HEALTH COST IN INDONESIA:
EVIDENCES FROM IFLS AND SUSENAS DATA

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ABSTRAKSI

Artikel ini menggunakan pendekatan statistik deskriptif dari data Susenas dan IFLS untuk mengetahui biaya dan pola pengeluaran untuk kesehatan masyarakat Indonesia. Dari data Susenas 2004 diketahui bahwa mayoritas rumah tangga menggunakan pendapatan mereka sendiri untuk membiayai pengeluaran kesehatan, dan hanya sedikit yang menggunakan asuransi kesehatan maupun kartu sehat. Secara statistik terbukti bahwa pola pengeluaran penduduk kota berbeda dan lebih tinggi dibandingkan dengan masyarakat pedesaan. Juga ditemukan bahwa pengeluaran untuk kesehatan berkorelasi positif dengan pengeluaran rumah tangga. Sementara dari data Indonesia Family Life Survey (IFLS) *tahun 2000 ditemukan bahwa pangsa pengeluaran untuk kesehatan lebih rendah dibandingkan data yang didapat dari Susenas. Ongkos transportasi ke fasilitas medik menambah pengeluaran untuk kesehatan terutama bagi penduduk desa karena keterbatasan akses terhadap fasilitas-fasilitas tersebut. Meskipun penelitian ini memakai dua basis data namun hasil yang didapat tidak dapat diperbandingkan secara langsung mengingat keduanya memiliki metode, karakteristik, dan periode waktu yang berbeda.*

Kata kunci: health economics, economic development, *Susenas*, Indonesia Family Life Survey

Introduction

The popularity of health economics within economic theory is still lagged behind those of more well-known subjects such as monetary issue and international trade. The cause of this unpopularity can be attributed to limited data availability and the inexistence of robust building blocks that uniquely differentiate it with other branches of economics. For this reason, there are quite a small number of researches concerning health economics in Indonesia. This article is an attempt to fill the gap.

In Indonesia, formulation of health policy must considering the capacity of households (or individuals) in obtaining health facility. The capacity includes cost to obtain medical benefit/assistance, which induce to the willingness to pay for those benefits, and underlying factors of household/individual behavior toward health benefits. One of an excellent study was from Pradhan *et al.* (2004) that utilize Susenas data to measure the effectiveness of health card program in Indonesia during economic crisis. By knowing the exact nature and structure of health awareness of Indonesian, a better health-related policy can be proposed.

This article will focused on the statistical aspect rather than on causal/regression method of health issue in Indonesia. Designed as a continuing study, this article is limited to certain aspect of health economics for the case of Indonesia. Future studies will be performed by introducing more advanced methodologies and might be inherent with current article. The study will employ and analyze micro-level data taken from latest raw datasets of National Socio-Economic Survey (Susenas) and the Indonesia Family Life Survey (IFLS).

Health Issue in Indonesia

There are several studies concerning health-related issue in Indonesia such as those of Pradhan *et al.* (2004) study that tried to analyze the impact of the health card program operated under the Social Safety Net (SSN) by employing Susenas data. Their findings concluded that the health card program was pro-poor in a sense that those who are poor are having greater probability to obtain health card, thus increase the use of health services. However, since one of the health-related SSN program induced higher public sector spending for health (supply impulse in health services), it was not only the poor who benefited from the program. Since the poor were less

sensitive to change in public spending on health, it was the non-poor that receive some of the benefit from the program. In the end, it was the non-poor who captured most of the benefits of the overall program.

Another study was from Thomas & Frankenberg (2005) that deeply use the IFLS data to analyze the longitudinal response of household, concerning not only health issue but also to poverty, resources, and well-being. While they have already conduct deep descriptive statistical method in analyzing each health-related issue within IFLS (nutrition, psycho-social health, and general health), an indirect comparison between results from IFLS and Susenas are not yet been explored.

Research Methodology

In this article we purely use statistics to measure health expenditure in Indonesia. To calculate household expenditure in Susenas data we count the mean of expenditure data for each household weighted by the already built-in (made by BPS) weight measure, so that the number can be justified for the whole Indonesia. While for IFLS, we do not perform such weighted measure since there was no built-in weight within IFLS. Thus, the consequence is that the result from IFLS can be over- or undervalued. Total expenditure will be measured as a sum of food and non-food expenditure.

Following is the standard conversion basis used by BPS within Susenas employed to the data:

Value of 1 year = 12 x value of 1 month

Value of 1 month = (30/4) x value of 1 week

Household expenditure categorization will be conducted based on *a priori* judgment after considering the data scope. Several data were converted into binary

number to simplify and to create more statistical sense of the data. The conversions were used for questions that only had two mutually exclusive answers—"1" for "yes" answer and "2" for "no" answer—by changing the "2" into "0". Thus the average value from the newly converted data can be used as an approximate of proportion of sample answering "yes" or "no".

Significance test were also applied for some part of this article that used to know whether the pattern is statistically similar or different between urban and rural areas. Since the data are unpaired (urban and rural sample size is not equal) and coming from different population characteristics suggest that the appropriate t-test is for two samples with unequal variance.

Within this research, we used raw data to analyze the statistical aspect of health expenditure. Stata/SE 8.0 was used to conduct statistical measures of the raw data. It is important to acknowledge the importance of utilizing such raw datasets for they contain large amount of data which provide broad room for data analyses and manipulations.

The Data

Household and individual type data were employed to capture the micro-level pattern of health expenditure in Indonesia. There are currently two available data resources which provide a relatively complete measure of health issues, especially on health expenditure, namely Indonesia's National Socio-Economic Survey (Susenas) and Indonesia Family Life Survey (IFLS).

The first data be employed is National Socio-Economic Survey that interviewed hundred of thousand individuals and published annually. Despite its large sample, respondents interviewed were different each year, thus can not be used for

panel study purpose. The Susenas data is divided into *core* and *module* questionnaires. Core questionnaire consists of nine areas of developments that collected in yearly basis. While on the other hand, there are currently three kinds of module questionnaires (Surbakti, 1995):

1. Income and expenditure

2. Welfare, socio-culture, criminality, and tourism

3. Health, nutrition, education cost, and home environment

Each of these modules is repeated every three years. The latest raw data available for public audiences is Susenas 2004 which we will use thoroughly within this article.

The other dataset is Indonesia's Family Life Survey, also known as *Survey Aspek Kehidupan Rumah Tangga Indonesia (Sakerti).* The IFLS is a longitudinal survey for Indonesian household initially conducted by RAND, Lembaga Demografi of Universitas Indonesia, and UCLA in 1993/4. The survey covered extensive information including lives of the respondents, their households, their families, and the community they live. Representing about 83 percent of Indonesia population, the survey conducted interview of more than 30,000 individuals. The IFLS were performed in "waves": the first (IFLS1) wave was conducted in 1993/4 period, followed by IFLS2 (1997/8), specially-purposed IFLS2+ (late 1998), IFLS3 (2000), and IFLS4 scheduled to be launched next 2007. RAND and UGM collaborate in the latest survey (IFLS3). Since these waves were completed by interviewing the *same individual* over different span of time, these *longitudinal data* then can be used for panel study which captured not only vast data coverage but also considering the time

dimension. Much of the issues within IFLS were deeply explored if compared to Susenas.

In this research, we were using Susenas 2004 and IFLS3 (2000) as our datasets because these two datasets are the most updated data available for public audiences. The impact of using these datasets is that they can not be compared directly due to different time period implying different socio-economic circumstances. Susenas 2004 surveyed more than one million individuals and more than 250 thousand households for the core questionnaire. While for the module, the survey interviewed more than 66 thousand households. On the other hand, there were more than 70 thousand households interviewed from 13 provinces covering about 83 percent of total population in IFLS3 that answered the health-cost-related questions. Expenditures in IFLS are expressed in 1994 base price and adjusted by regional price deflators to the price level of Jakarta (Cogneau & Grimm, 2004).

The advantages of using both IFLS and Susenas data is that we can analyze the health cost issue from two different point of view, though they can not be compared indirectly. It is reasonable not only because the methodologies are almost completely different, but also due to the fact that these two datasets are bearing different stress. Susenas is mainly concern on the general aspect of household life, but IFLS tend to be more detailed on touching the household issue and even reached the community level.

It should clearly bear in mind that the research does not meant to compare directly the result of Susenas and IFLS since both are different in methodologies, year of survey conducted, and characteristics. The results then must be analyzed separately.

Results

Results from Susenas Data

Susenas 2004 was used to analyze and measure the health-related cost of Indonesian households and individuals. The data is the latest one available in Stata format. In summary, household expenditure for health is about Rp30,000/month on average or 3.75 percent of total household monthly expenditure, with those living in cities spent more than those in rural areas. While the Susenas questionnaire also asked for the annual average health expenditure which resulted in Rp200,000/year on average. The number is not equal to 12 month multiplied by the monthly average (12 month x Rp30,000/month = Rp360,000/year), because for the monthly health expenditure the respondent is actually asked for *last month* health expenditure, thus we can not simply multiply it by 12 month.

Table 1. Results from Susenas 2004 Data

Average health cost (Rp)	Urban	Rural	Urban+Rural	Significance test
Household health cost (last 1 month)	42,357	21,946	30,653	17.0214 *
Household health cost (last 12 months)	275,943	148,765	203,017	28.6001 *
Household health cost (last 1 month) for:				
Hospitalization	21,636	11,552	15,841	3.8710 *
Out patient treatment	20,679	13,753	16,698	4.3825 *
Traditional	2,678	2,113	2,353	1.5009
Self treatment	6,885	13,180	10,503	-0.5198
Others	3,470	1,272	2,206	7.2796 *
Household health expenditure for hospitalization (excluding for insurance or to other party) (Rp per year)	2,604,282	2,255,300	2,443,506	0.3376
Average household monthly expenditure (Rp)	1,091,510	613,619	817,481	112.7953 *

Notes: Significance test measure the independent t-test for unequal variance between urban and rural household health and total expenditure. Value displayed with significant t-value (*) indicates that the mean between urban and rural is significantly different at 1% level.
Source: calculated from Susenas 2004 data

Significance test showed that there were clear differences in health expenditure pattern between urban and rural, with exception for traditional and self treatment health expenditure where the two populations share a relatively common pattern. *In general, urban population spent more money for health needs than those*

living in rural areas. It is still unknown whether the health cost, access to medical facilities, or other factors that generate such pattern. A mixed result, however, occurred for hospitalization expenditure where population in urban areas is significantly paid out more money for in-patient treatment than those in rural *for the last one month but not in a year as a whole*.

**Table 2.** Household Health Card Ownership and Utilization

	Urban	Rural	Urban+Rural
Have/ever had health card	2,635,765 (4.82%)	5,207,520 (9.53%)	7,843,285 (14.36%)
Utilize the health card to get medical facilities or take medicine	1,780,182 (3.26%)	3,439,474 (6.30%)	5,219,656 (9.55%)
Paying for the medicines or services	465,473 [26.15%]	779,767 [22.67%]	1,245,241 [23.86%]
Utilize the health card to deliver babies	236,217 (0.43%)	472,131 (0.86%)	708,348 (1.30%)
Paying for the delivering babies services	83,892 [35.51%]	154,720 [32.77%]	238,612 [33.69%]
Utilizing health card for contraception use	366,182 (0.67%)	717,129 (1.31%)	1,083,311 (1.98%)
Paying for the contraception	144,214 [39.38%]	291,442 [40.64%]	435,657 [40.22%]

Notes: number in brackets ( ) indicates the proportion to total household. While number in square brackets [ ] refers to the proportion of those paid for specific health facilities (medicine, delivering babies, and contraception) to number of household use the health card for these specific health facilities. Significance test measure the independent t-test for unequal variance between urban and rural household health card utilization. Value displayed with significant t-value (*) indicates that the mean between urban and rural is significantly different at 1% level.
Source: calculated from Susenas 2004 data

Most of the respondent (household) questioned said that they never had health card, with the propensity of having health card is larger for those living in rural areas than those living in cities. This confirmed by the fact that most of the poor lives in rural areas rather than in cities (see Figure 1 below). Most of the respondent used the health card to go to medical facilities or to get medicines rather than for delivering babies and/or for contraception use. It is quite interesting that *urban people tend to pay more than their counterpart in rural areas for health facilities even though they already had the health card*. This case, however, does not seem to occur for contraception use with only a slight margin.

Figure 1. Percentage of People Living Below Poverty Line
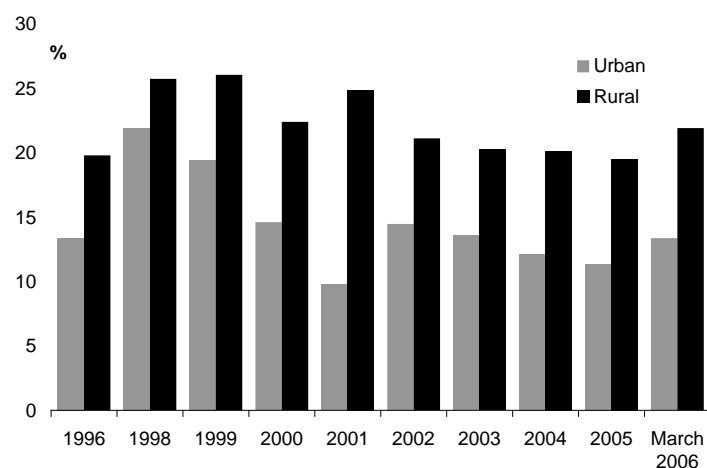
Source: BPS

The need for health insurance or provision in Indonesia is emerging for most of the respondent claimed that they do not have any access to or supplied with health insurance, issued whether by public (government) or private institutions (current place of work). There only six percent from total Indonesia population that currently hold health insurance (*Askes*) and almost none that already have health fund (*dana sehat*). Similar to above result, urban citizen seems to have broader ownership of health insurance/financing rather than rural villagers, with exceptions in JKPM and health card ownership.

Table 3. Health Financing/Insurance Ownership

	Urban	Rural	Urban+Rural
Health insurance (*Askes*)	0.04	0.02	0.06 [0.23]
Labor insurance (*Astek/Jamsostek*)	0.02	0.01	0.03 [0.16]
Office/company	0.02	0.00	0.02 [0.14]
JPKM	0.00	0.01	0.01 [0.09]
Health fund (*dana sehat*)	0.00	0.00	0.00 [0.05]
Health card	0.03	0.06	0.08 [0.28]
Others	0.01	0.01	0.02 [0.13]

Notes: Value is "1" if respondent said "yes", "0" if "no". Number in square brackets [ ] indicate standard deviation from the mean
Source: calculated from Susenas 2004 data

The module questionnaire of Susenas 2004 is fortunately embraces the same scope with this research, which is for health, education, and home environment issues. Somewhat contrary to those of above core results, households in module data were posing higher monthly health expenditure at about Rp47,000 for national average. Cost for hospitalization for the last one year is about Rp2.4 million on average.

Most of the respondent said that they financed health expenditure by their own income, and only small fraction financed through other means such by using their saving deposit or by utilizing health card. This might be explained by the low ownership of (ever have or currently hold) health card that just owned by 14 percent of total Indonesian household. Pradhan *et al.* (2004) also confirmed that after the 1997/1998 crisis there was a sharp decrease in the utilization of modern health care which was largely due to declining utilization of public sector providers. The second highest source of health financing is from personal savings followed by financial help from other family members or friends.

Table 4. Source of Health Financing

|	Urban	Rural	Urban+Rural	Significance test
Household income	0.85 [0.35]	0.88 [0.32]	0.87 [0.33]	-11.0262 *
Savings	0.19 [0.39]	0.11 [0.31]	0.14 [0.35]	29.17 *
Selling goods	0.04 [0.19]	0.06 [0.24]	0.05 [0.22]	-12.9689 *
Borrowing goods	0.06 [0.23]	0.07 [0.25]	0.06 [0.24]	5.2039 *
Help from other family members/friends (outside household)	0.12 [0.32]	0.12 [0.33]	0.12 [0.33]	-0.9703
Insurance claim or from office	0.09 [0.29]	0.02 [0.14]	0.05 [0.22]	39.3183 *
Health card	0.05 [0.22]	0.07 [0.25]	0.06 [0.24]	-8.4285 *
Others	0.07 [0.25]	0.07 [0.25]	0.07 [0.25]	-0.8796

Notes: Value is "1" if respondent said "yes", "0" if "no". Number in square brackets [ ] indicates standard deviation from the mean. Significance test measure the independent t-test for unequal variance between urban and rural household source of health financing. Value displayed with significant t-value (*) indicates that the mean between urban and rural is significantly different at 1% level.
Source: calculated from Susenas 2004 data

It can be inferred from above table that there were *significant differences* between *rural and urban health financing pattern* for all source financing with exceptions for help from the other family members/friends and the other source of financing. Another clear picture is the use of insurance claim for health by urban citizen that much exceeds rural habitants. This finding obviously proved that health insurance penetration is still hovering in cities and not yet touch rural villages.

Figure 2 below exhibit number of household after grouped into ten different categories based on average monthly expenditure and origin (urban and rural). It is necessary to understand the health cost pattern not only based on spatial aspect but also based on their expenditure pattern.

Figure 2. Number of Household Based on Monthly Expenditure and Origin
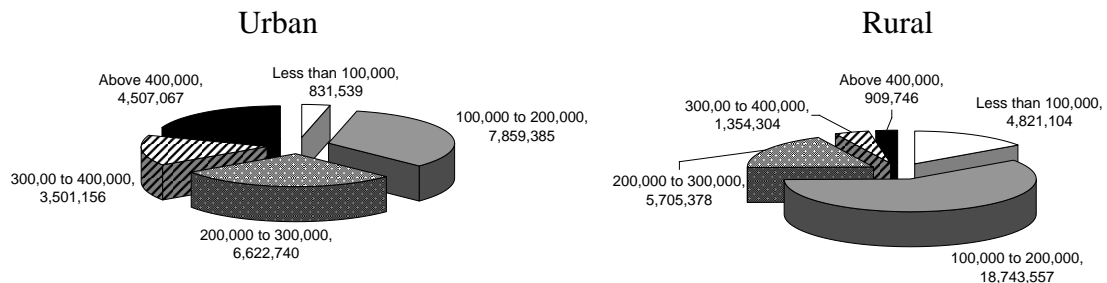
Source: calculated from Susenas 2004 data

While the share is relatively equal among monthly expenditure range for urban area, most of the respondents (>50 percent) in rural area spent between Rp100,000-Rp200,000 per month. After grouping the respondent in term of per capita expenditure, it was found that *total health cost for Indonesian household is positively correlated with per capita expenditure* as can be seen in Figure 3 below.

Figure 3. Health Expenditure by Per Capita Expenditure Group and Origin
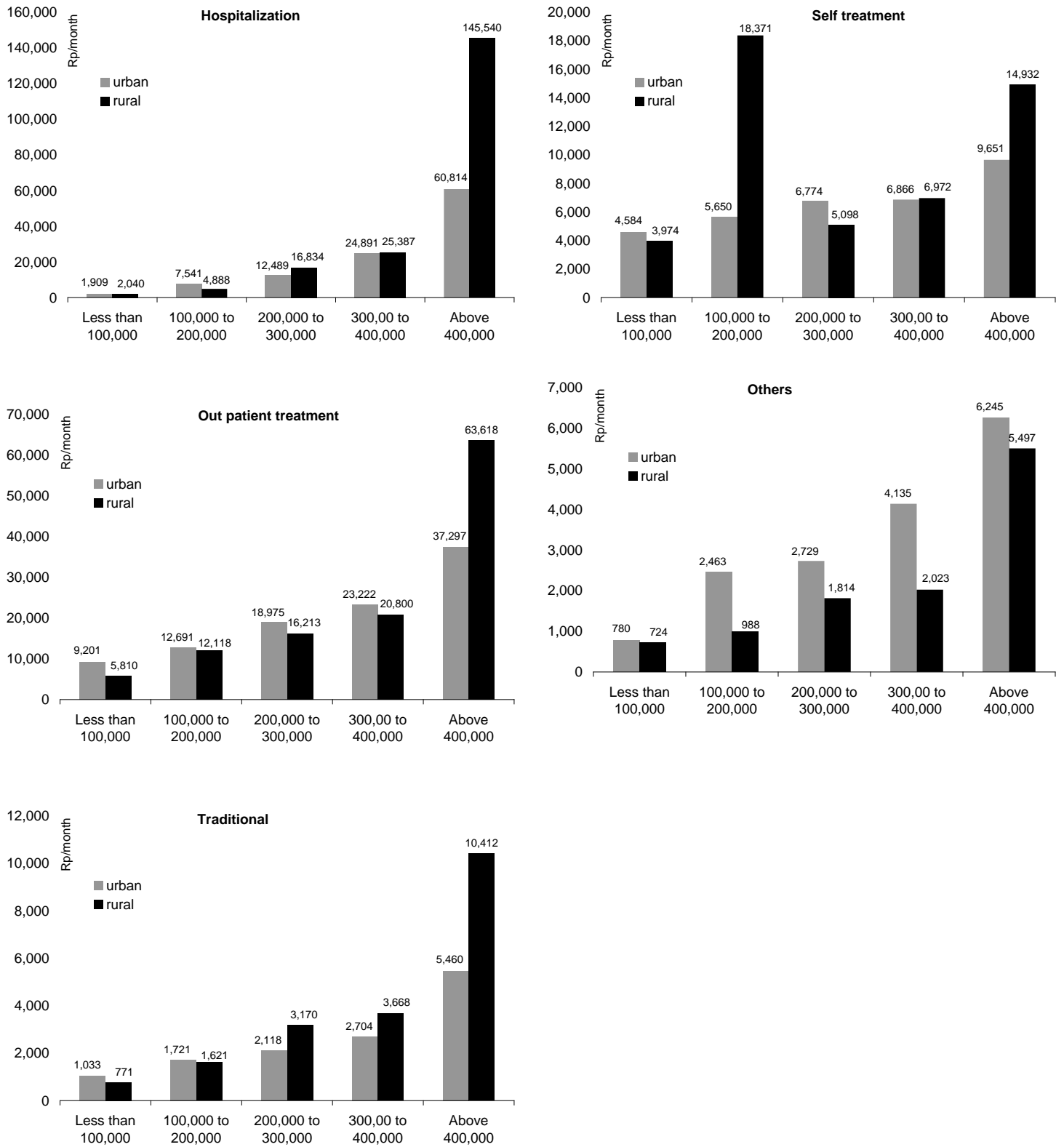
Source: calculated from Susenas 2004 data

It is intriguing that in all but "Others" health expenditure, rural villagers having expenditure above Rp400,000/month were spending more money for health. After considering standard deviation of health expenditure by origin and total expenditure group it was found that the deviations were much exceeds the mean. There was an anomaly where the standard deviation of self-treatment for rural villagers with Rp100,000 to Rp200,000/month expenditure was very much higher than other expenditure group or against their counterpart in urban area. This can be explained by the fact that there was a respondent within above category that claimed to have spent Rp650 million in a single month. Having such outlier, it would be wise for future research to perform trimming method or any other means such that this kind of anomaly is not repeated.

Table 5. Health Expenditure by Per Capita Expenditure Group and Origin (Rp/month)

	Less than 100,000		100,000 to 200,000		200,000 to 300,000		300,000 to 400,000		Above 400,000	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Hospitalization	1,909	2,040	7,541	4,888	12,489	16,834	24,891	25,387	60,814	145,540
	[29,170]	[46,276]	[113,824]	[120,864]	[167,663]	[260,917]	[350,320]	[299,479]	[757,848]	[1,297,860]
Out patient treatment	9,201	5,810	12,691	12,118	18,975	16,213	23,222	20,800	37,297	63,618
	[37,625]	[27,216]	[71,011]	[327,511]	[104,971]	[139,924]	[86,937]	[71,835]	[182,805]	[561,427]
Traditional	1,033	771	1,721	1,621	2,118	3,170	2,704	3,668	5,460	10,412
	[7,904]	[7,414]	[32,632]	[48,574]	[23,743]	[47,487]	[26,100]	[28,139]	[93,762]	[133,027]
Self treatment	4,584	3,974	5,650	18,371	6,774	5,098	6,866	6,972	9,651	14,932
	[11,614]	[13,214]	[20,690]	[3,021,499]	[20,330]	[20,170]	[23,761]	[29,138]	[38,713]	[192,448]
Others	780	724	2,463	988	2,729	1,814	4,135	2,023	6,245	5,497
	[6,286]	[7,241]	[39,291]	[10,657]	[26,899]	[17,208]	[88,269]	[15,476]	[53,142]	[81,730]
Total	17,507	13,319	30,066	37,986	43,085	43,129	61,818	58,850	119,467	239,999

Notes: number in square brackets [ ] *indicate standard deviation from the mean*
Source: calculated from Susenas 2004 data

Results from IFLS Data

Expenditure of Indonesian household based on IFLS data is much higher than those measured within Susenas. In 2000, average household expenditure counted for about Rp1.1 million/month, or 34 percent higher than in Susenas 2004 that counted for just about Rp817,000/month. Of course these numbers are not comparable due to different methodologies of surveys conducted and clearly on different time basis.

Average health expenditure within IFLS3 data showed higher figure than those of Susenas 2004. Average annual health expenditure was around 20 percent of total expenditure, or just about 1 percent lower than the Susenas 2004 (21 percent of total expenditure). Besides common health expenditure, IFLS also measure the value of health facilities/medicine obtained by household that was self-produced or received from another source. The value is about 20 percent of total health expenditure.

Table 6. Household Medical Cost During The Past One Year (Rp/year)

	Urban	Rural	Urban+Rural
Total medical cost expenditure	369,737 [3,153,708]	161,480 [586,449]	261,208 [2,225,377]
Self produced or received from another source	83,869 [993,084]	23,287 [476,227]	52,318 [769,136]

Notes: *number in square brackets* [ ] *indicates standard deviation from the mean*
Source: *calculated from IFLS3 data*

The health expenditure was higher after introducing transportation cost, which average value takes between Rp900 to Rp2,600 per visit depending on what kind of health facilities visited and respondent's origin (see Table 7 below for details). It is possible that due to limited modern health facilities such as hospital, physician, and pharmacy contributed to higher transportation cost in rural rather than in urban areas. Only in traditional birth attendant, traditional physician, *Posyandu*, and PPKBD where urban citizens must pay higher cost to visit.

Table 7. Transportation Cost to Health Facilities (Rp per visit)

	Urban	Rural	Urban+Rural	Significance test
Public Hospital (General or Specialty)	1,441 [1,782]	2,823 [7,049]	2,083 [5,024]	-9.6931 *
Private Hospital	1,417 [2,228]	2,600 [5,533]	1,834 [3,783]	-7.1612 *
Public Health Center/Auxiliary Center (*Puskemas/Puskesmas Pembantu*)	905 [983]	1,095 [1,144]	1,008 [1,077]	-5.6079 *
Private clinic	1,038 [893]	1,470 [1,918]	1,131 [1,203]	-2.8467 *
Private physician	1,361 [6,081]	1,477 [2,061]	1,411 [4,778]	-0.5983
Midwife (private practice or village midwife)	1,036 [1,244]	1,172 [1,393]	1,112 [1,331]	-2.1586 **
Nurse/paramedic	1,082 [1,618]	1,370 [1,534]	1,280 [1,566]	-2.4269 **
Traditional Birth Attendant	1,568 [2,874]	1,224 [1,875]	1,385 [2,397]	1.5787
Traditional practitioner (shamans, wisemen, Chinese herbalists, acupuncturists)	2,113 [3,627]	1,807 [3,192]	1,986 [3,450]	0.7118
Pharmacy	914 [725]	1,630 [1,977]	1,238 [1,477]	-12.4108 *
Integrated Community Health Post (*Posyandu*)	2,076 [12,935]	1,321 [2,115]	1,660 [8,794]	0.6712
Village Post for Family Planning Service (PPKBD)	1,047 [1,071]	1,011 [1,266]	1,027 [1,184]	0.2544

Notes: number in square brackets [ ] indicates standard deviation from the mean. Including only for respondent knows the location of health facilities. Significance test measure the independent t-test for unequal variance between urban and rural household transportation cost to medical facilities. Value displayed with significant t-value (* or **) indicates that the mean between urban and rural is significantly different at 1% and 5% significance level respectively.
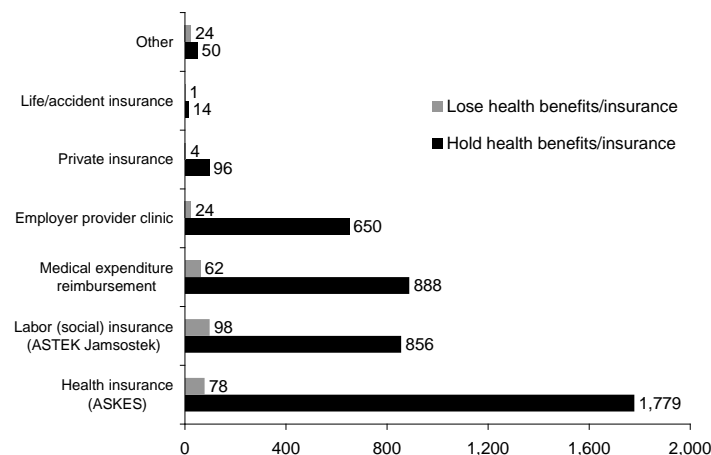*Source: calculated from IFLS3 data*

Significance test showed a mixed result with the most noticeable was for transportation cost to pharmacy and public hospital where urban and rural cost was very different (as shown by highly significant t-statistics). On the other hand, though transportation access to traditional physician, birth attendant, *Posyandu*, or PPKBD were somewhat higher in urban rather in rural, the statistical test suggest that there were *no differences in the cost procured*. This result suggests that urban citizen were having very much broader access to any kind of health facilities than rural habitants.

From 39,004 respondents, only 15,990 (41 percent) that currently hold health benefits or insurance with most of them claimed of having health insurance rather than other kind of benefits/insurance. While at the same time, there were also a

number of respondent saying that they were losing health benefits/insurance. The number, however, is negligible compared to those owning the benefits/insurance facilities.

Figure 4. Number of Respondent Having Health Benefits/Insurance Facilities

Source: calculated from IFLS3 data

In IFLS, most of the data concerning health issue were purely medical, such as blood pressure, lung capacity and medicine taken. Thus data that directly measured the cost of health is very limited. However, there is considerable space for researchers to explore more on health issue that doesn't directly correlate with health cost, for example on health-related social safety net (health card) issue or the pattern of contraception use of a community. It is possible to explore such data since IFLS doesn't just interviewing households but also taking data from community-based institutions, such as *Posyandu* (Integrated Community Health Post) or PKK (Desa/Kelurahan Women's Group).

Conclusion and Future Research

Simply using statistics, this article is an initial attempt of a continuing research to understand health pattern and behavior of Indonesian. From Susenas 2004, it was found that most households use their own source of income to finance health

expenditure, rather than by utilizing another measures such as health card or health insurance. Health card utilization is relatively low with just 7.8 million households (14.36 percent of total household) claimed to have or ever had it to finance health expenditure. In general, urban health expenditure in Indonesia was significantly different with their counterparts in rural areas, with average health cost is higher in urban rather than in rural. It was found also that health expenditure was moving positively in line with household expenditure. From IFLS3 data, the share of health expenditure to total expenditure is less than those exhibited in Susenas. However, transportation cost to medical facilities adds the health cost, especially to rural villagers since they had limited access to those facilities (especially modern health facilities).

Even though the comparison is not apple-to-apple, but these two data are the latest available resource datasets that employ deep survey on health issues in Indonesia. Thus the results should not be directly compared, rather they should be analyzed separately as both having different and unique characteristics.

Room for future research in this issue is very wide. Analyzing the usefulness of health card, measuring demand for health facilities, and introducing better health provision within welfare state framework can be the next researches. Thus the issue of health economics can be push ahead further and touch wider angle of economic analyses.

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The raw data for IFLS (IFLS1, IFLS2, IFLS2+, and IFLS3) can be freely downloaded from http://www.rand.org/labor/FLS/IFLS/