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MICROECONOMICS ANALYSIS OF HEALTH CARE UTILIZATION: EVIDENCE FROM INDONESIA FAMILY LIFE SURVEY

Andika Ridha Ayu Perdana

Faculty of Economics, Universitas Islam Indonesia
Ringroad Utara Condongcatur, Depok, Sleman, Yogyakarta 55283 Indonesia.
Phone: +62 0274 881546. Corespondence email: ayuperdana@gmail.com

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Abstract: *There are still many health problems faced by most people in Indonesia such as problems of diseases, availability of medicines, health services, provision of health insurance, access to health facilities, problems with traditional healers, problems of malnutrition, and utilization of health service. Utilization can be categorized as one of health problems if the people do not utilize health service. This study aims to identify the determinants of utilization of health service in Indonesia. Data used in this study is from Indonesia Family Life Survey (IFLS), the third and fourth waves. From the results, it can be concluded that people aged between 15 – 74 years old have positive relation in probability to use health and medical services. People with higher level of education tend to use health service when get sick, but does not affect them to do self-treatment and use public or private health facilities. Having insurance is very important and affecting people to utilize health and medical service, it also affects people to choose public health service. Distance to hospital, better facilities of health services, and some types of illnesses are also significant. These results can be used as references for government to make policies in order to solve health problems in Indonesia.*

Keywords: *health services; public health facility; IFLS; linear probability model*
JEL Classification: *I11, I15*

Abstrak: *Banyak masalah kesehatan yang dihadapi oleh kebanyakan orang di Indonesia seperti masalah penyakit, ketersediaan obat-obatan, pelayanan kesehatan, penyediaan asuransi kesehatan, akses ke fasilitas kesehatan, masalah dengan dukun, masalah kekurangan gizi, dan pemanfaatan kesehatan layanan. Pemanfaatan dapat dikategorikan sebagai salah satu masalah kesehatan jika orang tidak memanfaatkan pelayanan kesehatan. Studi ini bertujuan untuk mengidentifikasi factor-faktor yang berpengaruh terhadap penggunaan fasilitas kesehatan di Indonesia. Data yang digunakan dalam studi ini adalah dari Survei Kehidupan Keluarga Indonesia (IFLS), gelombang ketiga dan keempat. Hasil penelitian yang diperoleh memberikan kesimpulan bahwa orang berusia antara 15 - 74 tahun memiliki hubungan positif dalam probabilitas untuk menggunakan kesehatan dan pelayanan medis. Orang-orang dengan tingkat pendidikan yang lebih tinggi cenderung menggunakan pelayanan kesehatan ketika sakit, tetapi tidak mempengaruhi mereka untuk melakukan pengobatan sendiri dan menggunakan fasilitas kesehatan publik atau swasta. Memiliki asuransi sangat penting dan mempengaruhi orang untuk memanfaatkan kesehatan dan pelayanan medis, juga mempengaruhi orang untuk memilih pelayanan kesehatan masyarakat. Jarak ke rumah sakit, fasilitas yang lebih baik dari pelayanan kesehatan, dan beberapa jenis penyakit juga signifikan. Hasil ini dapat digunakan sebagai referensi bagi pemerintah untuk membuat kebijakan dalam rangka memecahkan masalah kesehatan di Indonesia.*

Kata kunci:*; Layanan kesehatan;PUSKESMAS; IFLS; Linear Probability Model*
Klasifikasi JEL: *I11, I15*

INTRODUCTION

Health becomes a critical problem in some countries particularly in developing countries including Indonesia. Economic growth and wellbeing of population need a good health (Mwabu, 2008). According to Ritonga (2007), health is one of factors underlying people capability which becomes a basic dimension that must be owned by everyone. Health status of population can be assessed based on rate of life expectancy, infant mortality, and children under-five mortality. Indonesia experienced increasing in health status signed by the increasing in life expectancy rate (from 1999 to 2005, increased from 66.2 percent to 68.1 percent) and decreasing in infant (from 1990 to 1999, decreased from 71 to 46 points) and children under-five mortality rate (at the same range of years, decreased from 99 to 59.55 points)[1]. Nevertheless, there are still many problems related to health that would be obstacles for the development if not be immediately tackled.

Health issues in Indonesia are very complex, ranged from problems of diseases (chronically and acute as well as communicable and non-communicable ones), availability of medicine, health services, provision of health insurance, access to health facilities, problems with traditional treatment, until the problems of malnutrition and the kinds of. Utilization of health facility can be considered as one of the issues when people facing difficulties in accessing health facilities. In some areas in Indonesia, especially in poor areas, people still find the difficulties. Triratnawati (2006) states that most of Indonesia health care centers are underutilized for example in Purworejo, Central java. Ariani[2] also finds underutilization of health service and high infant mortality rate in some areas in eastern Indonesia. She finds people in eastern Indonesia prefer to use self-medication than go to health facility because of lack of access and limited number of health facilities available. However, this does not predominantly occur in Indonesia. Much of population in South Asia lacks of access even to the most basic health care, it can be seen from the high rate of maternal and children death each year, and it becomes a problem. (Janjua *et al*, 2006).

Amelioration of individuals' health behaviors (increase in utilize health service) can raise their health outcomes. Gakunju (2003) states that as the health facility utilization increased, the indicators of health status such as infant mortality rate and life expectancy are improved as well. Tilden *et.al.* (2006) have analyzed health status and health care utilization pattern in Indonesia between 2000 and 2004. He finds utilization and inpatient care increased, and outpatient care is greater than no treatment. He also finds better improvements in three parameters of health status (infant and children under-five mortality rate and also life expectancy) at the same time. From the analysis found by Tilden et al (2006), it can be concluded that raise in health care utilization can improve people's health status. Other study found by Strauss and Thomas (2007) who analyzes population health and economic development. They assume that there is a static health production function for an individual where health outcomes depend on individual's health inputs and behaviors. One of conclusions from the analysis is improvement in health inputs and behaviors are influential toward health outcomes and health development. Geda and Shimeles (2009) also find that access to basic health service plays a very important role in affecting health outcomes. They find improvement in health outcomes are in conformity with increase in seeking health care in Ethiopia. There are also several previous studies related to utilization of health service presented in Table 1.

From some findings above, it is very important to improve the access to health facility especially for the poor. Lower socioeconomics group usually have a higher burden of disease and need more treatment from health service (Mendoza et al, 2003). In addition, they usually reside in location where the access to health facilities is low. The problem is sometime worsened by bad health policies that were often

[1] Statistics Indonesia, Population Reports (Visited August, 20 2009)

[2] Potret Ketertinggalan Sumber Daya Manusia di Kawasan Timur Indonesia (http://bto.depnakertrans.go.id/download/Jurnal/POTRET%20KETERTINGGALAN%20SUMBER%20DAYA%20MANUSIA.doc) visited September , 19 2009.

Table 1. Previous studies related to utilization of health care

No.	Researcher	Data and Method	Conclusion
1.	**Hjortsberg** (Zambia)	Data: Zambian Living Conditions Monitoring Survey (LCMS) 1998. Sample: 9871 individuals. Method: Multinomial Logit	Types of illness, log of income, education of household head, education, being child, distance to health facility, having motorcycle, and living in rural area are statistically significant affecting people to use health service.
2.	**Janjua,** ***et al.*** (Pakistan)	Data: a population study during July – September 2001 (urban=.575, rural=575). Sample: 1150 individuals. Method: Multivariable Logistic	Residential area, educational status, ethnicity, monthly household income, and types of treatment are statistically significant with utilize private health service.
3.	**Mwabu,** ***et al.*** (Kenya)	Data: Meru District between January 1980 and April 1981. Sample: 315 Household with 1721 individuals. Method: maximum Likelihood estimation	Distance and health care fees (user fees) reduce the demand for health service but not statistically significant. Gender and types of facility are not statistically significant.
4.	**Mendoza-Sassi,** ***et al*** (Brazil)	Data: direct observation to household/individual in Brazil. Sample: 1348 individuals Method: Poisson Regression	Income and years of schooling are statistically significant increased utilization. Health insurance and having stressful life increased the probability of visiting health service. Almost all of demographic characteristics are statistically significant.
5.	**Murteira and Lourenco** (Portugal)	Data: Portuguese National Health Survey of 1998/99. Sample: 27.044 observation Method: Poisson regression	Age, income, married, and education are significant affecting the demand for health service. While living un rural area and being female are not statistically significant.
6.	**Barlin Adam (2008)** (Indonesia: Kolaka Southeast Sulawesi)	Data: interview and deeply exploration about visitor (who use health facilities). Sample: all of household in SukuBajo Method: univariat, bivariat, and multivariate analysis.	Age, gender, and income are not related with utilization of health service in SukuBajo. Access variables have negative correlation with utilization. Facility characteristics have strong correlation with utilization, and belief is not related with utilization of health service.
7.	**Wasis Budiarto** (Indonesia: Mojokerto)	Data & sample: 300 respondents (15 years old And over), From urban areas (Kec. Bangsal) and rural areas (Kec. Puri). Method: Linear regression	Distance is statistically significant affecting demand for health service. Health need and income are jointly significant. Increase in cost of PUSKESMAS in rural increased the demand, while in urban area is not.

manifested in form of mistargeted health program. Susanto *et al* (2006) find that in provision of health service provided by the state, people with higher economic status have a better access for the health service than people with lower economic status. From the results of evaluation program of basic health care for the poor community, utilization of basic health care facilities is too low, under the national digit 15%.

Other supports that the poor especially in developing countries are less to receive effective health care (O'Donnell 2007: 2820). Therefore, the problem of utilization is usually faced by poor people. According to Susanto (2006), the low of health care utilization can be affected by some factors such as (1) the descent of purchasing power parity, (2) the descent of the interest to go to the health sub center, and (3) access to the health care is difficult.

Health should be prioritized in national development in order to achieve welfare of society. Health development is a form of change in health sector where people's health conditions have increased, there is improvement in healthy lifestyle, society has a healthy environment, and people trust to medical care facility to treat them. According to Juanita (2000), health development is a process of change in the level of people's health from poor levels to the better in accordance with health standards. Despite the concept of health development is to promote national development, in reality health development is not in the mainstream of national development. This is the cause of many health problems in Indonesia. Post-decentralization in 2001, health system in Indonesia is little changed. Changes may occur due to a previous transfer of authority by the central government to be a responsibility of local government. According to Indonesian Health Profile by World Health Organization, decentralization gives impact on health system such as health financing, health information system, human resources for health, and the existence of health facilities in Indonesia. With these changes, the possibility of health problems occurred may be greater. For example, as reported by World Health Organization, decentralization is one of factors that cause mal distribution, low productivity and poor quality of health workers. In addition, the health information system will also be affected because of the partial breakdown. This far, it can be concluded that health development in Indonesia is still not good enough even though the purpose of decentralization is to improve national development.

The government has tried to improve health conditions of the society through variety of ways. One of the ways is providing health insurance especially for poor people where the government can help them overcome the problem of medical costs. However, the implementation is sometimes not necessarily according to plan. In solving various health problems in Indonesia, the government has directed health development to be better. After health sector reform in 1998, the government has formulated the vision, mission, and strategy of health development in the next ten years known as "Indonesia Sehat 2010". Ministry of health stated that the vision, mission, and strategy of Indonesian society are formed to achieve a certain health level such as living in a healthy environment, practice the behavior of clean and healthy, able to utilize health, achieving high rate of health. These four things are the main objectives on making vision, mission and development strategy, and the process of achieving these goals are still going on until now. The third objective is related to this study which looks at how people utilize health service and what factors influence people to utilize or not utilize health service.

Therefore, analyzing health service utilization in Indonesia is very interesting. The analysis will give the real situation of people's behavior when ill and give information related to factors that influence people to use health facility or not. The results of this analysis can be used as references in making policy in order to solve health problems in Indonesia.

RESEARCH METHOD

This study uses a simple model to establish relationship among interest variables (onHjortsberg, 2003: 759). It can be simplified with the following model modified from Hjortsberg (2003):

$$C = f(D,T,F,I) \quad 1)$$

Where: **C**: Individual choice when get sick (utilize, choice, factype; ***D***: vector indicates demographic characteristics; ***T***: vector indicates distance (time) to health facility from head office; ***F***: vector indicates facility characteristics; ***I***: vector indicates types of Illness

It explains that demographic characteristics, time to health facility, facility characteristics, and types of illness are factors supposedly affecting people's choice when get sick. Data used in this study are from Indonesia Family Life Survey (IFLS) or usually called SAKERTI. IFLS is a longitudinal socioeconomic and health survey based on sample representing about 83% of Indonesian population contains over 30.000 individuals (Strauss, 2004). There are four waves of IFLS data. First wave was conducted

in 1993, the second wave in 1997, the third wave in 2000, and the fourth wave in 2007. There is a follow up survey (IFLS2+) was conducted in 1998 to measure the impact of crisis happened in Indonesia. This study is using the third and fourth waves of the data. Reasons of using this data are firstly, the information related to what to be studied is available in this data. Secondly, IFLS is the most complete family data survey in Indonesia. IFLS give information about the life of the respondents, households, families, and communities where the respondents live. There are two main data in IFLS. The first is household data and the second is community facility data. We use both of those data. STATA 9.1 used as a data processing tool. It provides an appropriate longitudinal data analysis and regression. For IFLS data, employing STATA is recommended. STATA is powerful econometric and statistical software (Stock and Watson, 2003). According to Tawi (2008), STATA can analyze data survey which the sample is not usually gained by simple random sampling. This study uses Linear Probability Model (LPM) as tool of analysis. LPM is one of econometrics model for analyzing probability. This model assumes that the probability is linear to the explanatory variables and explains two dichotomous choices situation (yes or not). Fixed effect and non-fixed effect are used as regression method. There are some considerations to choose whether will use fixed effect or non-fixed effect. If there is an assumption that *ui* and *X* are uncorrelated, non-fixed effect may be appropriate, However if *ui* and *X* are correlated, fixed effect is more appropriate. This study is using stepwise on regression where firstly regress only the demographic characteristics, then regress demographic characteristics plus distance to health service, the third plus facility characteristic, and the last plus types of illness. These regression methods appropriate with the model formed below.

There are four models of analysis formed in this study. Each model will be explained as follows:

MODEL1 = Demographic Characteristics

$$Yi = \beta 1 + \beta 2adult^* + \beta 3fml + \beta 4fmlhh + \beta 5educ + \beta 6lnpce1 + \beta 7lnpce2 + \beta 8rural + \beta 9h\_vec + b10ins\_ask + Ui \quad 2)$$

MODEL2 = Demographic Characteristics + Distance to health service

$$Yi = \beta 1 + \beta 2adult^* + \beta 3fml + \beta 4fmlhh + \beta 5educ + \beta 6lnpce1 + \beta 7lnpce2 + \beta 8\ rural + \beta 9h\_vec + \beta 10ins\_ask + \beta 11d^* + Ui \quad 3)$$

MODEL3 = Demographic Characteristics + Distance to health service + Facility characteristics

$$Yi = \beta 1 + \beta 2adult^* + \beta 3fml + \beta 4fmlhh + \beta 5educ + \beta 6lnpce1 + \beta 7lnpce2 + \beta 8\ rural + \beta 9h\_vec + \beta 10ins\_ask + \beta 11d^* + \beta 12pp^* + \beta 13pusk^* + \beta 14vilmdwf + Ui \quad 4)$$

MODEL4 = Demographic Characteristics + Distance to health service + Facility characteristics + Types of illness.

$$Yi = \beta 1 + \beta 2adult^* + \beta 3fml + \beta 4fmlhh + \beta 5educ + \beta 6lnpce1 + \beta 7lnpce2 + \beta 8\ rural + \beta 9h\_vec + \beta 10ins\_ask + \beta 11d^* + \beta 12pp^* + \beta 13pusk^* + \beta 14vilmdwf + \beta 15ill^* + Ui \quad 5)$$

Where: *adult**= being adult age 15 until more than 75 (spline of adult); *fmlhh*= female as the head of household; *educ*= years of education; *lnpce*= log of per capita expenditure; *rural*= living in rural area; *h_vec*= having vehicle; *ins_ask*= having ASKES; *d**= distance to hospital, private practice, PUSKESMAS, and traditional healer; *pp**= characteristics of private practice; *pusk**= characteristics of PUSKESMAS; *ill**= types of illness.

RESULT AND DISCUSSION

Table 1 shows descriptive statistics only for the demographic characteristics. From the table, among adult aged between 15 and 100 years

Table 2. Descriptive Statistics

Variables	Mean	Std. Dev
Dependent Variables		
Seeking health service (yes=1)	0.202	0.402
Medical treatment (1) Self-medication (0)	0.484	0.500
Go to public health facility (1) private health facility (0)	0.378	0.485
Explanatory Variables		
Demographic Characteristics		
Spline: adult1 (15-24)	23.524	2.797
adult2(25-44)	8.683	8.252
adult3(45-54)	1.863	3.662
adult4(55-75)	1.413	4.316
adult5(75+)	0.140	1.226
Gender of person (female=1)	0.519	0.500
Gender of household head (female=1)	0.166	0.373
Years of education	7.858	4.507
Log of per capita expenditure for poor	11.816	0.315
Log of per capita expenditure for non-poor	0.819	0.659
Live in rural area (yes=1)	0.472	0.499
Have vehicles (yes=1)	0.139	0.346
Have ASKES (yes=1)	0.044	0.206

old, the average of age is 35.6 years old, 51.9% are female, 16.6% reported that the gender of head of household is female, years of individuals education is approximately 7.86 years or equivalent to Junior High School, 47.2% are reported living in rural area, only 13% have their own vehicles, and only 4% have health insurance (ASKES). Log of per capita expenditure for poor category is 11.82 and for non-poor category is 0.819 on average.

In the basic specification of the first model in table 2 below, some variables, being aged 15 – 24 and 45 – 74 years old, being female, years of education, log of per capita expenditure for poor and non-poor, living in rural area, owning vehicle, and having insurance (ASKES) turn out to be positive covariates with the probability of utilize health service. Only female as household head turns out to be negative covariate. Being aged 15–24 is statistically significant and increases the probability to use health service by one percentage point. Being aged 45 – 74 and increase in years of education also significantly increase the probability of using health service by less than one percentage point. Being female increases the probability to use health service by 9.7 percentage points. Log of per capita expenditure for poor increases the probability by 4.5 percentage points, while for non-poor increases the probability by 2.8 percentage points. Living in rural area, having vehicle, and having insurance will increase the probability of using health service by 2.4, 1.7, and 7.4 percentage points. Model 2, 3, and 4 have the same results with model 1 except living in rural area which is not statistically significant. F statistics show that demographic characteristics in all models are jointly significant. Distances to health service in all models are not jointly significant. Facility characteristics are jointly significant, and types of illness are also jointly significant affecting the probability of utilize health service.

Values of robust standard errors are reported in parentheses. The regression also includes years of observation. Distance to health service measured by time from head office to health services include distance to hospital, distance to public health centre, distance to private practice, and distance to traditional practice. Facility Characteristics include availability of electricity, source of water and electricity, availability of service completeness, and existence of private practices and public health services at community level. Types of illness show the morbidity condition include headache, stomach ache, runny nose, fever, and toothache.

The first model from table 4 below reports that being adult 15–24 years and 55–74 years old are statistically significant and increase the probability of using medical treatment positively by approximately one percentage point. While being aged 25–44 years old are negatively correlated, yet statistically significant. Female are positively significant and increase the probability of using medical treatment by 13.8 percentage point. Female as household head is significantly decreasing the probability of using medical treatment by 6 percentage points. Increase in per capita expenditure for non-poor is positively significant and increase the probability of using medical treatment by 3.6 percentage points. Having vehicle decreases the probability of using medical treatment by 2.2 percentage points. While having insurance (ASKES) will increase the probability by 8.7 percentage points. All of demographic characteristics variables above presented in the first model are jointly significant increase the probability of using medical service.

Model 2, 3, and 4 generally have the same pattern with the first model. However, being aged 15 – 24 and 55 – 74 are not statistically significant. Having vehicle is not statistically significant as well. In the second model, all of demographic characteristics variable are jointly significant, while all of distance variable are not jointly significant. In model 3, facility characteristics are jointly significant, demographic characteristics are jointly significant, while distance to health facility are not jointly significant. In the last model, types of illness variables added are jointly significant.

Below is the regression result of probability of using public health service with fixed effect. From the table, there are only six variables are statistically significant in the first model. Being aged 15 – 44 is significant decreasing the probability of using public health service by one percentage point. However, being aged 25 – 44 is significant increasing the probability of using public health service by less than one percentage point. Increase in log of per capita expenditure for non-poor decreases the probability of using public health service by 9.3 percentage points. Having insurance (ASKES) will increase the probability to use public health service by 2.2 percentage points. Being female, aged between 45 – 54 and more than 75, years of education, being female as household head, log of per capita expenditure for poor, living in rural area, and having vehicle are not statistically significant.

In model 2, 3, and 4 being adult (aged more than 15 years old) are not statistically significant. In these models, only two variables are statistically significant, log of per capita expenditure for non-poor and having insurance (ASKES). This log of per capita expenditure in model 2, 3, and 4 have the same negative coefficient thus will decrease the probability to use public health service by 8.9 percentage points. While having ASKES increases the probability by approximately almost 2 percentage points. F statistics show that demographic characteristics are jointly significant in all models. Distance to health facilities is not jointly significant in all models. Facility characteristics in all models are jointly significant and the types of illness also jointly significant in all models.

CONCLUSION

There are three possibilities for people to choose what they prefer to do when they are under certain conditions, which are utilize heath care, use self-medication, and do nothing. Utilization can be one of health problems if there is a condition that the sick do not utilize health service. It is gaining a big question, why do the sick not utilize health service? This question is underlying this study to analyze what factors actually affect people's choice to utilize or not utilize health service. The results pointed out that people aged between 15 – 74 years old are reported have positive relation in probability to seek health service and use medical service. Gender and level of education is also important variable in affecting people to utilize health care. Monthly of per capita expenditure for poor people is positively significant in probability to choose health service. While monthly of per capita expenditure for non-poor is important and affect people to utilize health service and use medical treatment. People who live in rural area and people who have ASKES have positive relation and significantly increase the probability. Surprisingly, it

also affects people to choose public health service. Other variables such as distance to health service, completeness of health facility, and type of diseases are possible in affecting people to utilize health care. Health indirectly reduces people's expenses for medical treatment later. Government must be able to provide appropriate health facilities in order to make people easier to get health service. More health insurance schemes are needed to enhance access to health service since ASKES is positive and significant.

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APPENDIX

Table 4. Choice of using medical or self treatment, linear probability model with fixed effect

Explanatory Variables	Model1	Model2	Model3	Model4
Demographic Characteristics (D)				
Spline of Adult: Adult1(15-24)	0.018***	0.008	0.007	0.007
	(0.002)	(0.003)	(0.003)	(0.003)
Adult2(25-44)	-0.010***	-0.005***	-0.005***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Adult3(45-54)	0.002	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.002)
Adult4(55-74)	0.007***	0.006	0.006	0.006
	(0.001)	(0.002)	(0.002)	(0.002)
Adult5(75+)	0.005	0.006	0.006	0.004
	(0.005)	(0.006)	(0.006)	(0.006)
Gender of person (female=1)	0.138***	0.108***	0.108***	0.111***
	(0.009)	(0.011)	(0.011)	(0.011)
Gender of household head (female=1)	-0.060***	-0.038**	-0.039***	-0.040***
	(0.013)	(0.015)	(0.015)	(0.015)
Years of education	0.007	0.007	0.007	0.007
	(0.001)	(0.002)	(0.002)	(0.002)
Spline: Log of per capita expenditure (1) 11. 783	0.015	0.016	0.013	0.015
	(0.028)	(0.031)	(0.031)	(0.030)
Log of per capita expenditure (2) 4.884	0.036***	0.028***	0.027***	0.028***
	(0.008)	(0.010)	(0.010)	(0.010)
Live in rural area (yes=1)	0.019	0.010	0.025	0.023
	(0.018)	(0.042)	(0.043)	(0.042)
Have vehicle (yes=1)	-0.022**	-0.002	-0.003	-0.002
	(0.011)	(0.013)	(0.013)	(0.013)
Have ASKES (yes=1)	0.087***	0.086***	0.086***	0.087***
	(0.017)	(0.022)	(0.022)	(0.022)
Plus Distance to Health Service (T)	NO	YES	YES	YES
Plus Facility Characteristics (F)	NO	NO	YES	YES
Plus Types of Illness (I)	NO	NO	NO	YES
F - Test: 1. Demographic Characteristic	87.75***	15.77***	15.47***	15.68***
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)
2. Distance to Health Service		1.52	1.40	1.22
	-	(0.19)	(0.232)	(0.302)
3. Facility Characteristic			1.94**	1.93**
	-	-	(0.019)	(0.019)
4. Types of Illness				15.08***
	-	-	-	(0.000)
R-Squared	0.149	0.146	0.148	0.158
Number of Observation	12249	8566	8566	8566

significant at 10%; ** significant at 5%; *** significant at 1%. Values of robust standard errors are reported in parentheses. The regression also includes years of observation. Distance to health service measured by time from head office to health services include distance to hospital, distance to public health centre, distance to private practice, and distance to traditional practice. Facility Characteristics include availability of electricity, source of water and electricity, availability of service completeness, and existence of private practices and public health services at community level. Types of illness show the morbidity condition include headache, stomach ache, runny nose, fever, and toothache.

Table 5. Choice of using public or private facility, linear probability model with fixed effect

Explanatory Variables	Model1	Model2	Model3	Model4
Demographic Characteristics (D)				
Spline of Adult: Adult1(15-24)	-0.010***	-0.006	-0.006	-0.006
	(0.003)	(0.004)	(0.004)	(0.004)
Adult2(25-44)	0.002**	0.001	0.001	0.001
	(0.001)	(0.002)	(0.002)	(0.002)
Adult3(45-54)	-0.002	-0.002	-0.001	-0.001
	(0.003)	(0.003)	(0.003)	(0.003)
Adult4(55-74)	-0.004*	-0.004	-0.004	-0.004
	(0.002)	(0.002)	(0.002)	(0.002)
Adult5(75+)	-0.002	0.002	0.002	0.003
	(0.005)	(0.006)	(0.006)	(0.006)
Gender of person (female=1)	0.009	0.005	0.005	0.006
	(0.012)	(0.015)	(0.015)	(0.015)
Gender of household head (female=1)	-0.023	-0.010	-0.012	-0.012
	(0.016)	(0.020)	(0.020)	(0.020)
Years of education	-0.011	-0.010	-0.010	-0.010
	(0.002)	(0.002)	(0.002)	(0.002)
Spline: Log of per capita expenditure (1) 11. 783	-0.033	-0.022	-0.021	-0.022
	(0.040)	(0.046)	(0.045)	(0.046)
Log of per capita expenditure (2) 4.884	-0.093***	-0.089***	-0.090***	-0.090***
	(0.010)	(0.013)	(0.013)	(0.013)
Live in rural area (yes=1)	-0.022	-0.008	-0.019	-0.016
	(0.022)	(0.052)	(0.053)	(0.053)
Have vehicle (yes=1)	0.001	0.004	0.001	0.001
	(0.015)	(0.017)	(0.018)	(0.018)
Have ASKES (yes=1)	0.190***	0.192***	0.193***	0.192***
	(0.020)	(0.025)	(0.025)	(0.025)
Plus Distance to Health Service (T)	NO	YES	YES	YES
Plus Facility Characteristics (F)	NO	NO	YES	YES
Plus Types of Illness (I)	NO	NO	NO	YES
F - Test: 1. Demographic Characteristic	20.58***	10.77***	10.75***	10.66***
(p-value)	(0.000)	(0.000)	(0.000)	0.000
2. Distance to Health Service		0.69	0.88	0.90
	-	(0.598)	(0.474)	(0.464)
3. Facility Characteristic			1.98**	1.98**
	-	-	(0.016)	(0.016)
4. Types of Illness				6.40***
	-	-	-	(0.000)
R-Squared	0.111	0.190	0.195	0.201
Number of Observation	7485	4766	4766	4766

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Values of robust standard errors are reported in parentheses. The regression also includes years of observation. Distance to health service measured by time from head office to health services include distance to hospital, distance to public health centre, distance to private practice, and distance to traditional practice. Facility Characteristics include availability of electricity, source of water and electricity, availability of service completeness, and existence of private practices and public health services at community level. Types of illness show the morbidity condition include headache, stomach ache, runny nose, fever, and toothache