Targeting and Impact of National Health Insurance Program in Indonesia

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Article Info	Abstract
	National Health Insurance System (NHIS) program in Indonesia has been launched since 2014, and government spending to support the program has allocated nearly 40% of MoH budget, especially for the NHIS subsidies. This study examined the distribution of NHIS subsidized beneficiaries which associated with the household income distribution, and also studied about the utilization rate of health care facilities among the residents since the NHIS program has introduced to change citizens' health seeking behaviour from traditional services to health facilities. Using the 2016 Susenas data, this study employed the benefit incidence analysis method to measure the distribution of NHIS-subsidized group, and logistic regression analysis to determine the health care seeking behavior. The result shows that households in higher income (quantile III-V) get benefit from government subsidy on NHIS program. It indicated there was a leakage on government budget that not belong to the target (quantile I and II). Then, logistic regression analysis found that people with higher income and having health insurance tend to visit health care facilities more frequently than lower income group and uninsured people. This can be concluded that health insurance ownership is one of the important factors to influence people visiting health care facilities.

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INTRODUCTION

The World Health Assembly resolution in 2005 recommends all countries plan for universal health coverage (UHC) within their territories. UHC ensures every citizen receives basic health care services without financial hardship (WHO, 2015). In keeping with the quest to achieve the United Nations' Sustainable Development Goals (SDGs) by 2030, the Government of Indonesia launched the National Health Insurance System (NHIS, or *Jaminan Kesehatan Nasional*) in 2014 to protect against the financial risk of obtaining health care services.

NHIS in Indonesia is authorized under Act No. 40/2004 regarding a National Social Security System (NSSS, or Sistem Jaminan Sosial Nasional). Under the NSSS the government is required to implement five social security programs: health insurance, life insurance, occupational health insurance, a pension plan, and pension insurance. To support the management of NHIS, the government formed a Social Security Agency for Health (SSAH, or *Badan Penyelenggara Jaminan Sosial Kesehatan* [BPJS]) ("The Act about Social Security Organization Number 24," 2011). SSAH responsible to manage the program execution, including the using of insurance premiums that collected from the residents and government subsidies.

Participation in NHIS is compulsory for all residents of Indonesia, and the government has targeted coverage for all Indonesian people by 2019. There are two types of participants in NHIS, subsidized and nonsubsidized groups. Subsidized participants receive a monthly payment of insurance premium from the government budget, whereas the nonsubsidized pay their own premiums. There are some criterias for a citizen to be appointed as poor household and get subsidies from government, based on Minister of Social Affair Decision No. 146/HUK/2013. The household should have at least nine of 11 criterias to be included as the social assistance recipients, and their income level is the esensial factor to determine. To be

subsidized, a family's income must be less than 600,000.00 rupiahs (Rp) per month (equivalent to US$40). The NHIS subsidies are supported by central and local governments (SSAH, 2016).
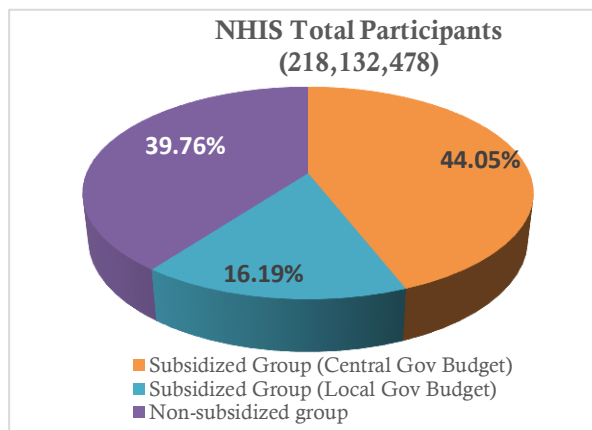

Figure 1. Participants in Indonesia's National Health Insurance System (NHIS) (as of 1 March 2019)
Source: (SSAH, 2019).

Figure 1 shows that there were 218.13 million participants in NHIS as of 1 March 2019, which accounts for 83.2% of the Indonesian population. It also shows that the majority of NHIS members (more than 60%) are subsidized (central government: 44.05%, local government: 16.19%). With 83.2% of the total Indonesian population of 261.89 million already covered under NHIS, it can be concluded that the target of universal coverage might be achieved by the end of 2019.

The central government's budget for the health program is allocated to the Ministry of Health. Since its inception in 2014, the program budget is mandated and targeted for the low-income population only.

Figure 2 shows the Ministry of Health's budget and its allocation for paying subsidized insurance premiums during 2014 to 2017. NHIS payments to the subsidized group accounts for nearly 40% and the largest share of total budget in the Ministry of Health. This large proportion should be cautiously targeted and utilized by the low-income group, as specified in Act No. 40/2011. Data on the low-income group is prepared by the Ministry of Social Affairs,

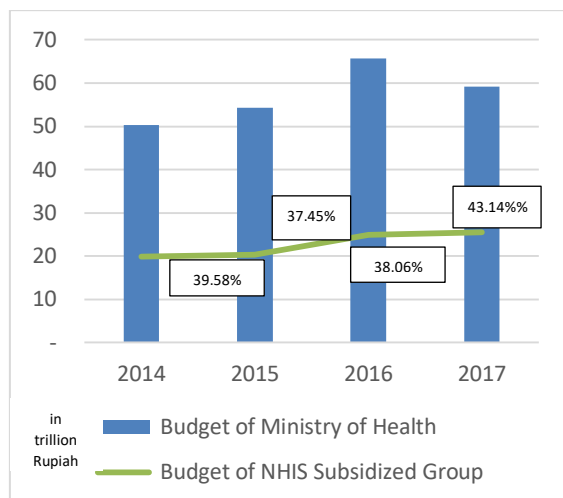which coordinates social assistance programs in Indonesia.

Figure 2 Share of National Health Insurance System Budget in Ministry of Health Budget, 2014–2017
Source: (MoH, 2018).

The accuracy of information regarding the low-income population receives much public attention. According to Viola (Viola, 2019), it is very difficult to set the targeting program accurately because of incomplete data, information gaps, misreporting, and corruption, which lead to errors of exclusion and inclusion. These problems are more severe in developing countries that need effective poverty alleviation programs (Coady, Grosh, & Hoddinott, 2002). High exclusion and/or inclusion errors diminish the impact of poverty alleviation schemes (Slater & Farrington, 2009). Marzoeki et al investigated the health insurance program for low-income households that existed before the NHIS program (it was called *Jaminan Kesehatan Masyarakat* [Jamkesmas]), which had only 33% of participants from the 20% lowest-income group (quantile I) based on household expenditure in the National Socio-Economic Survey (Susenas) data in 2011. Therefore, to ensure the effectiveness of the subsidized program and assure that there is no leakage from the program budget, it is very important to examine the targeting of subsidized groups in NHIS (Marzoeki, Tandon, Bi, & Pambudi, 2014).

Hou and Chao (Hou & Chao, 2011) researched the Medical Insurance Program (MIP) in Georgia, which was launched in 2006 and targeted low-income residents. Using the regression discontinuity (RD) method, the study found that the MIP program reached the lowest-income group and increased the utilization of surgeries and inpatient health care among the low-income group. This study implies that government support to health care can contribute to an increase in its utilization. In contrast, Karan, Yip, and Mahal (2017) explored the *Rashtriya Swasthya Bima Yojana* (RSBY) health insurance scheme for the low-income group in India, using National Sample Survey Organisation (NSSO) data in three wave surveys (1999–2000, 2004–05, and 2011–12) and the difference-in-difference method. They found that this program did not affect either outpatient or inpatient household health spending among the low-income group (Karan, Yip, & Mahal, 2017).

NHIS in Indonesia provides basic health care services for every member. This program assists patients to visit health care service facilities, to prevent disease complications and mortality. Without these essential health care services, the people's health would be worse. This would lead to loss of employment opportunities in addition to increased health care costs, which then increase poverty (Peters et al., 2008). Peters et al. (2008) also identified the factors of demand and supply that determine access to health care in low- and middle-income countries (LMICs) using a framework incorporating quality. They documented the disparities of access to health care services in LMICs, and concluded that financial accessibility, such as subsidies for routine outpatient care and hospital insurance, could support households utilizing medical care.

Ononokpono and Odimegwu (2014) investigated the contribution of socioeconomic status to different rates of utilization of health facilities for maternal delivery in Nigeria. They found that, based on Nigeria Demographic and Health Survey data in 2008, residence in urban areas and higher educational attainment of the

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mother significantly determined the higher utilization of maternal health care in Nigeria (Ononokpono & Odimegwu, 2014).
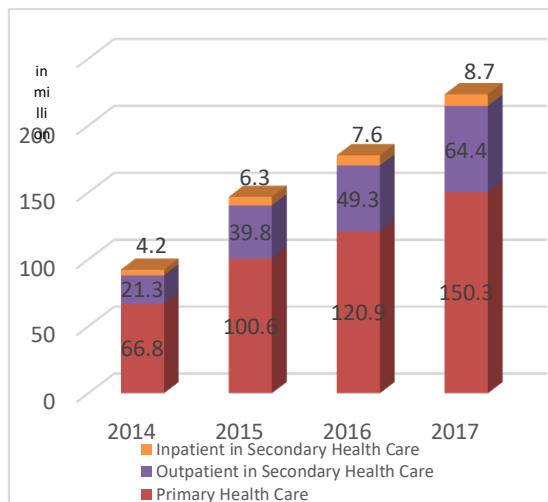

Figure 3. Health Care Visits in Primary and Secondary Health Facilities, 2014–2017
Source: (SSAH, 2018)

Figure 3 shows the number of health care visits from 2014 to 2017 in both primary and secondary health facilities. Based on WHO, primary health care is the first level of personal health care services, which uses the whole-of-society approach to health, while secondary health care is referral health facilities that receive patients from primary health care (WHO, 2019). In Indonesia, the primary health facilities provide only outpatient services, while the secondary facilities provide both inpatient and outpatient services. The referral system requires all patients to visit the primary health care services first, and patients are not allowed to visit secondary facilities without referral from the primary institutions, except in emergency cases.

Figure 3 shows the increased trend of health facilities utilization since NHIS was launched in 2014. Moreover, the most-visited health care facilities were in primary health care, with 150.3 million visits in 2017. This trend corresponds with NHIS scheme to develop the application of the referral system in health services.

In this study the mixed results of the existing literature will be clarified by answering

the questions: how is the distribution of the NHIS subsidized beneficiaries associated with household income distribution in 2016?, How is the utilization ratio of health care facilities in Indonesia associated with household income distribution in 2016?, and Which socioeconomic factors determine the utilization of health care facilities?.

RESEARCH METHODS

All data used in this study were taken from Indonesia's National Socio-Economic Survey (*Susenas*) in 2016. *Susenas* is a household-level survey conducted by Statistic of Indonesia (SI, or *Badan Pusat Statistik* [BPS]) and collects data on the socioeconomic status of households, such as demography, health, education, family planning, housing, and consumption or expenditure. This survey is held twice a year (March and September). This study employs data from the March 2016 survey that covers 291,414 households and 1,109,749 individuals in 34 provinces of Indonesia.

Based on the 2016 Susenas data, there were 20 levels of education; this study merged these into three levels: primary (4 types), secondary (4 types), and tertiary (12 types). The percentage of the population with primary, secondary, and tertiary education was 53.38%, 36.20%, and 10.41%, respectively.

For the insurance ownership variable, Susenas data show the ownership of seven health insurance types and also uninsured people. This study divided the variable into insured and uninsured people, because it focused on the ownership status that determined whether people visited health care facilities. The study found the proportion of uninsured and insured people was 41.58% and 58.2%, respectively.

Working activities explains the employment status of individuals when the survey occurred. The three types of employment status in this study are unemployed, informal, and formal. The formal sector consists of permanent employees and entrepreneurs with permanent employees, while the informal sector consists of entrepreneurs without employees,

entrepreneurs with temporary staff, freelancers, and workers helping in a family business without pay.

Two different methods were used based on the research objectives. Analysis of the distribution of subsidized group participants used benefit incidence analysis as applied by Sparrow (Sparrow, 2008) to measure the distribution of Health Card Program benefits in Indonesia. The utilization factors were estimated by the logistic regression method.

Benefit incidence analysis measures the distributional incidence of public spending and benefits among different population subgroups that are divided by economic characteristics such as income and expenditure level. This examines the balance of the distribution between the government policy target groups and the actual beneficiary group for social assistance programs (O'Donnell, Doorslaer, Wagstaff, & Lindelow, 2007). Targeting performance shows how the program can reach the low-income group, and it indicates how the benefits are covered and concentrated across the population (Sparrow, 2008).

This study divided households into five quantiles based on the expenditure per capita level in Susenas 2016. The first quantile is the 20% lowest-income population, and the fifth quantile is the 20% richest population. Furthermore, the analysis was also developed by household location, that is, differentiated between rural and urban areas, and five regions by islands in Indonesia, which are Sumatra, Java, Kalimantan, Sulawesi, and Maluku-Papua.

The second objective was to analyse the utilization of health service facilities among the NHIS participants. We conducted logistic regression analysis (LRA), a descriptive statistic that showed the utilization of health care by income level, household location (rural and urban), and regions. LRA is a widely used technique for categorical outcome variables (Dayton, 1992). The utilization of the health care service facilities can be expressed as the probability ranging between zero and one.

The probability function is generally described as the logistic function:

$$P = \left(e^{\alpha + \beta_1 X_1} \Big/ (1 + e^{\alpha + \beta_1 X_1}) \right) \ldots\ldots\ldots\ldots\ldots (1)$$

Where P, X_1, α, β_1, and e indicate the probability, the independent variable, the corresponding coefficients, and the base of the natural logarithm, respectively. Equation (1) can be transformed to:

$$P/(1 - P) = \left[e^{\alpha + \beta_1 X_1} \Big/ (1 + e^{\alpha + \beta_1}) \right] \left[1 \Big/ (1 + e^{\alpha + \beta_1}) \right] =$$

$$e^{\alpha + \beta_1 X_1} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where $\left(P/(1 - P) \right)$ shows the odd-ratio. Then, we manipulate Equation (2) to the linear form as:

$$ln \left(P/(1 - P) \right) = \alpha + \beta_1 X_1 \ldots\ldots\ldots\ldots\ldots (3)$$

Now, we have the simple logistic regression model. As our study examined multiple factors j, denoted as X_j, determining utilization, Equation (3) is expressed as:

$$ln \left(P/(1 - P) \right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_j X_j$$
$$+ \cdots + \beta_m X_m$$
$$= \alpha + \sum_{j=1}^{m} \beta_j X_j \ldots\ldots\ldots\ldots\ldots (4)$$

Our study employs the categorical variables in X_j.

Previous studies that analysed the determinants of health care utilization have proved these variables have a positive impact on medical care visits. Sparrow et al. investigated the impact of *Askeskin* (targeted insurance in Indonesia) ownership on health care utilization, and showed a positive relationship. Moreover, Sparrow et al. used descriptive variables that define the socioeconomic status of households, that is, education, age, gender, household size, and household location (Sparrow, Suryahadi, & Widyanti, 2013).

Hjortsberg (2003) examined the factors that determined whether people in Zambia utilized health care services when they had illnesses. Using the multinomial logit model, she found that socioeconomic factors such as type of job, education, and level of income have a

positive relationship with utilization of health care services, while for households in rural areas socioeconomic factors have a negative influence on utilization of health care facilities (Hjortsberg, 2003).

With this in mind, this research focused on six independent variables: expenditure per capita, household location, working activities, health insurance ownership, education, and household size. The analysis also examined the differences in utilization between public and private health facilities.

Considering the aforementioned studies, we used the following specifications with six independent variables:

$$ln\left(\frac{p_i}{(1 - p_i)}\right) = \alpha + \sum_{j=1}^{m} \beta_j x_{ji} + \varepsilon_i \quad (x_{ji} \in X_j)$$
....(5)

Where i denotes each observation of n samples in total. Our study employed the categorical variables in X_j.

The model used six independent variables that possibly determine the utilization of health care facilities as dependent variables, namely expenditure per capita as the proxy for income level, household location, working activities, health insurance ownership, education level, and household size.

RESULTS AND DISCUSSION

This study examined the distribution of NHIS-subsidized participants, to determine whether the government budget for this program is applied effectively, and allocated to the low-income population groups as a target group. Government has enacted legislation that ensures the subsidized group of NHIS participants must be those with low income and those most vulnerable to catastrophe arising from financial constraints because of illness. Since 2014, the government has supported about 40% of the total population in Indonesia. If the given budget is equally distributed to the corresponding income group, the budget for the NHIS-subsidized group should be distributed to the quantile I and II groups. The analysis divided the households into five groups based on their expenditure data, from the 20% with

the lowest income (quantile I) to the 20% with the highest income (quantile V).

The government budget is differentiated between the central and local governments. The central government budget for the NHIS-subsidized group is allocated according to data from the Ministry of Health and Ministry of Social Affairs. At the local government level, each province and district cover the low-income group. The data on these low-income groups is also from the Ministry of Social Affairs and includes those not covered by the central government because of its limited budget. Both levels of the government allocate the budget annually. Table 2 shows the distribution of the NHIS beneficiaries by income quantile.

Table 2. Distribution of National Health Insurance System Cards among Subsidized Groups per Quantile in 2016.

Quant	Central Gov Budget		Local Gov Budget	
	House holds	%	Househ olds	%
I	18,579	29.08	6,302	16.33
II	15,637	24.48	6,641	17.20
III	13,302	20.82	8,711	22.56
IV	11,089	17.36	9,591	24.85
V	5,279	8.26	7,358	19.06
Total	63,886	100	38,603	100

Source: Author's Calculation

Table 2 shows that the ownership of NHIS-subsidized cards is distributed among all quantiles, in both the central and local government budgets. In the central government, the highest percentage belongs to quantile I with 29.08% and the lowest belongs to quantile V with 8.26%. The share of NHIS-subsidized card holder decreases as per capita expenditure increases, ranging from 29.08% in quantile I to 8.26% in quantile V. In the local government budget, we found the trend was fewer beneficiaries in the lower-income group. For example, NHIS-subsidized beneficiaries actually account for one-third the total population (quantile I: 16.33%, quantile II: 17.20%), which is far lower than the level (100%) targeted by the

policy. The distribution imbalance between the targeted and actual beneficiaries is greater for the local government than for the central government.

Leakage from the government budget applied to the subsidy program can occur because of exclusion and inclusion errors. First, because the perception of poverty may be different in the community than measured by expenditure or other proxies, the data collecting process may be affected, so that it experienced measurement (observation) error. Second, the household ownership of NHIS-subsidized cards at the time of the survey (Susenas 2016) was based on economic conditions from the previous year (2014/2015), which may have changed when the survey occurred.

Sparrow et al. (2013) examined the effects of the *Askeskin* program with *Susenas* panel data in 2005 (before the program) and 2006 with 8,582 households, using the difference-in-difference method. The findings showed that 80% of *Askeskin* recipients are from the 50% lowest-income population group. It shows that the leakage of government spending were happened by 20% in Askeskin Program (Sparrow et al., 2013).

Table 3. Proportion of NHIS Subsidy Beneficiaries in Each Region

Regional	Beneficiaries	Quantile I & II	Pro portion
Sumatra	29,005	25,174	1.15
Java	38,222	47,282	0.81
Kalimantan	7,154	6,189	1.16
Sulawesi	13,544	15,547	0.87
Maluku-Papua	11,173	8,213	1.36

Source: Author's Calculation

This paper also examined the distribution of NHIS-subsidized cards among the five main regions in Indonesia: Sumatra, Java, Kalimantan, Sulawesi, and Maluku-Papua. Table 2 shows the regional benefit incidence analysis to measure the inclusion or exclusion error in each region. By comparing total of subsidized group (beneficiaries) and total of 40%

lowest income group in each region, it can be found the proportion of beneficiaries of NHIS subsidy. If the proportion equal to one (p=1), it means that the subsidy is right on the target which belong to quantile I and II. However, if the proportion is less/more than one (p>1 or p<1), it means there is inclusion/exclusion error in NHIS subsidy program.

The result shows that proportion of NHIS subsidy beneficiaries is more than one (p>1) in Sumatra, Kalimantan, and Maluku-Papua. Then, other regions which are Java and Sulawesi has proportion less than one (p<1). It can be concluded that all regions experience inclusion or exclusion error on NHIS subsidy program.
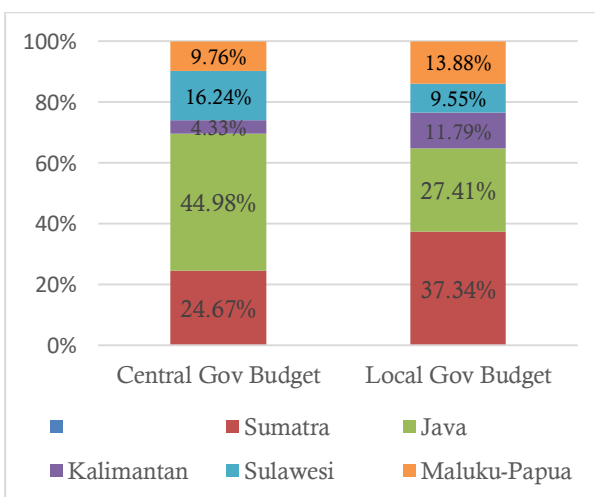

Figure 4. Distribution of National Health Insurance System Cards among Subsidized Groups by Region in 2016

Source: Author's Calculation

Figure 4 shows the share of NHIS-subsidized groups between regions supported by both levels of government. The figure shows that Java had the highest percentage of NHIS-subsidized group participants, with 44.98% supported by the central government budget in 2016, followed by Sumatra (24.67%), Sulawesi (16.24%), Maluku-Papua (9.76%), and Kalimantan (4.33%). Sumatra had the highest level of NHIS participation subsidized by local government, with 37.34% of participants in 2016. Based on Statistics Indonesia, the poverty data in 2016 showed that Java had the greatest number of low-income people, approximately

16.94 million people, and Sumatra was second with 6.21 million (Statistics Indonesia, 2016). Java also had the highest total population, with 56.81% of citizens in 2015, followed by Sumatra with 21.63% (Statistics Indonesia, 2016).

The objective of NHIS is to improve the accessibility of the health care facilities with high quality and comprehensive services. Many lower-income population groups underutilized the health services because of economic conditions such as low income and lack of health insurance (TNP2K, 2015). Therefore, this research also examined the utilization of the health care facilities in Indonesia two years after NHIS was implemented.
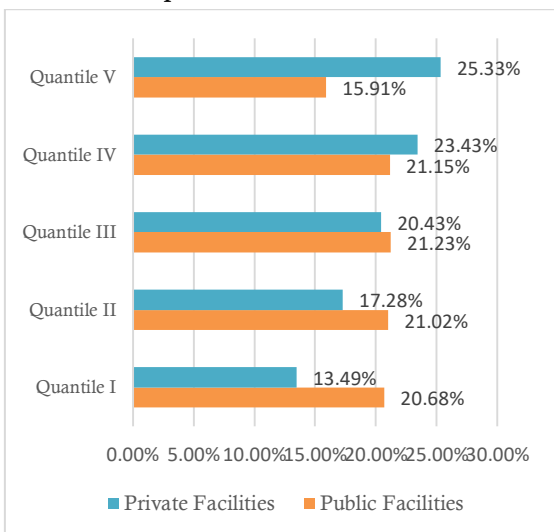

Figure 5. Utilization of Health Care Facilities by Quantile, 2016
Source: Author's Calculation

Figure 5 shows the proportion of the utilization of health care facilities by income level. The figure shows the richest quantile is the most frequent user of private health care facilities (25.33%), and the least frequent user of public facilities (15.91%). In contrast, the first quantile is the least frequent user of private facilities (13.49%).

Figure 6 presents the share in the public and private facility users by urban and rural locations. As shown on Figure 4.3, people in rural areas were the majority of users of medical care in both public and private facilities, 59.63% and 51.96%, respectively, while urban areas

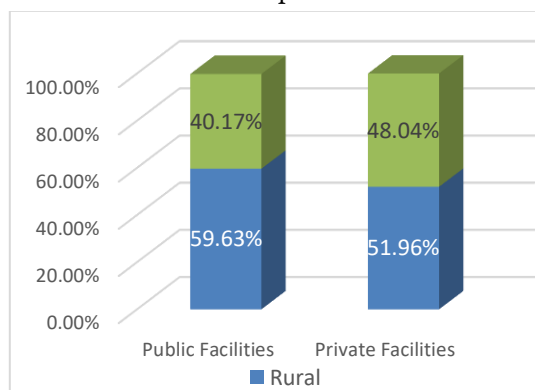showed lower percentages—40.17% for public services and 48.04% for private institutions.

Figure 6. User Share of Public and Private Health Care Facilities by Location, 2016
Source: Author's Calculation

Figure 7 shows the proportion of public and private medical care users based on five regions in Indonesia. Sumatra and Java have almost the same proportion for both public and private health care facilities, and the majority of residents in those regions prefer to visit private rather than public health care facilities (about 60%). On the other hand, the majority of people in the other three regions visit public medical care facilities more than private facilities, especially in Maluku-Papua (75.55%). It can be concluded that public health care facilities are perceived more unfavorably than private facilities in the two regions with the largest populations in Indonesia.
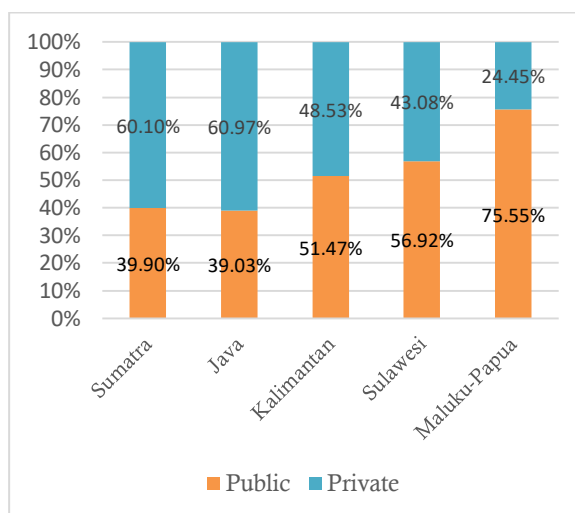

Figure 7. Proportion of Public and Private Health Care Utilization by Region, 2016
Source: Author's Calculation

Following these descriptive statistics on utilization of health care facilities, it is necessary to find the factors that influence visits to the health care facilities. By using the logistic regression model as described in Section 3, we showed results for three sample groups: total sample and outpatient and inpatient samples.

Table 4. Logistic Regression Result for Utilization of Health Care Facilities (n = 248,678).

Variables		Utilization of Health Care		
		Coeff. [Standard Error]	Odds Ratio, P/(1 – P)	Prob, P
Intercept		-1.581*** [0.9566]	0.206	0.171
Location	Rural	-0.016** [0.0851]	0.984	0.496
	Urban			
Educ.	Primary	-0.156*** [0.0066]	0.856	0.461
	Secondary			
	Tertiary			
Ins.	Uninsured	0.302*** [0.0083]	1.352	0.575
	Insured			
Working	Unemployed	-0.095*** [0.0044]	0.909	0.476
	Informal			
	Formal			
Expenditure per capita		0.128*** [0.0069]	1.136	0.532
Household Size		-0.002 [0.0024]	0.998	0.500

Note: The superscripts of *** and ** indicate the 0.1% and 10% significance levels, respetively.
Source: Author's Calculation

Table 4 shows the logistic regression result of the health care utilization in Indonesia with the corresponding odds ratio,

$$(OR = \left({P}/{(1 - P)} \right)) \dots\dots\dots\dots\dots\dots\dots\dots(5)$$

and the probability. The estimated coefficient values have at least 10% significance level, except household size. This indicates that majority of the variables in this model determine the probability of the health care visits. Among all variables, the participation of the insurance and the expenditure per capita show interesting results. The insured population group and higher income use the health care facilities more than the uninsured and lower income people. The odds ratio in the insurance variables (1.352) shows the noteworthy fact, indicating that the insured group visits nearly 1.4 times more frequently than the uninsured.

Other categorical variables, the odds ratios of the household location, the education attainment level and the working status show values less than one. This indicates that the urban residents, the more educated, and the more job-secure group use the health care facilities less frequently.

There are some arguments that support the estimated result. People who live in urban area less likely to be food insecure and more likely to be physically active than rural residents. Therefore, urban inhabitants are more healthy than rural people. Then, related to the educated group, they tend to have secure employment opportunities and higher income than the less educated. In other words, the educated group are healthier and richer than the less educated; therefore, the educated group with the aforementioned properties suffered from sickness infrequently. Alternatively, it is hypothesized that the educated can afford to visit the facilities whenever they are sick. Our results support the argument that urban

residents, the educated and those with secure employment in Indonesia use the facilities less often.

This result is supported by a study from Trujillo, Portillo, and Vernon (2005) concluded that a subsidized insurance program in Colombia effectively increased health care utilization among uninsured people (Trujillo, Portillo, & Vernon, 2005). In addition, Spaan et al. also proved that social health insurance improved health service utilization in African and Asian countries (Spaan et al., 2012). Furthermore, Brooks et al. studied utilization of health facilities among low-income women with *Jamkesmas*. Their research found that low-income women with *Jamkesmas* obtained health facility delivery (HFD) and skilled birth delivery (SBD) at the rates of 19% and 17%, respectively, and these are higher utilization rates than among uninsured low-income women (Brooks et al., 2017).

However, the findings related to household location, education background and employment status are contradicted by other studies. For example, Abrokwah, Moser, and Norton, who found that people in urban regions had higher rates of prenatal care visits than people in rural areas in Ghana (Abrokwah, Moser, & Norton, 2014). In addition, Liu and Chen found that women who were employed and had higher levels of education tended to have higher rates of prenatal care utilization after the implementation of National Health Insurance in Taiwan (Liu & Chen, 2004). Moreover, Simkhada et al. did a systematic review of the literature on determinants of antenatal care utilization in developing countries, and concluded that women who were white-collar employees and had better education utilized the services at higher rates than unemployed women (Simkhada, Edwin R, Porter, & Simkhada, 2007).

Table 5. Logistic Regression Result for Outpatient Utilization of Public and Private Health Services ($n = 134,382$)

Variables		Utilization of Health Care		
		Coeff. [Standard Error]	Odds Ratio, P/(1 – P)	Prob, P
Intercept		-7.275*** [0.1416]	0.001	0.001
Location	Rural Urban	0.179*** [0.0116]	1.196	0.545
Education	Primary Secondary Tertiary	0.024* [0.0094]	1.024	0.506
Insurance	Uninsured Insured	0.167*** [0.0127]	1.182	0.542
Working	Unemployed Informal Formal	0.038*** [0.0061]	1.039	0.510
Expenditure per capita		0.541*** [0.0101]	1.718	0.632
Household Size		-0.018*** [0.0033]	0.982	0.495

Note: The superscripts of * and *** indicate the 5% and 0.1% significance levels, respectively.
Source: Author's Calculation

This paper also examined the difference in utilization between outpatient and inpatient services in both public and private facilities. The dependent variable shows the probability of

using public (code = 0) and private facilities (code = 1) among the patients.

Table 5 shows the result of the logit regression distinguished between outpatient public and private health care facilities. The estimated coefficient values of the explanatory variables have at least 5% statistical significance level. This indicates that all statistically significant variables influence the probability of outpatient visits to private health care facilities. Among all variables, income level shows the highest odds ratio than other variables. The corresponding odds ratio (1.718) shows that people with higher income visit private facilities nearly 1.7 times more frequently than the lower income group as outpatient.

The estimated odds ratios of household location, education attainment level, and employment status show different values from those in total sample. This indicates that the urban residents, the higher educated and the more job-secure group use private health care facilities as outpatients more frequently as they can afford to visit the private facilities whenever they are sick. Moreover, private health care facilities usually have better service quality that can satisfy the needs of those residents. Furthermore, private health facilities are available more in urban area than rural area. Our results support the alternative hypothesis that the urban people, educated and secure-employment groups in Indonesia utilize the health facilities more than the other groups.

Table 6. Logistic Regression Result for Inpatient Utilization of Public and Private Health Services (*n* = 33,605)

Variables		Utilization of Health Care		
		Coefficient [Standard Error]	Odds Ratio, P/(1 – P)	Prob, P
Intercept		-7.004*** [0.2729]	0.001	0.001
Location	Rural Urban	0.374*** [0.0241]	1.454	0.592
Education	Primary Secondary Tertiary	0.079*** [0.0172]	1.082	0.520
Insurance	Uninsured Insured	0.475*** [0.0269]	1.608	0.617
Working	Unemployed Informal Formal	-0.010 [0.0125]	0.990	0.498
Expenditure per capita		0.422*** [0.0196]	1.525	0.604
Household Size		0.026*** [0.0068]	1.026	0.506

Note: The superscript *** indicates the 0.1% significance level.
Source: Author's Calculation

Table 6 shows the inpatient utilization of public and private health care based on logistic regression. The estimated coefficient values of explanatory variables except the working status have 0.1% statistical significance level. This indicates that all statistically significant variables

influence the probability of visits to private health care facilities as inpatients. Since the odds ratios with statistical significance exceeds one, the urban residents, insured, higher-educated and higher-income groups use the private facilities as inpatients more frequently

than the rural people, uninsured, lower-educated and lower-income groups. Meanwhile, household size variable shows inverse effect that people with more household member visit private facilities more frequently than smaller household size. Among all criteria, the insured patient group (1.608) shows the highest odds ratio; therefore, universal insurance coverage contributes to improving the inpatients' utilities and the social welfare.

CONCLUSION

This study applied benefit incidence analysis to analyse the distribution of the NHIS-subsidized group and their income in Indonesia. We divide the population into five income groups, from the 20% lowest (quantile I) to the 20% highest income group (quantile V). This paper also analysed the utilization of health care facilities in Indonesia by using logistic regression analysis. Both analyses used data from the Indonesia Socio-Economic Survey (Susenas). The benefit incidence analysis found that the subsidized group of NHIS participants were distributed among all five quantiles. The largest subsidized groups differ between the central and local governments: quantile I in the central and quantile IV in the local governments. This indicates a leakage from the government budget at both levels of government, because the government subsidy should be distributed to the 40% lowest-income group in keeping with NHIS policy. Measuring the factors that determine behavior of seeking health care facilities, insurance holders and higher-income people tend to use the facilities more frequently than uninsured and lower-income residents. This indicates the NHIS program contributes to health care visits. The probability of choosing public and private facilities distinguished between outpatient and inpatient. As outpatient, people who live in urban area, higher-income, insured, higher education, work on formal sector, and smaller household size have more probability to utilize private facilities than public health care. Otherwise, as inpatient, formal employment

status and fewer household member less utilize private facilities than public medical care.

This study imply government policy both in subsidies management and health program. Firstly, to ensure the equity of the NHIS policy by improving the data collection process and the data should be integrated with other subsidy program in Indonesia. Secondly, the health behaviour of residents, especially the utilization of health care facilities were influenced by different socioeconomic factors, so that government could determine the future health program.

This study had also some limitations. This study used only six socioeconomic factors to determine the utilization of health care. It can be enhanced with more variables to get a deeper analysis of socioeconomic conditions in Indonesia. Moreover, it is also important to study the utilization of health care from the supply side, such as analysis related to the availability of health care services. This can lead to more comprehensive analysis to understand behaviors related to seeking health care services in Indonesia.

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