The Effects of Health Insurance on Outpatient Utilization and Healthcareexpenditure in Ghana

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Abstract

The purpose of this study was to analyse the effects of the National Health Insurance Scheme (NHIS) on the probability of utilizing outpatient care and its related out-of-pocket expenditure.A logit regression model was used to analyse the probability of utilizing outpatient care whiles a linear regression model was used to analyse the impact of NHIS memberships on out-of-pocket healthcare expenditure. Data for the study was obtained through a household survey. In all, 384 individuals were randomly selected and interviewed. The study reveals that insured respondents were more likely to utilize outpatient care than were their uninsured counterparts.Additionally, the results suggest that membership of NHIS has a strong protective effect on out-of-pocket expenditures for outpatient care. We conclude that NHIS is an effective tool for increasing utilization of modern healthcare services particularly outpatient care and that membership can protect households from the potentially catastrophic healthcare expenditures.

Keywords: National Health Insurance Scheme, Outpatient Utilization,Out-of-Pocket Expenditure

1. Introduction

Health care financing has gained prominence on the global health policy agenda. Low-and middle-income countries face the problem of providing for the health care needs of their population. Shrinking budgetary support for health care services, inefficiency in public health provision, an unacceptable low quality of public health services, and the resultant imposition of user charges are reflective of the state's inability to meet health care needs of the poor (World Bank, 1993).

Meanwhile, current focus on poverty reduction as reflected in the Millennium Development Goals (MDGs) has generated a growing emphasis on the need for health care financing mechanisms that protect the citizens of these countries from the potentially impoverishing effects of health care costs. While the objective of poverty reduction remains a central concern, there has been a shift of focus away from poverty reduction to social risk management. Such is the case because of the growing appreciation of the role that risk plays in the lives of the poor (Holzmann and Jorgensen, 2000). Of all the risks facing poor households, health risks probably pose the greatest threat to their lives and livelihoods. A health shock leads to direct expenditures for medicine, transport and treatment but also to indirect costs related to a reduction in labour supply and productivity (Asfaw, 2003). Given the strong link between health and income at low income levels, a health shock usually affects the poor the most (Commission on Macroeconomics andHealth, 2001; Morrisson, 2002).

The revival of interest in health care financing is due to the realization that new mechanisms are required. In the 1980s and 1990s, cost-recovery or cost-sharing systems that called for contributions from users of public sector facilities, primarily through direct out-of-pocket payments or user fees, were much in the public eye (Akin et al., 1987). However, in recent years, the consensus has grown that prepayment health care financing, whereby people contribute regularly to the cost of health care through tax payment and/or health insurance contributions, provides greater financial protection to households than out-of-pocket health care financing (Perker and Carrin, 2004; World Health Organization, 2000). As a result, health insurance schemes are seen as the most appropriate health care financing mechanism for low-and middle-income countries.

In Ghana, financing health care has gone through different transformations. Immediately after independence health care provision was "free" in public health facilities. This meant that there was no direct out-of-pocket payment at the point of demanding health care at public health facilities. Financing of health in the public sector was mainly through tax revenue. This situation continued until 1985 when the government introduced the user fees. While there were initially relatively nominal fees for various health services, cost recovery fees were charged for drugs (leading to the user fee policy being termed the "Cash and Carry" system). Although the poor are meant to be exempted from fees, very few received exemptions in practice.

In the 1980s, a number of community-based pre-payment schemes otherwise known as Mutual Health Organizations (MHOs) were developed in response to the access obstacles created by user fees. By 2003, there were 168 of these schemes covering about 1% of the population (Atim et al., 2003). Examples of these schemes were Dangme West Health Insurance Scheme (DangmeHewaniNamiKpee), Nkoranza Community Financing Health Insurance Scheme, Salamba Women's Health Insurance Scheme, Jaman South Health Insurance Scheme, Agogo Community Health Insurance Scheme, Asutifi Health Insurance Scheme, Gomoaman Health Insurance Scheme and the like (Aikins, 2003). While these schemes have provided financial protection against health care costs, particularly for inpatient care, for their members, the poorest households are unable to afford the contributions and so do not benefit.

In recognition of the potential of MHOs to eliminate user fees and increase utilization of health care, the government of Ghana passed the National Health Insurance Act 650 (HI Act) in August 2003. The HI Act mandates the creation of district-level MHOs in accordance with national guidelines and the establishment of a National Health Insurance Council (NHIC). The law represents a bold and innovative move by government to provide health insurance coverage to all of its citizens. This is meant to provide financial protection for the entire population and move away from the "Cash and Carry" system which was creating considerable equity concerns, largely due to the non-functional exemption mechanisms. As of May 2008, more than eight million people had enrolled in the district-level MHO, which covers more than 42% of the total population (Graphic Communication Group Ltd, 2008). The government of Ghana regards the NHIS as one of the instruments to reach the MDGs.
Proponents of health insurance schemes argue that they have the potential to increase utilization of health care (Dror and Jacquier, 1999). The results of the few available studies so far are however less optimistic (Bennett et al., 1998; Criel 1998; Atim, 1998). It is argued that often the risk pool is too small, adverse selection problems arise, the schemes are heavily depending on subsidies, financial and managerial difficulties arise and the overall sustainability seems to be not insured (Jütting, 2001).

Whereas these studies are important contributions to our knowledge about the strengths and weaknesses of the schemes in general, the context in which these schemes have been introduced and the objectives of the schemes themselves have not been given enough attention. Also, the potential social benefit of the schemes, that is their impact on utilization of health care, labour productivity and the risk management capacity of the household has been largely ignored. It is within this context that this study would analyse whether health insurance improves utilization of outpatient care in Ghana.

The entire study would handle the following questions: What are the effects of health insurance scheme on the utilization of outpatient care comparing members and non-members? Does enrolment in a health insurance scheme provide protection against the financial risks associated with illness? What are the levels of illness-related out-of-pocket expenditures among members and non-members of health insurance scheme? Does enrolment in a health insurance scheme have any effect on out-of-pocket expenditures? The general objective of this study is to analyse the effects of NHIS on outpatient utilization of health care services and expenditure. The specific objectives of this study are to: Assess the impact of NHIS membership on outpatient utilization. Also,analyse the impact of NHIS membership on out-of-pocket health care expenditures.

2. Methodology

A household survey was carried out within the Mfantseman Municipality to solicit cross-sectional information on households. The total sample size was 384. The sample size was equally divided into insured and uninsured households for a comparative analysis, as the primary focus of this study was to analyse the effects of NHIS membership on utilization of health services and expenditure. The method includes selecting a sample of households who are members of NHIS as casesand households who are not members of the scheme as the comparison group (control group).

The study area was divided into clusters. These clusters were constructed based on major economic activities in the study area namely fishing, farming, commerce, and small scale processing activities. A multistage sampling procedure was used to select respondents. First, a systematic sampling method was used to select households. Finally, a simple random sampling technique was used to select one household member. The main instrument used to collect the data from the respondents was an interview.

2.1 Econometric Models

To empirically assess the effects of health insurance organization on outpatient utilization and expenditure we used the two-part model developed as part of the Rand Health Insurance Experiment in the United States (Manning et al., 1987). The first part of the model analyses the determinants of using modern healthcare services. Modern healthcare facilities as used in this study include health centres/health post, district hospitals, and private hospitals. This excludes sick individuals who sought care at traditional healers and others (for example, drug vendors, pharmacies). The second part of the model analyses the determinants of health care expenditures for those who reported any healthcare use.

Part one of the model is a binary logit model. The model estimates the probability of an individual visiting a modern healthcare provider. Formally, the model can be written as follows:

$$\text{Prob (visit} > 0) = X_i'\beta + \mu_i \quad (1)$$

The dependent variable takes the value of 1 if an individual had visited a modern healthcare provider in the last 4 weeks and 0 otherwise. X is a set of covariates, including membership of health insurance.
Part two is a linear model that estimates the incurred level of out-of-pocket expenditures, conditioning on positive use of health care services. Formally, part two of the model can be written as follows:

$$(\text{out} - \text{of} - \text{pocket expenditure} / \text{visit} > 0) = X_i'\Phi + \varepsilon_i \quad (2)$$

The dependent variable is total out-of-pocket expenditure at the point of consuming healthcare services. This includes cost for transport, medicaments (drugs), consultation and any other expenditure related to the use of modern healthcare services and also payment made to private providers not covered by health insurance. Where X represents a set of individual and household characteristics hypothesized to affect individual patterns of utilization and expenditures. Whiles β and Φ represent vectors of coefficient estimates of the respective models and u and e are error terms.

2.2 Econometric Considerations

When modelling the effect of health insurance on healthcare use and expenditure one encounters the problems of "endogeneity" and/or "self-selection". This problem had received a lot of attention in different areas of development economics: publications focus on measuring the impact of micro-finance institutions (Coleman, 1999; Nada, 1999), estimating the returns of education (Bedi and Gaston, 1999) as well as analysing the impact of health insurance on various outcomes such as health demand and financial protection (Waters, 1999; Yip and Berman, 2001). In each of these cases the evaluation of a policy intervention or institutional innovation poses the problem that it is very difficult to assign individuals randomly to non-programme control groups and others to programme treatment groups. It is within this context that the identification of an adequate control group is the first and even most important step when trying to control for self-selection.

With respect to the impact of health insurance on the healthcare use, Waters (1999) names the potential endogeneity of the choice of insurance for healthcare use as the main problem, leading to potential selection bias. Individuals who self-select into the insurance programme have unobservable characteristics—related to preference or health status (adverse selection)—that might make them more likely than other to join the programme and also might influence their decision to use healthcare services. An observed association between health insurance affiliation and healthcare use and expenditure may therefore be due not to insurance but to the underlying unobservable characteristics.

To control for this effect the Durbin-Wu-Hausman (DWH) class of test (Davidson and MacKinnon, 2004) was used. Here, the insurance variable would be endogenous if covariance of the insurance variable and the error term differs from zero. This would render the coefficient biased and inconsistent. The DWH test is performed as follows: first, the insurance variable is regressed on all other exogenous variables, including selected instrumental variables (in this case, dummies for employment status and formal sector workers).

We then obtain the reduced form residual terms, say, $\hat{e}$. We include ŷ in the original models i.e. (1) and (2) and formally test if the coefficient for $\hat{e}$. is statistically significant from zero. Failure to reject the null hypothesis would suggest that insurance variable is exogenous.

One way of handling endogeneity would be to use instrumental variable estimation techniques. While obtaining valid instruments for the endogenous variables is no easy task, and using poor instruments may be inferior to using the possibly endogenous variable and accounting for bias, some instruments that have been suggested in the literature on the demand for health and insurance include the relationship of the individual to the head of household and mean rate of affiliation of the insurance type in the community (Waters, 1999).

To control for self-selection into the programme, proxies for the health status was included. Finally, the models were tested for stability and robustness through adding and subtracting key variables and by applying the likelihood-ratio test for the logit models and F-test for the linear model.

2.3 Measurement of Variables and Expected Signs

Head of Household: This is defined as any person in the household recognized as such by other household members. She/he is the person responsible for the upkeep and maintenance of the household (Ghana Statistical Service, 2000). Household headship was defined as a dummy; therefore we assigned the value 1 for headship and 0 otherwise.

Sex: Male or female. A dummy variable was used to capture sex. If the head of household/individual is male we assigned the value 1 and 0 otherwise.

Age: In this study, age was taken in years.

Household Size (HH_SIZE): Household size was defined as the number of persons residing in the same compound answerable to the same head and pooling resources of common provision like food and shelter.

Education: Education was measured by last educational level attained; no education, primary, junior secondary/middle, and secondary/ vocational/technical, post-secondary, tertiary. This variable was measured on a six-point scale from '0' for no education at all to '5' as the highest level of education.

Employment: The employment variable used in this study is measured as a dummy variable. A 1 represents individuals/ household heads who are employed, while a 0 represents unemployed.

Self-Assessed Health Status (SAHS): SAHS was used as a proxy for health status. Here the individuals self-report about their health status. The question eliciting information on SAHS is formulated as follows: 'In general, would you say that your health is very good, good, or poor?' Only one category was chosen. These responses were assigned numerical values according to the following scale: very good = 3, good = 2 and poor = 1.

Type of Illness: The type of illness was captured by dummies namely malaria, aches and pains, respiratory, diarrhoea, injury/accident and others. Here, others became the reference category.

Severity of Illness (SOI): Severity of illness was measured on a scale from 1 to 3; 1= not serious, 2= serious and 3= very serious.

Income: One of the most important variables to be looked at in our study is income. But, estimating income of households in developing countries is very difficult as most people are reluctant to disclose their income. As a result, income is generally measured by expenditure (Jütting, 2001). To measure expenditure of households we adopt the approach used by Ghana Statistical Service. They group household expenditure into different components namely food and beverages, alcohol and tobacco, clothing and footwear, housing and utilities, household goods, operations and services, medical care and health expenses, transport and communication, recreation and education, and miscellaneous goods and services (Ghana Statistical Service, 1992). In this study, data were collected on these variables and aggregated to give household expenditure.

In order to test the hypothesis that members of a health insurance organization have better access to modern healthcare facilities than non-members, our variable of interest would be membership. We hypothesized that the probability of members to frequent a modern healthcare provider is higher, while at the same time they pay less for their treatment in comparison to non-members after controlling for individual and household characteristics.

Hence, we expect that membership would have a positive coefficient for the demand for outpatient care and a negative coefficient for out-of-pocket healthcare expenditure. Health status which was measured by self-assessed health is expected to have a negative coefficient on both outpatient utilization and out-of-pocket expenditures. This so because the more individuals perceive their health status as very good the less likely they would visit a modern health provider and the less out-of-pocket expenditure they would incur.

The more individuals perceive their illness as severe the more likely they would visit a modern health provider and the more out-of-pocket expenditure they would incur. We expect severity of illness variable to have a positive coefficient on both outpatient utilization and out-of-pocket expenditures.

The sorts of illness measured by five dummies (Mal_dummy and Pain_dummyetc) are expected to have positive coefficients on both outpatient utilization and out-of-pocket expenditures.

There are five demographic variables—sex, employment status, age, education, and household size. Females are found to consume somewhat more health care than males do primarily because of childbearing (Miller, 1994). Additionally, since females are more careful about the health condition of the members in their family and possibly more likely to take them for medical care than males, the female household heads would incur more household out-of-pocket medical expenditures than the male. We expect that the sex variable (Male) should have a negative coefficient in both models.

The opportunity cost of illness is higher for the employed, hence they more likely to seek care when ill.Therefore, we expect employed dummy variable to have a positive coefficient with respect to probability of utilizing modern health care. Since cost is involved in seeking health care the employed are in a better position to afford it. Therefore, we expect that being employed would have a positive coefficient on out-of-pocket.

Because health often deteriorates as a result of aging, we could assume that the older an individual, the more health care he/she would seek. We expect the age variable to have a positive impact on outpatient utilization and out-of-pocket medical expenditures.

Most often the higher an individual's education, the more socially advantaged he/she will probably be and the more access he/she will have to medical care. In turn, the more medical care one seeks, the more his or her out-of-pocket medical expenditures. We expect education variable to have a positive impact on outpatient utilization and out-of-pocket expenditure.

Household size is another important factor in the demand for medical care and the amount of out-of-pocket medical expenditures. An increase in household size should increase the likelihood of healthcare use and result in more out-of-pocket expenditures. The household size is expected to have a positive coefficient on outpatient utilization and out-of-pocket expenditure.

3. Results and Discussion

3.1 Tests for Normality andEndogeneity

Test for normality was conducted for two main variables namely income and out-of-pocket payments which according to the literature are likely to be non-normality. It turned out these variables had a normal distribution. Furthermore, our models which estimated the determinants of outpatient utilization and total out-of-packet expenditure have been subjected to a number of specification and diagnostic tests. In particular, the possible endogeneity of health insurance in models (1) and (2) has been tested by using the Durbin-Wu-Hausman (DWH) test. The insurance variable (*mnhis*) would be endogenous in model (1) if Cov(*mnhis,*ε) differs from 0, where *mnhis*$\in X$ in (1) and (2). This would render the coefficient of *mnhis*biased and inconsistent.

The test was performed as follows. First, we regressed*mnhis* on all other exogenous variables, including the selected Instrumental Variable (in this case, government sector employee). We obtain the reduced form residual terms that is *resmnhis*. We Included *resmnhis* in model (1) – the model that estimates the probability of utilizing outpatient care − and formally tested if the coefficient for *resmnhis* was statistically significant from zero (H_0: β*resmnhis* = 0). Failure to reject the null hypothesis would suggest that *mnhis*is exogenous in (1). The test indicated that health insurance is not endogenous in model (1) and (2) (results not shown).

3.2 Estimating the Effects of Health Insurance

Our primary variable of interest is membership in NHIS. We hypothesized that after controlling for individual, household and community characteristics, members of a health insurance scheme have better access and lower financial burden of health care than non-members. This means that NHIS membership has a positive coefficient for outpatient care and a negative coefficient for the effect on out-of-pocket expenditure. Besides membership, the other variable of key interest is income, as we want to determine the extent to which demand for outpatient utilization and out of pocket expenditure is due to income level and paying ability. Former studies have shown that the demand for health care is influenced by the ability to pay (e.g., Gertler and Van der Gaag, 1990).

As control variables, we included individual characteristics such as age, sex, education, household size, severity of illness, type of illness and self-assessed health status. Age and sex capture the differences in the need for health care and the latter serves as a proxy for an individual's health status. Household characteristics are included and aim to control for health preferences due to factors such as income. Table 3.1 shows the descriptive statistics of the variables used in our estimations. During the recall period of four weeks prior to the survey, 130 representing 34% of the randomly interviewed individuals reported having had at least one spell of illness. Again, of this number 76 utilised modern health care facility hence incurring out-of-pocket expenditure.

3.3 Determinants of Outpatient Utilization: Empirical Results

The logit regression yielded significant results. Table 3.2 shows the logit results after estimation.

On the whole, the model was highly significant as indicated by the p-value associated with the chi-square (p-value= 0.0000). Also, the explanatory power is quite good. According to McFadden (1974), Pseudo R^2 value between 0.2 and 0.4 represents a good fit of a model. It must be noted that the Pseudo R^2 as reported by STATA is McFadden Pseudo R^2. Therefore, a Pseudo R^2 value of 0.2457shows that our model is of good fit.

A critical look at the results above reveals that membership is statistically significant in determining utilization of outpatient care. The hypothesis that "Membership of NHIS" does not influence outpatient utilization is rejected. At 5 percent level of significance, it is accepted that the decision to visit outpatient care is highly influenced by being a member of NHIS. With a z-value of 2.30 we accept that membership affects utilization of outpatient care. Added to this, membership has the expected positive sign. This means that members of NHIS are more likely to utilize outpatient care than non-members. This result reinforces the finding that insured members have greater utilization of health services (such as in Chenq and Chianq 1997; Waters (1999); Jütting (2002) and Jowett et al., 2003).

With respect to other explanatory variables, we found that income had the expected sign. At 5% level of significance, income had a strong positive influence on utilization of outpatient care.This is in line with common economic understanding that with rising income, the demand for health care increases due to higher opportunity costs. Also, it shows that despite membership in a scheme, the level of income still matters to a greater extent for the demand for health care.

Severity of illness has positive effect on utilization and this was achieved at a marginal significance level of 10%. This means that the more individuals perceive their illness as severe the more likely they would visit a modern healthcare provider.

One of the notable findings of this study was the inclusion of dummies for the type of illness which the individual suffered. As it turns out diarrhoea and injury dummies predict success perfectly. This means that in this study all individuals who reported as suffering from diarrhoea and injury utilized health care. Also, individual who suffered aches and pains decreased their utilization of outpatient care relative to other diseases and this was at 5% level of significance. Possible reasons for this result are that individuals who suffered from aches and pains may not perceive their illness as severe or preferred using informal care. However, malaria sufferers were less likely to utilize outpatient care, but this was not statistically significant. Individuals who had respiratory diseases were more likely to visit outpatient department, however, this was not statistically significant.

3.4 Determinants of Total Out-of-Pocket Expenditure: Empirical Results

Table 3.3 shows a linear regression result for out-of pocket payment. The model was highly significant as indicated by the p-value associated with the F (p-value=0.0002).

Also, the explanatory power is quite good as indicated by the R-squared value of 0. For instance, the R-squared value of 0.4588 means that our model explain almost 46% of total variation in out-of pocket payment. The result shows that at 5% significance level, it is accepted that membership influences out-of-pocket payments. With t-value of -2.47 we accept that membership of NHIS affects out-of-pocket payments. It is interesting to note that membership has the expected negative coefficient with out-of-pocket payment. This means that members of NHIS pay less when using outpatient care.This is an impressive finding and is an indication that the health insurance scheme seems to achieve its objective of providing protection against the financial risks associated with illness.This finding is consistent with results reported byChenq and Chianq (1997), Tu-Bin et al (2005) and Ekman (2007).

These results confirm our hypothesis that members of NHIS are more likely to utilize outpatient care and at the same time pay less than non-members. It must be noted that these results are consistent with evidence emerging from the literature, includingJütting (2002), Sulzbachet al. (2005), Diop et al. (2006) and Ekman (2007). A major objective for the introduction of the NHIS in Ghana was to ensure equitable and universal access to health care through removing financial barriers imposed by user fees. The regression results on the probability of seeking modern health care when ill found that income was a significant factor in the outcome of interest, supporting the notion that those with more financial resources have better access to and increased ability to pay for healthcare services.

Besides, there was a significant difference in out-of-pocket payments between insured and uninsured respondents. Insured respondents paid on average GH¢3.52 compared to GH¢16.03 for uninsured respondents. Hence, uninsured patients paid nearly 5 times the amount that the insured patients paid for outpatient care. Membership of NHIS has been shown to be particularly effective in protecting members from health care expenditures. Therefore, if families could be convinced to enrol on the NHIS, the cost that would be saved in terms of healthcare expenditure is likely to be significant.

4. Conclusions

The results of this study allowed us to draw the following conclusions: firstly, health insurance has helped to eliminate financial barriers to utilization of healthcare services for the insured members whereas the uninsured members continue to report significantly worse health care utilization. In addition to improved utilization, faster utilization of care for the insured patients has contributed to a shift in demand for care from the traditional to the modern health care services and has improved the efficient use of limited medical resources such as drugs and staff in the various health facilities.

Additionally, the results suggest that membership of NHIS has a strong protective effect on the level of out-of-pocket expenditures for outpatient care. This means that there is a significant difference between levels of outpatient out-of-pocket expenditures for members and non-members.

Furthermore, we find evidence that NHIS is an effective tool for increasing utilization of modern healthcare services particularly outpatient care and that NHIS membership can protect households from the potentially catastrophic healthcare expenditures. Although, data collected for this study was quite extensive, it is too early to conclude that better utilization of care due to NHIS membership has caused members' health to improve. However, findings from different sources suggest that conclusion (Liu et al., 2002).

A number of policy suggestions can be extrapolated from the results of this study. First, an important policy implication of this study is that it is critical to move away from resource mobilization instruments that are based on point-of-service payments (i.e. "Cash and Carry"). Public education should be embarked upon to encourage families to enrol, as the scheme has immediate direct and indirect impact on poverty. The direct impact would be by preventing impoverishment due to catastrophic health expenditures. The indirect impact would be by ensuring access to healthcare services and thereby improving health, and ultimately allowing the individual to take advantage of both economic and social opportunities.

Participation in health insurance schemes is not cost-free and requires a minimum amount of income which the most disadvantaged often do not have at their disposal. Therefore, policy makers should be aware that it may be very difficult, if not impossible, to reach the poorest part of the population when promoting enrolment. In order to reach the poorest members of the society, the cost of participation would have to be reduced or the government would have to subsidize their premiums.

This targeted demand-side subsidy would contribute to welfare gains if it benefits the very poor in society.
Even though the Act that established the NHIS in Ghana made provision for the indigents or the very poor to be exempted from paying premium, it has become increasingly difficult if not impossible to identify them. Chiefs, opinion leaders, assemblymen or assemblywomen and other concern citizens in the communities should help in identifying the very poor so that they could be exempted from paying premium.

5. References

Aikins, M. (2003).*Emerging Community Health Insurance Scheme/Mutual Health Organizations in Ghana—Achievement & Challenges.* Accra: Sakva Company limited.

Akin, J., Birdsall, N. and de Ferranti, D. (1987).Financing Health Services in Developing Countries: An Agenda for Reform. A World Bank Policy Study, Washington, D.C.: The World Bank.

Asfaw, A. (2003). *Cost of Illness, Demand for Medical Care, and the Prospect of Community Health Insurance Schemes in the Rural Areas of Ethiopia.* Frankfurt: Peter Lang Eds.

Atim, C., Grey, S., and Apoya, P., (2003). *A Survey of Mutual Health Organizations in Ghana*. Bethesda, MD: Partners for Health Reform*plus*, Abt Associates Inc.

Bedi, A., and Gaston, N. (1999).Using Variation in Schooling Availability to Estimate Educational Returns for Honduras.*Economics of Education Review*, 18, *107*–116.

Bennett, S., Creese, A., and Monash, R. (1998).Health Insurance Schemes for People outside Formal Sector Employment. ARA Paper No. 16, WHO, Geneva.

Chenq, S. H., and Chianq, T.L. (1997).The Effect of Universal Health Insurance on Health Care Utilization in Taiwan-Results from a Natural Experiment.*Journal of the American Medical Association,* 278(2):89-93.

Coleman, B. (1999). The Impact of Group Lending in Northeast Thailand. *Journal of Development Economics*, 60, 105–141.

Commission on Macroeconomics andHealth (2001). Macroeconomics and Health: Investing in Health for Economic Development. *Report of the Commission on Macroeconomics and Health*, Geneva: World Health Organization.

Criel, B. (1998). *District-Based Health Insurance in Sub-Saharan Africa. Part II: case-studies*. Antwerp: Studies in Health Services Organization and Policy.

Davidson, R., and MacKinnon, J.G. (2004).*Econometric Theory and Method.*New York:Oxford University Press.

Diop, F. P., Sulzbach, S and Chankova, S. (2006). *The Impact of Mutual Health Organizations on Social Inclusion, Access to Health Care, and Household Income Protection: Evidence from Ghana, Senegal, and Mali*. Bethesda, MD: The Partners for Health Reform*plus*Project, Abt Associates Inc.

Dror, D., and Jacquier, C. (1999). Micro-Insurance: Extending Health Insurance to the Excluded. *International Social Security Review*, 52 (1), 71–98.

Ekman, B. (2007). The Impact of Health Insurance on Outpatient Utilization and Expenditure: Evidence from one Middle-Income Country Using national Household Survey Data. *Health Research Policy and System*, 5:6.Retrieved January 25, 2008 from http://www.health-policy-systems.com/content/5/1/6

Gertler, P. and van der Gaag, J. (1990) *The Willingness to Pay for Medical Care.*The World Bank, Baltimore: Johns Hopkins University Press.

Ghana Statistical Service (1992).*Ghana Living Standard Survey, GLSS2.*Accra: Ghana Statistical Service.

Ghana Statistical Service.(2000). 2000 *Population and Housing Census*. Accra: Ghana Statistical Service.

Graphic Communication Group Ltd. (2008, May 7). NHIS Coverage Rate Exceeded Targets—CEO. *Daily Graphic*, p.15.

Holzmann, R., and Jorgensen, S. (2000). Social Risk Management: A New Conceptual Framework for Social Protection, And Beyond. *Social Protection Discussion* Paper No. 0006. Washington, DC: The World Bank.

Jowett M, Contoyannis P, and Vinh N.D (2003).The Impact of Public Voluntary Health Insurance on Private Health Expenditure in Vietnam.*Social Science and Medicine*,56:333-342.

Jütting, J. (2001). The Impact of Health Insurance on the Access to Health Care and Financial Protection in Rural Areas of Developing Countries: The Example of Senegal. Retrieved 22 September 2007 from http://www.zef.de

Jütting, J. (2002). *The Impact of Community-Based Health Financing on Financial Protection: Case Study Senegal*. HNP Discussion Paper, World Bank. Washington, D.C.: World Bank.

Liu, T.C., Chen, C. S., and Chen, L. M. (2002).*The impact of National Health Insurance on Neonatal Care Use and Childhood Vaccination in Taiwan.* Health Policy and Planning,Volume 17, Number 4, December 2002, pp. 384-392(9), Oxford: Oxford University Press.

Manning, W., Newhouse, J., Duan, N., Keeler, E., Leibowitz, A., and Marquis, M. (1987). Health Insurance and the Demand for Medical Care: Evidence from a Randomised Experiment. *American Economic Review*, 77, 251–277.

McFadden, D. (1974). Conditional Logit Analysis of Qualitative Choice Behaviour. (P. Zaremka, Ed.) *Frontiers in Econometrics* , 105-142.

Miller, L (1994). Medical Schools Put Women in Curricula. *Wall Street Journal*, p. B1, May 24.

Morrisson, C. (2002). Health, Education and Poverty Reduction: *OECD Development Centre Policy Brief No. 19*. Paris: OECD Development Centre.

Nada, P. (1999). A woman's Participation in Rural Credit Programmes in Bangladesh and their Demand for Formal Health Care: is there a Positive Impact? *Health Economics and Econometrics*, 8, 415–428.

Perker, A. and Carrin, G. (2004).*Health Financing for Poor People: Resource Mobilization and Risk Sharing*. Washington, D.C: World Bank.

Sulzbach, S., Garshong, B., and Banahene, G. (2005).*Evaluating the Effects of the National Health Insurance Act in Ghana.*Baseline Report.The Partners for Health ReformProject, Abt Associates Inc., Bethesda, MD.

Tu-Bin, C., Tsai-Ching L., and Chin-Shyan C. (2005). Household Out-of-Pocket Medical Expenditures and National Health Insurance in Taiwan: Income and Regional Inequality. Retrieved August 10, 2007, from http://www.biomedical.com//472-6963/5/60.

Waters, H. (1999). Measuring the Impact of Health Insurance with a Correction for Selection Bias a Case Study of Ecuador.*Health Economics and Econometrics*, 8, 473–483.

World Bank (1993) *World Development Report,* New York: Oxford University Press.

World Health Organization (2000): *The World Health Report 2000: Health Systems: Improving Performance.* Geneva: World Health Organization.

Yip, W., and Berman, P. (2001). Targeted Health Insurance in a Low Income Country and its Impact on Access and Equity in Access: Egypt's School Health Insurance. In: *Health Economics*, 10, pp. 207 – 220.

Table 3:1 Descriptive Statistics

Variable	N	Mean	Std. Dev.	Min	Max
Dependent variables					
Outpatient Visit (If ill)*	130	.5846154	.4946946	0	1
Out-of-pocket expenditure	76	8.460526	13.6897	.4	75
Independent variables					
SEX*	384	.390625	.488527	0	1
AGE	384	37.38021	15.38153	18	88
HH_SIZE	384	4.893229	2.659346	1	16
MNHIS*	384	.5	.5006523	0	1
SOI	130	1.830769	.7275153	1	3
SAHS	384	2.273438	.6509464	1	3
MAL_DUMMY *	130	.1640625	.3708154	0	1
PAIN_DUMMY*	130	.0859375	.2806374	0	1
RESP_DUMMY *	130	.0234375	.1514858	0	1
DIAR_DUMMY*	130	.0104167	.1016616	0	1
INJ_DUMMY*	130	.0078125	.0881573	0	1
EMPLOY*	384	.2161458	.4121519	0	1
SEX_H*	384	.6692708	.4710895	0	1
INCOME	384	2562.102	1206.266	360	8964

* = binary indicator variable.

Source: Author's Field Work, 2008

Table 3.2: Logit Result (Determinants of Outpatient Utilization)

VARIABLE	COEFFICIENT	Z	P>|Z|
SEX	-.800908	-1.45	0.146
AGE	.0018083	0.12	0.907
HH_SIZE	-.1182	-1.33	0.182
MNHIS	1.128339	2.30	0.021
SOI	.5943328	1.64	0.101
SAHS	-.5280142	-1.33	0.183
MAL_DUMMY	-.8810434	-1.31	0.191
PAIN_DUMMY	-1.465879	-1.93	0.053
RESP_DUMMY	.6726932	0.51	0.611
EMPLOY	-.3790308	-0.54	0.591
SEX _H	-.4970272	-1.00	0.320
INCOME	.0006689	2.31	0.021
CONSTANT	-.0102984	-0.01	0.995
Number of observation = 123		LR chi2 (12) = 41.45	
Prob> chi2 = 0.0000		Pseudo R2 = 0.2457	
Log likelihood = -63.615272			

Source: Author's Field Work, 2008

Table 3.3: Regression Result (Determinants of Out-of-Pocket Expenditure)

VARIABLE	COEFFICIENT	T	P>|T|
SEX	1.315622	0.37	0.712
AGE	-.0622177	-0.73	0.470
HH_SIZE	.8901213	1.34	0.185
MNHIS	-8.495314	-2.47	0.016
SOI	3.148011	1.44	0.155
SAHS	5.523246	2.57	0.012
MAL_DUMMY	-5.06572	-1.24	0.219
PAIN_DUMMY	-10.04168	-2.11	0.039
RESP_DUMMY	-8.524188	-1.60	0.114
DIAR_DUMMY	-10.7167	-1.50	0.140
INJ_DUMMY	7.92031	0.95	0.345
EMPLOY	2.241439	0.50	0.618
SEX_H	-6.951116	-2.13	0.037
INCOME	-.0023709	-1.52	0.132
CONSTANT	10.64987	1.00	0.321
Number of observation =76		F (14, 61) = 3.69	
Prob> F = 0.0002		R-squared = 0.4588	
Adj R-squared = 0.3345		Root MSE = 11.167	

Source: Author's Field Work,2008