

Topic : Health Care System as Social Common Capital

〈Review〉

Benefit Evaluation of the Health Care System as Social Common Capital: Quality Measurement of the Health Care System as Non-Market Goods and Services.

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Abstract

The purpose, the components, and the interrelations of the health care system change greatly because medical services and their environment change. As the economic framework, the population structure, and the social structure changed, medicine and medical technology advanced. Because of these factors, types of diseases have been greatly transformed. For example, an “acute and infectious disease” type society existed until after World War II in Japan. After the post-war devastation, there was a dramatic increase in economics that led to the “chronic and lifestyle-related disease” type society that exists today. Currently, our society is transforming to a mixture of these two types of societies.

Japanese society in the 21st century is approaching a large transition stage because of globalization, informationization, activation of activities such as NPO/NGO, diversification of individual values, correction of past stockholders' equity principle, the ending of the 1955 system, a declining birthrate, a growing proportion of elderly people, and a change in social climate due to the state finance crisis. Such a difficult situation is common worldwide, and for a breakthrough solution to these problems, the concepts of “Sustainability”, “Social Responsibility” and “Social common capital” are being reviewed all over the world.

Generally, the value of the factor of social common capital is divided by use value and non-use value. Former value is classified to rivalrous consumption and nonrivalrous consumption. Until now, evaluation of the value of a health care system as the social common capital is mainly given priority as a direct use value. Policy and resource allocation are decided based on that evaluation. It is necessary to reorganize the health care system in response to the changing patients' needs in the 21st century, such that priority of the allocation of limited resources is decided by mutual agreement of the citizens. It is important that not only the direct utility value of the health care system is measured, but other values are measured as well., Therefore, it is necessary that we expand our understanding of other representative measurement methods, such as the Travel Cost Method, the Hedonic Approach and the Contingent Valuation Method.

keywords: Bebenefit evaluation, Health care system, Sustainability, Social responsibility, Social common capital, Travel cost method, Hedonic approach, Contingent valuation method (CVM)

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I . Changes in disease composition in Japan

The Japanese governmental organization for management of public health was established in 1872, and, as in other developed countries, it started with measures for dealing with acute infectious diseases. The next step was to deal

with chronic infectious diseases such as tuberculosis and sexually transmitted diseases, and the struggles against infectious diseases continued until after World War II. In the post-war devastation, there was a dramatic increase in the spread of tuberculosis and other infectious diseases, due to food shortages, the return of demobilized soldiers

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from abroad, and other factors, and such diseases were a major cause of death. Beginning in the early 1950s, the number of deaths due to tuberculosis and other infectious diseases fell as a result of the development and widespread use of antibiotics, the improvement and reorganization of living conditions, and improvements in prophylactic techniques. However, at about the same time, starting in the mid-1950s, the numbers of deaths due to cerebrovascular diseases, heart disease, and cancer rose dramatically, and Japan's disease composition changed markedly within only a short period of time after World War II.

In terms of age-adjusted mortality rates classified by cause of death, the mortality rate due to cerebrovascular diseases decreased markedly from 1965 in both males and females. The rate of malignant neoplasm showed a tendency to increase in males, but a tendency toward a slow decrease in females. The rate of heart disease showed a slow decrease in both males and females since 1980. The status of mortality was affected by the age profiles of these populations, therefore, in order to compare the mortality rates due to these diseases in populations with different demographic structures, it was considered appropriate to use age-adjusted mortality rates to ensure that the rates applied to a consistent standard population.

The changes in disease composition can be clearly understood from the time-course of age-adjusted mortality rates classified by cause of death. In 1950, tuberculosis was the cause of 13.5% of deaths, but this proportion had fallen to 1% or less by 1980. In contrast, cerebrovascular disease

was the principal cause of death from 1950 to 1980, and malignant neoplasm has been the principal cause since 1981. Since 1975, the mortality rate due to cerebrovascular disease has decreased, but the mortality rates due to malignant neoplasms and heart disease have tended to increase. The mortality rate due to diabetes has also tended to increase, albeit slowly (Fig. 1).

II. Classification of societies by disease composition

From the evolution of the first humans until the Industrial Revolution, chronic food shortages and malnutrition meant that the human population was perpetually beset by infectious diseases, such as those caused by contagious organisms and parasites. However, in the industrial society that emerged after the Industrial Revolution, food supply has increased massively, standards of living improved, the population increased, and urbanization progressed. Rapid advances in medical science during the 19th century also contributed to a decrease in the death rate. In association with these changes, lifestyles gradually changed from those that were typical in agricultural societies, and birth rates thus declined. In addition, the development of chemotherapeutic treatments in the first half of the 20th century resulted in the decline of numerous infectious diseases, especially pediatric infections and juvenile tuberculosis, leading to further decreases in the death rate. These decreases in birth and death rates have led to an aging of the population. Additionally, lifestyles in industrial societies have resulted in large numbers of people with

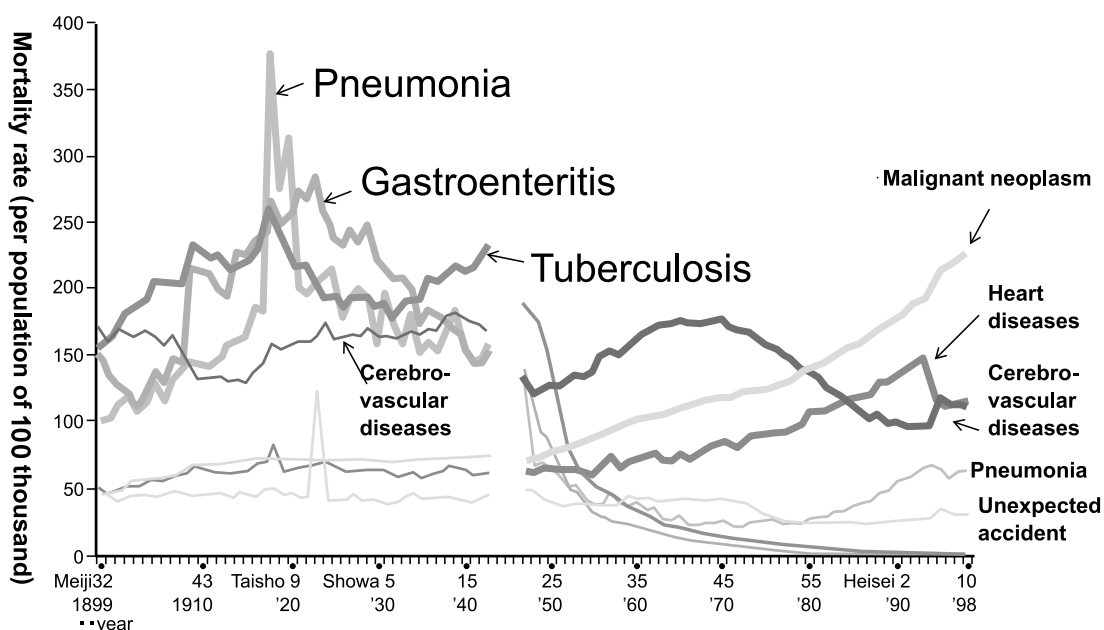


Fig. 1. Annual Changes in Mortality rate classified by Major causes of Death in Japan (1899~1998)

chronic illnesses such as heart diseases, cerebrovascular disorders, and cancer. Furthermore, progress in medical science has lowered the death rate of elderly people, resulting in a continuing increase in average life expectancy. This is not solely a problem in the developed countries, but is now affecting many poorer countries, albeit with a greater or lesser delay.

On the other hand, numerous factors, including developments in transport, have led to the emergence and reemergence of infectious diseases. These factors have resulted in a large increase in the international movement of people and foodstuffs, large-scale deforestation, global warming, and the diversification of human values. The approaches to be taken in response to outbreaks of emerging and reemerging diseases have, therefore, become a major global concern. For several infectious diseases, the numbers of people affected had decreased to the point that the diseases were no longer public-health problems. However, diseases such as tuberculosis, cholera, yellow fever, rabies, malaria and bilharzia, have since become more prevalent, and are therefore termed reemerging diseases. Emerging diseases, on the other hand, include new cholera strains, pathogenic *Escherichia coli* O157, human immunodeficiency virus (HIV) and *Helicobacter pylori* infections, all of which were previously unknown, but have since become local or international public health problems. Elderly people tend to be immunocompromised, and consequently have high potential as targets for new infectious diseases. In Japan, both the number of new tuberculosis cases and the morbidity rate

due to tuberculosis increased in 1997, for the first time in 43 years, and the increase in the number of tuberculosis patients was particularly marked in people more than 70 years of age. In the aging society of the 21st century, it is therefore expected that there will be numerous elderly people with functional disorders of one sort or another, and who will suffer from chronic diseases that gradually increase in severity, and are repeatedly complicated by acute diseases.

Taking the above points into consideration, societies can be classified as belonging to one of the following three types, on the basis of disease pattern characteristics:

(1) Acute and infectious disease model society

In these societies (Fig. 2), the principal causes of death are amoebic dysentery, bacterial infections such as typhoid fever, leprosy, malaria, tuberculosis, cholera, diphtheria, tetanus, epidemic meningitis, pneumonic and bubonic plague, bacterial dysentery, and other infectious diseases. The characteristics of these societies are as follows:

- They are pre-industrial, agricultural societies, with perpetual problems of food shortages and malnutrition.
- They involve subsistence lifestyles.
- Birth and death rates are high, thus the population pyramid is conical in shape.

(2) Chronic and lifestyle-related disease model society

In these societies (Fig. 3), the principal causes of death are lifestyle-related diseases such as cerebrovascular

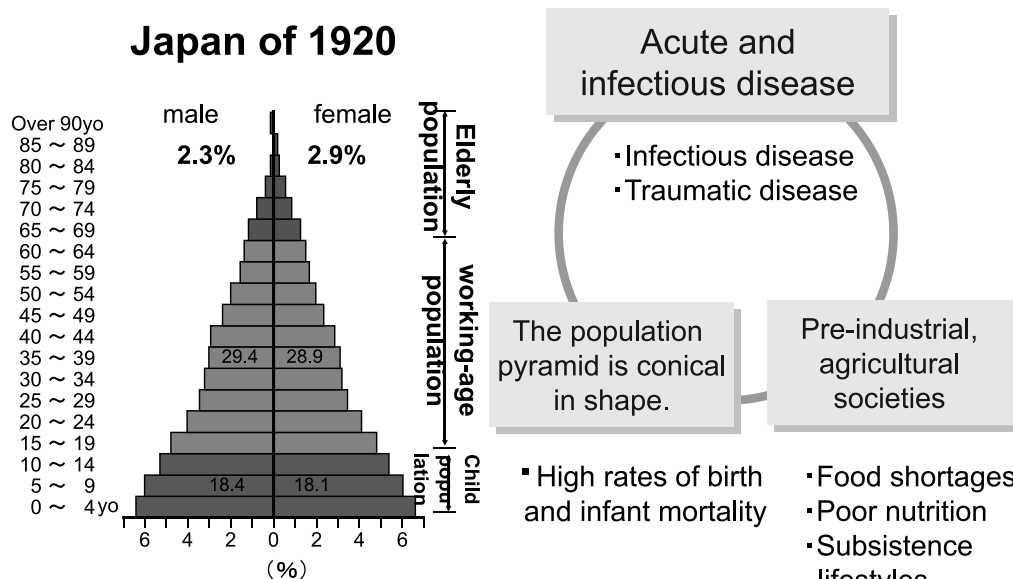


Fig. 2. Acute and infectious disease model society

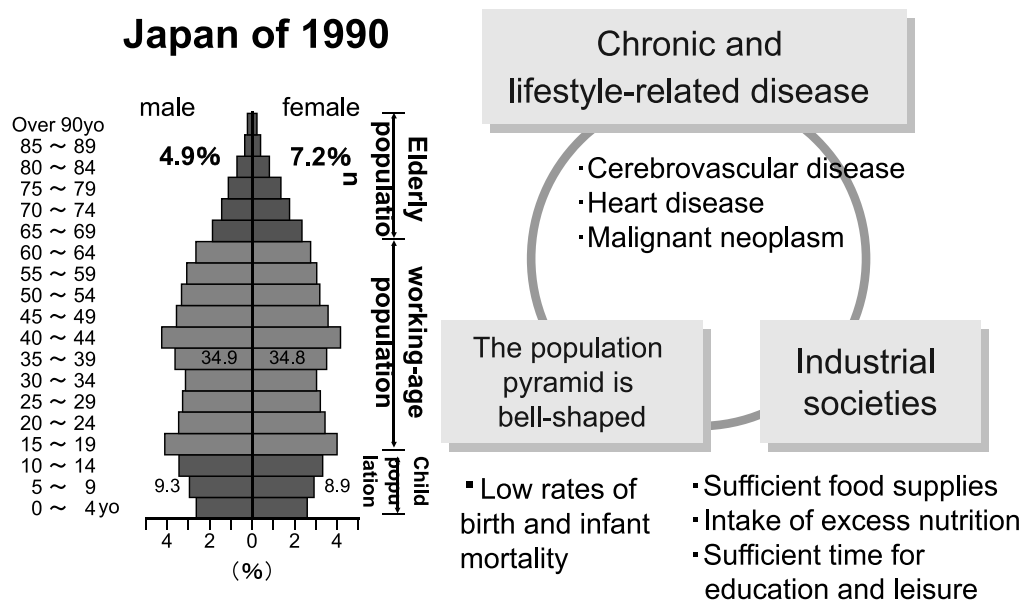


Fig. 3. Chronic and lifestyle-related disease model society

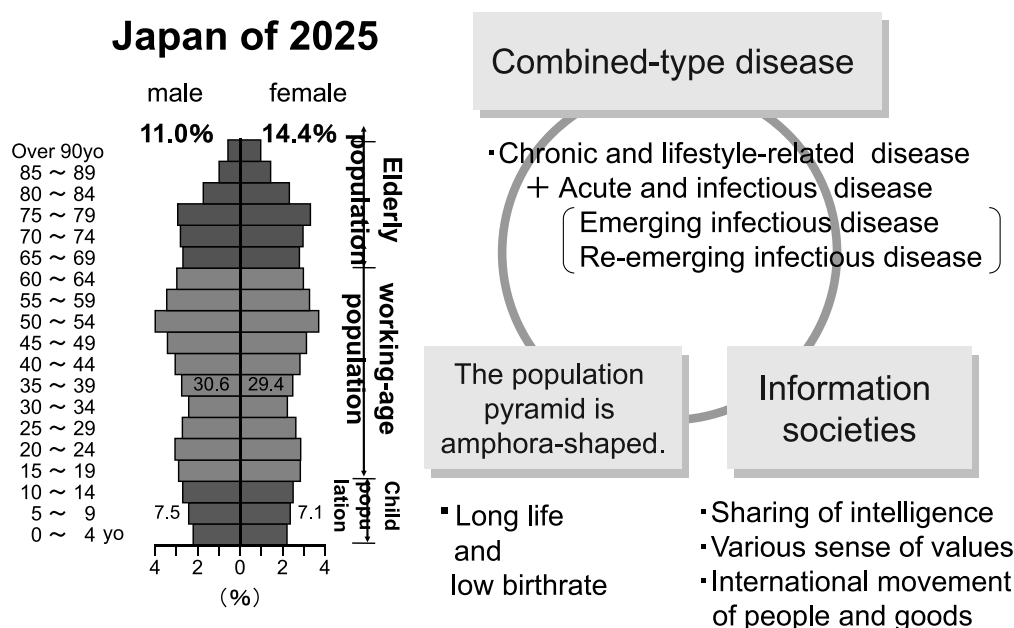


Fig. 4. Combined-type disease model society

disease, heart disease, and cancer. The characteristics of such societies are as follows:

- They are industrial societies, originating from the Industrial Revolution to the present day, with sufficient food supplies, and with populations concentrated in urban areas.
- Many people have sufficient time for leisure and education.
- Birth and death rates are low, thus the population pyramid is bell-shaped.

(3) Combined-type disease model society

In these societies (Fig. 4), there are numerous elderly people with functional disorders of various types, and death tends to result from a gradual physical decline involving exacerbation of chronic diseases, complicated by repeated acute diseases. The characteristics of such societies are as follows:

- They are 21st-century information societies, in which new information technology has become widely used.

- (b) There is a wide diversity in people's values, and a great deal of international movement of people, goods, and other items.
- (c) Average life expectancies are high and birth rates are low, thus the population pyramid is amphora-shaped.

During the 21st century, numerous developed countries, including Japan, are expected to shift from chronic-disease societies, with mainly lifestyle-related diseases, to combined-type societies, with mainly chronic geriatric diseases.

III. Social responsibility

Advanced countries rushed into the 20th century, which was an era of industrialized societies and mass production. The population continued its explosive increase, which led to serious problems of human rights, inequality, and other social problems. On the other hand, pollution and the destruction of the environment on a worldwide scale, such as acid rain, destruction of tropical forests, desertification, ozone layer depletion, and global warming by the greenhouse effect, became the basis of progress by the human race. There has been environmental overload that resulted in poorly planned rainforest destruction by slash-and-burn farming, and excessive consumption of resources and energy by the well-to-do population continued.

Rapid economic development and globalization during the last several decades have created a strong worldwide interdependency in all respects. A private think tank, "the Club of Rome", published the report "The Limits to Growth" in 1972, and the concept of "Sustainability" gained attention at that time. In 1987, the World Commission on Environment and Development of the United Nations published a report, "Our Common Future", which emphasized that human beings must sever the vicious circle of current development and environmental destruction, maintain the environment and the resource bases, and create a Sustainable Development model.

To realize Sustainable Development, it is necessary that all organizations, including for profit and nonprofit organizations, governments, and international organizations, need to work cooperatively, especially if the expectation is great for the enterprise that is the subject of economic activity. In 1998, the concept of "Triple Bottom Line" was advocated. That concept suggested that for the sustainable development of the enterprise, it was necessary to improve "Result of an environmental side" in addition to "Result of a financial side", and "Result of the social column" overall. In the World Economic Forum in 1999, the United Nations advocated The Global Compact, which was the corporate activity indicator concerning human rights, labor, the

environment, and corruption prevention.

While attention to Corporate Social Responsibility (CSR) increased worldwide, the International Organization for Standardization (ISO) began to work on the standardization of CSR. It examined the process of the multi-stakeholder, in which experts from consumer, government, industrial world, worker, non-governmental organization (NGO), service, support, research, and other different stakeholders participated from 80 countries around the world, including developing countries. Thus, because it was not only corporations that were responsible for social responsibility, the name CSR was changed to SR (Social Responsibility)" in February 2003, and it is scheduled to be issued in 2010 as the standard ISO26000 of SR.

A worldwide movement that values SR does not exclude medical treatment. The combination project between American and European medical science associations settled on principles set forth in "Medical professionalism in the new millennium: a physicians' charter", and made them public to Lancet and Annals of Internal Medicine at the same time in February, 2002. The principles of this new physician's charter were three-fold (a principle of the welfare priority of the patient, a principle of patient autonomy, and a principle of social justice). Social justice should be mentioned specifically, because the physician's social responsibility "The medical profession must promote justice in the health-care system, including the fair distribution of health-care resources. Physicians should work actively to eliminate discrimination in health care, whether based on race, gender, socioeconomic status, ethnicity, religion, or any other social category." is clearly declared. This is a significant point in the "Hippocrates' oaths" that have been handed down from the Greeks about 2500 years ago.

IV. Social common capital

Moreover, one significant modification to the idea of economics occurred after the 1980's. Instead of the traditional framework of capitalism and socialism, a new concept of system principles began to be promoted. This was the movement to evaluate the role and function of economics following the dramatic incidents associated with the disappearance of Soviet socialism in August 1991, and in response to various problems of nature, culture, society, human rights, and other conditions created by socialist and capitalistic systems, and to search for the possibility of sustainable economic development. One embodiment of this new concept of system principles was a social common capital.

Social common capital is a social device by which all

people manage a fertile economic life, establish an excellent culture, and continually maintain a stable, attractive, humane society. Social common capital is comprised of a scarce resource, which is not admittedly owned or managed privately, but in which there are a few situations that take the form of being owned or managed privately. Even when there is some ownership pattern, social common capital is never managed according to a bureaucratic standard, but instead is controlled greatly by a market standard. Each social common capital must be managed by relevant occupational specialist groups according to their special findings and occupational ethics.

A concrete form of social common capital is divided into three patterns: natural environment, social infrastructure, and institutional capital. A natural environment consists of various composition factors such as forests, rivers, lakes, marshes, coastal wetlands, oceans, water, soil, and the atmosphere. This natural environment is not only indispensable to man's livelihood, but also serves an important function for economical, cultural, and social activities. A social infrastructure is composed of roads, bridges, railways, high and low water services, electric power, gas, and other factors. This social infrastructure might have either a public or private ownership pattern. The institutional capital consists of various system elements like medical treatment, education, finance, administration of justice, and other elements, although it is not necessarily distinguished from the natural environment or a social infrastructure. Regarding the health care system, it has the institutional capital and the characteristic of both sides of a social infrastructure.

Many composition factors of a social common capital commonly have externality. For example, the forest is composed of various types of trees within a certain constant region, and many kinds of mushrooms, ivies, undergrowth, small animals, and other organisms are included. The soil and water are important composition factors of the forest. The forest soil contains abundant organisms, and rain water is purified by the soil, becomes water with a moderate mineral constituent, and supports agriculture and fisheries. Moreover, the forest has the important function of absorbing the carbon dioxide in the atmosphere and combating global warming. In addition, the existence of the forest performs the key role of providing a place where people can find relief of the mind. The function of the forest is not only to grow and deforest trees for various appropriated usages, but also to have an external effect that cannot be measured. Therefore, management of the forest should be done from a social viewpoint, and should not be based only on a market standard.

V. Benefit evaluation of social common capital as non-market goods and services

In general, the value of the non-market goods and services, which is the composition factor of a social common capital, is divided by the Use Value and the Non-use Value. The benefit categories in the Use Value are classified into the Rivalrous consumption and the Nonrivalrous consumption of goods and services. The benefit categories in the Non-Use Value are classified into Option Value, Pure existence value and Altruistic existence value (Fig. 5). However, valuation of the composition factor

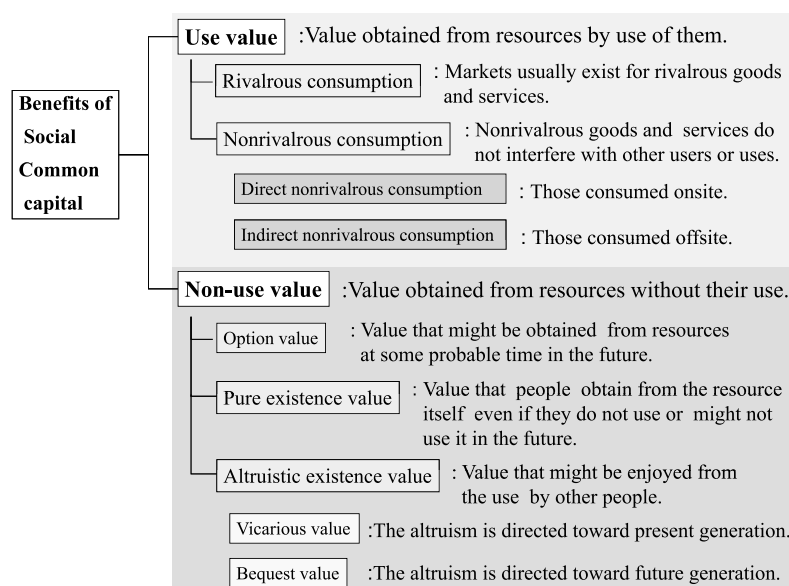


Fig. 5. Benefits of Social Common Capital as Non-Market Goods and Services

value of a current, social common capital is given priority chiefly in the Use value, and the policy and the resource allocation are decided based on the result.

Japanese society is approaching a large transition stage with globalization, the development of information technology, activation of civic action as Non Profit Organization (NPO) / Non Governmental Organization (NGO), diversification of individual values, correction of past stockholders' equity principle, the ending of the 1955 system, the complications of an aging society with fewer children, and the crisis of state finances in the 21st century. It will be necessary to construct a new healthcare system that embodies the concept of "Sustainability", continuously offers the people high-quality, efficient healthcare services in a complex, difficult environment. For the construction of a new healthcare system, up till now, only a direct use value has been measured for the non-market goods and services of the healthcare system; however, it will be necessary to measure other values in the future. For example, the Travel Cost Method, the Hedonic Approach, and the Contingent Valuation Method have been proposed as typical measuring methods in the field of environmental economics.

(1) Travel Cost Method

This is a method of evaluating the value of the composition factor of a social common capital from the perspective of whether or not it is worth using it to the point whereby much of the access cost is paid with money, for example, going to a park. Theoretically, the Travel Cost Method values the consumer surplus by the Marshall theory. This idea was demonstrated by Hotelling for the first time in 1947. The Travel Cost Method utilizes a questionnaire survey and works by presuming the frequency for visiting equation (demand function) is based on the results of the survey. Moreover, it should be noted, the option value is not appreciable in the travel cost method.

(2) Hedonic Approach

Hedonic approach is an evaluation method based on the capitalization hypothesis, which means the value of each components of social common capital is capitalized to the surrogate market like land market (land price) or labor market (wage). In this evaluation procedure, the value of each components of social common capital is evaluated in monetary based by regression analysis on the land price function or wage function in which dependent variable is price and explanation variables are some characteristics including the components of social common capital. This idea originated through the presumed Hedonic price function of asparagus, the tomato, and the cucumber put

forth by Waugh in 1928, and was further developed and adjusted to the micro economic thesis by Rosen in 1974.

(3) Contingent Valuation Method (CVM)

CVM might be called the constructive market method and a value consideration method. This is a method of directly questioning the testee who utilized the composition factor of social common capital on their Willingness to Pay (WTP): the amount of money thought that he or she may pay when assuming that it is necessary to pay expenses to improve the quality or Willingness to Accept (WTA), which is the amount of compensation necessary for making amends for effect level when quality deteriorates. Ciriacy-Wantrup put forth this idea in 1947, the first application by Rowe and D'ange and Blookshire was introduced in 1980, and it has since been developed in the field of environmental economics. The primary merit of CVM is that it is not only the composition factor of a social common capital that is realistic or exists, but also the quality of the composition factor of a virtual, social common capital and the economic evaluation concerning the state are possible.

VI. Example of CMV: Evaluation of existence value of the regional medical care provision system by the contingent valuation method

1) Purpose

The purpose of this study was to survey residents' willingness to pay for the proposed construction of the regional medical care provision infrastructure concerning multiple medical care functions, in order to value this willingness as the degree of benefits of the medical care treatment system in a regional society, or to estimate it based on the contingent valuation method.

2) Methods

This study selected the City of Yokohama in Kanagawa prefecture as the object of analysis. Residents of Yokohama from their teens to their eighties were abstracted from registered panelists of a net research corporation, and the 2,000 responses reflected the actual age and gender composition ratio in a respondents' panel. The survey was divided into two periods: February 23 to 27 and March 23 to 27, 2009 (no duplication of respondents).

The questions asked in the survey, which were preceded by an explanation of the state of regional medical care in Yokohama City, concerned people's willingness to pay taxes of 10,000 yen/year for 30 years. The taxes funded the implementation of an infrastructure plan for general internal medical care, such as pediatric care, obstetrics care, and emergency medical care, that provide personal

medical roles:, specifically “to ensure that all residents can walk one kilometer or less from their present homes to at least one institution providing each of these medical services.” The questionnaire also inquired about the sex, age, occupation, household income, and family composition of each respondent, and the present and past medical care experience of the respondent and the respondent’s family members.

To increase the reliability of the analysis results, questions concerning respondents’ reasons for unwillingness to pay were included to distinguish and handle negative responses. After confirming the basic statistics of the data set, typical amounts that respondents were willing to pay were estimated based on the open question method. To clarify factors impacting the amount people would be willing to pay, regression analysis of the respondents’ attributes was performed.

3) Results

The results of a t-test demonstrated that there was no statistically significant difference in the mean values people were willing to pay between the two surveys. Mean values people were willing to pay were 3,677 (95% confidence interval, 3,409 to 3,944) yen for general internal medical care, 3,185 (2,920 to 3,450) yen for pediatric care, 2,803 (2,599 to 3,006) yen for obstetrics care, and 3,515 (3,289 to 3,741) yen for emergency medical care.

The study of the impact of respondents’ attributes on the amounts they were willing to pay for each of these services revealed that:

(1) for general internal medical care, the amounts teenagers and people in their sixties were willing to pay were positively significant, the amounts people earning 8 million yen or more per year were willing to pay were also positively significant, and household members who were currently receiving out-patient care also had a positive impact on the amounts people were willing to pay (Table 1);

(2) for pediatric care, the amounts people in their forties and males were willing to pay were negatively significant, the amounts people earning from 10 million yen to 18 million yen per year were willing to pay were positively significant, and there was a positive impact on the amounts people were willing to pay when there was a child in the family (Table 2);

(3) for obstetrics care, the amounts teenagers were willing to pay were positively significant, amounts people in their forties were willing to pay were negatively significant, the amounts people earning from 10 million yen to 25 million yen per year were willing to pay were positively significant, and household members currently receiving out-patient care also had a positive impact on the amounts

Table 1 . General internal medical care

Explanatory Variable	parameter	t-value	p-Value
Sex (male vs female)	-99.1	-0.37	0.71
Child (+ vs -)	-3.4	-0.01	0.99
Household members currently receiving out-patient care (+ vs -)	666	2.35	0.02
Age (year) 10 - 19	2440	3.92	0.00
20 - 29	90.3	0.20	0.84
40 - 49	-407	-0.98	0.33
50 - 59	111	0.24	0.81
60 - 69	1410	2.95	0.00
70 - 79	1210	1.31	0.19
80 - over	-177	-0.07	0.94
Household income - 3.00 million yen	-243	-0.44	0.66
3.01 ~ 4.00million yen	-176	-0.31	0.76
5.01 ~ 6.00million yen	286	0.50	0.62
6.01 ~ 8.00million yen	577	1.13	0.26
8.01 ~ 10.00million yen	1020	1.90	0.06
10.01 ~ 14.00million yen	1890	3.29	0.00
14.01 ~ 18.00million yen	2220	2.78	0.01
18.01 ~ 25.00million yen	4070	3.66	0.00
25.01million yen -	5130	2.62	0.01
Constant	2470	4.70	0.00

* exemption standard Age: thirties, Householdincome: 4.01 ~ 5.00million yen

Table 2 . Pediatric care

Explanatory Variable	parameter	t-value	p-Value
Sex (male vs female)	-779	-2.88	0.00
Child (+ vs -)	746	2.25	0.02
Household members currently receiving out-patient care (+ vs -)	417	1.48	0.14
Age (year) 10 - 19	968	1.55	0.12
20 - 29	-51	-0.11	0.91
40 - 49	-1340	-3.22	0.00
50 - 59	-24	-0.05	0.96
60 - 69	242	0.51	0.61
70 - 79	-318	-0.34	0.73
80 - over	-987	-0.40	0.69
Household income - 3.00 million yen	393	0.71	0.48
3.01 ~ 4.00million yen	-58	-0.10	0.92
5.01 ~ 6.00million yen	112	0.20	0.85
6.01 ~ 8.00million yen	619	1.21	0.23
8.01 ~ 10.00million yen	558	1.04	0.30
10.01 ~ 14.00million yen	1280	2.22	0.03
14.01 ~ 18.00million yen	2360	2.96	0.00
18.01 ~ 25.00million yen	1880	1.69	0.09
25.01million yen -	572	0.29	0.77
Constant	2850	5.43	0.00

* exemption standard Age: thirties, Householdincome: 4.01 ~ 5.00million yen

people were willing to pay (Table 3);

(4) for emergency medical care, the amounts teenagers and people in their sixties were willing to pay were positively significant, and the amounts people earning from 8 million yen to 25 million yen per year were willing to pay were positively significant (Table 4).

4) Conclusion

The survey hinted at the possibility that amounts that regional residents were willing to pay for the establishment of this provision system varied according to the functions of medical care institutions. It was also assumed that because those utilizing obstetrics and pediatrics services in particular were limited to specified age groups, the willingness of other age groups to pay for these services was low.

Regarding general internal medical care institutions that could be used widely by anyone, evaluations varied by age group; high evaluations were given by the elderly who were at a high risk of falling ill, and currently receiving medical care was also a significant factor.

Regarding annual household income, a clear difference was confirmed with 8 and 10 million yen as the boundary line, and a high probability of using an actual medical care institution and income had a great effect on the regional residents' evaluations of the construction of the medical care provision system.

The public's evaluation of the reconstruction of medical care provision systems varies between people in different age groups. Differences in incomes also have a clear impact on evaluations, so it is necessary to give full consideration to generational and income differences in regions when considering the reconstruction of medical care provision systems.

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Table 3 . Obstetrics care

Explanatory Variable	parameter	t-value	p-Value
Sex (male vs female)	-219	-1.07	0.29
Child (+ vs -)	276	1.09	0.28
Household members currently receiving out-patient care (+ vs -)	412	1.92	0.06
Age (year) 10 - 19	2130	4.50	0.00
20 - 29	361	1.05	0.30
40 - 49	-1160	-3.69	0.00
50 - 59	-357	-1.02	0.31
60 - 69	422	1.16	0.25
70 - 79	483	0.69	0.49
80 - over	-968	-0.51	0.61
Household income - 3.00 million yen	-222	-0.53	0.60
3.01 ~ 4.00 million yen	-363	-0.84	0.40
5.01 ~ 6.00 million yen	-159	-0.37	0.71
6.01 ~ 8.00 million yen	644	1.66	0.10
8.01 ~ 10.00 million yen	709	1.74	0.08
10.01 ~ 14.00 million yen	956	2.18	0.03
14.01 ~ 18.00 million yen	1640	2.71	0.01
18.01 ~ 25.00 million yen	1710	2.02	0.04
25.01 million yen -	1660	1.12	0.26
Constant	2350	5.88	0.00

* exemption standard Age: thirties, Household income: 4.01 ~ 5.00 million yen

Table 4 . Emergency medical care

Explanatory Variable	parameter	t-value	p-Value
Sex (male vs female)	-260	-1.14	0.25
Child (+ vs -)	-88	-0.31	0.75
Household members currently receiving out-patient care (+ vs -)	327	1.37	0.17
Age (year) 10 - 19	1920	3.65	0.00
20 - 29	579	1.51	0.13
40 - 49	-543	-1.55	0.12
50 - 59	333	0.86	0.39
60 - 69	1110	2.77	0.01
70 - 79	340	0.44	0.66
80 - over	-434	-0.21	0.84
Household income - 3.00 million yen	-71.2	-0.15	0.88
3.01 ~ 4.00 million yen	-21.5	-0.04	0.96
5.01 ~ 6.00 million yen	362	0.75	0.45
6.01 ~ 8.00 million yen	435	1.01	0.31
8.01 ~ 10.00 million yen	1210	2.67	0.01
10.01 ~ 14.00 million yen	1790	3.69	0.00
14.01 ~ 18.00 million yen	3080	4.58	0.00
18.01 ~ 25.00 million yen	3460	3.69	0.00
25.01 million yen -	1460	0.89	0.37
Constant	2510	5.68	0.00

* exemption standard Age: thirties, Household income: 4.01 ~ 5.00 million yen

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医療および医療を取り巻く環境の変化により、ヘルスケアシステムの目的、その構成要素、それらの相互関係は大きく変化する。経済構造・人口構造・社会構造の変化や医学・医療技術の急速な進歩は、疾病構造を大きく変容させてきた。わが国を例に取れば、第二次世界大戦直後までは急性疾患・感染症型社会が形成され、その後の高度経済成長を背景に慢性疾患・生活習慣病型社会が形成され、今日ではそれらが混合した社会が形成されつつある。

21世紀の日本社会はグローバル化、IT化、NPO/NGOなどの市民活動の活発化、個人の価値観の多様化、行き過ぎた株主資本主義の是正、55年体制の終焉、少子高齢化、国家財政の危機などの社会環境の変化の中で大転換期にさしかかっている。このような困難な状況は世界各国が抱えており、その問題解決の突破口として、“Sustainability” “Social Responsibility” “Social common capital” のコンセプトが世界各国で見直されている。21世紀のヘルスケアシステムの再構築においてもこの点が重要なポイントになる。

一般に非市場財、すなわち社会的共通資本の構成要因の価値は、利用価値と非利用価値に大別され、前者は競争的消費と非競争的消費に分類される。これまでの社会的共通資本としてのヘルスケアシステムの価値評価は主に直接的利用価値に重点が置かれており、その結果に基づいて政策や資源配分が決定されてきた。しかしながら21世紀においては、急激な社会環境の変化を反映する患者ニーズに確実に答えてゆくヘルスケアシステムを再構築するためには、住民との合意のもとに優先順位を決め、限られた資源を配分する必要がある。そのためにはヘルスケアシステムの直接的利用価値のみならず他の価値についても正確に測定することが重要であり、その代表的な測定方法である旅行費用法、ヘドニック・アプローチ、仮想市場評価法に対して理解を深める必要がある。

キーワード： 便益分析、ヘルスケアシステム、サステナビリティ、社会的責任、社会的共通資本、トラベルコスト法、ヘドニック・アプローチ、仮想市場評価法

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