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III 章 分担研究報告

The economic impact and challenges of universal health coverage in Japan

Group 2

Takashi Oshio¹, Reiko Hayashi², Yuki Murakami³, Yohsuke Takasaki

1. Hitotsubashi University

2. National Institute of Population and Social Security Research

3. Organisation for Economic Co-operation and Development

Abstract

In this paper, we overview the impact of UHC in Japan over the past half a century from an economic viewpoint, for the purpose of drawing lessons for countries that are in the initial stage of establishing social healthcare programs. Japan's experience suggests that UHC can reduce income inequality via contributions and benefits, in addition to its major target of ensuring that all people equally obtain the health services they need. However, Japan's experience also highlights that the sustainability of UHC depends largely on demographic and economic conditions. One of the most formidable, albeit foreseeable, challenges is the aging population, which will substantially reduce fiscal space for UHC. Also, changes in industry and labor market structures are likely to make UHC programs differ from their original goals, especially if UHC has a history of expanding from the formal to the informal sectors. It would be advisable to design a system that is sufficiently robust to withstand expected demographic and economic pressures and carry out forward-looking reforms.

1. Introduction

Japan instituted universal health coverage (UHC) in 1961, by passing a law implementing Citizens' Health Insurance (CHI) plans (Campbell, Ikegami, and Tsugawa, 2014). This law did not unify the health insurance programs created before World War II; it kept employees and their dependent family members covered by their existing plans. The biggest change was that all other citizens were covered by municipality-provided CHI plans, thereby making the coverage of healthcare insurance mandatory and universal. In this sense, Japan's UHC aimed at financing health benefits mainly through social health insurance (SHI) premiums, rather than through tax revenues. The new system ensured the same access to health services as the existing plans for employees; all the insured were entitled to go to any physician or hospital they chose and could receive the same procedures and medications. In addition, the introduction of the nationally standardized fee schedule, which was applicable to all physicians, providers and hospitals regardless of public or private status, enabled SHI coverage to be expanded smoothly throughout the country by reducing any distortion of incentives in providing healthcare services.

As a result, Japan's UHC achieved a successful expansion from the formal to the informal sector at a relatively early stage by establishing an integrated SHI system thanks to the government's initiatives. It should be noted, however, that Japan's system is decentralized rather than centralized; the CHI plans are managed by each municipality, although the central government distributes the subsidies to local governments.

It should, however, also be remembered that it took more than twenty years for CHI to be fully implemented after its introduction in Japan, suggesting that CHI implementation cannot be completed in a short time. UHC, which was instituted in 1961, was further enhanced with the

establishment of financial protection in 1973, when the High-cost Medical Care Benefit System became available in all SHI programs. This system allows the insured to claim medical care costs from their SHI programs if they exceed the cost-bearing limits, although it does not completely avoid the risk of extremely high payments, leaving the system not fully equitable. Finally, UHC was further enhanced with the introduction of a system of the Highly Advanced Medical Technology Exemption in 1984, which allows the actual costs of highly selective medical services to be charged to patients in addition to their SHI coverage as an exception to the principle of banning mixed billing.

Although UHC established a foundation for the subsequent development of the healthcare system and social well-being in Japan, it now faces several challenges, which puts a strain on its sustainability (Ikegami et al., 2011). In this paper, we will briefly discuss the economic impact of UHC, including how it has affected household income and income inequality as well as the government's fiscal position in Japan, extending the discussion by Oshio, Miake, and Ikegami (2014).

The bottom line is that the efficiency and sustainability of Japan's UHC have depended heavily on the demographic and macroeconomic conditions of the economy. When Japan was "young" and growing at a rapid pace in the 1960s and 70s, UHC as a whole contributed to a reduction in income inequality at the national level, in addition to an improvement in people's health conditions and equal access to health services. However, the aging population and changing economic structure have required adjustments to the existing UHC scheme. The Japanese government has continuously made efforts to improve efficiency of healthcare provision, including an introduction of public long-term care insurance programs, and it should maintain those efforts in the future. However, additional policy measures are needed to enhance the sustainability of UHC. Among others, potential work capacity among the elderly should be utilized and social healthcare coverage of lower-income households should be strengthened.

2. Success: Favorable Impact on Household Income and Income Distribution

With the expanded coverage of health insurance plans, UHC has been reducing people's reliance on out-of-pocket spending to purchase health services. When UHC was expanded to the informal sector, national and local governments were obliged by law to utilize more tax revenues to finance spending on the costs of health services.

As seen in **Figure 1**, the proportion of out-of-pocket spending in overall health expenditures gradually declined from 38.7 percent in 1955 to 13.4 percent in 1975. Such a remarkable reduction in the dependence on out-of-pocket spending was largely attributable to an expansion of SHI coverage until 1961 and the reduction of co-payment rates since then.

Table 1 shows that the disparity between the types of health insurance and categories of the insured was reduced step by step, until it fully disappeared in 2003. At the onset of UHC in 1961, it was only the employees insured by employer-provided health insurance plans who could receive medical care with almost no co-payment. In contrast, dependents (i.e., wife and children) of employees and those insured by CHI had to pay half of their medical cost as co-payment. In 1968, the co-payment rate of CHI was reduced to 30%, followed by a reduction to 30% for dependents covered by employer-provided plans in 1973 and the introduction of 10% co-payments for employees covered by employer-provided plans in 1984. The rates were finally unified across all programs by increasing the co-payments of employees covered by employer-provided plans to 30% in 2003. Those who benefitted most from the reduction of co-payment rates in 1960s were those covered by CHI engaged in the informal sector, which consisted of more low-income households than in the formal sector.

These changes in the structure of overall health expenditures had two important implications for household income and income distribution. First, health services became more evenly accessible. **Figure 2** compares the concentration curves of healthcare benefits, which

were provided by social healthcare insurance, between 1952 (before the establishment of UHC) and 1967 (after its establishment). The concentration curve graphs the cumulative proportion of healthcare benefits against the cumulative proportion of households ranked by income (Van Doorslaer et al., 2000). We observe that the curve for 1952 is located below the diagonal, indicating that the receipt of healthcare benefits was distributed in favor of richer households. By comparison, the curve for 1967 is located close to the diagonal, indicating a relatively even distribution of benefits. We also can calculate the concentration index, which indicates the degree of inequality in the distribution of healthcare and is measured as twice the area between the concentration curve and the diagonal. The higher this index is, the more concentrated the distribution of benefits is on the richer households. The index declined from 0.145 in 1952 to –0.001 in 1967.

The health equity achieved by UHC assured the extension of healthy lives among people in Japan. As seen in **Figure 3**, average life expectancy has increased smoothly for both males and females after the introduction in UHC. We also observe that the Gini index of life expectancy at the prefecture level gradually declined along with extended life expectancy. Here, the Gini index is calculated almost in the same way as the concentration index, by replacing income with average life expectancy. The index reflects widespread and even distribution of the benefits of UHC, which contributed to improvement in health conditions and equal access to public healthcare especially in rural areas and informal sectors via CHI plans.

The second implication, related to the first one, of the expansion of UHC is the increasing importance of income transfer through social security programs as well as taxation. **Figure 4** confirms this by showing healthcare benefits in kind and benefits in cash by income class in 1967, compared to social security costs, which are the sum of social security contributions (premiums) and an estimated portion of taxes used to finance overall social security benefits.

We can see three findings in this figure. First, healthcare benefits dominated social security benefits except for the lowest income group, reflecting a limited number of public pension recipients in the younger population structure. In 1960, the proportion of people aged 65 and older was only 5.7 percent of the population and the average age was 28.5, compared to 24.1 percent of the population and 45.3 years of age in 2013.

Second, healthcare benefits in kind vary little across income groups reflecting an equal access to healthcare services, except for the lowest income group again. This is consistent with the shape of the concentration curve for 1967 in **Figure 2**.

Third, the observed relationship between social security benefits and costs across income groups suggests income transfer from the rich to the poor—that is, the net benefits were positive for the poor and negative for the rich. It may be controversial whether, and to what extent, income redistribution should be expected from social security programs, which were originally designed to reduce peoples' exposure to social risks. However, the fact that UHC had the favorable byproduct of reducing income inequality in Japan should be remembered; it has important implication for countries that do not have a rigorous taxation system. Equal coverage across different insurance schemes has helped reduce the level of income inequality.

Income redistribution by UHC has reduced overall income inequality, which is measured by an income version of the Gini index. **Figure 5** shows the changes in the official estimates of the Gini index over the decade after the establishment of UHC, beginning at its initial stage. For both types of income—before and after redistribution through taxes and social security programs, the figure shows that income inequality successfully declined during that period. The main driver of the reduction in income inequality in Japan was rapid and well-balanced economic growth, which raised the mean household income. Also, the relatively equal development across areas and the nationwide income redistribution of tax revenues across local governments favored equitable income redistribution (Tachibanaki, 2004).

It should be noted here that UHC was another main contributor to equitable income redistribution. **Figure 5** decomposes the reduction in the Gini index after income redistribution into those attributable to taxation and social security programs for 1967 and 1972 (but not 1962 due to limited data availability). This decomposition indicates that social security programs

reduced the Gini index from 0.375 to 0.342 in 1967, meaning that they accounted for 69.4% of its reduction to 0.328 after total income redistribution. We also find that social security programs accounted for 50.4% of a reduction of the Gini index due to total income redistribution in 1972. Considering that public pension benefits had not matured at the time and only gave limited effect of income redistribution, we can argue that reduced income inequality was highly attributable to income transfer via healthcare programs. It should be also noted that income redistribution at that time was not much attributable to the income transfer from the young to the elderly, because the population was young. Healthcare and pension benefits for the elderly accounted for 6.6% (7.8% if including social welfare service) and 17.2%, respectively, of the total social security expenditures in 1973, much more limited compared to 11.8% (19.8% if including social welfare service) and 48.4%, respectively, in 2013 (IPSS, 2015).

Finally, we can argue that a gradual introduction of UHC was helped by rapid economic growth. Between 1955 and 1970, the real gross domestic product (GDP) increased at nearly a 10 percent rate per year and kept overall healthcare expenditures below 3 percent of GDP until 1973. Rapid economic growth also raised government revenues through taxes and social security contributions, which sustained sufficient fiscal space for healthcare benefits.

3. Challenges: Pressures From the Aging Population and Changing Economic Structure

Japan's UHC was successfully established in the 1960s and had favorable effects on household income and income distribution, as well as on equity and people's overall health. A young population structure provided favorable conditions for establishing UHC, because it minimized the transfer of income from the young to the old via social security programs. Public pension programs had not matured yet, and healthcare benefits to the elderly had not started to mount.

Half a century later, however, Japan's UHC is facing several challenges because of the aging population and structural changes in the economy. The proportion of people aged 65 and over has been rising rapidly and is 26.1 percent as of 2014, making Japan the "oldest" country in the world. At the same time, the economy has experienced a reduction in the self-employed and farmers, as well an increase in non-regular employees. These secular changes have reduced fiscal space for UHC and have put a strain on the existing social healthcare insurance system.

Aging affects the fiscal space on both the expenditure and revenue sides. On the expenditure side, a rising proportion of the elderly naturally raised total health expenditures because the elderly consume more healthcare services than the younger population. As seen in **Figure 6**, the share of healthcare benefits for the elderly (aged 70 and older) out of total benefits rose from 15.2 percent in 1975 to 47.2 percent in 2013, and an increase in benefits for the elderly accounts for more than half of the increase in total benefits during the same period. On the revenue side, the elderly—mostly retired and depending heavily on pension benefits—tend to have lower incomes so that the amount they contribute is less in terms of income tax and healthcare insurance premiums.

As a result, health insurance has become similar to pensions in that they have led to large-scale income transfers from the young to the elderly, as discussed later in more detail. Increasing income transfers between age groups has made the healthcare insurance system less sustainable with an aging population. To be sure, there is a substantial "second demographic dividend," which results from older workers motivated to expend their financial assets during retirement to lower reliance on their families or the government for providing for their needs in old age. In 2014, households whose heads were 60 years old and over accounted for 50.2 percent of total households (excluding one-person households), and held 68.9 and 90.5 percent of total financial assets on gross and net terms, respectively.

To be sure, a portion of the second demographic dividend has been transferred in the form of informal, intra-family income transfer from the elderly to their offspring and, more broadly, they have contributed to economic growth through accumulating capital stock. As discussed

later, however, a higher dependence on government subsidized healthcare benefits, which has led to mounting issues of government bonds, indicates shrinking fiscal space for social healthcare plans. This suggests that this dividend has not been fully utilized and that there remains much room to take advantage of them to strengthen the financial position of UHC.

The government was not aware of the potential pressures of its aging population on UHC until the 1980s. Indeed, it made healthcare for the elderly free of charge at the national level in 1973 (until ten years later), along with other generous reforms in social security programs. Since then, the government has gradually become more concerned about its deteriorating fiscal position and its causes: population aging and lower economic growth. Policymakers have tried to reduce the fiscal burden on the general budget by forcing health insurance plans to contribute more to the health expenditures of the elderly. However, they have faced increasing resistance from employers and employees, who are members of the employer-provided plans, because they are already contributing nearly half of their premium revenue to the funding pool to finance health expenditures of the elderly.

Decreased growth in government revenues, due to prolonged economic slowdown, and mounting healthcare and other social security benefits for the elderly have increased dependence on taxes. As seen in **Figure 7**, the proportion of health expenditure financed by government subsidies resumed rising in the 1990s when the “bubble” economy collapsed, and it was as high as 38.6 percent in 2012 pointing to strong pressures on government budgeting. This has led to a steady increase in government deficits, because people have been consistently opposed to tax hikes and the elderly have been usually resisting any reduction in healthcare benefits.

Shrinking fiscal space has been accompanied by a change in the structure of income transfer related to UHC. Healthcare insurance programs are pay-as-you-go in nature because people are most exposed to health risks when they are old and pay more premiums and taxes when they are young. **Figure 8** compares healthcare costs to the sum of co-payments and premiums by age group in 2010. When the population was young in the initial stage of UHC, the magnitude of this inter-generational transfer of income was relatively limited at the national level and dominated by intra-generational transfer. However, population aging has accelerated the inter-generational transfer and reduced fiscal space for healthcare programs. This is because the elderly do not want to accept reduced benefits and also because the young are usually opposed to higher taxes and premiums. Hence, policymakers have been consistently reluctant to promote any reform to Japan’s UHC programs.

Another key challenge to UHC has come from structural changes in the labor market. Japan has not established a unified system of healthcare insurance, and citizens are covered by either employee-based plans (for employees and their family dependents) or municipality-based plans (for others). The latter—CHI plans—originally were supposed to cover self-employed workers, farmers, and their family dependents. Industrialization of the economy has reduced the proportion of these types of individuals in the total population, and hence the structure of CHI group membership, as seen in **Figure 9**.

The CHI plans are now absorbing an increasing number of non-regular employees, who are not covered by employer-provided health insurance plans. Employees accounted for 35.3 percent of the CHI insured in 2012, compared to 19.5 percent in 1965. This contradicts the original purpose of CHI. The rising proportion of non-working people, most of whom are retired or unemployed, makes the CHI plans less sustainable. Moreover, the uneven rates of aging and economic growth across municipalities have led to a wider disparity in the premium rates of CHI plans, which are municipality-based and thus exposed to the fiscal pressures faced by each (Takaku *et al.*, 2014). The Japanese government is now planning to integrate municipality-based CHI plans into prefecture-level plans, but the disparity in CHI premiums among municipalities is not expected to disappear because the premium level depends not only on income level but also on accessibility to healthcare facilities. This is a typical example of the difficulty in reforming a system once it has been established.

The increasing numbers of members with low incomes and a lack of incentives to enhance

efficiency has put a strain not only on the CHI plans but also on the country's healthcare plans as a whole, because more subsidies were needed to fill the revenue shortages of the CHI plans. Along with a change in membership composition and financial vulnerability of the CHI plans, the regressive structure of CHI premiums and the risk that more people will no longer be able to participate in CHI plans have attracted increasing attention in recent years. Unlike the premiums of employer-provided health insurance plans, which are basically proportional to wage income and not affected by the number of the insured, CHI premiums consist of three to four components: a flat-rate component per household, a component proportional to the number of the insured, a component proportional to income, and a component related to real estate taxes (in some municipalities only). The first two components account for the regressive nature of the CHI premium, creating an outsized financial burden on lower-income households.

Figure 10 compares the premium rates per household between CHI and employer-provided health insurance plans for low- and middle-income households that consist of a married couple and their unmarried child(ren), and whose head of household is 20–59 years old. As clearly seen in this table, the CHI premium rates are consistently higher than those of employer-provided health insurance plans, indicating higher burdens on CHI members than others in the same household income bracket. Equally important, CHI premiums have a regressive structure; the premium rates are higher for lower-income households even after adjusting for household-size, as shown by Takaku et al. (2014).

These two features of CHI premiums—i.e., heavier burdens compared to employment-based health insurance programs and the regressive structure—have become increasingly serious in recent years, as the CHI plans are absorbing an increasing number of non-regular employees. According to an estimation by Ikegami *et al.* (2011), about 1.6 million people were not covered by any SHI plan in 2007 even if they earned enough in wages to pay the CHI premiums. Their estimation suggests that a substantial proportion of non-regular employees were not covered by either employer-provided or CHI plans. Furthermore, a combination of heavy premiums and low income earnings raises the risk of these people being kept out of CHI plans, despite it being a lesser risk compared to not maintaining coverage under public pension plans for those who are not covered by employer-provided pension plans. These changes might bring into question Japan's status as a country with universal coverage.

4. Policy Agenda: Enhancing the Sustainability of UHC

Japan's UHC is now facing serious challenges because of its aging population and structural changes in the economy. Institutionally, various councils in the Japanese government, notably under the MHLW, have continuously addressed healthcare-related issues; for example, healthcare costs and fees have been regularly reviewed and revised by the Central Social Insurance Medical Council, which has been playing a key role in standardizing healthcare provision under UHC.

In addition to regular reforms and statutory changes in healthcare and related policies, the MHLW introduced the Long Term Care Insurance (LTCI) program in 2000. The LTCI aimed at integrating the services provided by health insurance schemes and the measures provided by the welfare system, rationalizing the provision of care according to need. The LTCI also opened the way for the private sector to participate in the provision of long-term care, aiming at reducing public spending on healthcare and improving the quality of services.

However, numerous hurdles remain in enhancing the sustainability of UHC in Japan. Although there was a temporary pause in the aftermath of the introduction of the LTCI, healthcare expenditures have been steadily increasing (Figure 6) and are expected to accelerate over the following decades. According to the latest official projections by the MHLW (2012c), the ratio of healthcare benefits to GDP will grow from 7.3 percent in 2012 to 8.9 percent in 2025. Without any substantial increase in tax rates or social security premiums, fiscal space for UHC will likely continue to shrink.

Japan's UHC system, which had not fully foreseen these pressures at the initial stage and has been slow in adjusting to them, will fail to keep providing sufficient healthcare services to the elderly without making further policy changes. Besides cost-cutting efforts in healthcare provision and raising taxes and premiums, an economically reasonable solution may be to utilize the substantial work capacity of the elderly. People have reduced their labor force participation over the past couple of decades, despite improved health conditions to which UHC has substantially contributed. **Figure 11** depicts an evolution of the relationship between life expectancy and employment at each age for males aged 50 years and above between 1975 and 2010, using life expectancy as a rough proxy for health conditions at each age. We find that those aged 65 years in 2010 had almost the same life expectancy at that age as 58 year-olds in 1975, while the former's employment rate was about 40 percentage points lower than the latter's. In the same way, those aged 70 years in 2010 had almost the same life expectancy as those aged 63 years in 1975, while the gap in employment rates was about 42.6 percentage points.

A reduction in labor force participation by the elderly has been attributed to several things. First, a long-term reduction in the self-employed and farmers has led to a secular downtrend in the elderly's labor force participation. Second, the conventional seniority system, which tends to pay higher wages to senior employees, makes Japanese firms reluctant to provide the elderly with sufficient job opportunities. Third and more important, maturing public pension programs have allowed the elderly to retire once they reach the pensionable age, even though the pensionable age has been gradually raised. Combined with the first and second factors, enhanced public pension benefits have been reducing the elderly's labor force participation, as observed in other advanced countries as well (Wise and Gruber, 1999).

Earlier retirement with the same health conditions implies that a large portion of the elderly can potentially shift from beneficiaries of UHC to contributors to UHC by paying more in premiums and taxes. A combination of providing firms with more incentives to hire the elderly and increasing the eligibility age for claiming pension benefits should be an effective solution to utilizing an outcome of UHC to make UHC more sustainable. However, this policy option is challenging, given a secular downtrend in the proportion of the self-employed and farmers as well as limited work capacity of those aged 75 and above. Hence, in addition to the promotion of employment for the younger elderly, diverse options such as collecting revenues from different types of taxes other than wage-related premiums should be considered. In addition, the Social Security and Tax Number System, which was introduced in 2015, is expected to enhance the efficiency of taxes and premiums collection. Another imminent policy issue is to keep UHC working as originally defined—that is, keep all citizens covered by social healthcare plans. The government has decided to expand the coverage of employer-provided health insurance plans (as well as pension plans) to part-time workers (who work more than 20 hours per week) as of 2016. However, it is uncertain to what extent this reform will be effective in widening the coverage of employer-provided plans, because Japanese firms will likely remain under strong cost-cutting pressures due to severe competition with other Asian countries.

To sustain UHC in name and in reality, policy measures should keep focusing on supporting lower-income households, who are supposed to be covered by CHI plans but are at risk of leaving the insurance market. The government is planning to integrate the current municipality-managed CHI plans to wider, prefecture-level ones to enhance their efficiency and reduce inequalities across municipalities. An open question, however, is whether the regressive structure of CHI plans will be fully addressed by this reform. A comprehensive reform of the social security and tax systems—such as offsetting premiums through tax refunds—is needed to reduce the regressive nature of CHI premiums among lower-income households and prevent those households from losing coverage. In addition, the unequal access to healthcare between urban and rural areas should be addressed before the prefecture-level unification of CHI premiums.

5. Conclusion: Implications From Japan's Experience With UHC

In this paper, we have overviewed the impact of UHC in Japan over the past half-century from an economic viewpoint. Japan's experience with UHC provides important lessons—both positive and negative—for countries that are in the initial stages of establishing healthcare and other social security programs.

The goal of universal health coverage is to ensure that all people obtain the health services they need without suffering financial hardship when paying for them. A Japanese version of UHC—which is characterized by equal coverage and benefits, a universal fee schedule, a high-cost medical expenses payment system, subsidies for the vulnerable, a mix of premiums and taxes to finance public healthcare benefits, and the importance of municipalities in the management of the scheme—has generally succeeded to achieve this goal.

The system, which Japan established to finance its UHC program, had another important effect: it indirectly reduced income inequality via contributions and benefits. This income transfer worked effectively during the initial stage of establishing UHC because the population structure was young. Income distribution is a key contributor to social well-being. These equitable outcomes should be stressed as favorable byproduct of Japan's UHC.

At the same time, we should remember that the sustainability of UHC depends largely on demographic and economic conditions. One of the most formidable, albeit foreseeable, challenges is the aging population, and it is advisable to make the system as robust as possible at the initial planning stage, in order to counter its future stress on the economy and fiscal space for UHC. Japan's experience clearly reveals that once a population starts to shrink and the economy stops expanding, the fiscal sustainability of the system will decline. In addition, changes in industry and labor market structures are likely to have substantial effects on UHC programs that differ from their original goals. This is especially the case given that UHC in Japan has a history of expanding from the formal to the informal sectors and has not been unified at the national level.

It is politically challenging to reform UHC once these needs for change are recognized, as evidenced by Japan's experience. Under conditions of an aging population and low economic growth, any reform in UHC should take the form of a zero-sum game. Any proposal to reduce the elderly's healthcare benefits will face fierce opposition from elderly voters, making politicians and bureaucrats reluctant to reform the current programs. It would be advisable to design a system that is sufficiently robust to withstand expected demographic and economic pressures and carry out forward-looking reforms, before these pressures mount.

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Figure 1: Changes in funding sources for health expenditures: 1955–1985

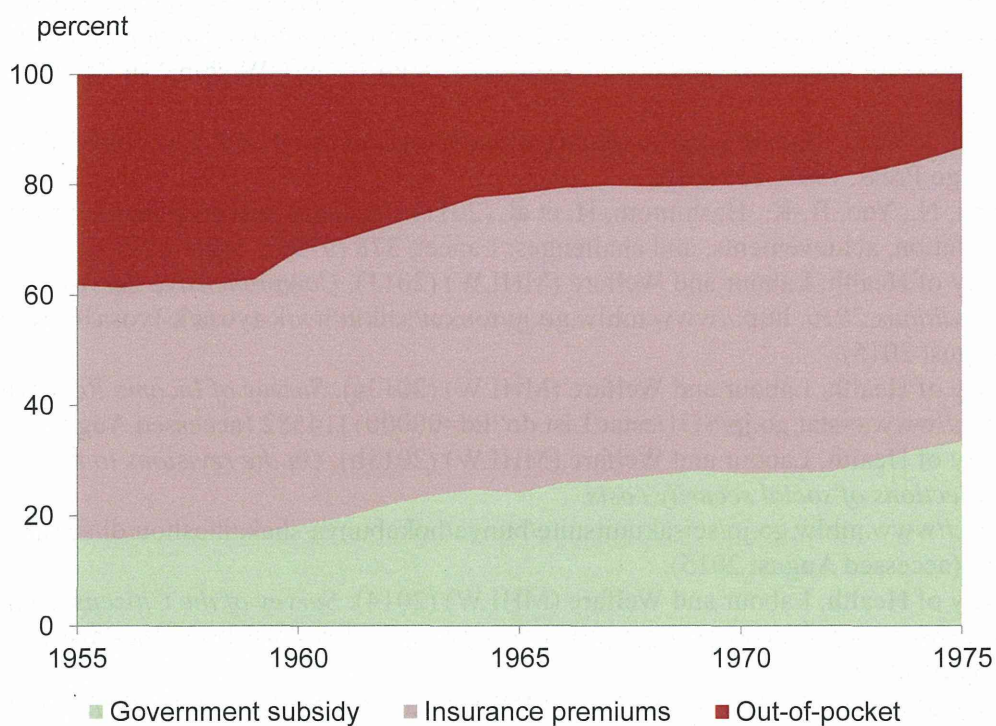
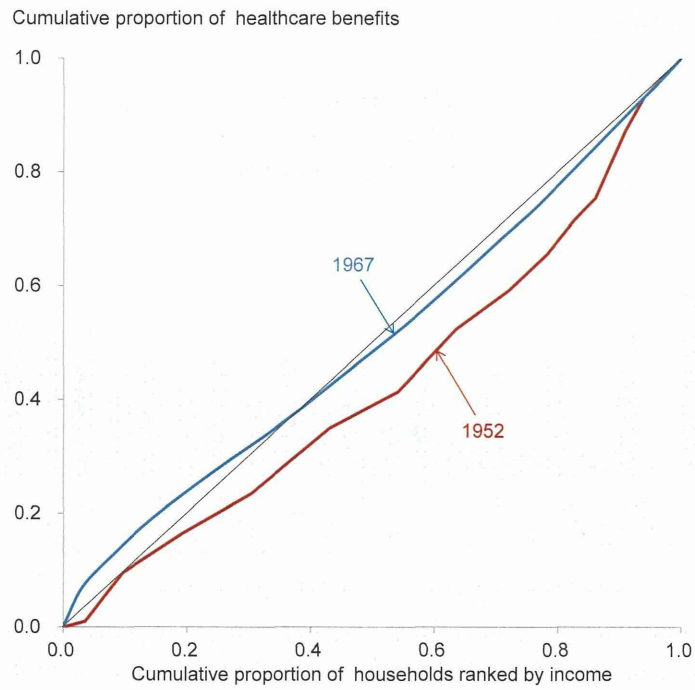


Table 1 Co-payment according to the type of health insurance and category of insured in Japan

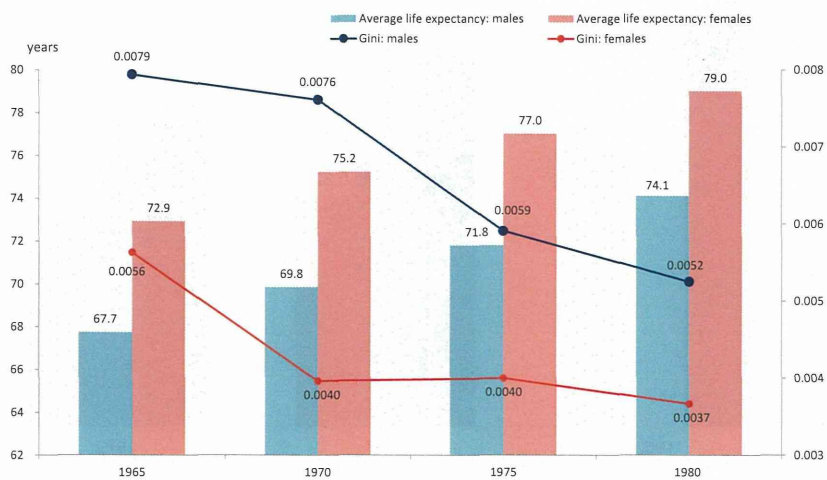
Health insurance	Category	1961	1964	1968	1973	1984	1997	2003
Employer-provided plans (for employee in private companies, civil servants, etc.)	Employee	0%	0%	0%	0%	10%	20%	30%
	Dependent	50%	50%	50%	30%	30%	30%	30%
CHI (for farmers, self-employed, unemployed, etc.)	Household head	50%	30%	30%	30%	30%	30%	30%
	Other member	50%	50%	30%	30%	30%	30%	30%

Figure 2: Concentration curves of healthcare benefits: 1952 vs. 1967



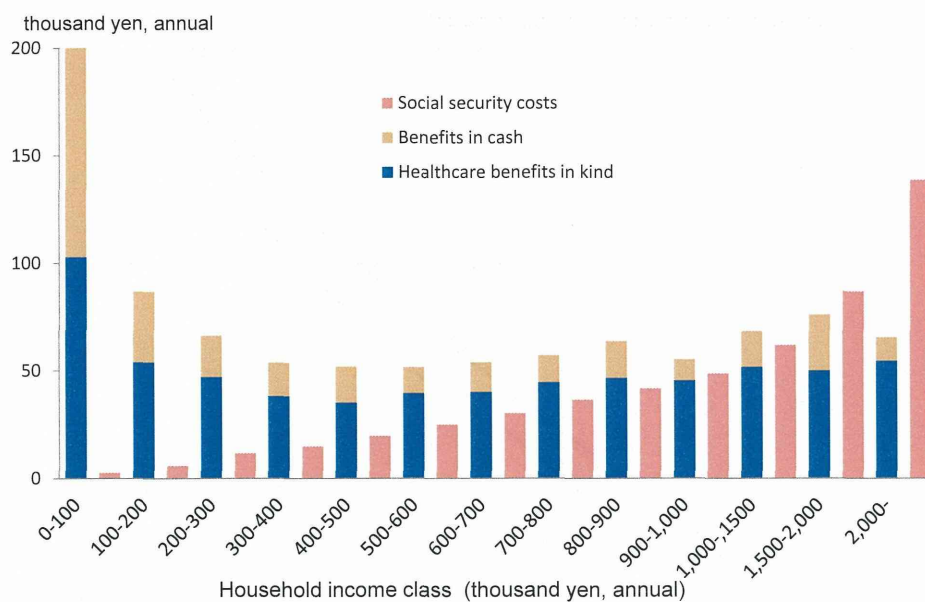
Note: Income is before taxes and transfers.
 Source: The author’s calculations were based on MHLW (2013a).

Figure 3: Life expectancy and its Gini coefficients at the prefecture level



Note: Okinawa was not included in 1965 and 1970.
 Source: MHLW, Prefectural Life Tables.

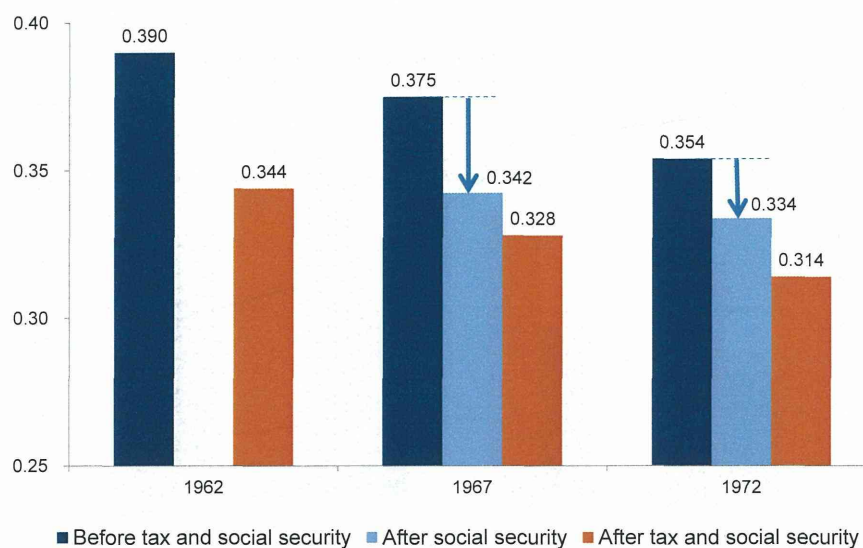
Figure 4: Social security costs and benefits per household by income class in 1967



Note. Social security costs indicate the sum of social security contributions (premiums) and the estimated portion of taxes to finance overall social security benefits.

Source: MHLW (2013a).

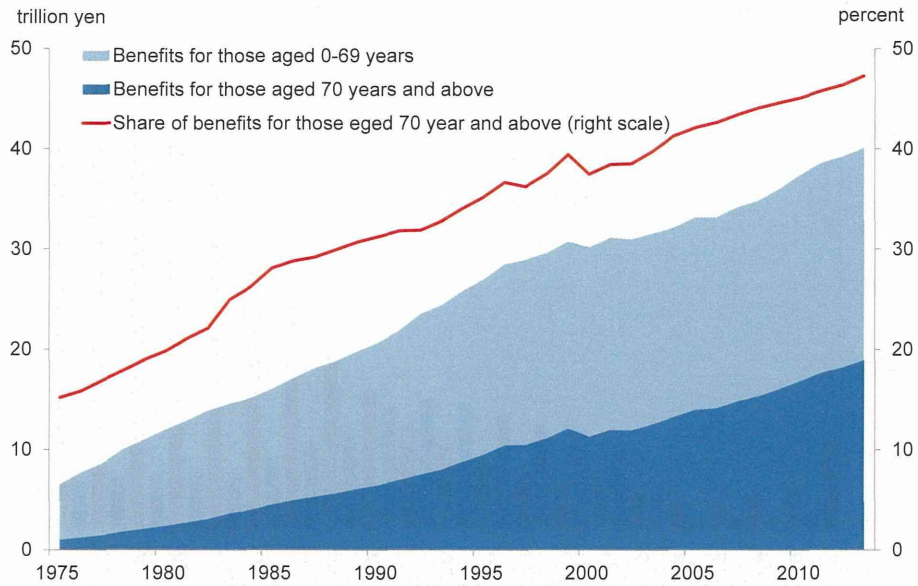
Figure 5: Declining Gini index after the establishment of UHC: 1962–1972



Note. Gini index after social security in 1962 is not available.

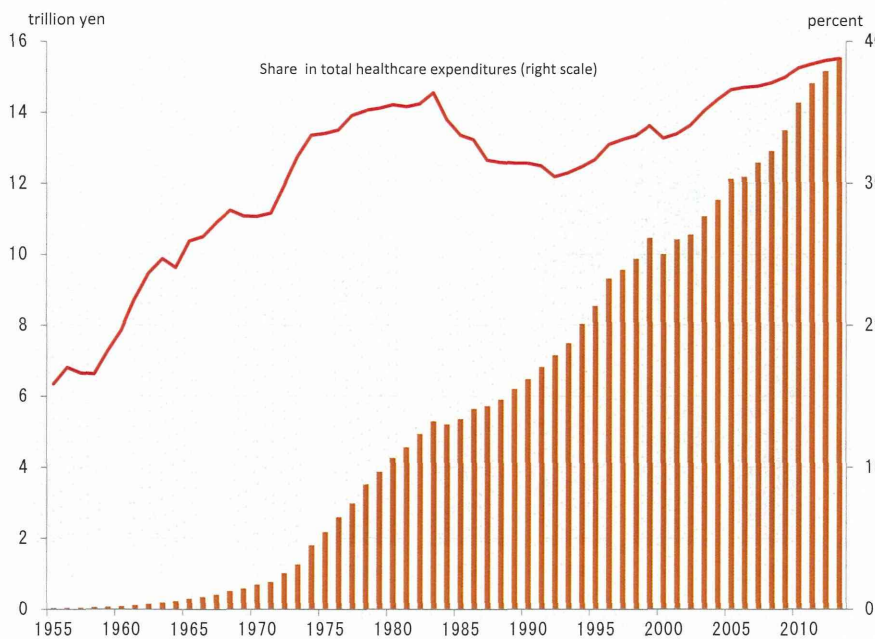
Source: MHLW (2013a).

Figure 6: Increasing healthcare benefits for the elderly



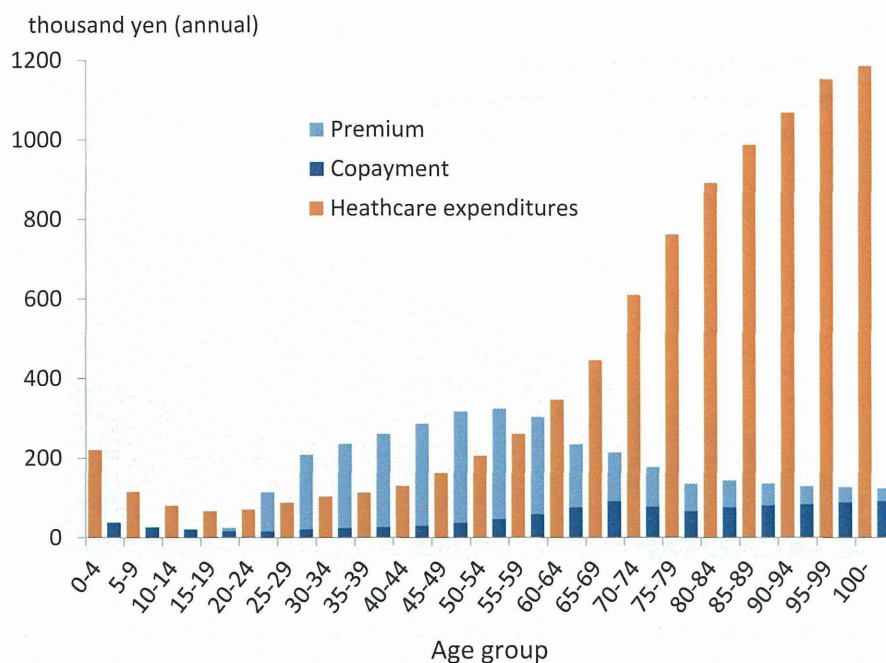
Note: Benefits for those aged 70 years and above before 1997, are the author's estimation based on the reports from the MHLW (2015a) and IPSS (2015).
Sources: MHLW (2015a) and IPSS (2015).

Figure 7: Rising dependence of healthcare expenditures on government subsidy



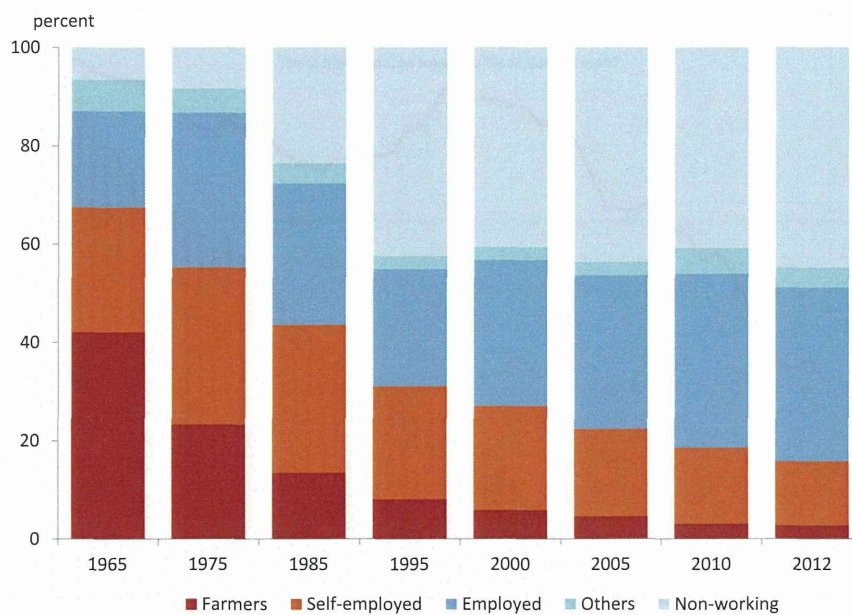
Source: MHLW (2014).

Figure 8: Healthcare payments and benefits by age group in 2010



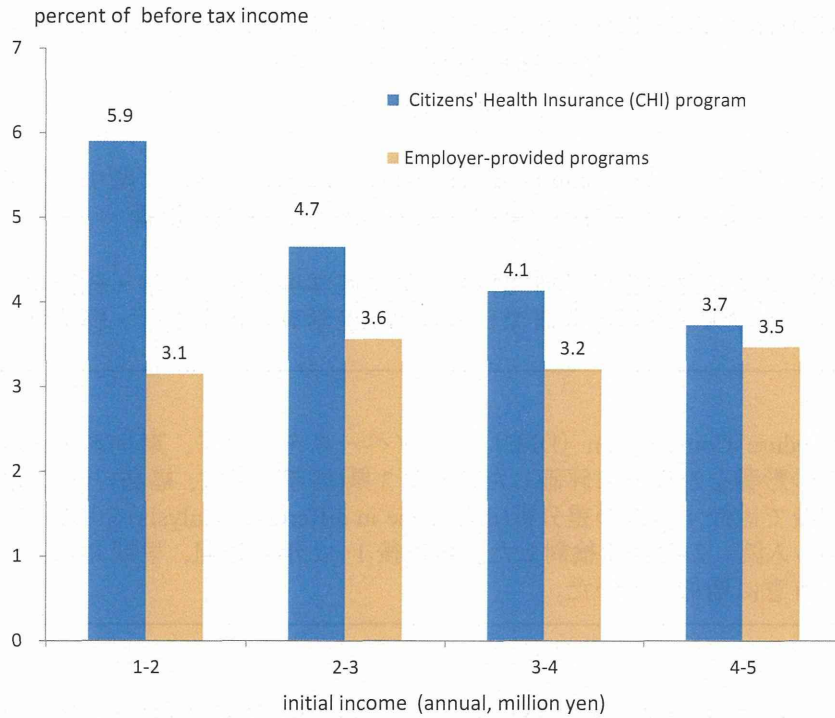
Source: MHLW (2012b).

Figure 9: Changing membership composition of Citizens' Health Insurance (CHI)



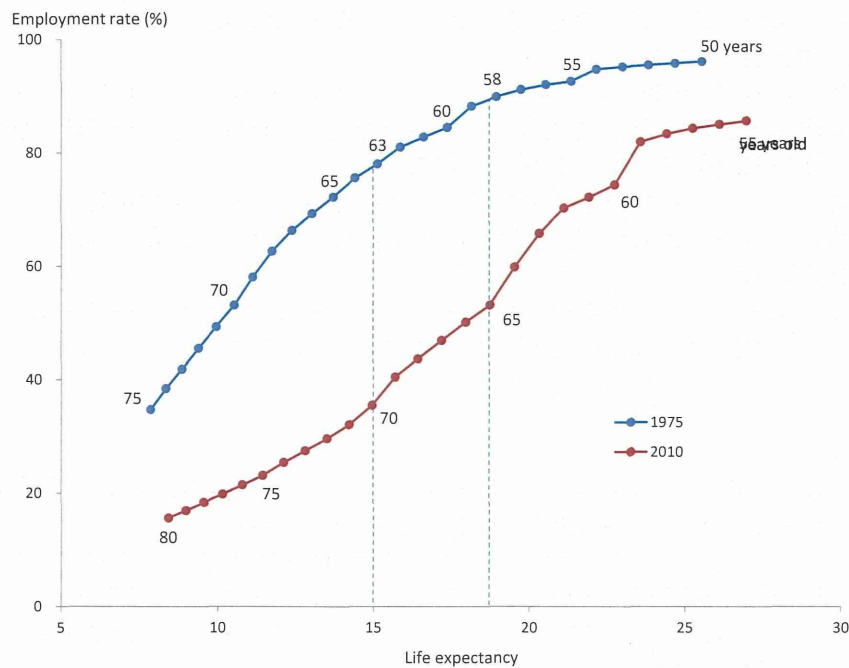
Source: MHLW (2012b).

Figure 10: Health insurance premiums by income group (2010)



Note: Data are for households whose heads were 20-59 years old and who consisted of married couple and their unmarried children.
Source: MHLW (2011).

Figure 11: Life expectancy and employment for males: 1975 vs. 2010



Source: MHLW (2015b) and MIAC (2012).

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分担研究報告書

我が国の UHC の 3Es (equity, effectiveness and efficiency) に関する研究
東日本大震災が「避けられる入院」に与えた影響

康永 秀生 東京大学大学院医学系研究科公共健康医学専攻臨床疫学・経済学
笹淵 裕介 東京大学大学院医学系研究科公共健康医学専攻臨床疫学・経済学

【概要】

Diagnosis Procedure Combination (DPC) データベースを用いて、東日本大震災による医療アクセスへの影響を定量的に評価した。東北 3 県(岩手、宮城、福島)とその他の都道府県とを地震前後で比較する差の差分析(difference in difference analysis)を用いて、地震前後の「避けられる入院」の変化を検討した。震災後 1-2 年の期間、早期介入によって避けられる入院は有意に増加していた。

1. 目的

Ambulatory care sensitive condition (ACSC)とは、適切な外来診療を受ける事で入院を避ける事のできる状態と定義される。イギリスの National Health Service において、外来診療へのアクセスの評価指標として、ACSC による入院が利用されている。本研究は、東日本大震災による医療アクセスへの影響を定量的に評価することを目的とする。ACSC による入院を指標として、大震災後長年にわたる医療アクセスの状況を分析した。

2. 研究方法

Diagnosis Procedure Combination (DPC) データベースを用いて 2010 年 7 月から 2011 年 2 月(地震前)および 2012 年 7 月から 2013 年 2 月までの期間(地震後)、ACSC により入院した 20 歳以上の患者 952,127 名を抽出した。これらの患者を年齢 5 歳毎および性別によってカテゴリー化し、人口統計データを基に人口あたりの入院数を計算した。地域毎の入院患者数を、DPC 病院の患者数、DPC 病院数、および日本全体の病院数のデータを用いて推計した。地震による被害が大きかった東北 3 県(岩手、宮城、福島)とその他の都道府県とを地震前後で比較する差の差分析(difference in difference analysis)を用いて、地震と ACSC による入院の変化の関連を検討した。ACSC による入院を「ワクチンによって避けられる入院」、「適切な外来での管理によって避けられる入院」、「早期介入によって避けられる入院」、の 3 つグループに分け、別個に検討した。

3. 研究結果

東日本大震災後、東北 3 県において人口 10 万人あたりの全 ACSC による入院増加数は 3.8 人、(95%信頼区間-5.0 to 12.6, $p=0.397$)と有意差を認めなかった。「ワクチンによって避けられる入院」、「適切な外来での管理によって避けられる入院」はそれぞれ 1.0 人(95%信頼区間-0.1 to 2.1, $p=0.063$)、0.3 人(95%信頼区間-6.1 to 6.8, $p=0.924$)と有意差を認めなかったが、「早期介入によって避けられる入院」は 3.3 人(95%信頼区間 0.4 to 6.3, $p=0.028$)と有意に増加していた。

(表 1)

4. 考察

東日本大震災後 1 年から 2 年の期間において ACSC による入院は全体では増加していなかったが、早期介入によって避けられる入院は増加していた。

震災地域での早期介入が必要な状態にある住民の医療へのアクセスを改善する努力が必要である。