RURAL – URBAN DIFFERENCES IN THE DETERMINANTS OF ENROLMENT IN HEALTH INSURANCE IN GHANA

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Abstract

After seven years of implementation, the National Health Insurance Scheme (NHIS) has achieved varying levels of enrolment coverage within the 10 regions of Ghana with different rural-urban populations. Implementation problems and low coverage challenges threaten the long term sustainability of the scheme. Using a sample of 4,214 individuals who are 18 years and above from the COHEiSION Project baseline survey and employing bivariate and logistic regression analyses, separate estimations are performed for the pooled sample and the Greater Accra and Western region sub-samples to determine the rural-urban differences in the determinants of demand for health insurance in these two regions in Ghana. We found statistically significant differences in the demographic and socio-economic characteristics of rural and urban adults for the pooled sample and within the two regions. Overall, rural adults were more likely than urban adults to enroll in health insurance. However, when the regions were analyzed separately, the results were conflicting. Whilst in the Greater Accra region rural adults are more likely than urban adults to enroll in health insurance, in the western region we found the opposite; urban adults are more likely than rural adults to enroll. Sex, educational attainment, employment status and health status were better and stronger predictors of health insurance enrolment than rural-urban locality of residence. We recommend that future studies on determinants of enrolment in health insurance and policy makers should focus on regional or district level differences to adequately capture the different demographic and socio-

economic factors that might be responsible for the observed differences in enrollment coverages and find region and district specific interventions to address them.

Introduction

Social health insurance has increasingly been recognized as a system to finance health care provision in low income countries (Wiesmann & Jutting, 2001). Given the high demand for health care services of good quality and the extreme under-utilization of health services in several Sub-Saharan African countries due to financial barriers, social health insurance has been recommended as a promising alternative to other criticized financing systems like cost-recovery and user fees. It has been hoped that social health insurance will improve access to health care of appreciable quality through risk pooling of unforeseeable health cost to fixed premiums (Griffin 1992; Wiesmann & Jutting, 2001). Ghana established its National Health Insurance Scheme (NHIS) through an Act of Parliament (Act 650) in 2003 to replace the "Cash and Carry" health care financing system. This move towards social health insurance was in response to calls for developing countries to adopt health care financing systems that will remove financial accessibility barriers to health services and strive towards the attainment of universal health coverage.

Table 1: New Memberships and Active Membership in the NHIS in 2010 and 2011

Regions	Regional Population	2010 Active Membership	2011 Active Membership as % of Popn.
Ashanti	4,780,380	1,585,097	37.8%
Brong Ahafo	2,310,983	1,014,554	45.9%
Central	2,201,863	492,717	24.6%
Eastern	2,633,154	930,343	36.0%
Greater Accra	4,010,054	961,455	25.6%
Northern	2,479,461	771,335	25.5%
Upper East	1,046,545	517,867	45.3%
Upper West	702,110	361,065	50.9%
Volta	2,118,252	581,305	29.0%
Western	2,376,021	947,976	32.2%
Ghana	24,658,823	**8,163,714**	**33%**

Source: NHIA, 2011 and 2012

The full implementation of the NHIS started in 2004 with a total of 145 district health insurance schemes and 5 satellite offices throughout the country. After nine years of implementation, the NHIS has made significant progress in extending health insurance to the people of Ghana. The cumulative membership of the scheme increased from 1.3 million in 2005 to 18 million in 2010 representing an average annual growth of 68% over the entire period (NHIA, 2011). This figure was based on the NHIA's old manual methodology of calculating the active membership of the scheme. However with the new ICT-based methodology, the total active membership was 8,163,714 as at December 2011 representing 33% of the total population of Ghana (NHIA, 2012). There are however, varying degrees of this enrolment achievement between the 10 regions of Ghana as shown in Table 1 above.

Ghana is a predominantly rural country with about 49% of the population living in rural areas where different economic and social opportunities exist (GSS, 2012). Significant inequalities persist in the areas of availability of basic amenities and infrastructure such as water, sanitation and health facilities (FAO, 2012; GSS, 2012). In 2009, only about 10% of the urban population in Ghana lacked access to improved water sources as compared to 26% of the population in rural areas. Whilst 18% of urban population had access to improved sanitation, only 7% of the population in rural areas has improved sanitation (FAO, 2012). Huge income inequalities also exist between rural and urban populations in the country. The overall poverty rate per capita is 39% for rural areas and 10% for urban areas. The rural areas also have a severe poverty rate per capita of 25% as compared to 5% in urban areas and the poverty rate excluding severely poor is 13% in the rural areas, as opposed to 5% in urban areas. Low productivity and poorly functioning markets for agricultural products is the main reason for the poverty gap between urban and rural Ghana (FAO, 2012).

Despite past enrolment achievements of the NHIS, recent reports indicates that coverage levels are declining and the cost of health care is outrunning premium contributions. Implementation challenges such as delays in the production and distribution of NHIS ID cards, long waiting times, poor health staff attitude, inadequate information on NHIS benefit package, delays in reimbursing health providers, perceived poor quality of NHIS and health provider services were

also identified to have significantly deepened the fiscal and coverage challenges of the NHIS and threatens its long term sustainability (NHIA, 2011; Schieber et al. 2012).

A review of the literature indicates that many studies have examined the determinants of demand for health insurance with most of them focusing on the socio-economic determinants (Propper, 2000; Grossman, 1972; Van De Ven & Van Praag, 1981; Liu & Chen 2009). In an attempt to identify the determinants of enrolment in the NHIS in Ghana, recent research identified income, age, marital status, employment status, self rated health status and the perceived quality of health care services to positively influence the demand for the NHIS (Jehu-Appiah et al., 2012; Sarpong et al., 2010; Nketiah-Amponsah, 2009). The literature is also emphatic that people living in rural areas are most likely to lack access to quality health care services as compared to those living in urban areas (Lu et al, 2010). A number of barriers such as inadequate health facilities, long distances to health facilities, lack of effective and efficient transportation systems, inadequate health personnel and inability to afford the cost of health services inhibit rural people from accessing health services (Lu et al, 2010). Empirical studies with focus on rural-urban differences in health insurance coverage have reported inconsistent results. A study by Duncan et al., (1995) found little or no rural-urban differences in health insurance coverage in the United States as a whole. This might be because the US has better health insurance coverage than resource poor countries. They however, indicated that rural-urban health insurance coverages do not reflect the national picture. Other studies however found that residential remoteness (rural areas) plays a determining role in health insurance enrolment (Stock, 1983; Bennett et al., 1998; Criel et al., 1999; Nemet & Bailey, 2000; Jong et al, 2004; Sarpong et al. 2010). Whiles some studies in developed countries found health insurance coverages in rural areas to be significantly lower (Frenzen, 1993; Taylor et al., 2001; Coburn et al, 2002; Holmes & Ricketts, 2005; Hu et al., 2006), others reported rural areas to have higher health insurance coverages (Comer & Mueller, 1995; Ketsche P., 2005) and still other studies found no significant differences in insurance coverages between rural and urban areas (Mueller et al., 1997; Probst et al., 2005; Lu et al. 2010; King and Holmes, 2011).

In Ghana, very few studies have been conducted to specifically assess the rural-urban differences in health insurance coverage and the possible determinants of these differences.

One of such studies was undertaken by Chankova et al., (2008). They did a comparative analysis of the impact of Mutual Health Organizations in three West African countries (Ghana, Mali and Senegal). They found higher rates of enrolment in MHOs (57.6%) in urban areas of Ghana as compared to 42.4% in rural areas. Another study by Jehu-Appiah et al., (2011a) in the Eastern and Central regions of Ghana, however found higher rates of current enrolment (19.2%) in the NHIS in rural areas as compared to 10.8% in urban areas although overall 31.9% of rural residents have never enrolled in the NHIS as compared to 23% of urban residents. Nketiah-Amponsah, (2009) however, found no discernible statistical relationship between rural-urban area of residence and health insurance enrolment among women aged 15 – 49 in Ghana.

The socio-economic differences that exist between rural and urban areas and between the different regions of Ghana that might account for the differences in health insurance enrolment rates has not been adequately explored. This study will therefore assess the effect of socio-economic differences between the rural and urban areas and between the Greater Accra and Western regions of Ghana on health insurance enrolment rates. An attempt will also be made to specifically assess the effect of the rural-urban differences on the enrolment rates of the different categories of enrollees in the NHIS. The study is expected to add to the existing empirical evidence on the rural-urban differences in the determinants of demand for health insurance in a low income country context. It will also offer recommendations on effective policy interventions specifically targeting rural and urban populations to address low enrolment coverage in health insurance in developing countries.

Methodology

Study Sites

This study uses data from the COHEiSION Project baseline survey that was conducted in the Greater Accra and Western Regions of Ghana. These are two coastal regions with contrasting difference in rural and urban populations. Whiles the Greater Accra region where the capital city of Ghana is located has a largely urban population of about 4 million accounting for 16.3% of the national population, the western region has a predominantly rural population of about 2.3 million representing 9.6% of the national population (GSS, 2012). In terms of rural-urban

strata, whiles Greater Accra is predominantly urban with about 90.5% of the residents living in urban areas, the Western region is relatively rural with 57.6% of the population living in rural areas. These two regions also have some similarities and differences as far as rural-urban socio-economic activities are concerned. Whereas the inhabitants in the urban areas in the Greater Accra regions undertake white collar jobs in government departments and agencies, manufacturing and other large scale business activities, only a few of the inhabitants in the urban areas in the Western region undertake white collar jobs. They are mainly into small scale businesses particularly retailing. Economic activities in the rural areas in both regions are basically the same. The inhabitants are predominantly fishermen, farmers, small scale salt producers and some small scale miners. The Greater Accra region has a regional poverty incidence of 12% whiles the Western has a regional poverty incidence of 18% (GSS, 2011). The Western region has a higher NHIS coverage of 53.18% compared to the Greater Accra coverage of 40.31% (NHIS, 2011). These two regions provided the total of 16 NHIS Districts Schemes, 8 from each region that was selected for the qualitative study and randomized trial of the COHEiSION Project.

Data Source

The COHEiSION Project baseline Survey interviewed households within the catchment area of 64 selected accredited health centers/clinics with same or almost same characteristics within 16 NHIS district schemes in the Greater Accra and Western Regions of Ghana. The sample for the COHEiSION project was selected from within an area of 5 – 10 km radius of the catchment area of each of the 64 selected health centers/clinics. Within this catchment area, 30 households were randomly selected from a listing of all households. Respondents were contacted for the interview between March and April 2012. A selected household was only replaced with another when after a third visit to the household there was no member around to be interviewed.

The baseline survey used a semi-structured questionnaire to collect information from respondents on socio-demographics, social capital and social schemas, employment status, health status and healthcare utilization behavior, NHIS enrolment status, perceived quality of

health care services, perceived quality of NHIS services, consumption expenditure patterns and dwelling characteristics. Overall, 1,938 households were contacted out of which 1,920 were interviewed representing a response rate off 99%. Out of the 1,920 households interviewed, data on 7,097 individuals was generated. A subset of this data of individuals 18 years and above was used for analysis in this study. A full description of the COHEiSION project design and sampling strategy can be obtained by contacting the Epidemiology Department of Noguchi Memorial Institute for Medical Research of the University of Ghana, Legon.

Measurement of Variables

Enrollment in any health insurance was the dependent variables of interest for this study. We also considered the type of health insurance, pattern of enrolment and category of NHIS exemptions. Enrollment in any health insurance was measured with a dichotomous variable that is equal to 1 if the individual is enrolled in any type of health insurance at the time of interview regardless of the form of enrolment be it out-of-pocket premium payment, through employment or government exemption program and 0 if otherwise. Type of health insurance enrollment was also measured by a dichotomous variable which is equal to 1 if the individual is enrolled in the NHIS and 0 if otherwise. Two main patterns of enrollment under the NHIS; premium payment and exemptions were also considered. Enrollment through premium payment was measured with a questionnaire item which asks respondents whether they are exempted from paying insurance premium. This also has a dichotomous response which is equal to 1 if the individual is exempted from paying premium and 0 if the individual pays premium. Category of exemption was measured with a questionnaire item that asks individuals "Why are you exempted from paying premium?" This resulted in 5 exemption categories," Aged 70+", "Pregnant Woman", "Social Security and National Insurance Trust (SSNIT) contributor", "Indigent" and "Under 18 years". The under 18 years category was included to capture the category of exemption of individual who were above 18 years at the time of the survey but their insurance enrollment was obtained through the under 18 exemption category before they turned 18 years and is yet to expire.

The locality of residence was the independent variable of interest for this study. We used the Ghana Statistical Service (GSS), 2010 Population and Housing Census classification of rural and urban locality to classify individuals as living in either rural or urban locality (GSS, 2012). Thus 5 (Ablekuma, Ayawaso, Tema, Kpeshie and Okaikoi) out of the 8 selected districts in the Greater Accra Region were classified as urban localities and the remaining 3 (Dangme East, Dangme West and Ga) as rural localities. It also classified 5 (Bia, Amenfi East, Wassa West, Jomoro, and Ahantaman) out of the 8 selected districts in the Western Region as rural and 3 (Amanfiman, Sekondi and Takoradi) as urban localities. Other variables such as respondents' demographic and socio-economic characteristics (age, gender, religion, marital status, education, employment status, monthly consumption expenditure and health status) that could potentially confound the relationship between Health insurance enrolment and locality of residence were included as control variables in the analysis. Age was measured as a continuous variable in years, gender as whether the respondent is a male or female, religion as whether the respondent is a Christian, Muslim, Traditionalist or no religion and marital status as whether the respondent has never married, married, divorced/separated or living together. We measured education the highest level of completed education. We categorized respondents as employed if they were engaged in any income generating activity in the past 12 months preceding the survey. We further classified those employed as either full-time employment or part-time employment if they reported so to a questionnaire item "what type of employment is your main occupation". We measured monthly household income with a proxy estimation of the total monthly household food and non-food consumption expenditures. Health status was also measured with a questionnaire item that asks respondents to self-rate their health during the last 30 days. This generated 5 responses "very good," "good," "fair," "bad" and "very bad". We therefore classified respondents as being of good health if they self-reported "very good," or "good", averagely healthy if they self-reported "fair" and poor health if they self-reported "bad" or "very bad".

Analysis

A sample of 4,214 individuals from the survey for the age cohort of 18 years and above was used for the analysis. We first performed bivariate analysis to examine the rural-urban differences in socio-economic characteristics of respondents, enrolment in any health insurance, enrolment in the NHIS, pattern of enrolment (premium payment or exempted from premium) and category of exemption) for the pooled sample and then separately for the two regions. We determined the significance of these estimates by employing *t*-test for continuous variables and chi-square tests for categorical variables.

Finally, by employing logistic regression, separate estimations were performed to determine the effect of rural-urban locality of residence on health insurance enrolment for the pooled sample and then separately for the two regions. The demographic and socio-economic variables were included as controls in this analysis.

Results

Rural-Urban Differences in Demographic and Socio-economic Characteristics

Table 2 presents the results of bivariate analysis of respondents' demographic and socio-economic characteristics by rural and urban localities. The analysis was done first for the pooled sample and then separately for the Greater Accra and Western regions. The result indicates that on the average, urban adults are older (38.61 years) than rural adults (36.81 years) for the pooled sample and was statistically significant. A similar result of older adults in the urban than the rural localities on the average was found for both Greater Accra and Western regions. These findings were however not statistically significant. We also found a statistically significant difference in the marital status of rural and urban respondents, with the proportion of married respondents in rural locality being higher (47.5%) than urban locality (44.6%) for the pooled sample and also rural (45.4%) and urban (42.3%) for the Greater Accra whiles the Western regions showed no difference in proportion of married respondents between the rural and urban localities.

The proportion of respondents with no education was significantly higher in urban localities for the pooled sample as well as for the Greater Accra and Western regions separately. However,

the proportion of respondents with basic education was higher in rural localities for the pooled sample as well as for the two regions. The pooled sample also showed a higher employment rate among urban adults (33.1%) than rural adults (27.6%). However when the analysis was done separately for the two regions, they both showed a higher employment rate among rural adults than urban adults. Urban adults (88.2%) were found to be most likely to report being of good health than rural adults (87.0%) for the pooled sample and also for the Greater Accra region (urban 87.0% vs rural 86.2%). The opposite was however true for the Western region with rural adults (91.7%) compared to urban adults of (87.1%). Urban working adults were found to spend more on the average monthly on food and non-food consumption items than rural working adults for the pooled sample as well as for the two regions when the analysis was done separately for the regions.

Table 2: Demographic and Socio-economic Characteristics of Respondents 18 years and above

Variable	Pooled Sample		Greater Accra Region		Western Region	
	Rural	Urban	Rural	Urban	Rural	Urban
			Age		**Age***	
Age* **	36.81 (15.28)	38.61(16.14)	37.98 (16.25)	39.26 (16.30)	36.09 (14.61)	37.26 (15.77)
Sex			**Sex**		**Sex**	
Male	888 (43.5%)	954 (43.9%)	331 (42.4%)	617 (43.9%)	557 (44.1%)	337 (44.1%)
Female	1155 (56.5%)	1217 (56.1%)	449 (57.6%)	790 (56.1%)	706 (55.9%)	427 (55.9%)
Marital Status* **			**Marital Status***		**Marital Status*** **	
Married	970 (47.5%)	968 (44.6%)	354 (45.4%)	595 (42.3%)	616 (48.8%)	373 (48.8%)
Never Married	657 (32.2%)	800 (36.8%)	272 (34.9%)	540 (38.4%)	385 (30.5%)	260 (34.0%)
Divorced/Separated	266 (13.0%)	313 (14.4%)	98 (12.6%)	204 (14.5%)	168 (13.3%)	109 (14.3%)
Living Together	150 (7.3%)	90 (4.1%)	56 (7.2%)	68 (4.8%)	94 (7.4%)	22 (2.9%)
Religion **			**Religion*** **		**Religion***	
Christian	1810 (88.6%)	1966 (90.6%)	695 (89.1%)	1,262 (89.7%)	1115 (88.3%)	704 (92.1%)
Muslim	169 (8.3%)	170 (7.8%)	47 (6.0%)	123 (8.7%)	122 (9.7%)	47 (6.2%)
Traditional	10 (0.5%)	1 (0.0%)	10 (1.3%)	1 (0.1%)	0 (0%)	0 (0%)
No Religion	54 (2.6%)	34 (1.6%)	28 (3.6%)	21 (1.5%)	26 (2.1%)	13 (1.7%)
Educational Level* **			**Educational Level*** **		**Educational Level***	
Basic	1246 (61.0%)	1071 (49.3%)	492 (61.3%)	662 (47.1%)	754 (59.7%)	409 (53.5%)
Secondary	9 (0.4%)	12 (0.6%)	5 (0.6%)	8 (0.6%)	4 (0.3%)	4 (0.5%)
Tertiary	178 (8.7%)	397 (18.3%)	70 (9.0%)	300 (21.3%)	108 (8.6%)	97 (12.7%)
Post Tertiary	6 (0.3%)	17 (0.8%)	3 (0.4%)	14 (1.0%)	3 (0.2%)	3 (0.4%)
None	604 (29.6%)	674 (31.0%)	210 (26.9%)	423 (30.1%)	394 (31.2%)	251 (32.9%)
Employment* **			**Employment** **		**Employment**	
Employed	564 (27.6%)	719 (33.1%)	562 (72.1%)	922 (65.5%)	917 (72.6%)	530 (69.4%)
Not Employed	1479 (72.4%)	1452 (66.9%)	218 (27.9%)	485 (34.5%)	346 (27.4%)	234 (30.6%)
Health Status			**Health Status**		**Health Status** **	
Poor Health	70 (3.5%)	80 (3.7%)	25 (3.2%)	63 (4.5%)	45 (3.6%)	17 (2.2%)
Average Health	191 (9.5%)	174 (8.1%)	75 (9.8%)	128 (9.2%)	115 (9.3%)	46 (6.0%)
Good Health	1752 (87.0%)	1896 (88.2%)	673 (87.0%)	1196 (86.2%)	1079 (87.1%)	700 (91.7%)
			Monthly Expenditure **		**Monthly Expenditure***	
Monthly Expenditure* **	828.97 (1,865.03)	1,195.78 (4,324.61)	958.41 (2,764.15)	1,404.78 (5,302.47)	747.91 (926.54)	809.30 (1,035.15)

For continuous variables, mean and standard deviation in parenthesis were reported. Significant test is based on *t*-test.

For categorical variables, frequency and percentage in parenthesis are reported. Significance test is based in Chi-square test.

*Significant at 10%; **Significant at 5% and ***Significant at 1%

Rural-Urban Differences in Health Insurance Enrolment and Type of Health Insurance

The results of the bivariate analysis of the differences in health insurance enrolment between rural-urban localities, the type of health insurance, the pattern of NHIS enrolment and the category of NHIS exemptions are presented in Table 3. The results are presented for the entire sample first and then for the Greater Accra and Western region sub-samples. We found a high health insurance enrolment rate among rural adults (39.1%) than their urban counterparts (37.9%) for the pooled sample. However, when the analysis was done separately for the two regions we found the direct opposite of this for both regions. Urban adults had a higher health insurance enrolment (46.0%) as against (43.8%) for rural adults in the Western region and similarly (33.4% urban vs 31.6% rural) was recorded for the Greater Accra region. For the insured, there was virtually no difference in the NHIS enrolment rate between rural (92.8%) and urban (92.6%) localities for the pooled sample. The NHIS enrolment rate for rural adults (91.1%) in the Greater Accra region was higher than urban adults (89.4%). More urban adults (24.2%) in the Western region had enrolled in the NHIS through exemption than rural adults (20.8%) and similar results, urban (27.9%) and rural23.9%) was recorded for the pooled sample. All of these differences where however statistically insignificant even at the 10% level. There was however a significant difference at the 10% level in the NHIS enrolment rate in the Western region, with the urban locality having a higher NHIS enrolment (96.8%) than the rural (93.5%) locality.

Table 3: Enrolment in Health Insurance and type of Health Insurance by Rural-urban

Variable	Pooled Sample			Greater Accra Region			Western Region		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Enrolment Health Insurance (N=4,019)				**Enrolment in any Health Insurance (N=2,078)**			**Enrolment in any Health Insurance (N=1,941)**		
Yes	761(39.1%)	786 (37.9%)	1547 (38.5%)	236 (31.6%)	445 (33.4%)	681 (32.8%)	525 (43.8%)	341 (46.0%)	866 (44.6%)
No	1185 (60.9%)	1287 (62.1%)	2472 61.5%)	510 (68.4%)	887 (66.6%)	1397 67.2%)	675 (56.3%)	400 (54.0%)	1075 (55.4%)
Type of Health Insurance (N=1,547)				**Type of Health Insurance (N=681)**			**Type of Health Insurance* (N866)**		
NHIS	706 (92.8%)	728 (92.6%)	1434 (92.7%)	215 (91.1%)	398 (89.4%)	613 (90.0%)	491 (93.5%)	330 (96.8%)	821 (94.8%)
Other Insurance	55 (7.2%)	58 (7.4%)	113 (7.3%)	21 (8.9%)	47 (10.6%)	68 (10.0%)	34 (6.5%)	11 (3.2%)	45 (5.2%)
Pattern of NHIS Enrolment (N=1,434)				**Pattern of NHIS Enrolment (N=613)**			**Pattern of NHIS Enrolment (N=821)**		
Exempted	169 (23.9%)	203 (27.9%)	372 (25.9%)	67 (31.2%)	123 (30.9%)	190 (31.0%)	102 (20.8%)	80 (24.2%)	182 (22.2%)
Premium Payment	537 (76.1%)	525 (72.1%)	1062 (74.1%)	148 (68.8%)	275 (69.1%)	423 (69.0%)	389 (79.2%)	250 (75.8%)	639 (77.8%)
Category of Exemption (N=377)				**Category of Exemption (N=189)**			**Category of Exemption (N=188)**		
Aged 70+	41 (24.3%)	68 (32.7%)	109 (28.9%)	19 (28.8%)	47 (38.2%)	66 (34.9%)	22 (21.4%)	21 (24.7%)	43 (22.9%)
Under 18 yrs	13 (7.7%)	9 (4.3%)	22 (5.8%)	3 (4.5%)	3 (2.4%)	6 (3.2%)	10 (9.7%)	6 (7.1%)	16 (8.5%)
Pregnant Woman	35 (20.7%)	34 (16.3%)	69 (18.3%)	12 (18.2%)	21 (17.1%)	33 (17.5%)	23 (22.3%)	13 (15.3%)	36 (19.1%)
SSNIT Contributor	78 (46.2%)	97 (46.6%)	175 (46.4%)	32 (48.5%)	52 (42.3%)	84 (44.4%)	46 (44.7%)	45 (52.9%)	91 (48.4%)
Indigent	2 (1.2%)	0 (0.0%)	2 (0.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2(1.9%)	0 (0.0%)	2 (1.1%)

*Significant at 10%; **Significant at 5% and ***Significant at 1% for Chi-square test. Missing values were excluded from analysis

Effect of Rural-Urban locality of Residence on Health Insurance Enrolment

The results of three multiple regression analysis of the effect of rural-urban locality of residence on enrolment in health insurance for the pooled sample and separately for the Greater Accra and Western regions is presented in Table 4. We controlled for demographic and socio-economic characteristics as well as health status in these regression analyses and found that the rural-urban differences in health insurance enrollment for the pooled sample was statistically significant. We found the odds of enrolling in health insurance by urban adults to be 0.88 (95% CI, 0.77 – 1.00) times lower than rural adults. This was in contrast to the bivariate analyses that show no statistically significant difference between rural and urban localities in Table 3. We also found the odds of enrolling in health insurance by urban adults in the Greater Accra region to be 0.79 (95% CI, 0.80 – 1.18) times lower than rural adults, which contradicts the bivariate analysis finding of a higher proportion of urban adults being more likely to enroll in health insurance. Just as the bivariate finding was statistically insignificant, that of the multiple regressions was also not statistically significant. However in the Western region, we found the odds of enrolling in health insurance by urban adults to be 1.04 (95% CI, 0.86 – 1.26) times higher than rural adults. This finding is consistent with the bivariate finding in Table 3 but also statistically insignificant. These inconsistent findings between the pooled sample and the regions are an indication that some other factors might be influencing health insurance enrolment rather than rural-urban locality of residence.

We also found sex, educational attainment, employment status and health status to be strongly associated with health insurance enrolment and were statistically significant. Females stand a higher risk of not having health insurance than males for both regions and the pooled sample as well. This finding is surprising against the backdrop that pregnant women and nursing mothers are exempted from paying premium under the NHIS and one would expect that a higher proportion of females than males would be enrolled in health insurance. The likelihood of being uninsured is also highest for divorced or separated adults among the different category of marital status for both regions as well as pooled sample. We found the employed to be surprisingly less likely to be insured than the unemployed. The odds of enrolling in health insurance for the employed was 0.84 (95% CI, 0.72 – 0.98) times lower than the unemployed.

Table 4: Effect of Rural-Urban locality of Residence on Health Insurance Enrolment

	Odds Ratio (95% Confidence Interval)		
Independent Variables (Reference Values in Parentheses)	**Total Sample (N=4,104)** Enrolled=1	**Greater Accra Region (N=2,143)** Enrolled=1	**Western Region (N=1,961)** Enrolled=1
Urban (Rural)	0.88 (0.77, 1.00)*	0.97 (0.80, 1.18)	1.04 (0.86, 1.26)
Age	1.01 (1.01, 1.02)***	1.01 (1.00, 1.02)*	1.03 (1.02, 1.04)***
Sex (Male)			
Female	0.65 (0.57, 0.74)***	0.70 (0.58, 0.85)***	0.55 (0.45, 0.67)***
Marital Status (Married)			
Never Married	0.82 (0.68, 0.98)*	0.76 (0.59, 0.98)*	0.97 (0.74, 1.29)
Divorced/Separated	0.69 (0.56, 0.85)**	0.86 (0.64, 1.15)	0.54 (0.39, 0.73)***
Living Together	0.89 (0.67, 1.19)	0.57 (0.37, 0.90)*	1.44 (0.96,2.16)*
Religion (Christian)			
Muslim	1.00 (0.79, 1.26)	1.05 (0.75, 1.47)	0.98 (0.70, 1.36)
Traditional	0.86 (0.24, 3.02)	1.23 (0.34, 4.47)	0.66 (0.32, 1.37)*
No Religion	0.46 (0.27, 0.77)**	0.34 (0.15, 0.77)*	
Educational Level (Basic)			
Secondary	0.62 (0.24, 1.60)	1.00 (0.30, 3.27)	0.32 (0.06, 1.72)*
Tertiary	1.44 (1.19, 1.75)***	1.73 (1.34, 2.24)***	1.21 (0.88, 1.67)**
Post-Tertiary	1.48 (0.63, 3.47)	2.22 (0.84, 5.88)	0.60 (0.88, 1.67)
None	1.36 (1.18, 1.58)***	1.61 (1.30, 1.99)***	1.10 (0.09, 3.85)*
Employment (Unemployed)			
Employed	0.84 (0.72, 0.98)*	0.93 (0.75, 1.14)	0.72 (0.57, 0.92)**
Health Status (Poor Health)			
Average Health	0.54 (0.36, 0.81)**	0.70 (0.42, 1.18)	0.36 (0.18, 0.71)**
Good Health	0.49 (0.34, 0.70)***	0.52 (0.33, 0.82)**	0.38 (0.21, 0.70)**
Monthly Expenditure	1.00 (1.00, 1.00)	1.00 (1.00, 1.00)	1.00 (1.00, 1.00)**
Constant	1.14 (0.72, 1.80)	0.81 (0.43, 1.51)	1.26 (0.60, 2.66)
	R^2 = 0.0300	R^2 = 0.0367	R^2 = 0.0455

*Significant at 10%; **Significant at 5% and ***Significant at 1%. Missing values were excluded from this analysis

We found similar odds of enrolling in health insurance for the employed in both regions, 0.93 (95% CI, 0.75 – 1.14) for the Greater Accra and 0.72 (95% CI, 0.57 – 0.92) for Western region. These finding suggest that some factors other than income, ability to pay premium and premium exemptions might be influencing individuals' health insurance enrolment decisions. Among the educational level categories, those without any education and those with tertiary education and above have a higher likelihood of enrolling in health insurance. This was the case for the both regions and the entire sample. However, in the case of the Western region, those

with post-tertiary education were less likely (OR 0.60 95% CI 0.88 – 1.67) to enroll in health insurance those with basic education.

These findings seem to suggest that demographic and socio-economic characteristics of respondents are better predictors of enrolment in health insurance rather than the rural-urban locality of residence

Discussion

This study assessed the rural-urban differences in the determinants of health insurance among adults 18 years and above in two regions in Ghana. We found statistically significant differences in the demographic and socio-economic characteristics between rural and urban adults for the pooled sample and within the two regions. We also found that overall, rural adults are more likely than urban adults to enroll in health insurance. This finding is consistent with the findings of some previous studies (Stock, 1983; Bennett et al., 1998; Criel et al., 1999; 2000; Jong et al, 2004; Sarpong et al. 2010; Jehu-Appiah et al., 2011a) that found higher insurance coverages in rural areas. However when the regions were analyzed separately, we found conflicting results, an indication that some other factors might be responsible for the differences in enrollment rather that rural- urban locality of residence.

A similar result like that of the pooled sample was found for the Greater Accra region where rural adults were more likely than urban adults to enroll in health insurance whiles in the western region we found the opposite; urban adults were more likely than rural adults to enroll, although these findings were statistically insignificant even at the 10% level. The results from the Western region is also consistent with some previous studies (Frenzen, 1993; Taylor et al., 2001; Coburn et al, 2002; Holmes & Ricketts, 2005; Hu et al., 2006; Chankova et al., 2008). Thus when the results from the pooled sample is considered the temptation will be to conclude that urban adults are at a higher risk of being uninsured and therefore any intervention aimed at increasing health insurance enrolment will be directed at the urban adults in both regions. However when only the Western region is considered, rural adults rather turn out to be at a higher risk of being uninsured. These results seem to suggest that some other intrinsic

attributes of the rural and urban areas might be responsible for these observed differences in health insurance enrolment rates.

We found sex, educational attainment, employment status and health status to be better and stronger predictors of health insurance enrolment than rural-urban locality of residence. These findings were also consistent with the findings of previous studies (Jehu-Appiah et al., 2011a; Sarpong et al., 2010; Nketiah-Amponsah, 2009; Trujillo, 2003; Liu and Chen, 2002). Those married were more likely to enroll in health insurance than all the other categories of marital status except for the Western region where those in the living together category were 1.44 times more likely to be insured than those married. This is the case because there is high incentive for married couples to enroll due to reproductive health issues particularly for the women in the event of increased utilization of health services during child bearing and its associated huge out-of-pocket health care expenditure, if the individual is not insured. This might also explain for the inconsistency in our findings from previous research when we found the unemployed to have a higher likelihood of enrolling in health insurance than the employed. Earlier studies found a positive relationship between employment and health insurance enrolment (Jehu-Appiah et al., 2011a; Sarpong et al., 2010; Nketiah-Amponsah, 2009; Trujillo, 2003). This may be because even the unemployed, especially married couples strive to enroll in the NHIS so they can avoid paying out-of-pocket for reproductive health services.

For educational attainment, those with no education and tertiary education are most likely to have health insurance than those with basic education. However, whiles in the Greater Accra region those with post-tertiary education are 2.22 times more likely to enroll in health insurance, those in the Western region are 0.60 times less likely to enroll. Again whereas respondents with secondary education are just as likely to enroll as those with basic education in the Greater Accra, respondents in the Western region are 0.32 times less likely than those with basic education. Consistent with previous studies, individuals who self-reported good health were less likely to enroll in health insurance probably because these people feel they are always of good health and do not need health insurance. Income did not show a strong effect on health insurance enrolment as individuals who spent below and above the mean monthly food and non-food expenditure did not differ significantly from those who spent the mean in

both regions. Age did not also show any strong effect on the insurance enrolment as individuals below and above the mean age did not differ significantly in their likelihood of enrolment form the mean for both regions.

This study however had some limitations. One of the limitations is the fact that rural-urban classification of individuals was based on the GSS 2010 Population and Housing Census classification of districts as either rural or urban locality. This classification is such that some districts in the Greater Accra region such as Ga district that was classified as rural has close proximity to the National Capital, Accra to the extent that in reality urban development has expanded into these district and have gradually assumed peri-urban nature with all the socio-economic conditions such as social amenities, employment and income levels that characterizes such peri-urban localities. This might have created a situation where individuals living in these localities are classified as living in rural areas in the Greater Accra region but have demographic and socio-economic attributes similar to other individuals living in urban localities in the Western region and other urban localities in the Greater Accra region. This might have impacted on the observed likelihood of rural adults having a higher chance of enrolling in health insurance than urban adults in the Greater Accra region. Another limitation of this study is that income level was measured with a proxy of monthly food and non-food expenditure since most people in the informal sector of employment will not be able to state their monthly income with any appreciable degree of certainty. This measure of income might not be a true reflection of an individual's income from engaging in economic activities as some of the consumption expenditures might be gifts and remittances. The last limitation of this study is the use of self-reported measures of enrollment in health insurance, type of health insurance and health status. Although the validity of self reported measures are well established in the literature, any systematic differences in the perception bias of respondents can affect the precision of the reported estimates. As a result of these limitations and the fact that the results presented in this paper are limited to adults 18 years and above in the Greater Accra and Western regions of Ghana, caution should be exercised when generalizing the findings of this study to other populations or regions.

Conclusion

This study determined the rural-urban differences in the determinants of demand for health insurance by adults 18 years and above in the Greater Accra and Western regions of Ghana. The study found statistically significant differences in the demographic and socio-economic characteristics of rural and urban adults for the pooled sample and within the two regions. The study also found that overall, rural adults are more likely than urban adults to enroll in health insurance. However, when the regions were analyzed separately the results were conflicting. Whilst in the Greater Accra region rural adults are more likely than urban adults to enroll in health insurance, in the western region we found the opposite; urban adults are more likely than rural adults to enroll. Sex, educational level, employment status and health status were found to be better and stronger predictors of health insurance enrolment than rural-urban locality of residence.

The findings of this study suggests that other intrinsic demographic, social, infrastructural and economic differences that exist between the rural-urban localities and between the different regions of Ghana have a high influence on the health insurance enrolment rates between these localities and regions. We recommend that future studies on determinants of enrolment in health insurance and policy makers should focus on regional or district level differences to adequately capture the different demographic and socio-economic factors that might be responsible for the observed differences in enrollment coverages and find regional and district specific interventions to address them.

References

Bennet, S., Creese, A., & Monasch, R. (1998). Health Insurance Schemes for People outside Formal Sector Employment: Current Concerns. *World Health Organization ARA Paper Number 16, Geneva.*

Chankova S, Sulzbach S, Diop F. (2008). Impact of mutual health organizations: evidence from West Africa. *Health Policy and Planning **23**: 264–76*.

Coburn A. F., Mcbridge T. D., and Ziller E. C. (2002). Patterns of Health Insurance Coverage among Rural and Urban Children. *Medical Care Research and Review, **59**: 272 – 292*.

Comer J. and Mueller K. (1995). Access to Health Care: Urban-Rural Comparisons from a Midwestern Agricultural State. *Journal of Rural Health, **11**: 128 – 136*.

Criel, B., Van der Stuyft, P., & Van Lerberghe, W. (1999). The Bwamanda Hospital Insurance Scheme: Effective for whom? A Study of its Impact on Hospital Utilization Patterns. *Social Science & Medicine, **48**: 897 - 911*.

Duncan R. P., Seccombe K. & Amey C. (1995). Changes in Health Insurance Coverage within Rural and Urban Environments. *Journal of Rural Health, **11**: 160 – 176*.

FAO (2012). Gender Inequalities in Rural Employment in Ghana: An Overview. *www.statsghana.gov.gh (accessed 20/09/2012)*.

Frenzen P. D. (1993). Health Insurance Coverage in U.S. Urban and Rural Areas. *Journal of Rural Health, **9**: 204 – 214*.

GOG. (2003). The National Health Insurance Act: Act 650. Accra. *Government of Ghana.*

Griffin, C. (1992), Health Care in Asia: a Comparative Study of Cost and Financing. *World Bank Regional and Sectoral Studies, Washington, D.C.*

Grossman M. (1972). On the Concept of Health Capital and the Demand for Health. *Journal of Political Economy, **80**: 223-255*.

GSS (2012). 2010 Population and Housing Census. *Ghana Statistical Service. Accra, Ghana*.

Holmes M. & Ricketts T. (2008). Rural-Urban Differences in the Rate of Health Insurance Coverage. *North Carolina Rural Health Research and Policy Analysis Center*. *www.shepcenter.unc.edu. Accessed 21/09/2012*.

Hu H. M., Duncan R. P., Radcliff T. A., Porter C. K. and Hall A. G. (2006). Variations in Health Insurance Coverage for Rural and Urban Nonelderly Adult Residents of Florida, Indiana, and Kansas. *Journal of Rural Health, **22**: 147 – 150.*

Jehu-Appiah C., Aryeetey G., Agyepong I., Spaan E. and Baltussen R. (2012). Household Perceptions and their Implications for Enrolment in the National Health Insurance Scheme in Ghana*. Health Policy and Planning, **27** (3): 222 – 233.*

Jehu-Appiah C., Aryeetey G., Spaan E., De Hoop T., Agyepong I and Baltussen R. (2011a). Equity Aspects of the National Health Insurance Scheme in Ghana: Who is Enrolling, Who is not and Why? *Social Science and Medicine, **72**: 157 – 165*.

Jong, K. E., Smith, D. P., Yu, X. Q., O'Connell, L., Goldstein, D., & Armstrong, B. K. (2004). Remoteness of Residence and Survival from Cancer in New South Wales. *Medical Journal of Australia, **180**: 618 - 622*.

Ketsche P. (2005). Employment-based Health Insurance: Analysis of Rural-Urban Differences in one State. *Medical Care Research and Review, **62**: 458 – 478*.

King J. & Holmes G. M. (2011). Recent Changes in Health Insurance Coverage in Rural & Urban Areas. *Rural Health Research & Policy Centers. www.ruralhealthresearch.org. Accessed 15/04/2013*

Liu HZ, Summerfield G, Shi Y. (2009). A Gendered View of Reforming Health Care Access for Farmers in China*. BMC Health Services Research, **17**: 238*.

Liu T. and C. Chen (2002). An analysis of private health insurance purchasing decisions with national health insurance in Taiwan. *Social Science and Medicine, **55**(5): 755 – 774.*

Lu N., Samuels M. E., Kletke P. R., & Whitler E. T. (2010). Rural-Urban Differences in Health Insurance Coverage and Patterns among Working-Age Adults in Kentucky. *Journal of Rural Health, **26**: 129 – 138*.

Mueller K. J., Patil K. and Ullrich F. (1997). Lengthening Spells of Uninsurance and their Consequences. *Journal of Rural Health, **13**: 29 – 37*.

Nemet, G. F., & Bailey, A. J. (2000). Distance and Healthcare Utilization among the Rural Elderly. *Social Science & Medicine, **50**: 1197 – 1208*.

NHIA (2011). National Health Insurance Authority 2010 Annual Report. *Accra, NHIA*.

NHIA (2012). National Health Insurance Authority 2011 Annual Report. *Accra, NHIA*

Nketiah-Amponsah E. (2009). Demand for health insurance among women in Ghana: cross-sectional evidence. *International Research Journal of Finance and Economics, **33**: 179–91.*

Probst J. C., Moore C. G. and Baxley E. G. (2005). Health Insurance and Utilization of Care among Rural Adolescents. *Journal of Rural Health, **21**: 279 – 287*.

Propper, C. (2000), "The Demand for Private Health Care in the UK", *Journal of Health Economics*, ***19**(6):855-76*.

Sarpong, N., Loag, W., Fobil, J., Meyer, C. G., Adu-Sarkodie, Y., May, J., et al. (2010). National Health Insurance Coverage and Socio-economic Status in a Rural District of Ghana. *Tropical Medicine and International Health, **15**(2): 191-197*.

Schieber G. Cashin C. & Saleh, K. (2012). Health Financing in Ghana. *The World Bank, Washington D. C., U.S.A*.

Schieber G. Cashin C. & Saleh, K. (2012). Health Financing in Ghana. *The World Bank, Washington D. C., U.S.A.*

Stock, R. (1983). Distance and Utilization of Health Facilities in Rural Nigeria. *Social Science & Medicine, **17**: 63-570*.

Taylor A. K., Cohen J. W. and Machlin S. R. (2001). Being uninsured in 1996 Compared to 1987: How has the Experience of the Uninsured Changed over Time? *Health Services Research, **36**: 16 – 31.*

Trujillo A. J. (2003). Medical Care use and Selection in Social Health Insurance with an Equalization Fund: Evidence from Colombia. *Health Economics, **12**(3):231-246*.

Van De Ven, W. & B. Van Praag (1981). The Demand for Deductibles in Private Health Insurance. *Journal of Econometrics* ***17****: 229-252*.

Wiesmann D. and Jutting J. P. (2001). Determinants of Viable Health Insurance in Rural Sub-Sahara Africa. *Quarterly Journal of International Agriculture,* ***40****(4): 361 - 378*.