2, the share of total health spending that is privately financed varies considerably across the countries. The range is as high as 45.3% in Korea to as low as around 18% in Japan, the United Kingdom, and Sweden.

Table 2 Proportion of Health Care Expenditure by Funding Source

	Japan	Germany	France	Korea	UK	USA	Sweden	Canada
Public Spending on Health (%)	81.3	76.7	78.4	54.7	81.9	45.3	81.6	69.9
General Taxation (%)	15.4	9.2	5.1	12.9	81.9	32.6	81.6	68.5
Social Health Insurance (%)	64	67.5	73.4	41.8		12.7		1.4
Private Spending on Health(%)	18.7	23.3	21.6	45.3	18.1	54.7	18.4	30.1
Out-of-Pocket (%)	15.1	13.4	7	36.5	11.4	12.3	16.2	14.9
Private Health Insurance (%)	2.6	9.2	12.9	3.8	1.4	35.1	0.1	12.3

Expenditure on prescription drug / total health care expenditure	17.3	13.3	13.5	16.4		10.3	9.7	14.3
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Total health care expenditure / GDP	8.3	11.3	11.7	6.5	9.3	16.2	9.9	10.9
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Source: OECD Health Data 2010, WHO.

The aging of Japan's population is causing severe problems for the country's public finances. Elderly often suffer from several symptoms and with lower copayment for the elderly, they often visit specialists for each episode of illness.

Japanese elderly people use up a significant portion of health care expenditure; people aged 65 or over who make up 22% of the total population use 54.6% of the total expenditure, and per capita health expenditures among the elderly are almost four times as much as the amount spent for the 0-64 age group in 2008¹. The health insurance system, in particular, is structured such that fiscal resources are transferred from workplace-based insurance (whose members tend to be younger and have higher incomes) to the national (many of whose members are elderly or unemployed) and public corporation-run health insurance systems.

B. Organizational Structure of Health Insurance Programs in Japan

The most important health care policy in postwar Japan was the establishment of equality, through free health care access for all Japanese. Under the universal public insurance system, people can receive universal medical service anytime, anywhere throughout Japan at a relatively low cost. In addition, since 1997, the coinsurance rate for employees' health insurance and community health insurance became equal, the insured pay 30% and insurers pay 70% of medical costs. Benefits are uniform nationally.

However, there are large regional differences in the actual amount of health care services that people receive, which are reflected in medical expenses, as well as differences in the amount of public insurance premiums. Unequal contributions are one of the most serious issues in the health care insurance system.

¹ Since 2000, Long-Term Care Insurance took effect, and benefits offered under this insurance are not included in these statistics.

Japan's universal health insurance system is composed of four main insurance systems, i.e., community health insurance for the self-employed and unemployed (National Health Insurance: NHI), employees' health insurance (Society-Managed Health Insurance), public corporation-run health insurance, and the medical system for the elderly aged 75 and over. Each system comprises multiple insurance plans or sub-schemes with differing premium rates. Insurance premiums are calculated based on the insured person's income (ability-to-pay) regardless of their risks and the amount of benefits paid out to them. The method of calculating the premium rate for each system is different, depending on its insurers. The number of such insurers in Japan now exceeds 3,000 (Table 3).

Table 3 Japanese Health Care Insurance Programs

	National Health Insurance	Society-managed health insurance	Public corporation run health insurance	Medical system for the elderly aged 75 and over
Number of insurers (2009)	1,788	1,497	1	47
Number of members (2009)	35.97 million	30.34 million (Insured:15.91 million) (Dependent:14.43 million)	34.7 million (Insured:19.5 million) (Dependent:15.22 million)	13.46 million
Average age of members (2008)	49.2	33.8	36.0	81.8
Average income (total compensation) (2008) (Note 1)	¥0.79 million yen per member (former provisory income)	¥2.93 million per member (total compensation)	¥2.18 million per member (total compensation)	¥0.758 million per member (former provisory income)
Health care expenses per member (2008)	¥282,000	¥126,000	¥145,000	¥865,000
Premium per member (2008)	¥83,000	¥91,000 (¥203,000 including the employer's payment)	¥89,000 (¥177,000 including the employer's payment)	¥64,000
Proportion of public subsidies	50%	---	16.4%	50%
National budget (2010)	¥3,027.4 billion	¥2.4 billion	¥1,044.7 billion	¥3,734 billion

Source: Ministry of Health, Labour and Welfare, Japan.

Note 1) The former provisory income is worked out by subtracting the basic exemption (330,000 yen) from the total income (subtracting the amount of the employment income exemption

from earnings). It is used when the premium for the municipality-controlled National Health Insurance is calculated.

The employees' health insurance programs have relatively high ratios of healthy and wealthy enrollees. The Society-Managed Health Insurance is a program for employees of large corporations and their dependents (1,497 insurers). Employers deduct the employees' premiums directly from their paychecks and bonuses. Premium contributions are typically borne equally by employers and employees. However, for Society-Managed Health Insurance, many companies pay more than half of their employees' premiums. In 2009, premium rates for the Society-Managed Health Insurance ranged from 3.12% to 10% of employee (indexed) monthly earnings, and the average premium rate was 7.45%. The employer paid 55% of the total premiums. In the same year, the average premium rate for public corporation-run health insurance, covering employees of small- and medium-sized firms and their dependents, was 9.34% of an employee's monthly salary, with half the contribution paid by the employer.

The National Health Insurance (NHI) covers the self-employed, the unemployed, workers of companies with less than five employees and retirees. This insurance is managed by the municipalities and the 1,788 insurers all over Japan. The NHI has a relatively high ratio of ill and poor enrollees. Most of the self-employed declare their own earnings, and the NHI premiums are collected on the basis of household income, fixed assets, and other wealth. Premium rates vary among insurers. On average, the NHI enrollees have the lowest incomes, followed by public corporation-run enrollees and society-managed enrollees, respectively. The government subsidizes 16.4% of public corporation-run health insurance benefit expenditures and subsidizes 50% of NHI benefit expenditures.

III. Issues Facing the Japanese Health Care System

A. Issues Related with Health Care Insurance

Since the national universal insurance system was introduced in 1961, medical expenditure has expanded rapidly due to increased access to medical care, provision of benefits for high-cost medical care², and free medical care for the elderly (since 1973). This has increased pressure on the country's finances. It took almost 30 years to correct the 1973 policy, and since 2002, the elderly have been required to pay 10% (or 20% based on income) of their medical costs with a relatively low payment limit.

The NHI system's coverage has changed dramatically since 1961. The NHI was targeted at farmers when universal insurance was introduced. In 1965, two-thirds of the workforce was either self-employed or in the agriculture, forestry, or fishery industries. Further, lifetime employment and seniority-based corporate structures were a norm, and employees' health insurance systems were established with the corporation as a unit. However, the aging of the population and changes

² If total co-payment to a hospital/clinic exceeds the payment limit, the excess amount will be reimbursed.

in the industrial structure fundamentally altered the situation in subsequent years. Currently, more than half of the people insured by the NHI are unemployed, 24% are employees of offices with less than five employees or part-time workers, and 19.3% are self-employed or farmers (Ministry of Health, Labour and Welfare). For the NHI, each municipality operates as the insurer. Since 2000, mergers have led to a decrease in the number of municipalities from over 3,200 to 1,788 in 2009.

The aging of the population, which started around the time when the universal insurance system was established, also placed increased pressure on the finances of the NHI system. Those who were insured under the employees health insurance were then turned over to the NHI upon retirement, and this entailed a decrease in income and increase in medical expenses for the retirees. The Japanese government established a new medical system for the elderly aged 75 years or older in April 2008. The insurers in this new medical insurance system for the elderly are designated as an extended association joined by all municipalities in their prefectural governments. Government subsidy becomes available, but it is impossible to cover the medical expenses of everyone. Every time a financial crisis occurs, new financial support measures are adopted in order for the system to keep up with the changes. With the NHI and health insurance for the elderly combined, the insurance premiums cover only one-third of the operating cost, and only a small amount of municipal financing is used to cover the revenue shortages created by the NHI. This trend is more pronounced in rural areas compared to urban areas.

Since 1988, the National Health Insurance Law has been amended several times, and various ad hoc financial assistance measures have been introduced. As a result, the mechanism for financing the costs of the NHI system has become extremely complicated and involves joint subsidies between national and local governments. This system includes an insurance-based stability system for people with low incomes, a joint project to mitigate the effect of high medical expenses, and financial measures to stabilize municipal finances.

Because of the practice of being provided with new financial support measures, municipalities now expect new support measures to be implemented whenever new crises arise, which creates a moral hazard for the NHI system. Thus, overly supportive financial measures have reduced the incentives for municipalities to ensure the collection of insurance premiums and to improve the efficiency of the health care services. As a result, the municipalities' responsibility as insurers remained ambiguous. Also, people have accepted the system without clearly understanding who actually pays for their medical expenses. As a result, the government's share of medical expenditures has continued to increase over the years.

Many of the problems facing the Japanese health care system today are due to the incapacity of the insurers. Insurers and health care providers should act as the main actors in insurance contracts which involve the delivery of health care, in matters such as determination of the insurance premium and benefit package, review and approval of the benefits, and selection of health care facilities. However, in the current system, the government appoints health insurance

hospitals and health insurance doctors without adequate evaluations, physician service fees are determined in line with administrative guidance, and the original purpose of the insurance contract is ignored. It should be possible for insurers to exclude inefficient health care providers individually from the list of health insurance service providers such as in the Netherlands or Germany. However, the Japanese system makes that impossible, and such a system is rare in the world. It is difficult to encourage competition between health care providers and to evaluate them under such a system.

The strong correlation between the number of hospital beds and inpatient health care cost has been repeatedly pointed out by researchers and government officials. Lack of standardization has led to excess investment in expensive medical equipment. It is important that insurers, as a responsible party, become more than just the payers and become involved in responding to their area's medical needs.

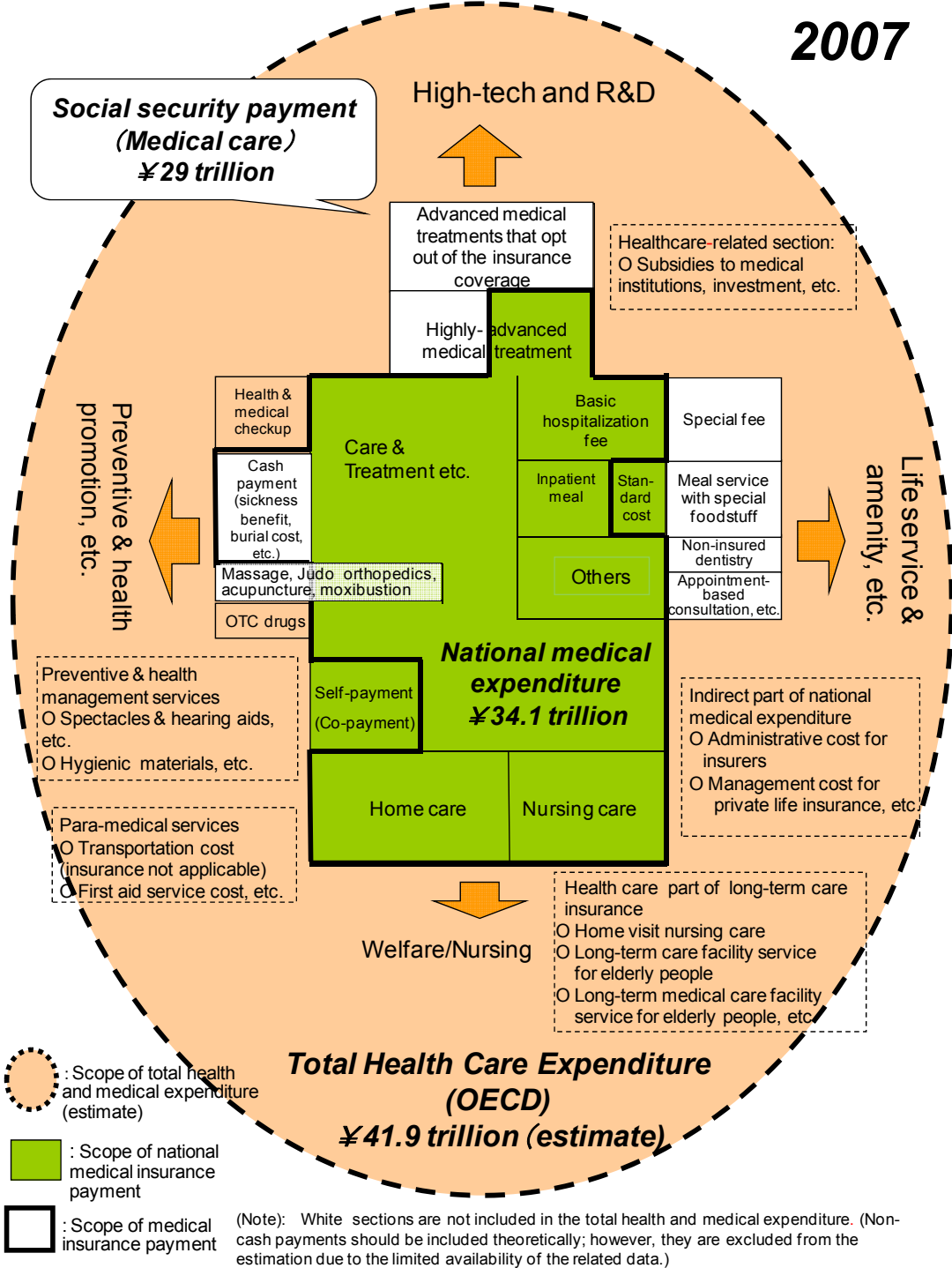
Currently, financial support for the NHI and medical system for the elderly comes from national and local governments. In the current system, insurers receive reductions or exemptions. However, people with low incomes should receive such subsidies. In other words, individuals with low incomes pay insurance contributions; then, they will be financed by a fixed amount from the national or local government.

B. Issue with Health Care Statistics

The Japanese health care system is often considered to be efficient since the Japanese people enjoy longevity with relatively low health care expenditures among OECD country. However, it is important to note that Japan's total health care expenditure is underestimated since Japan's "national health care (or medical) expenditure" published by the Ministry of Health, Labour and Welfare (MHLW) is an estimate of the expenditure under Japan's public medical insurance system, and the scope of the estimate is limited to treatment costs for injuries and diseases. The figure is essentially an estimate only of the health care expenses covered by public insurance, and expenditures that are not covered by public insurance are excluded from the total expenditure (Figure 1). Therefore, there are some items that are included in the health care costs of other economies but are not included in the health care costs of Japan, for example, the costs associated with normal pregnancies and birth, non-insured dentistry, health checkups, vaccinations, and other procedures aimed at maintaining and promoting health, excess room charges when hospitalized, elective therapy charges, the costs related to nonprescription drugs (over-the-counter medicines) and to operation of medical insurances, the capital costs of local government-run hospitals, and transfers from the general account of local government to local government-run hospitals. While the current estimate of the "national health care expenditure" may be adequate as an explanation of the range of activities under the jurisdiction of the MHLW, it is wholly inadequate for gaining a clear understanding of the use of health care services by Japanese citizens. This is particularly important when we compare the health sector expenditure

internationally. Every year, the OECD reports the health care expenditure for each member country using the System of Health Accounts. However, because of the unavailability of the data as described above, the figures for Japanese health care expenditure are underestimated.

Figure 1: Relationship between national medical expenditure, social insurance payment and total health & medical care expenditure (OECD)



For example, in 2007, national health care expenditure reported by the MHLW was ¥34.1 trillion, while total health care expenditure reported by the OECD was ¥41.9 trillion³. According to the Japanese National Accounts in 2007, economic activities in the health sector were ¥47.1 trillion. This number is the total of the government's general final consumption expenditure for the health sector (¥35.3 trillion) and households' final consumption expenditure for the health sector (¥11.9 trillion)⁴. With this simple calculation, it is clear that Japan's national health care expenditure is underestimated, approximately by one-third.

It is important that health care policy is based on a solid understanding of the current reality. However, it is hard to claim that health care policies to date have been formulated and implemented on the basis of solid, readily acceptable evidence. To get beyond the current situation, it is vital for the Japanese government to take responsibility in conducting statistical studies and publicly disclosing the resulting data.

IV. Conclusion

Fifty years have passed since universal insurance was implemented in Japan and, in the light of current institutional fatigue, today's health insurance system in Japan needs drastic reform. Changing and enhancing the role of the insurer would be a core task in such a reform.

One of the major issues that the Japanese health care system is facing is how to contain the escalating medical costs for the elderly. Health care for the elderly has received substantial subsidies from both central and local governments and transfers from other insurers. They are more than 80% of the total cost.

In Japan, with the free-access system, many patients with primary care problems tend to rush into secondary/tertiary care hospitals. This has affected the function of the hospitals so much and has contributed to increasing the medical costs, particularly for the elderly. What the Japanese health care system needs in this aging era is a good collaboration between specialists in the hospitals and community-based primary care physicians. Japan does not have sound systems of primary care provided by well-trained family doctors. A family doctor is a specialist in primary care. Such countries as Canada, Australia, the UK, the Netherlands, Singapore, and Malaysia have a strong system to train family doctors as key players to provide continuous, comprehensive, person-centered care in the community (WHO, 2008). An efficient primary care system is important for any economy in any development stages, since primary care usually covers more than 80% of health and medical problems.

Another critical issue for Japanese health care is to create sustainable financing mechanisms for the elderly. In 1983, the central government established the elderly insurance, a common fund for elderly medical care to transfer burdens from poorer community health insurance to

³ Total health expenditure is estimated using the OECD's System of Health Accounts (SHA) by the Institute for Health Economics and Policy.

⁴ It does not include the fixed capital formation for the health sector since the fixed capital formation is not available for the health sector.

corporation-based workers' insurance, through pooled contributions from all the insurance schemes and tax revenues. In 2008, the Japanese government introduced a medical system for the elderly age 75 and over. However, the basic financing structure remains the same. (About 50% is financed by government subsidy and about 40% from contributions of National Health Insurance and Employee's Health Insurance.) Rapid population aging challenges the sustainability of this financing system.

Among several challenges for the Japanese health care system is the introduction of economic incentives to assure quality and efficiencies, particularly in primary care systems, based on a solid database. Japanese health care relies heavily on hospital care. Health care reforms have been focusing on hospital reforms and aim to control costs of hospitals. Without introducing an efficient primary care system, it is not possible to maintain our health care system under this rapid aging population.

Another challenge is introducing a health register system for the whole population. After the Great East Japan Earthquake, a team from Fukushima Medical University attempted to find out which houses might need medical services within the 20-30 km zone around the nuclear power plant and discovered that determining this was incredibly difficult.

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Health System Reforms in the People's Republic of China: Progress and Further Challenges

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Introduction

Health systems have been improved significantly in recent years in China. The present government has given priority to health. In addition, the 12th five-year plan (2011-2015) indicates that health also will be a focal issue for next five years. Reforms in the health sector, however, have not progressed steadily along with the economic reforms started in the late 1970s. The government rather directed less attention to the health sector until the late 1990s, which consequently deteriorated availability and affordability of health care services critically.

Most of the population was uninsured in the early 1990s in China. People had to bear considerable financial burdens to access health care services. In particular, rural people could scarcely access needed health care services. Facing those situations, the government has eventually initiated health system reforms since the late 1990s. The government first focused on the reestablishment of medical insurance systems. More recently, a comprehensive reform plan of health systems has been undertaken.

The primary purpose of this study is to examine the progress of health system reforms in China, and attempt to provide policy advice on further reforms in the health sector. The next section gives an overview of China's health system before the economic reform started. The progress of health system reforms is reviewed in Section 2. This section focuses on the reestablishment of medical insurance systems and the health system reform plan launched in 2009. Following this, Section 3 examines remaining challenges in the health sector of China and provides the analyses of further reforms in the health sector. The final section summarizes the conclusion.

Health Systems before the Economic Reform

Health systems have differed between urban areas and rural areas in China since before the economic reform started in the late 1970s. More precisely, the system of health service provision for the rural population has widely differed from that for the urban population in China.

Health care services were provided for the urban population based on the Labor Insurance System (LIS) and Public Insurance System (PIS) in an era of a planned economy (World Bank, 1997; Wong, Lo and Tang, 2006). The former system was basically financed through state-owned enterprises (SOEs) and provided health care services for employees as well as retirees of SOEs,

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whereas the latter system was publicly financed and provided health care services for personnel as well as retirees of public institutions. Both systems financed assigned health institutions and the health institutions provided health care services for the insured basically free of charge.

Meanwhile, health service provision was based on the cooperative medical scheme (CMS) in rural areas. The administrative and financial foundation of the CMS was people's communes (World Bank, 1997; Li, 2004). However, unlike the urban health systems, the establishment of the CMS was not based on laws, and the governments, particularly the central government, did not provide fiscal subsidies for the CMS (Li, 2004). Members of the CMS needed to pay contributions to the funds and co-payment for receiving the services. In this sense, the CMS was similar to a community-based insurance system, of which administrative and financial characteristics greatly differed from those of urban health systems. The difference in the health systems between urban and rural areas has been one of the most critical features of China's health systems since before the economic reform.

Along with the economic reform, both urban and rural health systems decayed. With the penetration of the market economy, SOEs began to suffer from deficits. A main reason for the deficits was the heavy financial responsibility of SOEs to provide health care services for their employees and retirees (Nakagane, 1999; Zhu, 2004; Li, 2004). SOEs, suffering from the deficits, eventually came to be unable to finance health service provision (Liu, 2002; Wong, Lo and Tang, 2006). Another result of introducing the market system was an increase in non-SOE types of enterprise, such as private or foreign-affiliated companies. The conventional system, i.e., LIS, did not cover employees of those non-SOEs. Those situations brought about a malfunction of health systems in urban China.

Along with the economic reforms in rural areas, the rural health system, i.e., the CMS, also began to malfunction. Agricultural production, administrative or social services were based on people's communes in rural areas. However, economic reforms moved the production base from collectives to the household by initiation of the household production responsibility system (Kojima, 1988). This brought about the disbandment of people's communes that was the organizational and financial basis of the CMS, which ultimately weakened the function of the CMS (World Bank, 1997; Li, 2004; Zhu, 2004).

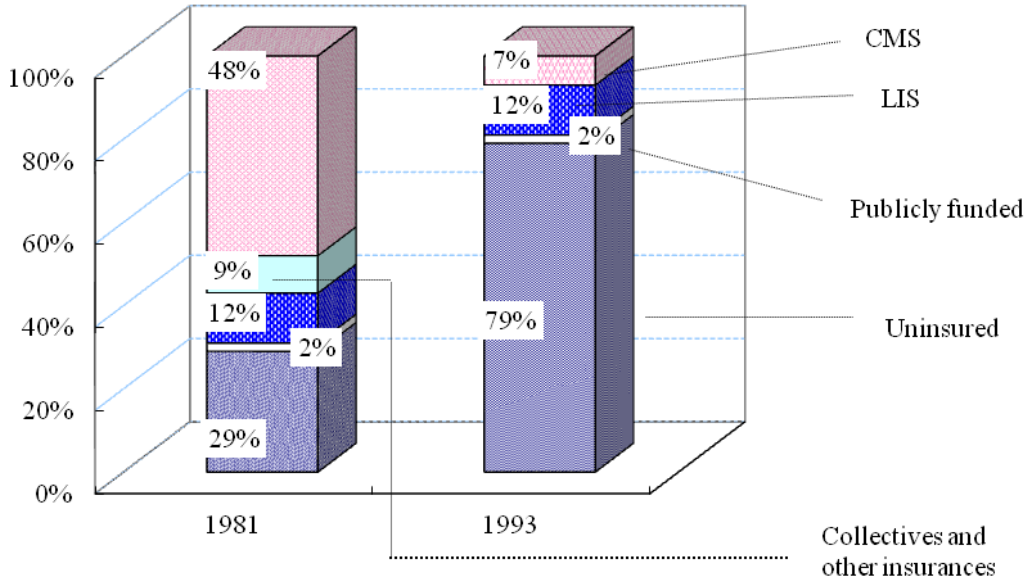
Health System Reforms

- Reestablishment of medical insurance systems

Along with the economic reforms started in the late 1970s, socioeconomic conditions have considerably changed both in urban and rural areas. Those changes caused a malfunction of the conventional health systems in urban and rural China. The health systems needed to be reformed in line with changes in the socioeconomic conditions, and instead of SOEs or people's communes, governments needed to take major responsibilities for financing the health systems. However, the government did not initiate health system reforms accordingly until the late 1990s.

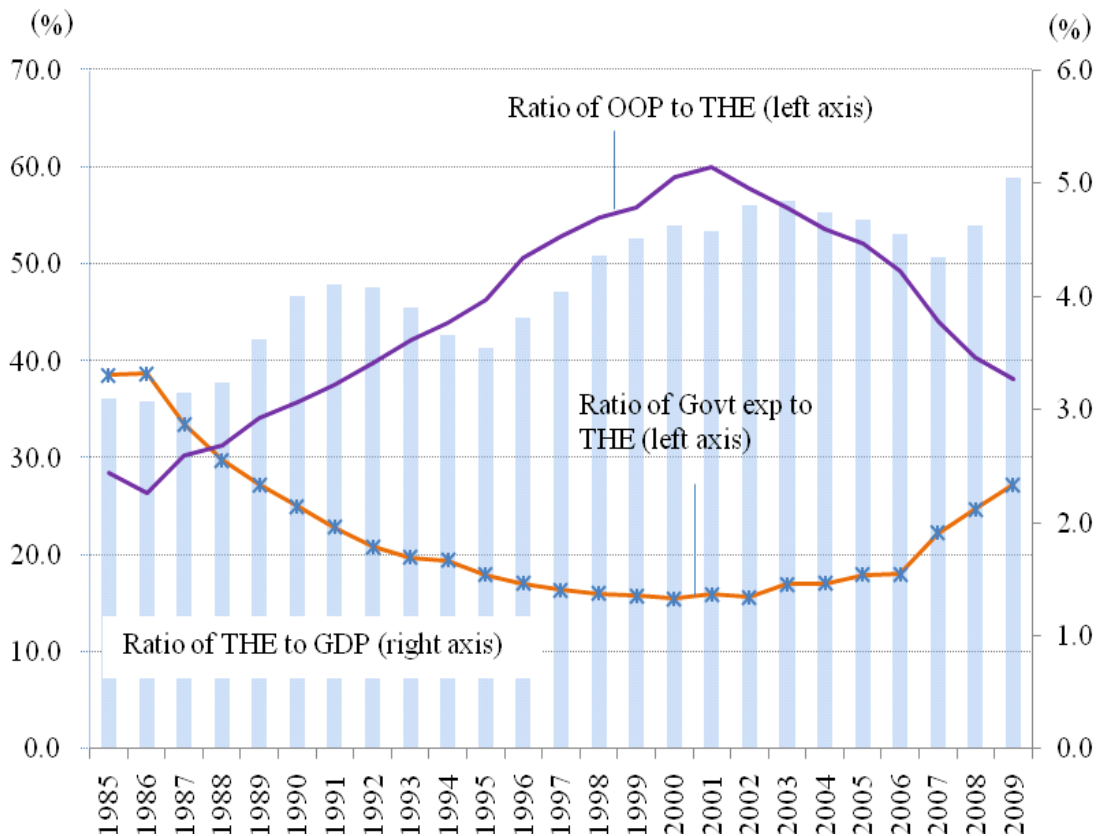
Almost 80% of total population was uninsured in the early 1990s (Figure 1). People had to bear considerable financial burdens to access health care services. In fact, the ratio of out-of-pocket payment (OOP) to total health expenditure (THE) acceleratingly increased in the 1990s, and reached 61% in 2001 (Figure 2). The OOP level is substantially high even compared with other developing economies.

Figure 1. Changes in Medical Insurance Coverage Ratio (%)



Note: Author's compilation based on data from *Financing Health Care: Issues and Options for China*, p. 15, World Bank, 1997.

Figure 2. Out-of-Pocket Payment and Government Expenditure Ratios to Total Health Expenditure (%)



Note: Author's compilation based on data from *Health Statistical Yearbook of China*.

Against the deteriorated conditions in the health sector, the government has eventually initiated health system reforms since the late 1990s. Urban Employee Basic Medical Insurance (UEBMI) was established in 1998 (Ministry of Labour and Social Security, 1998). This insurance targeted formal employees who had urban *hukou* (urban register). Therefore, rural migrants who emigrated from rural areas to urban areas were originally ineligible to enroll in UEBMI, because they did not have urban registers but rural registers. The separation of rural migrants from the urban insurance system critically hindered them from benefiting from the insurance to access needed health services. Of recent, the central government has come to take this matter seriously and begun some attempts to include rural migrants in urban health systems.

Another critical feature of UEBMI is that the enrollment unit is an individual employee. Consequently, family members of an employee are ineligible to enroll in UEBMI. In order to include them in the insurance system, the government has piloted programs of medical insurance for urban residents other than urban formal employees, i.e., Urban Resident Basic Medical Insurance (URBMI), since 2007 (Ministry of Labour and Social Security, 2007). URBMI targets not only family members of urban formal employees but also other urban residents who are not included in UEBMI such as self-employed and informal urban workers.

Regarding rural health systems, the new Cooperative Medical Scheme (the new CMS) was established in 2003 (Ministry of Health, 2003). The enrollment unit of the new CMS is a household, and all family members are required to enroll in the new CMS en mass. In order to expand the insurance coverage, the central and local governments subsidize insurance funds of URBMI and the new CMS. In particular, the central government concentrates its subsidies in central-western regions in order to support the insurance systems in the poor regions.

Of recent, the government has intensively endeavored to expand insurance coverage both in urban and rural areas. Accordingly, the insurance coverage has dramatically expanded and reached more than 90% in rural areas and 70% in urban areas (Table 1). Such expansion of medical insurance both in urban and rural areas is an important achievement of health sector reforms in China. However, there remain other critical issues in order to improve availability and affordability of health care services for those in need.

Table 1. Medical Insurance Coverage (%)

	Rural population		Urban population		
	New CMS		Total	UEBMI	URBMI
	coverage (%)		coverage (%)	enrollment (10,000 persons)	enrollment (10,000 persons)
2004	9.1			12,404	
2005	20.0			13,783	
2006	46.0			15,732	
2007	82.7		51.8	18,020	4,291
2008	92.4		72.4	19,996	11,826
2009	94.3				

Note: Author's compilation based on data from *Health Statistical Yearbook of China*.

- 2009 health system reform plan

Medical insurance coverage has dramatically expanded in recent years in China, which is conducive to lessening financial burdens for the insured to access health care services. However, there remain critical problems in the health sector which hinder certain people from accessing needed health care services. One of the most critical issues is a rapid increase in the costs of health care services as well as pharmaceuticals, which closely relates to the financial management system of health institutions and payment schemes for hospital doctors in China. Another important issue is quality and quantity of lower-level of health institutions, particularly in rural areas.

In order to deal with those issues, the government launched a comprehensive reform plan of health systems in April 2009 (National Development and Reform Commission, 2009). The plan aims at improving financial and physical accessibility to needed health care services. It is a three-year reform plan from 2009 to 2011, and a total of CNY850 billion (US\$125 billion) fiscal

investment is scheduled for the plan (Alcon and Bao, 2009; Yip and Hsiao, 2009). The five targets are listed on the plan: the national essential medicine system, public hospital reforms, health services at grass-root levels, basic public health services, and medical insurance systems (National Development and Reform Commission, 2009).

Managing the costs and rationalizing the use of pharmaceuticals have been critical issues of China's health system. In other words, the climbing cost and the overuse of drugs have escalated people's financial burdens in the health sector. Hospitals heavily rely on revenues from pharmaceutical sales in China (World Bank, 2010). Table 2 shows that more than 40% of total revenue is generated by pharmaceutical sales at each level of health institution in China. The scheme of markups on pharmaceuticals, particularly on branded drugs, enables health institutions to generate such revenues.

Table 2. Revenue Structure of Health Institutions (%)

	2005	2006	2007	2008	2009
Public hospital					
Govt subsidies			8.5	8.4	8.8
Operating revenues	92.6	91.6	91.5	91.6	91.2
Revenues from medicine	43.0	41.3	41.3	42.1	42.1
(Ratio of medicine rev. to operating revenues)	46.4	45.1	45.1	45.9	46.1
Urban community health center					
Govt subsidies			17.8	23.3	23.6
Operating revenues			82.2	76.7	76.4
Revenues from medicine			50.2	51.4	51.3
(Ratio of medicine rev. to operating revenues)			61.1	67.0	67.1
Township health center					
Govt subsidies			25.9	18.7	20.2
Operating revenues			74.1	81.3	79.8
Revenues from medicine			39.0	43.2	43.9
(Ratio of medicine rev. to operating revenues)			52.7	53.1	55.0

Note: Author's compilation based on data from *Health Statistical Yearbook* of China.

The government attempts to solve a part of the problems by reestablishing the national essential medicine system. The government particularly focuses on securing the supply system and improving utilization of essential drugs (National Development and Reform Commission,

2009). For that purpose, under the national essential medicine system, all the essential medicines are included in the drug reimbursement list of the medical insurance mentioned above and the reimbursing rate of essential drugs will be higher than that of non-essential drugs. In addition, the government has piloted a zero-markup scheme in order to amend the markup scheme and has scheduled budget support in the 2009 reform plan. The budget support is intended for compensating the reduction in hospital revenues due to implementing the zero-markup scheme. As mentioned above, the issues on pharmaceutical costs closely relate to the financial management system of health institutions. In this sense, the government also gives priority to public hospital reforms in the 2009 plan, and has initiated pilot programs. The pilot programs focus on reforms in management and supervision mechanism as well as compensation schemes of public hospitals.

Other focal issues on the supply-side of health systems are primary care and public health. Quantity and quality of primary care have been considerably limited at lower-tiers of health institutions in China. Those institutions have not provided sufficient or reliable services, which caused a malfunction of referral systems in the health sector. To improve the situation, the government attempts to restructure the primary health care system by constructing grassroots-level health institutions, providing training for practitioners working at grassroots-level institutions, and reforming compensation mechanism for the personnel at the grassroots level. Those attempts are included in the 2009 reform plan. In addition, the government has become conscious of the importance of preventive care, and has been working on expansion of vaccination and an increase of funds for the specialized public health institutions. Those attempts are essentially important to improve people's accessibility to needed health care services and contain total health expenditures.

Regarding the medical insurance, the government attempts to improve benefits of insurance by scaling up the insurance fund. For that purpose, both the central and local governments plan to increase their subsidies to the funds of URBMI and new CMS. In addition, the importance of portability and continuity of insurance across localities is clearly mentioned in the 2009 plan. Relating to this, Social Insurance Law (SIL) has become effective in July 2011, which stipulates that the portability of medical insurance across localities should be secured for the insured. The portability of medical insurance is particularly important in order for rural migrants/mobilizing population to benefit from the insurance practically. Thus, it will be a great step for improving effectiveness of medical insurance in China if the 2009 plan and SIL will be enforced smoothly.

Further Challenges in the Health Sector

- Disparity in health

As observed above, reforms in the medical insurance have progressed significantly in recent years. It improves in controlling people's financial risks associated with health matter. However,

disparity in the medical insurance system is still critical in China, especially in the context of equity in health.

There are three types of disparity in China's medical insurance system: disparity in benefits between the three insurance (UEBMI, URBMI, the new CMS), disparity in insurance schemes between localities, and disparity in insurance coverage between localities. As explained above, basic designs of the schemes differ among the three types of insurance. In general, benefits of UEBMI are the most generous among the three types of insurance. In addition, benefits and contribution of the respective insurance might differ among localities. The central government presents the grand design of the respective insurance, i.e., UEBMI, URBMI, and the new CMS, whereas each local government adjusts the grand design to implement the insurance practically at the local level. Therefore, the actual scheme of the insurance might differ among localities. It means that contribution and benefits of the insured might differ between localities even if they are members of the same insurance scheme such as URBMI or the new CMS. In this context, benefits and contribution of medical insurance differ among people depending on their *hukou*, employment status, or their registered localities.

As observed in the previous section, overall coverage of medical insurance has expanded substantially both in urban and rural areas; however, the coverage varies between localities. Table 3 shows that some provinces have already achieved 100% coverage of the new CMS, whereas the coverage is still below 70% in some other provinces. Regarding the medical insurance for urban population, the insurance coverage highly differs between provinces. The coverage is still less than 50% in some provinces.

Table 3. Difference in Coverage of Medical Insurance

	Rural population				Urban population	
	New CMS				UEBMI + URBMI	
	2007	2008	2009		2008	2009
Total (%)	82.8	92.5	94.4		51.8	72.4
Std. Dev. (between provinces)	12.0	10.2	10.3		15.7	15.5
The highest province (%)	100.0	100.0	100.0		99.8	100.0
The lowest province (%)	62.9	68.2	68.9		34.2	49.0

Note: Author's compilation based on data from *Health Statistical Yearbook* of China.

In general, the household income level has a positive effect on differences in insurance coverage (Martins and de la Maisonneuve, 2006). In addition, local fiscal capacities for health may have an important effect on the insurance coverage in China, because local governments play a significant role in the health sector. Local health service availability may also have an important impact on differences in insurance coverage. In the following, we conduct simple estimations in

order to examine effects of those possible factors on the difference in insurance coverage. The estimation model is as follows:

$$Y_{it} = \alpha + \beta X_{it} + \varepsilon_{it} \quad Y_{it} = \alpha + \beta X_{it} + \varepsilon_{it}, (1)$$

where i denotes the province, t denotes time (year), and ε is an error term. Y_i is the dependent variable, i.e., the insurance coverage in a province (i), whereas X denotes independent variables, i.e., the household income level, local fiscal expenditures for health, and availability of local health services. We use panel data covering 31 provinces over a three-year period (2007-2009) for the case of rural areas and 31 provinces over a two-year period (2007-2008) for the case of urban areas, and employ a random effects model for our analyses.

For the analysis of rural areas, following variables are applied to the above model. The dependent variable (Y) is coverage of the new CMS in a province. Regarding independent variables (X), the household income level is measured by rural household net income on a per capita basis. The local fiscal expenditure for health used in the model is provincial *per capita* fiscal expenditure for health. Availability of local health services are measured by the number of rural health center beds on a per capita basis and the number of health personnel at the county level on a per capita basis. In addition, the time dummy for 2007 is included in the estimation model for the case of rural areas.

For the case of urban areas, the following variables are applied to the above model. The dependent variable is insurance coverage for the urban population in a province which includes UEBMI and URBMI. The household income level is urban household disposal income on a per capita basis. The local fiscal expenditure for health used is provincial *per capita* fiscal expenditure for health. The number of hospital beds *per capita* and the number of health personnel *per capita* are used as variables for local health availability.

Table 4. Estimation Results for the Case of Rural Areas

Dependent variable		Coverage of the new CMS									
		(a)		(b)		(c)		(d)		(e)	
Independent variables											
per capita rural household net income (ln)		0.14	(0.04)*			0.09	(0.05)*	0.14	(0.04)*	0.15	(0.06)*
per capita fiscal health expenditure (ln)				0.08	(0.02)*	0.06	(0.02)*				
per capita rural health center beds								0.02	(0.00)*		
per capita health personnel at county level										-0.02	(0.12)
time dummy for 2007		-0.06	(0.01)*	-0.04	(0.01)*	-0.04	(0.02)*	-0.03	(0.01)*	-0.06	(0.01)*
No. of observation		93		93		93		93		93	
R2		0.50		0.56		0.55		0.66		0.50	

Notes: Numbers in parentheses are standard error.

* indicates significance at the 5% level. ** indicates significance at the 1% level.

Table 5. Estimation Results for the Case of Urban Areas

Dependent variable	Insurance coverage (UEBMI + URBMI)									
	(a)		(b)		(c)		(d)		(e)	
Independent variables										
per capita urban household disposal income (ln)	0.82	(0.10)*			0.48	(0.12)*	0.71	(0.12)*	0.81	(0.13)*
per capita fiscal health expenditure (ln)			0.38	(0.05)*	0.23	(0.05)*				
per capita hospital beds							0.58	(0.42)		
per capita health personnel									-0.04	(0.21)
No. of observation	62		62		62		62		62	62
R2	0.84		0.82		0.85		0.85		0.84	

Notes: Numbers in parentheses are standard error.

* indicates significance at the 5% level. ** indicates significance at the 1% level.

Table 4 summarizes the estimation results for the case of rural areas, whereas Table 5 summarizes the results for the case of urban areas. The coefficient of the household income level is positive and statistically significant both in urban and rural areas, which means that the household income level has a positive effect on insurance coverage. In addition, as expected, the coefficient of local fiscal expenditure for health is positive and statistically significant both in urban and rural areas. It means that the insurance coverage is higher in provinces where the provincial fiscal expenditure for health is higher. Regarding availability of health services, the number of rural health center beds (per capita) has a positive and statistically significant effect on coverage of the new CMS, which means that coverage of the new CMS is higher in provinces where rural health center beds are more available. The estimation results suggest that local fiscal capacity for health needs to be strengthened in poor localities in order to increase insurance coverage there and to reduce the disparity in insurance coverage between localities. In addition, it

is also important to improve the physical condition of rural health centers in order to increase insurance coverage in rural areas.

- Aging and health

Aging is a critical challenge in China’s health sector in the near future. The ratio of those over 65 years of age to total population is 8.5% in 2009 (Table 6). The over 65 ratio is predicted to be 14% by 2027, and the pace of aging is almost same as that of Japan (Xiao, 2007). In addition, the level of under 15 to total population in China is close to that in high-income economies (Table 7). It suggests that the share of the working generation in total population will turn and decrease in the near future in China. Those changes in the demographic structure might have a considerable impact on the health system in China.

Table 6. Demographic Structure in China (%)

	1990	1995	2000	2005	2009
Total population (10,000 persons)	114,333	121,121	126,743	130,756	133,474
	Ratio to total population (%)				
0 - 14	27.7	26.6	22.9	20.3	18.5
15 - 64	66.7	67.2	70.1	72.0	73.0
over 65	5.6	6.2	7.0	7.7	8.5

Note: Author’s compilation based on data from *China Statistical Yearbook*.

Table 7. Demographic Features of Economies by Income Level, 2008 (%)

	Median age	Age under 15
Japan	44	13
Lower middle income economies	27	27
Upper middle income economies	30	25
High income economies	39	18

Source: World Health Statistics 2010, WHO.

In general, an increase in the elderly population causes total health expenditures in an economy to expand (Martins and de la Maisonneuve, 2006). Table 8 summarizes the estimation results that examine impacts of the demographic structure on total health expenditures in China.

Table 8. Estimation Results: Impact of Demographic Structure on Health Expenditures

Dependent variable		Per capita total health expenditure in real terms (ln)			
		(a)		(b)	
Independent variables					
	per capita provincial GDP in real terms (ln)	1.04	(0.17)**	1.08	(0.17)**
	ratio of over 65 to total population	0.06	(0.02)**		
	ratio of from 15 to 64 to total population			-0.03	(0.01)**
	time dummy:				
	2003	-0.71	(0.14)**		
	2004	-0.66	(0.13)**	0.07	(0.03)**
	2005	-0.64	(0.11)**	0.09	(0.05)**
	2006	-0.57	(0.08)**	0.19	(0.07)**
	2007	-0.33	(0.06)**	0.45	(0.10)**
	2008	-0.24	(0.04)**	0.54	(0.13)**
	2009			0.80	(0.15)**
No. of observation		217		217	
R2		0.96		0.96	

Notes: The unit of variables is a province. A fixed effects model is employed for the analyses by using panel data covering 31 provinces over a seven-year period (2003-2009). The number in parentheses is standard error.

** indicates significance at the 1% level.

Total health expenditures generally increase along with expanding the economic level. In this sense, as expected, per capita provincial GDP in real term has a positive and statistically significant effect on total health expenditures in a province (Table 8). It means that health expenditure is higher in a province whose economic level is relatively high. The coefficient of the ratio of those over 65 to total population is also positive and statistically significant, and that of those between 15 and 64 is negative and statistically significant. The results indicate that the increasing elderly population will lead to expansion of total health expenditures, whereas an increasing working population will be conducive to containing total health expenditures. The ratio of working population to total population is predicted to decrease in the near future in China. Changes in the demographic structure in China will lead to further expansion of total health expenditures in the near future.

- Fiscal space for further challenges

Challenges in the health sector require further fiscal support for health in China. To meet the responsibility of facing them, the government needs to find fiscal resources for health; that is, fiscal space for health. Fiscal space is defined as “the availability of budgetary room that allows a government to provide resources for a designed purpose without any prejudice to the sustainability of a government’s financial position” (Heller, 2005). In particular, the possible fiscal space for health is as follows: increase tax revenues, reprioritize fiscal expenditures, establish social insurance schemes, and increase receipt of grants (UNICEF, 2009; Heller, 2005).

Increasing receipt of grants might be a desirable option for least developing economies, but not a possible option for China. As discussed above, social insurance (medical insurance) systems have been established in China, but reforms in the insurance schemes may generate fiscal space for health. An option is to include dependent family members of formal employees in UEBMI. At present, they are ineligible to enroll in UEBMI, but experiences of OECD countries such as Japan indicate that it is possible to include them in UEBMI. Including rural migrants in UEBMI is also an important option. The insurance fund of UEBMI is financed by contributions of employees and employers, and it is the most stable among the three types of insurance. By contrast, the insurance fund of URBMI or the new CMS is financed by contributions of the insured and subsidies from the central and local governments. Transferring insurance members from URBMI and the new CMS to UEBMI would reduce necessary fiscal subsidies for the fund of URBMI or the new CMS, which would generate fiscal space for the further challenges.

Reprioritizing fiscal expenditure between sectors would also be an important option for China to generate fiscal space for health. Based on the calculation using data from *China Statistical Yearbook*, the ratio of fiscal health expenditure to total fiscal expenditure is about 5% in 2009. Even in low income economies, around 7% to 8% of total fiscal expenditure is allocated for health (Hay and Williams, 2005). In this sense, an additional 3% to 5% of fiscal expenditures can be allocated for health in China. In addition, improving tax administration would also generate additional fiscal resources which can be allocated for health.

Conclusion

After the economic reforms started in the late 1970s, the conventional health systems decayed both in urban and rural China. The government did not direct much attention to the health sector in the 1980s and 1990s, which seriously hindered people from accessing needed health care services. The government has eventually initiated the reestablishment of medical insurance since the late 1990s, and health system reforms have progressed significantly in recent years.

Medical insurance coverage has reached more than 90% in rural areas and more than 70% in urban areas. The progress contributes to reducing the financial burden for the insured to access needed health care services. However, there remain challenges in the health sector. One important

challenges is disparity in insurance coverage between localities. Strengthening fiscal capacity, especially capacity of local governments, is essential to expand insurance coverage in poor localities. Improving the physical condition of health facilities is also important to increase insurance coverage in rural areas.

In addition, aging will be a critical issue for the health sector in the near future. The share of those under 15 in total population in China is almost the same as that in high-income economies. Not only increasing the share of the elderly population but also decreasing the share of the working population in total population will lead to substantial expansion of total health expenditures in the near future. Those challenges require additional fiscal space for health in China. There are several possible options for China to generate additional fiscal space for health. Further reforms in medical insurance schemes will reduce necessary fiscal subsidies for the insurance funds which can be allocated to further challenges in the health sector. In addition, fiscal expenditures can be reallocated between sectors, which will generate additional fiscal resources for the health sector. Improving tax administration is also an important means to increase fiscal revenues which can be allocated to health.

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A Brief Review on Health Care Expenditure in the Past, Present, and Future in Japan

Yoko Ibuka*

The Japanese national expenditure on health amounted to 8.5% of gross domestic product (GDP) in 2008¹. This is almost half of the corresponding value of the United States, and it ranked 20th among the Organisation for Economic Co-operation and Development (OECD) countries (OECD Health Statistics, 2011). The most recent statistics, however, show that the national health care expenditure increased by 3.4% between 2008 and 2009 (MHLW, 2011a), a significant jump compared to the 2.0% increase seen between 2007 and 2008. In this brief report, we will take a look at how health care expenditure evolved together with demographic changes in Japan. We will then briefly discuss issues associated with predictions for future health care expenditure.

Evolution of Health Expenditure

Figure 1 shows the trend of health expenditure as a percentage of GDP in Japan and other OECD countries since 1970. In 1970, Japan's health expenditure as a percentage of GDP was 4.5% and showed a growing trend over the next 38 years. In 2008, it reached 8.5%. The midterm trend commonly appears in almost all OECD countries. In 2008, there were eight countries where health expenditure exceeded 10% as a percentage of GDP² with the largest value of 16.4% being the case of the United States (US). Japan ranked 20th among the OECD countries, based on terms and definitions used by the OECD on health expenditure.

An increase in health expenditure as a percentage of GDP since 1970 is also largest in the US (9.3 percentage points [pp]), followed by Portugal (7.6 pp), Belgium (6.2 pp), France (5.7 pp), and Switzerland (5.3 pp)³. By contrast, expenditures in Sweden and Finland increased only by 2.4 pp and 2.8 pp, respectively, though they reported relatively high rates in 1970. In Japan, health expenditure per GDP has increased by 4.0 pp since 1970, which is ranked between Ireland (3.7 pp) and Norway (4.2 pp).

The total national health care expenditure has grown over time at a higher rate since the late 1960s (Figure 2a). Per capita national health care expenditure shows a similar pattern as the total expenditure in its trend, suggesting the increase in health expenditure is less likely to be attributed to an increase in the total population size. If we look at the age structure, the proportion of those

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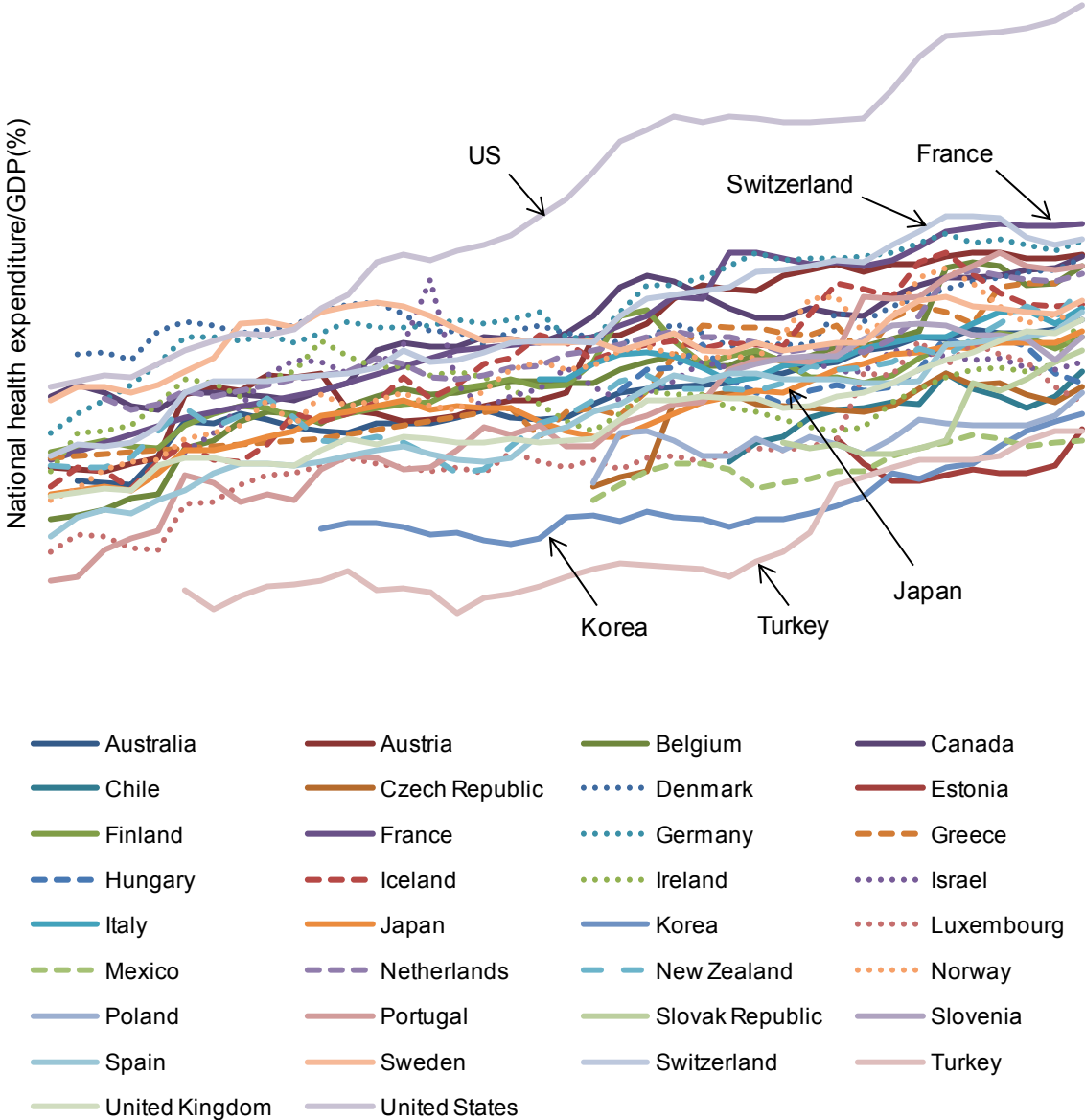
¹ The percentage is based on health expenditure by OECD. The National Health Care Expenditure, a commonly-used measure for national expenditure on health and medicine, shows 7.1% of GDP in 2008.

² They are the United States (16.4%), France (11.1%), Switzerland (10.7%), Austria (10.4%), Canada (10.3%), Denmark (10.3%), Belgium (10.1%), and Portugal (10.1%).

³ The ranking is evaluated based on 18 countries where the data is available since 1970.

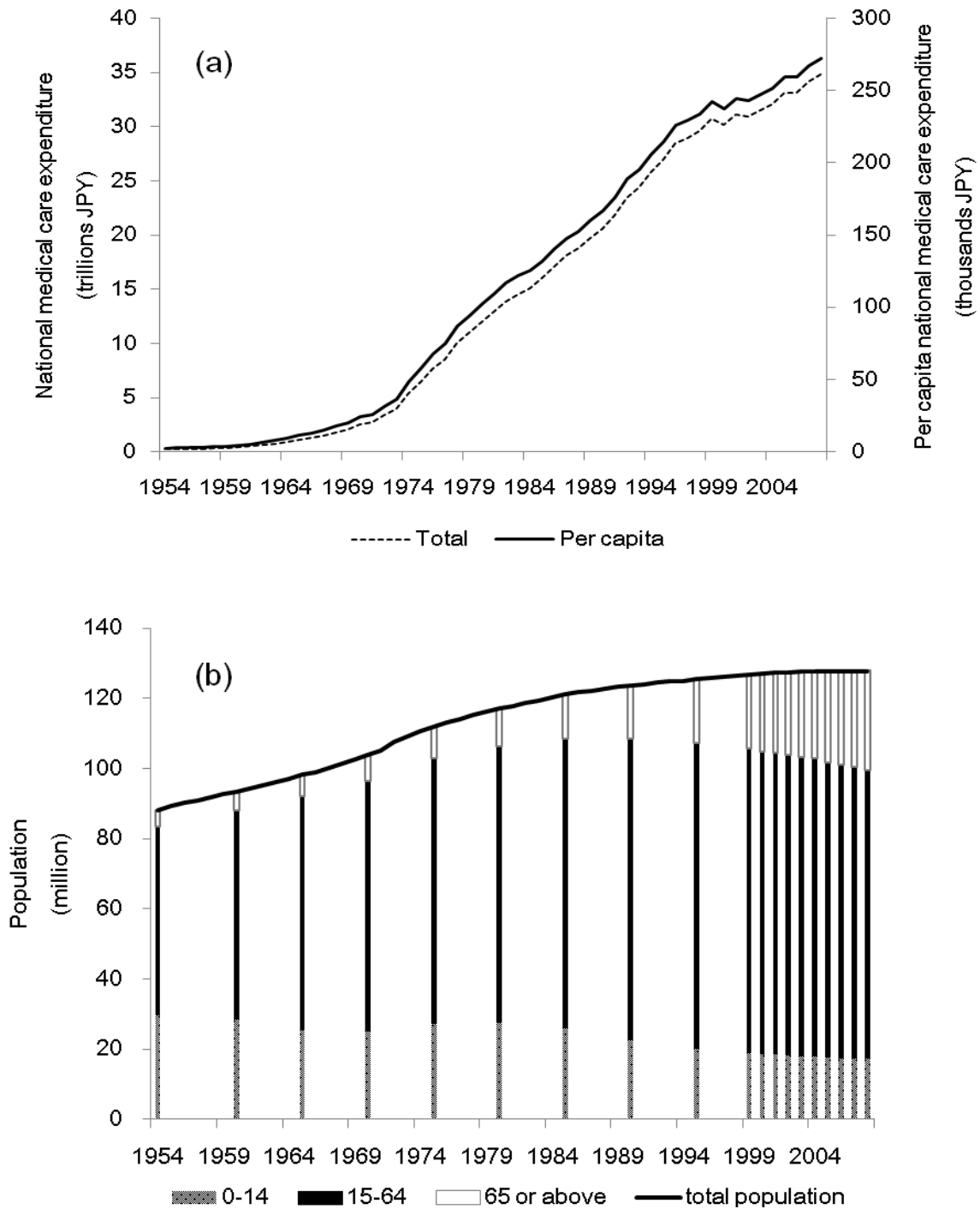
who are 65 years old or above has increased from 5.3% to 22.1% for the last 50 years, and by contrast the proportion of children and adolescents (0 to 14 years old) decreased from 33.4% to 13.5% (Figure 2b).

Figure 1: National health expenditure in OECD countries as a percentage of GDP, 1970-2008



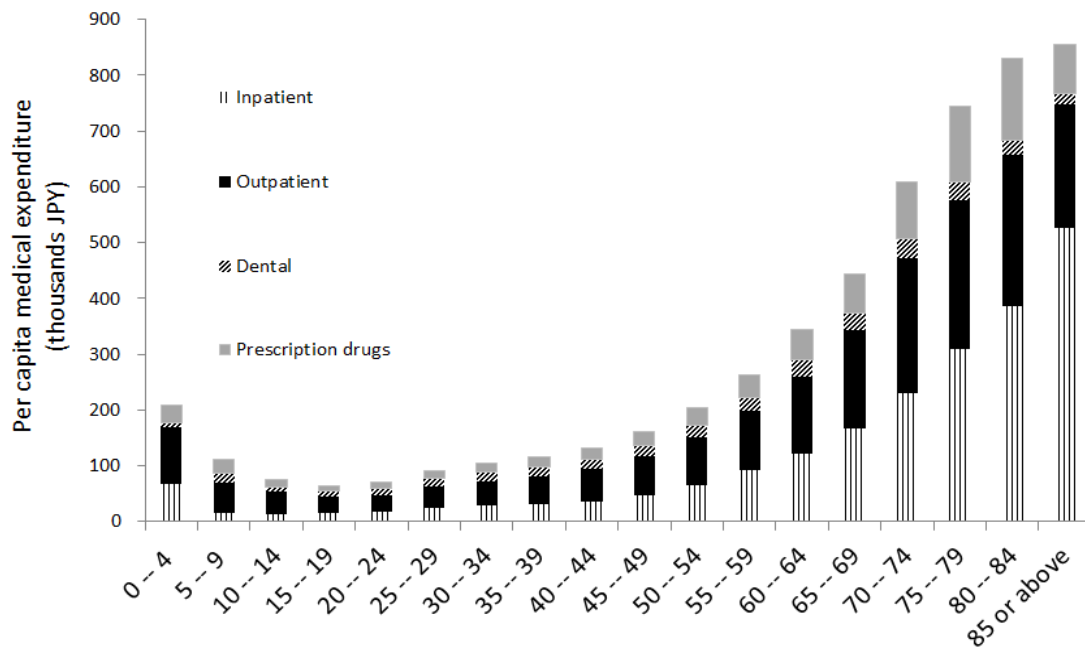
Source: OECD Health Statistics, 2011

Figure 2: Health care expenditure and population, 1954-2008, Japan



Source: (a) Ministry of Health, Labour and Welfare (2011b); (b) Ministry of Internal Affairs and Communications, Statistics Bureau (2011)

Figure 3: Health care expenditure per person, 2008



Source: Ministry of Health, Labour and Welfare (2011b)

Figure 3 plots how health care expenditure per person varies with age. The figure shows the health care expenditure per person by age group with age intervals of five years. Health care expenditure per person gradually increases with age, and the increase accelerates after 50 years of age. A person who is between 50 and 54 years old spends approximately 200,000 yen on average; however, the expenditure doubles for a person between 65 and 69 years old. The expenditure exceeds 800,000 yen for those who are 85 years old or above.

The value for each group presents an unconditional mean of health care expenditure and thus is associated with two factors: total number of individuals who are in need of care and how much each patient pays when s/he obtains medical treatment or care. Both are related to age. The proportion of individuals who need treatment for a disease rises with age. At the same time, health care costs per patient increase with the age of a person due to greater chance of morbidity and disability for her/him. It is well known that the highest medical costs are often incurred immediately before death (Scitovsky, 1984). Thus, the health care expenditure of the nation is correlated with the demographic structure of the society through the two channels.

Despite the accelerated aging of the population, as well as other factors that are known to be related to high medical costs⁴, the Japanese health care system has managed to control national health expenditure at a fairly low level, particularly compared to other OECD countries. Hashimoto et al. (2011) argued that there were two reasons for the contained costs. The first

⁴ Hashimoto et al. (2011) discussed that these factors include a private sector-dominated delivery system, payment by fee-for-service, and no gatekeeper function by family doctors.

reason is in the patient-side demand, that people in Japan use more outpatient services than inpatient care. The second reason is with the payment scheme in the Japanese health care system where fees for health services are centrally controlled in order to keep them uniform. Japan has approximately 3,500 insurers; however, a single payment system is applied to all the health insurance plans. Moreover, the revisions of the prices of drugs, devices, and services are made both globally and on an item-by-item basis. In particular, the global revision rate is determined by the government reflecting opinions by the group that represents providers so that the prices mirror the situation of the nation. The global revisions determine the basic health expenditure of the nation, and the revision rates are associated with the economy of the country. For example, the government decreased the global rate of the fee schedule four times consecutively starting in 2002 due to the deteriorating economic situation in the country (Hashimoto et al., 2011). In addition, item-by-item basis revisions are made reflecting the market prices of drugs and prices.

Challenge in Predictions on Future Health Care Expenditure

Projecting national health care expenditure is a quite challenging task. Projections are subject to a high degree of uncertainties, one of which is related to how morbidity and other epidemiological variables change in the future. For example, previous studies have addressed a few hypotheses between life expectancy and change in morbidity (European Commission, 2009). One hypothesis tells us that decline in mortality has occurred not because of suppression of disease prevalence or incidence but due to reduction in fatality rate for diseases, resulting in greater morbidity in the society (Olshansky et al., 1991). On the contrary, another hypothesis on the relationship between decreasing mortality and health is that people are expected to live longer in better health (Fries, 1980). The two hypotheses would determine the proportion of those who are in need of treatment in different ways. If the former hypothesis is right, the number of patients would increase as mortality decreases in the future. However, if the second hypothesis is right instead, the proportion of the patients would decrease. Assuming that mean costs per patient increase over time, each scenario would result in an increase in the total expenditure (according to the first hypothesis), or a decrease (according to the second hypothesis), keeping all other factors unchanged.

Thus, projections on health care expenditure at the macroeconomic level are often conducted in practice by applying past observed trends in socioeconomic variables in a model. There has been growing attention on the future of health and health care system in Japan, and estimating current national health care costs and simulating the evolution of future health care expenditure are of great concern for policy makers. Accordingly, a number of studies and government reports provided projections on health care expenditure⁵.

In those analyses, health care expenditure per person is often assumed to increase over time.

⁵ For an intensive summary of these studies, see Iwamoto (2007).

The source of the increase in health care expenditure can be decomposed into demography (population size and structure), income, and other factors explained by the residuals of the aforementioned two factors (such as advances in technology) (Horiuchi, 2011). The assumptions about the per-capita health expenditure are made either exogenously, or based on the relationship with income and other factors empirically observed in the past trend (European Commission, 2009; Iwamoto and Fukui, 2010).

We have seen the evolution of national health care expenditure in Japan, and have reviewed issues on the predictions of future expenditure. Further studies are needed for improved understanding of the mechanism of the connection between an aging population and health care expenditure.

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