

IMPACT OF HEALTH INSURANCE ON SAVING AND CONSUMPTION EXPENSES IN INDONESIA (EVIDENCE FROM INDONESIAN FAMILY LIFE SURVEY)

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ABSTRACT

The Askeskin Health Program was implemented in 2005, to preserve access of health care services for the poor. Askeskin were allocated to poor households, entitling them subsidized care from public health care providers. The providers received budgetary support to compensate for the extra demand. This study focuses on the effect of the program on Saving and Consumption Expenses of the Poor Household in Indonesia. By reducing risk of large out-of-pocket medical expenses, Askeskin may reduce households' motivation to engage in precautionary behaviors such as saving, and smooth their consumption expenditure. We use difference in difference (DID) and fixed effect method (FEM) to examine these effects, using Indonesian Family Life Survey data. Our study find that Askeskin can reduce the uncertainty of the out-of-pocket health expenditure, reduce saving and increase household consumption expenditure. The result suggest that financial risk and level of health expenditure affect the level of saving and consumption expenditure.

Keywords: *Askeskin, Precautionary Saving Motives, Consumption Expenditure*

INTRODUCTION

Inequality in health access becomes the main issue in some countries. Therefore, many policies aimed at the poor have been applied by governments and NGOs in order to minimize the asymmetric situation. Some countries provide full health accesses for their people (e.g. England), while some other countries combine public health service and subsidized health insurance system for the poor (e.g. Malaysia and Singapore).

Subsidized health insurance is often used by governments of developing countries to provide basic health service for the poor and the rest of citizens who do not have health insurance. One of the justifications for the program implementation is that the healthcare is the most fundamental human rights for every citizen, including the poor.

In 2005, Indonesian government institutionalized Health Card system for the poor to replace the older Health Card as part of Social Security Network Program. The characteristic of the new system is the issuance of Health Card by PT Askes as the health insurance provider for workers in formal sectors where the government pays insurance premium for the card holders. The health insurance program for the poor is named as Askeskin.

The Askeskin Program aims to broaden the system of social insurance to informal sector which includes 60 million people. Participants of Askeskin program are the poor who are enlisted, have cards and the rights to obtain healthcare services. Meanwhile, the types of healthcare services included in the Askeskin program are:

basic outpatient care, 3rd class inpatient care in type A – D hospitals, obstetric care package, mobile healthcare, special healthcare services for remote areas, and immunization and medicines program. With this Askeskin program, it is expected that there will be some improvements in healthcare services access and quality for the poor.

As has been known, the possibility of economic difficulties in the future may drive a household to have more savings and to consume less than it is supposed to be. It is because the expenditure for the health cost can be greater compared to the income as the people get older. Thus, there is a connection between the amount of health cost and the uncertainty of economic condition of a household in the future. With a comprehensive health insurance, it will reduce the uncertainty of health cost that must be spent; thus, it will lower the precautionary savings and improve current consumption.

Some studies have tested the impact of the uncertainties of future income or expenditure on precautionary saving motives (Zeldes, 1989; Kimball, 1990; Deaton, 1992). Most of the empirical studies focused their attentions on income uncertainty in the future. Only a few of empirical studies that tested social health insurance on society's saving behaviours.

This study aims to evaluate the impact of Askeskin program on the savings and consumption expenditures of Indonesia's poor society; thus, the outcome of this research is the rate of savings and total consumption expenditure. Meanwhile, the main dependent

variable is the household saving which is the odd of total net income and total consumption expenditure for durable and perishable goods of a household.

is non-negative. Therefore, the optimum level of the household consumption when $t = 0$ is:

$$C_t = \frac{1}{T-t}A_t + (Y_t - M_t) - \frac{\alpha(T-t-1)\sigma^2}{4} \tag{2}$$

THEORITICAL FRAMEWORK

The idea suggesting that the implantation of social safety net can lower the saving rate and improve domestic consumption has been long known among economists (Blanchard and Giavazzi, 2005; Fitoussi and Saraceno, 2008; Baldacci et.al, 2010). The implementation of health insurance can reduce the uncertainty on health cost that must be spent and, thus, lower the demands of precautionary savings.

The health insurance implementation will reduce the uncertainty of health expenditure in the future. If a household acts wisely, then, the risk decrease will lower the saving and improve the household's consumption. To see the impact of health cost on a household's saving rate, this research utilizes stochastic life-cycle model developed by Blanchard and Fisher (1989) and Deaton (1992).

Each household is assumed to have uncertainty on health cost that must be spent. In every period of time, a household must provide health cost (*out-of-pocket health expenditure*) as much as M_t . In t period, other than having to provide health cost as much as M_t , a household must also determine the house consumption level (C_t) and consumption in future period $\{C_{t+1}, \dots, C_{T-1}\}$ to maximize the *expected utility*.

In this research, the *expected utility* of the household follows the *additive time- separable Von Neumann-Morgensten*, where the utility function is assumed to indicate the *constant absolute risk aversion (constant absolute prudence)*. The discount rate amount (ρ) and the interest rate (r) are also assumed as zero. Thus, when $t = 0$, a household will maximize:

$$E \left[\sum_{t=0}^{T-1} \left(-\frac{1}{\alpha} \right) \exp(-\alpha C_t) \mid I_0 \right] \tag{1}$$

with constraint:

$$A_{t+1} = A_t + Y_t - M_t - C_t$$

$$M_t, A_t \geq 0, \forall t$$

and

$$M_t = M_{t-1} + \varepsilon_t, \quad \varepsilon_t \sim N(0, \sigma^2)$$

A household's health expenditure is assumed following random walk model, where the *error term* is distributed normally. Meanwhile, the degree of *absolute risk aversion* and *absolute prudence* (Kimball, 1990) is a constant amount and its value equals to α . Moreover, it is also assumed for each household to have net asset as much as A_t every period, where the amount of A_t

and the optimum consumption must meet:

$$C_{t+1} = C_t + \frac{\alpha\sigma^2}{2} \varepsilon_t \tag{3}$$

Equation 2 stated: there is growing uncertainty on health expenditure in the future (σ^2) and growing *degree of absolute prudence* (α) will cause decrease in consumption and improvement in saving ($= Y_t - M_t - C_t$). Equation 3 showed the effect of health expenditure uncertainty at the slope of consumption function. The higher the risk is, the higher health expenditure is in the future (σ^2) or the higher the level of *absolute prudence* (α) is, it will cause decrease in household consumption.

The implementation of Askeskin is assumed to reduce the risk of unexpected health expenditure and, thus, it will reduce the saving rate and equalize pattern of household consumption. If a household has strong *precautionary-saving motive*, the Askeskin implementation will produce a positive welfare effect (*consumption smoothing*).

RESEARCH METHODOLOGY

1. Estimation Strategy

The Askeskin program is not designed as *randomized*; therefore, the outcome between the Askeskin recipient group (*treatment*) and non-recipient group (*control*) cannot be directly compared using *simple difference* technique. To overcome the endogeneity issue (since the program design clearly differentiate characteristics of treatment group and control group), the estimation strategy used is double-difference or difference-in-difference approach with fixed effect to control the effect of constant unobserved factor effect between time.

The variance in difference model that will be used to estimate the effect of Askeskin program is as follows:

$$y_{it} = \beta_0 + \beta_1 \text{Askeskin}_i + \beta_2 \text{year}_t + \beta_3 \text{Askeskin} * \text{year} + \delta_k X_i + u_{it}$$

In the model, the dependent variable of y is proxied with: (1) household consumption expenditure; (2) household saving which is the odd between household income ready to spend and household consumption expenditure. The Askeskin variable shows if the household has Askeskin (=1) or not (=0); meanwhile, the *year* shows the observation year (0 if 2000; 1 if 2007). Coefficient of Askeskin interaction with the *year* is none other than coefficient of *double difference* which becomes the main interest in this research. X_i is a group of control variable at

the household level which consists of: education of household head, marital status of household head and the household's total income. Some important issues related with the estimation are the issues of endogeneity which have a potential to produce bias estimator. To overcome the issue, fixed effect approach will be used by assuming that behaviour of *unobserved variables* correlated with the program variable is constant between time.

2. Data Description

This survey will use data panel from the final two waves of Indonesian Life Family Survey (IFLS), i.e. IFLS – 3 and IFLS – 4. The utilization of micro data with longitudinal format makes it possible for research which produces more consistent estimation. Moreover, the IFLS provides the results of Indonesian household survey with relatively rich amounts of questionnaire. In wave 4 (2007), IFLS provided questionnaire to find out the information of households which have Askeskin card (KSR Section, Book 2). Of 23,662 IFLS-4 households, as many as 3,953 (16.71 percent) households stated to have Askeskin for the last one year; meanwhile, 19,709 (83.29 percent) households stated to not have Askeskin. A complete description can be presented as follows:

The table above showed the statistic description of research samples which are the data panel from IFLS-3(2000) and IFLS-4 (2007). The Askeskin variable showed program variable dummy where 1 showed a household which has Askeskin and 0 showed a household which does not have Askeskin. Some explanatory variables used in this research are *educ* variables which show the level of education of the household head which is calculated based on the schooling period (formal). The survey result showed that the maximum period of the household head's schooling was 21 years which showed undergraduate education.

The *age* variable shows the age of household head, i.e. between 0 – 111 years old. The *male* variable shows the gender of the household head (1= male and 0=female). The *year* variable shows the year of the research of IFLS survey. This variable values 1 for IFLS wave

4 (in 2007) and values 0 for data from IFLS wave 3 (in 2000). Meanwhile, the *income* variable shows the total income of a household from working.

ESTIMATION AND DISCUSSION

The estimation of the effect of Askeskin program on the saving rate and consumption expenditure of the Indonesia's poor society is carried out using the models of OLS, DID and fixed effect. However, the estimation with the OLS model shows biased result. Meanwhile, estimation using DID and fixed effect methods can be seen in tables 2 and 3 as follows. Each table has two columns of estimation result, i.e. column (1) is estimation using usual double difference approach (DID); column (2) is the estimation using double difference and fixed effect combination at household level (FIXED).

1. The Impact of Askeskin on Household's Savings

From Table 2, it is seen that the impact of Askeskin program on the saving rate is negative and significant. That shows that the implementation of Askeskin program can reduce the household's saving rate. The program's coefficient in the DID and FIXED models is the DID variable which is the coefficient of double difference that becomes the main interest in this research. The DID variable is a formed variable from the interaction between Askeskin program variable and the *year*. The DID coefficient in columns 1 and 2 shows great difference of saving rates between the household which has Askeskin and the other one which does not have Askeskin.

For the DID model, the difference of the savings is -141,472.4; that means that the saving rate in a household which has Askeskin is Rp 141,472.4 lower than the household that does not have Askeskin. Meanwhile, for FIXED model, the difference of the savings is -132,004.1; that means the saving rate of a household which has Askeskin is Rp 132,004.1 lower than the household which does not have Askeskin.

Table 1. Descriptive Statistics

Variable	Description	Obs	Minimum	Maximum	Note
educ	Year of Education of HH Head	23626	0	21	Year
Age	Age of HH Head	23630	11	111	Year
Year	Year	23664	0	1	dummy,1=2007
Male	Gender of HH Head	23658	0	1	dummy,1= male
Program	Askeskin	23662	0	1	dummy,1= askeskin
Consump	Consumption Expenditure of HH	22898	15833.33	9.53e+07	rupiah

Saving	HH Saving	22898	0	1.99e+09	rupiah
Income	HH Income	23664	0	2.00e+09	Rupiah

Source: IFLS-3 dan IFLS-4

The *year* coefficient basically shows the change in the family's saving rate during two waves of research period. However, the change is not significant. Meanwhile, the *Age2* variable has positive effect on the household's saving rate, i.e. the older the household head is, the higher the precautionary saving rate is. According to the theory, the *income* variable has positive impact on the household's saving rate.

2. The Impact of Askeskin on Household's Consumption Expenditure

Table 3 shows the impact of the Askeskin program on a household's consumption expenditure is positive and significant. That indicates that the implementation of Askeskin program can improve the household's consumption expenditure. The coefficient of DID variable in columns 1 and 2 shows great difference of consumption rate in a household that has Askeskin and the one that does not have Askeskin.

For DID model, the difference of a household's consumption expenditure is 2599557,

which means that the expenditure consumption in a household that has Askeskin is Rp 2,599,557 higher than the household that does not have Askeskin. Meanwhile, for the FIXED model, the difference in the household's consumption expenditure is 2291837, which means that the consumption expenditure in a household that has Askeskin Rp 2,291,837 higher than a household that does not have Askeskin.

The *age2* variable has negative impact on a household's consumption expenditure, i.e. the older the household head is, the smaller the consumption expenditure is. The coefficient of *educ* (education) variable has positive and significant impacts on the improvement of the household's consumption expenditure. Meanwhile, the *income* variable has positive and significant impacts on the household's consumption expenditure.

Table 2. The Impact of Askeskin on Household's Saving

VARIABLE	(1) DID	(2) FIXED
Program	266804.6*** (41842.15)	199408.5*** (58533.04)
Year	482.788 (53980.97)	-51826.62 (33281.59)
Did	-141472.4* (77380.8)	-132004.1* (78815.56)
Age	-133708*** (6869.229)	-125925.1*** (5226.865)
age2	1131.395*** (63.55428)	1072.754*** (53.37741)
Male	-89725.91* (49031.46)	-120646.4*** (40170.02)
Educ	-122982.7*** (7268.682)	-98240.2*** (4200.344)
Income	.9766283*** (.0048224)	.9785052*** (.0005076)
Constant	2796187***	2442122***
Observations	22837	22837
R-squared	0.9944	0.9944
Number of hhid_num		

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3. The Impact of Askeskin on Household's Consumption Expenditure

VARIABEL	(1) DID	(2) FIXED
Program	-3031790*** (583542.9)	-2179402*** (772452.5)
Year	-1966777*** (579577.6)	-1318587*** (439212.5)
Did	2599557*** (824050.6)	2291837** (1040118)
Age	1226514*** (78537.53)	1144428*** (68978.22)
age2	-9077.402*** (806.0926)	-8488.089*** (704.4144)
Male	-1994864*** (742370.5)	-1324556** (530118.3)
Educ	913724.1*** (72265.47)	614286.5*** (55431.37)
Income	.1864339*** (.0397354)	.1692185*** (.006699)
Constant	-2.62e+07***	-2.25e+07
Observations	22837	22837
R-squared	0.0868	0.0853
Number of hhid_num		

CONCLUSION

Based on the results of the research, it can be shown that the Askeskin program is able to reduce the uncertainty of out-of-pocket health expenditure, lower the saving and improve the household's consumption expenditure. This result is supported by the estimation of usual DD approach (column 1) and double difference using fixed effect (column 2).

The fact shows that the precautionary motives are the decisive factor for determining the saving rate. This study can provide the explanation on consumption puzzles which were posed by Zeldes (1989) who stated: the existence of excessive consumption sensitivity to anticipate income fluctuation (the people save too many) and on the level of low or negative interest rate, the consumption pattern will sharply decline (the people consume too little). Thus, the financial risk and the level of health expenditure affect the saving rate and consumption expenditure, just as stated by Palumbo (1999) and Hubbard et.al., (1995).

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