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CONTENTS

DETERMINANTS OF MATERNAL MORTALITY IN GHANA: A FOCUS ON NEIGHBOURHOOD CHARACTERISTICS AND SOCIO-DEMOGRAPHIC STATUS

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ABSTRACT

The widening disparity in the risk of maternal mortality between developed and developing countries is of considerable concern. In Ghana, there are crucial disparities in the risk of maternal mortality across different regions and communities. This forms the focus of this study: to understand the influence of place of living on the risk of maternal mortality. The analysis showed that the level of deprivation of the neighbourhood within which women lived was very important in explaining the probability of maternal deaths after adjusting for individual factors. The level of deprivation of the neighbourhood had an engulfing effect on residents and suppressed the expected positive effect of educational attainment. The increasing effect of deprivation however reduces when the proportion of women with senior high school education in a neighbourhood increases. Policies that promote educational attainment up to at least the senior high school level for women would be influential in reducing the risk of maternal mortality. Further research on the effect of vulnerable locations on health status is recommended.

Keywords: Education, Ethnic Diversity, Maternal Health, Mortality, Poverty

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INTRODUCTION

The 2010 global estimates of maternal mortality indicated that maternal deaths per 100,000 live births had declined by 48 per cent from 400 in 1990 to 210 in 2010 (WHO, 2012). In developing regions, however, the rate remains higher at 240, about 15 times higher than in developed regions. The relative risk of maternal death in developing countries is also higher than that of developed countries at 1 in 150 and 1 in 3800 for developing and developed countries respectively. Sub-Saharan Africa continues to record a very high maternal mortality rate (500 maternal deaths per 100,000 live births), with riskier life-time chances of death at 1 in 39 births (WHO, 2012). Though one of the targets of the Millennium Development Goal (MDG) 5 is to improve maternal health, it is clear that for developing countries, giving birth can be a threat to life.

Ghana is among a few countries in the sub-region that are said to be making progress towards achieving the MDG 5 target even though her maternal mortality ratio is still among the highest in the world (WHO, 2012). Ghana's maternal mortality ratio declined from 580 deaths per 100,000 live births to 350 deaths per 100,000 live births between 1990 and 2010 (WHO, 2012). Between 1990 and 2010 Ghana's average annual reduction rate was 2.6%, which is about half of the expected annual reduction rate of 5.5%. Adult lifetime risk of maternal death measured in 2010 slightly improved from 1 in 66 to 1 in 68, better than 1 in 39 for the sub-region. Notwithstanding this, there are concerns over increasing disparities in the risk of maternal mortality across the country. In particular, there are considerable differences across regions, with the deprived northern regions showing a maternal mortality ratio of over 800 maternal deaths per 100,000 live births (Republic of Ghana and UNDP-Ghana, 2006).

Across both developed and developing countries, the literature is clear on the direct and proximate causes of maternal deaths (Black, Simon, Johnson, Lawn, Rudan, Bassani, Jha, Campbell, Walker, Cibulskis, Eisele, and Liu, 2010; Khan, Wojdyla, Say, Gulmezoglu, and van Look, 2006) as well as methods of prevention and treatment (Black *et al.,* 2010). However, while the proximate causes are well established, the underlying causes are less well understood. In

cross-country analyses, poverty is often found to be a strong determinant of maternal mortality risk differentials. Within country analyses are however rare, and where they exist, much of the analysis is at the individual level with less understanding brought to bear on the effect of the neighbourhoods within which women live (Geubbels, 2006; Gupta, Khanna, Gupta, Sharma and Sharma, 2010; Karlsen, Say, Souza, Hogue, Calles, Gülmezoglu, and Raine, 2011). Recent studies have suggested that maternal mortality, the most dreaded outcome of poor maternal health, could be associated with critical conditions of the areas within which women live (Acolet, Springett and Golightly, 2008; Agyemang, Vrijkotte, Droomers, van der Wal, Bonsel, and Stronks, 2009; de Graaf, Schutte, Poeran, van Roosmalen, Bonsel, and Steegers, 2012; Lewis, 2007).

Studies done in developed countries show that there is a strong association between an area's level of deprivation (using a single measure of Multiple Deprivation) and the risk of maternal mortality, with areas of high deprivation recording higher rates of maternal mortality (Acolet *et al.,* 2008; Lewis, 2007). Analyses that take into consideration the immediate environment of women are important as they place both the outcome of study and possible interventions in a social context, thereby increasing the potential for success in different macro-structural settings (Campbell and Graham, 1991). Whilst this approach to analysing health and maternal health outcomes in particular is at an advanced stage in developed countries, not much is seen in developing country contexts and in the Ghanaian literature for that matter. In this paper we examine the nature of the neighbourhoods within which women live and how that affects their chances of surviving a pregnancy and childbirth.

REVIEW OF THE LITERATURE ON DETERMINANTS OF THE RISK OF MATERNAL MORTALITY

The World Health Organisation (WHO) defines maternal mortality as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (WHO, 2007). Implicitly, pregnancy is the proximate determinant of maternal death. However, the underlying issues have to be with the onset of pregnancy complications, poor awareness of

these complications (lack of education), as well as poor access to health care. There are also the issues of poor nutrition and poverty as well as cultural factors such as early marriages, cultural dietary practices before and during pregnancy, sexual practices incongruent with good maternal health and unplanned pregnancies.

Efforts to deal with the major set of factors thought to be associated with maternal mortality have broadly organized these factors into such categories as reproductive, obstetric, health service, and socioeconomic. McCarthy and Maine (1992) however provided an understanding of biological and behavioural mechanisms through which these sets of factors interact to affect maternal health. The McCarthy-Maine framework was organized around three general components; the closest is the sequence of events that directly culminates in maternal death (proximate factors). These are outcomes such as pregnancy and pregnancy-related complications. The second is what they termed the intermediate determinants: women's health status, their reproductive status, their access to health services and their healthcare use behaviour (including health lifestyles). The third is the set of socioeconomic factors which are usually seen as indicators of risk of maternal death (Campbell and Graham, 1991; McCarthy and Maine, 1992).

The onset of a pregnancy complication is the most known proximate cause of maternal mortality. Pregnancy is the starting point because it is the necessary precondition for a death to be classified as maternal death. But the risk of a complication varies considerably from woman to woman. Maternal deaths due to obstetric complications can either be direct or indirect (Khan, Wojdyla, Say, Gulmezoglu, and van Look, 2006; McCarthy and Maine, 1992). A direct obstetric death is one that results from complications of the pregnancy itself or delivery, or is attributable to the postpartum period, including abortion-related complications. Indirect obstetric deaths are those due to existing medical conditions that are amplified by the pregnancy, or from conditions unrelated to the pregnancy (McCarthy and Maine, 1992). Indirect obstetric deaths may also result from multiple pregnancies, which are sometimes accompanied by complications for the mother in terms of hypertensive disorders, eclampsia, complications of treatment for premature contractions and prolonged bed rest, as well as operative delivery.

The majority of maternal deaths due to direct obstetric causes are recorded in developing countries where approximately three-quarters of such causes are reported compared to one-quarter attributable to indirect causes (Khan *et al,.* 2006). Common complications that are responsible for the vast majority of deaths due to direct obstetric causes include haemorrhage, complications following or resulting from unsafe abortion, pregnancy-induced hypertension and obstructed labour (Maine, Rosenfield, Wallace, Kimball, Kwast, Papiernik, and White, 1987). These issues have not changed considerably over the years in spite of the implementation of safe motherhood initiatives and other interventions in developing countries. In Africa alone, the percentage contribution of postpartum haemorrhage (PPH) to total maternal deaths lies between 13.3 per cent and 43.6 per cent (Khan *et al*., 2006).

The other most documented characteristics of women that predispose them to the risk of maternal mortality are age, birth parity and birth spacing. Although every pregnant woman runs the risk of developing a complication during pregnancy, delivery or the period after delivery, complications are more common among teenagers and older women, women in their first pregnancy and women in their fourth or higher pregnancy, women with short birth intervals, and women who had a complication during a prior pregnancy (Geubbels, 2006). Empirically, age has been shown to have a concave relationship with the maternal mortality ratio, with risks higher for very young women and older women (Tahzib, 1989). Very young mothers are more likely than others to experience prolonged labour as a result of immature pelvises (Tahzib, 1989). Younger women are also more likely to experience unwanted pregnancies and more likely than others to seek abortion, even if the only procedures available are unsafe, increasing the risk of death. Higher rates of maternal mortality have also been found among older women aged 40 and over (Lewis, 2007).

At the intermediate level are factors that impact on both the risk of pregnancy and pregnancy complications that will eventually lead to death. McCarthy and Maine's set of four factors that predispose women to the risk of death are their health status, reproductive status, access to health services and health care behaviour (including utilisation). The health status of the woman depends on her nutritional status (anaemia, height, and weight), infections including parasitic diseases (malaria, hepatitis, and tuberculosis), other

chronic conditions (diabetes, hypertension), and prior history of pregnancy complications. A woman's personal health status prior to and during a pregnancy has an important influence on her chances of suffering and surviving a complication. The leading pre-existing health conditions that are exacerbated by pregnancy and delivery and account for approximately one-quarter of maternal deaths in developing countries are malaria, tuberculosis, hepatitis, anaemia and malnutrition (Maine *et al.,* 1987; Royston and Armstrong, 1989).

Another important factor at the intermediate level that determines whether risks of maternal health can result in mortality is the coverage of maternal healthcare services. Coverage includes physical availability and "reachability" of health service providers, adequacy of care and financial resources. The evidence is that physical distance, financial barriers, shortages of trained personnel, especially in rural areas, and poor performance of trained personnel contribute to high levels of maternal mortality in developing countries (Bour, 2004; Narayan, Chambers, Shah and Petesch, 2000).

Geographical location of services for instance has a direct impact on attendance at health facility for antenatal care and receiving skilled care at delivery. Thaddeus and Maine (1994) noted that there is a disincentive to attend antenatal care at facilities far away due to the distance to be travelled, availability of affordable transport and the condition of the roads. Narayan and others (2000) found distance and travel to be the single biggest obstacle to the reduction of maternal mortality, more so even than cost of care at the facility. Geubbels (2006) also refers to a "distance decay" effect where the further a patient lives from a health facility, the less likely he or she is to utilise its services.

The use of healthcare services perhaps is the most critical determinant of the risk of maternal mortality. Attending antenatal care and receiving skilled care during and after delivery are important in detecting and managing pregnancy and the immediate complications associated with it. Graham and others (2001) estimated that around 13% to 33% of all maternal deaths may be avoided by skilled attendance at delivery through prevention of four main complications (obstructed labour, eclampsia, puerperal sepsis and obstetric

haemorrhage). In a recent study using cross-country-level data from sub-Saharan Africa, Prata and others (2009) found that family planning and safe-abortion services saved the most number of lives, followed by antenatal care. Utilisation of maternal healthcare services in developing countries is however poor in relation to adequacy and timing of use. Many women who attend antenatal caredo so only once or twice and often late in pregnancy. For supervised delivery, many women only agree to attend when they encounter complications in attempted deliveries at home. This unsatisfactory use of maternal healthcare (MHC) in developing countries is attributed to factors such as poverty, illiteracy, cultural (traditional) and religious practices (Nylander and Adekunle, 1990).

There are also health behaviours that are known to have a deleterious impact on the outcome of pregnancy and safe motherhood. These include illicit abortion practices, harmful traditional practices during pregnancy and childbirth, smoking and alcohol consumption. The most documented reproductive health behaviour that is detrimental to life is engaging in illicit abortion or self-induced abortion practices. Studies have shown that pregnancy-associated deaths are two to four times higher for women who abort their pregnancies compared to women who give birth (Reardon, Strahan, Thorp and Shuping, 2004). A recent study also showed that globally, unsafe abortion accounts for about 13 per cent of maternal deaths (Haddad and Nour, 2009). Major determinants of unsafe abortion apart from health reasons include a desire to continue work, schooling or apprenticeship, avoid social stigma or do away with unwanted pregnancy.

In the McCarthy-Maine framework the distant factors are encapsulated in the socioeconomic status of women, family and/or the community. They are reflected in educational attainment, occupation, income or wealth, all at the individual or family level, and aggregate wealth and community resources at the community level. A number of studies have established that the risk of dying is strongly influenced by one's status in society (Antonovsky, 1987; Feinstein, 1993; Kaplan, Haan, Syme, and Miszcynsky, 1987; Kaplan and Keil, 1993). In most circumstances, including maternal mortality, the poor, less educated and disadvantaged are more likely to die than are more affluent and more informed people (Cutler, Lleras-Muney and Vogl, 2008; Kaplan and Keil, 1993).

The other important factor is the effect of the aggregate socioeconomic status of the community within which women live. Anderson and others (1997) noted that even though family income has a stronger association with mortality than census tract, area socioeconomic status more broadly makes a unique and substantial contribution to mortality. Acolet and colleagues (2008) and Lewis (2007), using various measures to describe a neighbourhood's level of development, found that the risk of maternal mortality is compounded by macro-structural circumstances of the neighbourhood within which a woman resides, besides the usual biomedical factors which are similar throughout the world. Both studies found a strong association between area deprivation (using the Index of Multiple Deprivation measure) and maternal mortality, with areas of high deprivation recording higher rates (Acolet *et al.,* 2008; Lewis, 2007).

DATA AND ANALYTICAL MODEL

Two datasets are used. The first dataset is the women-specific and verbal autopsy data drawn from the Ghana Maternal Health Survey (GMHS) conducted in 2007/2008 by the Ghana Statistical Service (GSS), the Ghana Health Service (GHS) and Macro International. The second is the 2000 Population and Housing Census (PHC) data which was used to construct measures to classify the neighbourhoods within which women live.

The GMHS utilised a multi-stage sampling design and administered a total of four different questionnaires at various stages. In the first stage, a nationally representative sample of 1600 clusters (primary sampling units drawn from the 2000 PHC) was selected across all 10 administrative regions of the country, recognising appropriately the population distribution across urban and rural areas. During this first phase of mapping and listing, a short household questionnaire was administered simultaneously to identify deaths to women aged 12-49 that occurred in the five years preceding the survey.

In the second stage, which involved the second phase of fieldwork, 400 clusters were randomly selected from the 1600 clusters sampled in the first phase. Households with women aged 15-49 were then randomly and independently selected from these 400 clusters, stratified by region and locality type. The design took into consideration the settlement hierarchy of

the population. Ghana's settlement hierarchy can be placed within a four-tier system (Owusu, 2004). At the top of the hierarchy are the large towns/cities with populations of 250,000 or more, followed by the intermediate (small cities) towns with populations of 50,000 to 250,000, and then the towns with populations between 5000 and 50,000. The last are the rural settlements with populations less than 5000.

Two sets of questionnaires were administered at this stage: a longer household questionnaire and an individual women-specific questionnaire administered to women aged 15-49. The household questionnaire was administered to identify eligible women aged 15-49 for the individual woman's questionnaire and to obtain some background information on the socioeconomic status of the household and specifically about these women. The individual questionnaire included the maternal mortality module, information on utilization of maternal health services and other related questions. The verbal autopsy questionnaire (VAQ) was administered to specific women in the households where there was a reported death of a woman aged 12-49 in the 5 years preceding the survey. The VAQ collected information on the causes of all female deaths, which informed the categorization of reported deaths as maternal deaths.

Estimating the Determinants of Maternal Mortality

The analysis was based on a case-control design. In this design women who died during pregnancy, delivery or in the postpartum period (cases) were compared with a group of women who gave birth and did not die (control). Case-control studies have historically been used as a statistically powerful design to identify risk factors (Gupta *et al,.* 2010; WHO, 1994). The starting point in the data extraction process in this study is that all maternal deaths in the verbal autopsy data were regarded as cases, while the controls were carefully selected from women reporting a live birth during the same period (using the last five years preceding the survey: 2002 – 2007 as the reference period) and in the same sampling cluster. All female deaths in the reproductive age that were established to be due to maternal causes were included in the study as cases. The controls were selected from 5,023 women gathered from the women-specific questionnaire who reported a live birth during the same period and about whom the desired information was available.

Since the outcome of interest is binary — either a woman died of pregnancy-related reasons or survived a pregnancy the appropriate model formulation for the analysis was a probit or a logit model. However, given the hierarchical or nested nature of the data, a two-level model was used to allow for correlation between mortality and characteristics of individuals living in the same neighbourhood, and to explore the extent of between-neighbourhood variation in the risk of maternal mortality. The approach consists of first defining a model at the individual level, and then estimating the statistical model that results from aggregating the individual-level model over individuals in an area.

The first estimation process in this analysis was an unconditional logistic regression analysis to examine the intra-class correlation coefficient. The variance partition coefficient showed that approximately 4.2% of total variance in the odds in favour of maternal mortality can be attributed to neighbourhood effect (results however not reported). This is statistically significant, suggesting that even though the proportion is small the neighbourhood variations in the risk of maternal mortality should not be ignored.

Variables and Measurement

This study faces one of the imperfections associated with relying on inherited data for analysis of this nature, and that is the lack of enough variables that will be desired for a more nuanced analysis of the dependent variable under study. At the individual level, there were only three variables: age, education and marital status that could be used to compare the cases and the controls. Maternal age was categorised into seven groups using an interval of 5 years: 15-19, 20-24, 25-29, 30-34, 35-39, 40-44 and 45-49 years. Five year age groups present a classic age profile of the population and enable direct comparison between each group.

The age range 15 to 49 years is usually used as the frame of reference for women within the reproductive age in developing countries. Educational level was put into five categories: women who had no education and those with primary level, Junior High School/Middle (JHS/MLSC), Senior High School/Vocational (SHS/Voc) and College/Tertiary education (those who completed training college, polytechnic or university). Marital status was put

into five categories: those who were married, those in loose/consensual unions (living together with a partner), widowed, divorced/separated, and those who had never married.

At the neighbourhood level the key variable was the socioeconomic classification of neighbourhoods using the measure of multiple deprivation (IMD). The deprivation index is a composite score obtained by combining selected indicator staken from small areas in the Census data. The scores are not a measure of the extent of individual material wellbeing but rather a summary measure applied to the population contained within the small geographic locality (McLoone, 2004). The bundle of contextually-relevant indicators selected from the 2000 PHC and used to construct the index of multiple deprivation were: proportion of households having no access to good dwelling; population 15>aged <60 years without senior high school education; proportion of households not living in family-owned home; proportion of households living in housing units that fall below equivalised[1] bedroom occupancy threshold; population aged 18-60 years unemployed; proportion of households with no proper source of light; proportion of households with no access to improved water source; proportion of households who use unimproved waste disposal system (solid and liquid); and proportion of households who have no improved toilet systems.

These indicators were selected based on consultation with various reports on human and community development in Ghana including the Ghana Human Development Report 2007 (UNDP, 2007). Studies that also used similar indicators include Carstairs (1995), Carstairs and Morris (1991), Crayford, Shanks, Bajekal and Langford (1995), Fukuda, Nakamura and Takano (2007), Salmond and Crampton (2000), and Townsend (1987, 1990). The use of these indicators to measure an area's level of deprivation is also common with the Social Disadvantage Research Centre of the Department of Social Policy and Social Work, Northern Ireland (2001). The selected indicators also received validation from a broad range of opinions of various disciplines and development experts.

Following the method of Townsend (1987) and Carstairs and Morris (1991), each variable was standardised to have a population weighted mean of zero and a variance of one. This was to control the relative contribution of each

variable in the score and to prevent any variable with a relatively large variance from unduly influencing the resulting score. The resulting deprivation scores usually range between negative and positive (- +), where positive scores indicate greater levels of deprivation while negative scores reflect greater levels of advantage or affluence. From the data, the deprivation score ranged between negative (-) 10.12, indicating affluent or less deprivation, to positive (+) 4.89 which reflects a high level of deprivation. The average was 0.13, indicating a relative deprivation status for Ghana. The level of multiple deprivation index showed that the most deprived region is the Upper West Region with about 70 per cent of neighbourhoods being deprived, whilst the least deprived region is Greater Accra with 25 per cent of neighbourhoods deprived.

Two other variables were used to reflect the nature of the neighbourhood: ethnic and religious diversity. Ethnic and religious homogeneity reflect social cohesion and social support in society, ingredients important for good health. Pickett and others (2009) argued that neighbourhoods with higher same-ethnic density, shared culture, social networks and social capital tend to exert a protective effect on population health. A priori, we will expect ethnic and religious homogeneity to have a negative relationship with the risk of maternal mortality. However, a study by Platas (2010) suggests that ethnic diversity is associated with a lower risk of maternal mortality. This seems contrary to the arguments by Pickett and others (2009).We therefore included these variables to examine their effect on the risk of maternal mortality at the neighbourhood level.

Ethnic (religious) diversity was measured by taking the ethnic division of the population and calculating each ethnic group's share of the total population of the area, summing the squared shares, and subtracting the value from one (Alesina, Baqir and Easterly, 1999; Osei-Akoto and Adamba, 2011; Vigdor, 2002). A perfectly homogeneous society gives a diversity score of zero, while a society composed of many ethnic or religious groups gives a score approaching one. The index is interpreted as the probability that two randomly selected individuals will not be of the same ethnic group in an area (Alesina *et al.,* 1999; Easterly and Levine, 1997). The survey also classified locality of residence into four types: large cities, small cities, towns and rural settlements. For the different development status of the areas of residence to

be taken into consideration, instead of the usual rural-urban dichotomous analysis, the four different types of localities as captured in the survey were included as a categorical variable, with large cities as the base for reference.

RESULTS

Bivariate descriptive analysis of data

We found that the number of maternal deaths was higher among women in the early young age group compared to women in the older age category (Table 1). Even though the proportion of maternal deaths was lower among women in the age group of 20-29 years, the proportion was increased among women between 30-44 years and reduced thereafter among women in the older age group of 45-49 years. The variation in the proportions of maternal deaths recorded across the different age groups was statistically significant, showing that age had a significant influence on the probability of maternal death. The relationship was however nonlinear. While the percentage of maternal deaths in the younger age group was higher, it was lower in the middle age range (20-29) and got higher among the 30-49 age groups.

There were more maternal deaths recorded among women with no education compared to women with some level of education, and these declined among women with a higher level of education. Maternal deaths recorded among women with no education was 57 percent, 15 percentage points higher than the proportion of women with Primary education and Junior High School or Middle School Leaving Certificate (JHS/MSLC) who died a maternal death. Women with college or a higher level of education had the lowest percentage of maternal deaths. The significant variation in the proportion of maternal deaths and the educational status of women also shows that educational status had an important influence on the probability of maternal death.

There was also a statistically significant relationship between maternal deaths and marital status. The proportion of maternal deaths to women who were widowed was higher (76.5%) compared to other categories of women (married, divorced, never married and women in consensual unions). Maternal deaths recorded among women who had never married at the time of the survey (58.7%) was about 7 percentage points higher than it was for women who were married (51.6%). There were many more maternal deaths

recorded in localities classified as small cities and towns compared to the proportion of maternal deaths recorded in rural areas and large cities. The proportion of maternal deaths in rural areas (39.7%) was only about six percentage points higher than deaths recorded in the large cities. The relationship between the type of locality and the probability of dying a maternal death shows increasing risk as one moves out from the large cities to small cities and towns, but reduces in rural areas. The relationship is statistically significant, also indicating that the type of locality that one lives in has an influence on one's chances of maternal death.

Table 1: Distribution of cases and controls as used in the analysis

Characteristics		Total	Controls n = 769	Percent	Cases n = 670	Percent	P - value
Age	15-19	88	19	21.6	69	78.4	
	20-24	314	188	59.9	126	40.1	
	25-29	378	226	59.8	152	40.2	
	30-34	289	161	55.7	128	44.3	
	35-39	230	114	49.6	116	50.4	
	40-44	102	41	40.2	61	59.8	
	45-49	38	20	52.6	18	47.4	0.000
Education	No education	396	172	43.4	224	56.6	
	Primary	332	193	58.1	139	41.9	
	JHS/MSLC	555	323	58.2	232	41.8	
	SHS/Voc.	120	62	51.7	58	48.3	
	College/higher	30	19	63.3	11	36.7	0.000
Marital status	Married	1084	525	48.4	559	51.6	
	Loose/consensual union	131	117	89.3	14	10.7	
	Widowed	17	4	23.5	13	76.5	
	Divorce/separated	67	64	95.5	3	4.5	
	Never married	143	59	41.3	84	58.7	0.000
Locality of residence	Large city	258	171	66.3	87	33.7	
	Small city	119	22	18.5	97	81.5	
	Town	415	184	44.3	231	55.7	
	Rural	650	392	60.3	258	39.7	0.000

Determinants of the probability of maternal death

The relationship between the index of deprivation and maternal mortality was first examined through a correlation analysis, and then followed with multilevel logistic regression analysis. The correlation analysis showed that the level of multiple deprivation was statistically significantly and positively correlated with the probability of maternal death: r = 0:72 (p<0.05). In the subsequent analyses, the results were robust to a number of specifications, including weighting for population size and assuming a non-linear relationship between maternal death and the index of deprivation. In Model 1 only individual level factors were examined, whilst in Model 2 the variable for type of locality of residence (large city, small city, town and rural area) was added to the individual level factors. Models 3 and 4 included the deprivation index (as a continuous variable) and the ethnic and religious diversity factors respectively. Models 5-10 added cross-level interactive factors. The regression results are presented in Table 2.

All the individual level factors: age, education and marital status were found to be significantly associated with the risk of maternal mortality. Age showed a non-linear relationship with the risk of maternal mortality, with younger (below 19 years) and older (above 40 years) women having a higher risk of maternal death compared to the other age categories. This factor remained consistent throughout the different models conducted, even after including locality of residence and area deprivation levels. Maternal education was also consistent in models 1 and 2, showing a lower risk of maternal mortality among women with a higher level of education. The inclusion of locality of residence (locality type: large city, small city, town and rural) and the area deprivation index (IMD) however changed the magnitude of effect that maternal education had on the risk of maternal death.

Women with Junior High School (JHS) education had a lower risk of maternal mortality, which was about half, compared to the risk associated with persons with no education (Odds ratio was 0.46: p<0.05). Even though having a college education had a reducing effect on the likelihood of maternal mortality, it was only weakly significant at 10 per cent in models 2 and 3 after the inclusion of locality type (Odds ratio was 0.22). Women in consensual unions were on the average less at risk of maternal mortality compared to married women (odds

ratio was 0.027: p<0.01). The risk of maternal mortality was also lower with divorced or separated women compared to married women (odds ratio was 0.005: p<0.01).

The results in Model 2 showed that women resident in small cities and towns faced a higher risk of maternal mortality compared to women resident in large cities. In Model 3 the level of deprivation variable was introduced. The results showed that living in a deprived neighbourhood increases the risk of maternal mortality by nearly two times (odds ratio of 1.58: p<0.05) the risk associated with living in less deprived areas. The inclusion of the level of deprivation variable however did not in any way affect the direction and magnitude of effect of the type of locality of residence. Similarly, in both Models 2 and 3 the individual level factors remained fundamentally unchanged.

Model 4 included ethnic and religious diversity. The results showed that living in ethnically diverse areas is associated with less risk of maternal mortality (odds ratio of 0.10: p<0.01) compared to ethnically homogenous neighbourhoods. Religious diversity however did not seem to have any significant effect on the risk of maternal mortality, even though the odds ratio was positive for religiously diverse neighbourhoods.

The inclusion of the diversity factors caused a slight change in the results at the individual level. In particular, it suppressed the attenuating effect college education (higher education) had on the risk of maternal mortality. However, on the positive side, it decreased the negative effect that living in a city or town had on the risk of maternal mortality as well (Model 3).

Table 2: Multilevel logistic regression analysis showing predictors of maternal mortality

Maternal Mortality		Model 1		Model 2		Model 3		Model 4		Model 5	
Intercept		7.420	***	6.681	***	6.629	***	7.705	***	7.159	***
Age		0.675	***	0.684	***	0.687	***	0.680	***	0.684	***
Age squared		1.006	***	1.006	***	1.006	***	1.006	***	1.006	***
Marital status	(Married = Ref.)										
Consensual union		0.025	***	0.026	***	0.028	***	0.027	***	0.027	***
Widowed		6.516		6.840		7.222		5.531		5.877	
Divorced/Separated		0.007	***	0.005	***	0.005	***	0.004	***	0.004	***
Never married		0.872		0.780		0.806		0.805		0.799	
Highest education attained	(None attained = Ref.)										
Primary School		0.587	*	0.522	*	0.569	*	0.621		0.640	
MSLC/Junior High School		0.469	**	0.414	***	0.474	**	0.480	**	0.484	**
Senior High School		0.742		0.611		0.693		0.775		0.789	
College / Higher		0.303		0.223	*	0.229	*	0.270		0.265	
Locality Type	(Large city = Ref.)										
Small city				87.288	***	92.252	***	68.711	***	98.413	***
Town				5.450	***	5.467	***	2.951	**	5.105	***
Rural				0.632		0.486		0.227	***	0.325	**
IMD						1.575	**	1.752	***	0.743	
Ethnic diversity	(Ethnic homogeneity = Ref.)										
Intermediate diversity								0.414	**	0.415	**
Highly diverse								0.101	***	0.108	***
Religious diversity	(Religious homogeneity = Ref.)										
Intermediate diversity								1.705		1.837	
Highly diverse								1.527		1.543	
IMD#Locality type	(Large city = Ref.)										
IMD # Small city										1.723	
IMD # Town										2.867	*
IMD # Rural										2.606	*

Notes:

Significance levels: *p< 0.1; ** p< 0.05; ***p<0.001

Table 2: Multilevel logistic regression analysis showing predictors of maternal Mortality (Cont'd)

Maternal Mortality	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	7.848 ***	7.978 ***	8.107 ***	8.104 ***	7.802
Age	0.680 ***	0.688 ***	0.693 ***	0.693 ***	0.691 ***
Age squared	1.006 ***	1.006 ***	1.006 ***	1.006 ***	1.006 ***
Marital status (Married = Ref.)					
Consensual union	0.027 ***	0.027 ***	0.027 ***	0.027 ***	0.027 ***
Widowed	5.490	6.091	5.700	5.698	5.741
Divorced/Separated	0.004 ***	0.005 ***	0.006 ***	0.006 ***	0.006 ***
Never married	0.814	0.851	0.906	0.906	0.904
Highest education attained (None attained = Ref.)					
Primary School	0.594	0.633	0.699	0.700	0.710
MSLC/Junior High School	0.464 **	0.501 **	0.580	0.580	0.577
Senior High School	0.770	0.853	0.993	0.993	0.985
College / Higher	0.269	0.299	0.338	0.339	0.323
Locality Type (Large city = Ref.)					
Small city	62.065 ***	54.395 ***	35.428 ***	35.436 ***	40.145 ***
Town	2.644 *	2.487 *	1.785	1.786	1.924
Rural	0.190 ***	0.128 ***	0.066 ***	0.066 ***	0.073 ***
IMD	1.918 ***	1.944 ***	1.741 **		1.570 **
Ethnic diversity (Ethnic homogeneity = Ref.)					
Intermediate diversity	0.424 **	0.354 **	0.382 **	0.382 **	0.395 **
Highly diverse	0.109 ***	0.070 ***	0.073 ***	0.073 ***	0.077 ***
Religious diversity (Religious homogeneity = Ref.)					
Intermediate diversity	1.608	1.512	1.686	1.687	1.926
Highly diverse	1.465	1.372	1.420	1.421	1.626
Proportion of females who are employed	1.367 *	0.931	1.170	1.358	1.235
Proportion of males who are employed		1.851 **	1.358	1.170	1.363
Proportion of females who are literates			0.315 ***	0.315 ***	0.265 ***
Proportion of males who are literates			1.831	1.834	2.288 **
IMD # No education				1.735 **	
IMD # Some education				1.750 *	
IMD#Prop with Sec educ and above					0.708 *

Notes:
Significance levels: *p< 0.1; ** p< 0.05; ***p<0.001

In model 5 an interactive term for IMD and type of locality is added to assess where the impact of deprivation was severe. The results showed that the impact of deprivation was severe in rural areas and towns. The risk of maternal mortality increases by nearly 3 times in rural areas and towns that were also highly deprived (Odds ratio of 2.6 and 2.9 significant at 10%, respectively) compared to large cities. Two other aggregate level factors that made a lot of meaning in the analysis were the measure of the proportion of people with at least senior high school education (senior high school or higher level education) and adult literacy (able to read English language and/or any Ghanaian language).

In Model 8, the results show that living in a neighbourhood that has a higher proportion of adult females being literates, a woman's risk of maternal death reduces by approximately 70 per cent (Odds ratio, 0.32; $p < 0.0001$). The effect of the aggregate of women educated in the neighbourhood did not change in Model 9 where the neighbourhood deprivation status was interacted with individual educational attainment. The results of the IMD-maternal education interactive term rather reflected a homogeneously increasing effect on the risk of maternal mortality. Indeed, the educational status of the mother was suppressed by the level of deprivation in the neighbourhood, so that whether she had some education (Odds ratio, 1.75: significant at 1%) or no education (Odds ratio, 1.74: significant at 5%), living in a deprived area was associated with an increase in the risk of maternal death.

In the last specification (Model 10) an interactive term of the aggregate of females who have attained senior high school education level or higher at the neighbourhood level and the level of deprivation variable was introduced. The result showed that there was a significant mitigating effect of high female education at the aggregate level on the risk of maternal mortality, even in deprived neighbourhoods (Odds ratio of 0.71: $p < 0.1$). What this means is that between two communities of equally deprived status, the one with a higher proportion of females with senior high school education or higher is associated with less risk of maternal mortality.

DISCUSSION

The major risk factor from the analysis at the individual level is age (mostly younger and older age groups) which appeared to have a concave relationship with the risk of maternal mortality. Younger aged mothers (below 19 years) and older aged ones (40 years and above) have an increased risk of maternal mortality. This finding is empirically consistent with other studies (Geubbels, 2006; Gupta *et al.,* 2010; Karlsen *et al.,* 2011). Many reasons could account for this situation, including the fact that younger aged women may not be fully prepared psychologically and physiologically to withstand pregnancy pressures for nine months. From the analysis, the ages of 25-39 are the age bracket with the lowest risk of maternal mortality. Even though in the earlier specifications, maternal education was shown to be associated with a lower risk of maternal death, the effect was not found to be statistically significant in the last specification when aggregate level education was interacted with the level of deprivation. This reflects the suppressive effect of neighbourhood factors on individual socioeconomic status.

In this study, the marital status of a woman was also an important factor in determining the risk of maternal death. The risk of maternal mortality was lower among women who were in consensual unions, divorced or separated compared to women who were married. This may be suggestive of a generally low level of sexual activity and low fertility levels among women who were not legally or customarily married or who were divorced (GSS, GHS and ICF Macro, 2009). In African societies, and in Ghana for that matter, there are strong standards regarding sexual practices and perceptions of out-of-wedlock pregnancies and births (Cui, 2010), even though these may be changing lately. In Ghana pregnancy and child bearing are cherished in marriage. Women who are not legally or customarily married therefore are more likely to have low fertility levels and a lower risk of maternal mortality. Conversely, there is a stigma associated with childlessness, especially in marriage. It is considered a shame in some African societies for a married woman not to have children. In villages and small towns particularly, having more children is regarded very positively. But this has adverse effects on women, as it increases their chances of dying through giving birth.

The major underlying factor that is shown to be associated with high risk of maternal mortality is the level of deprivation of the neighbourhood within which women live. Our analysis showed that an increase in the level of deprivation (highly deprived) increases the risk of maternal mortality by approximately 2 times. In other words, living in a highly deprived neighbourhood is associated with a higher risk of maternal death. The economic conditions of deprived neighbourhoods are manifested in weak infrastructure, poor access to water and sanitation, and poor housing (UNDP, 2007). Previous researchers have proposed the term 'place vulnerability' (Oppong and Harold, 2009) to explain similar findings on the effect of community of residence on health. Oppong, Kutch, Tiwari and Arbona (2013: 2) explain that 'the characteristics of place of residence…impacts health...' and that 'place characteristics are crucial in understanding differences in health and well-being.' While we found a homogeneous relationship between socio-economic deprivation and maternal mortality, one of the interesting findings is that the effect of high level deprivation on the risk of maternal mortality was severe in rural areas and small towns, contributing approximately 3 times to the risk of maternal mortality as compared to large cities that show characteristics of deprivation.

The results also showed that living in a neighbourhood where a higher proportion of females have attained senior high school education (or other higher level education) is associated with a reduced risk of maternal mortality. An increase in the proportion of females in the population with senior high school education (or higher) is associated with a reduction in the risk of maternal mortality by approximately 30 percent in deprived neighbourhoods. This may not be too surprising because education is known to have both an internal effect on the educated individual and an external effect on other residents in an area. For the individual, education is crucial in facilitating access to and understanding of health-related information. Higher maternal education is known to be associated with increased acceptance of modern health practices and higher utilisation of maternal healthcare services (Karlsen *et al.,* 2011; Zhao *et al.,* 2009). Individuals' level of education also enhances their understanding of medical treatments, their ability to assess risks associated with hazardous behaviour, and their awareness of the benefits of healthy and nutritious food (Ricci and Zachariadis, 2010).

A number of studies have also indicated the externality effects of education on the health of other family and neighbourhood members (Parashar, 2005; Ricci and Zachariadis, 2010). At the aggregate level education both improves health-related behaviours and influences the quality of health services available in an area. This is because a higher aggregate level of education is associated with an improved absorptive capacity for health-related ideas and technologies (Ricci and Zachariadis, 2010). More educated women in an area are more likely to trust modern maternal healthcare services than less educated ones, and are typically more receptive of new medical knowledge. There is also the direct externality effect; health-related information is more likely to flow from individuals with higher education in a neighbourhood to the remaining fewer less educated women, enabling the latter to make better informed health decisions and to maintain healthier lifestyles.

The analysis also showed that living in an ethnically-diverse neighbourhood is associated with a lower risk of maternal death compared to living in ethnically homogeneous areas. Platas (2009) suggested that there are intra-neighbourhood benefits of ethnic diversity which have a reducing effect on the risk of maternal mortality. The cross-cultural interaction associated with ethnically diverse neighbourhoods offers enormous opportunities to broaden one's experiences and to confront stereotypes on social, traditional and ethnic issues that are sometimes inimical to maternal health. These interactions also expose women to different perspectives on health. Living in ethnically homogeneous neighbourhoods, however, may reflect a concentration of culturally incongruous health practices which have adverse health outcomes.

Cultural practices among some Ghanaian ethnic groups considered inappropriate for good maternal health outcomes have been studied (see Senah, 2003). Among some Kasena-Nankana people in the Upper East region, for example, pregnant women are restricted to vegetarian diet; they must not eat meat and groundnut lest they give birth to children described as 'spirit children' (see Senah, 2003). The consequences of observing these taboos may exacerbate already deficient nutritional and anaemic status of pregnant women, which can increase the risk of poor maternal health outcomes, including death (Gumanga, Kolbila, Gandau, Munkaila, Malechi, and Kyei-

Aboagye,. 2011; Lee, Odoi, Opare-Addo, and Dassah, 2011; Martey, Djan, Twum, Brown, and Opoku, 1993). In ethnically-homogeneous neighbourhoods adherence to these traditional norms, do not support scientifically-proven health practices that promote good maternal health. However, in neighbourhoods where there is broader ethnic diversity, traditions and taboos of single ethnic groups are relatively suppressed, giving way to more diverse norms and lifestyles that may be more favourable to maternal health.

In summary, these findings are important for two reasons. First, they show that the locality in which a woman resides is very important, as it has an extended influence on other factors that increases the risk of maternal mortality. Secondly, the level of deprivation of an area is critical, not just the type of locality. This concurs with many studies that have argued that using a simple rural-urban dichotomy in analysing health outcomes is inadequate (Kausar *et al*., 1999; Weeks *et al,*. 2006). This study fundamentally utilised a conceptualization regime that is substantively driven by the literature. Other theoretically-informed approaches have used criteria, such as rural-high, rural-medium and rural-low, depending on the availability and accessibility to critically important social and economic indicators (Kausar *et al.,* 1999). This study therefore supports the need for a more nuanced analysis of the rural-urban environment instead of the usual simple discrete and dichotomous categorisation of type of locality.

CONCLUSION

The focus of this study is the role of the neighbourhood within which people live, thus illuminating one of the central questions of health inequalities research: the relationship between deprivation and maternal death. This is relevant in order for policy interventions to reflect the social context, thereby increasing the potential for success in different settings. The measure of multiple deprivation was constructed using indicators that reflect aspects of deprivation that can be experienced by individuals living in deprived areas. This relates to employment, house ownership, room density, as well as access to water, sanitation and source of lighting. Other important factors that manifest socioeconomic development of a neighbourhood included aggregate level of education and literacy.

The results from the regression analyses provide reason to conclude that living in deprived areas is associated with a higher risk of maternal mortality compared to living in less deprived areas. The magnitude of the effect of deprivation on the risk of maternal mortality is however severer in rural areas and small towns compared to large cities. The results further showed that there is a low risk of maternal mortality in neighbourhoods with a high proportion of women with senior high school education or higher. The mitigating effect of living in an area with a high proportion of adult females who have attained at least senior high school education remains strong and significant when interacted with the deprivation index.

One of the mechanisms to reduce the risk of maternal mortality can therefore be increased access to education for females. Education has a multiplicity of influences at the individual, the family and the neighbourhood level. Education empowers women and provides opportunity to adopt new aspirations. Higher education is associated with reduced fertility, increased acceptance of modern health practices and improved utilisation of health services, and thus has a tremendous opportunity to reduce the risk of maternal mortality. Higher education also has the potential to endow higher income, which is known to have a positive correlation with increased utilization of healthcare services and better health status. The type of education that could lead to a reduction in the risk of maternal mortality as shown in this analysis is for a greater proportion of females to attain at least senior high school grade. Governments have the lead role to improve facilities and provide adequate resources that allow the achievement of this level of educational attainment by females. Families are encouraged to motivate their female children to achieve high level of formal education and to demonstrate a commitment to support them in achieving this feat.

Improving the living conditions of deprived neighbourhoods is also crucial to interrupting the homogeneous relationship between deprivation and the risk of maternal death. Deprived neighbourhoods suffer from limited and poor quality services, including quality healthcare. There are physical access challenges, sometimes in the form of inadequate and expensive transport links between deprived areas and neighbouring centres of opportunities. There is usually a 'disconnect' between deprived neighbourhoods and the

wider economy, with the former being unaffected or less affected by national policies and programmes that tend to be global in nature. Local economic development strategies need to directly address the needs of deprived neighbourhoods.

This requires attention to the common divide between strategy formulation at higher levels and localised delivery, to ensure people living in deprived neighbourhoods can actively participate in strategy formulation and programme implementation. Government funding programmes are of central importance to deprived neighbourhoods. However, the extent of participation of deprived neighbourhoods in formal government health improvement programmes is conditional or related to the extent to which these programmes are applicable and sensitive to local needs. Programme activities need to involve local community or through locally-based organisations. This approach is likely to be effective in promoting improvement within deprived areas. The primary justification for policy intervention in deprived areas should be social justice, reducing poverty and improving the quality of people's lives, which would forestall relying upon improvements in global economic efficiency and growth.

There is one important caveat to our work that needs to be acknowledged, and this has to do with the absence of information on types of health facility the women may have used and also, their utilisation of maternal healthcare (e.g., antenatal visits) in the women-specific data that was used for this analysis. Such information tends to correlate with the type of locality and level of education, and as such, its omission could bias our results. This limited the study in terms of exploring the effect of such behaviour at both the individual and the aggregate level on the risk of maternal mortality. Nonetheless, our results are similar to those of other studies reported in the literature.

Another limitation has to do with the fact that we could not study the pathways that presumably affect maternal mortality in the neighbourhood. It is possible that other risks that operate entirely independent of the neighbourhood characteristics were nonetheless clustered within deprived areas. However, we are consoled by the fact that considering the diversity of neighbourhoods studied, such an occurrence may not be systematic. More importantly, this study fundamentally seeks to draw attention to the

relationship between different characteristics of a neighbourhood and the risk of maternal mortality. By drawing public health attention to the maternal mortality risk associated with the social structure of neighbourhoods, innovative approaches to community level interventions may ensue.

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ENDNOTES

[1] Equivalisation allows for the comparison of households of different composition.

[2] The formula for calculating ethnic and religious diversity is stated below:

$$EthDiv_j = 1 - \sum_{i=1}^{n} Share_{ij}^2$$

where $EthDiv_j$ is the Ethnic diversity index for j neighbourhood; $Share_{ij}$ is the population of i ethnic group divided by the total population of j neighbourhood.

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SIMULATION MODELLING OF SELF-DESTRUCTIVE BEHAVIOUR RELATED TO THE SPREAD OF HIV/AIDS DISEASE IN PORT HARCOURT, NIGERIA

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ABSTRACT

This paper explores the contemporary debate concerning choosing a partner (Positive (+) or negative (-)) and being promiscuous, and their effects on the spread of the HIV virus and AIDS disease. An agent-based simulation model is constructed to analyse the effect of these factors on the spread of the virus and the AIDS disease among sexually-active, high-risk people in Port Harcourt, Nigeria. The results of the analysis suggest that choosing a partner (Positive (+) or negative (-), a decision making practice about whether or not to engage in sexual activity based on one's HIV positive or negative status, is an effective strategy in containing the disease when practised consistently. The level of promiscuity has mixed results regarding the spread of the disease.

Keywords: Disease Prevalence, Epidemics, HIV/AIDS, Nigeria, Promiscuity, Public Health

INTRODUCTION

Almost 30 years have passed since the Acquired Immune Deficiency Syndrome (AIDS) and the virus that causes it, the Human Immunodeficiency Virus (HIV), were identified by the Center for Disease Control in the United States. Though with Highly Active Anti-Retroviral Therapy (HAART) many HIV-positive individuals can live (The Anti-Retroviral Therapy Cohort Collaboration 2008), and scientists remain optimistic about

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developing a vaccine, HIV is still a death sentence for those who have tested positive for virus. It was initially associated with the "four 'H's": homosexuals, Haitians, hemophiliacs, and heroin/HIV drug users, but HIV quickly spread to other populations. Currently, sub-Saharan Africa is the most hard-hit region. UNAIDS estimated that in 2009 over 30 million people around the world were living with AIDS, about 2 million died from AIDS-related complications and there were upwards of 3 million new HIV transmissions (UNAIDS Global AIDS Report Fact Sheet 2009). Despite widespread knowledge of how the disease is spread and how transmission can be prevented, the number of people living with AIDS continues to rise.

The rate of infection began to drop among actively sexual people following much AIDS awareness activism and safer sex education programs in the late 1980s and early 1990s. Moving into the fourth decade of the disease, however, HIV is back on the rise in many states in Nigeria. Many attribute this change to the coming of age of a cohort of who did not have to deal with the AIDS-related deaths of their friends on the same scale as those in the 1980s and 1990s. Others cite increased optimism about treatment among young urban men and women. Growing up in a world where AIDS drugs are available, many young people underestimate the risk of infection and the deadliness of the disease. A third theory is that the stigma attached to being HIV-positive is much greater today than during the height of the AIDS crisis. Since this new generation has grown up knowing about AIDS and how to have safe sex, many see new HIV infections as the result of self-destructive behaviour. This stigma discourages men from getting tested and from disclosing their status to their sex partners (Kershaw, 2008).

In addition to folk theories about the causes of the upsurge of new HIV infections in young people, there has been plenty of speculation about how to reverse the trend. An important one has been the idea of choosing a partner who is positive or negative (+/-). During the start of the AIDS crisis and the decade after, condoms and safe sex were promoted as the best way to reduce the risk of infection during sex. In a speech in 2004, AIDS activist Kramer warned "For the rest of your lives, probably for the rest of life on earth, you are never going to be able to have sex with another person without a condom! (Kramer, 2004). After years of awareness, education and condom distribution, it was clear that some men simply would not use condoms 100% of the time.

Choosing a partner (+/-) emerged as a compromise to allow unprotected sex but decrease the risk of infection. Tim Dean, author of a book on bare backing, describes choosing a partner (+/-) as "the tendency to pursue unprotected sex only with those who share one's HIV status' (Dean 2009: 12). As the virus can only spread through an unprotected discordant sexual liaison (in which one partner is HIV-positive and the other is HIV-negative), eliminating these circumstances would presumably end the spread of HIV. Dean notes a few problems with this approach. First, it does not prevent other sexually transmitted infections or re-infection with another strain of HIV. Second, it unrealistically relies on accurate information and honest disclosure before every sexual encounter (Dean, 2009: 14)
.
While Dean deals with the impact of the choice of a partner (+/-) on the spread of the AIDS disease and also considers the ethical dimensions of this choice, other research workers such as Andrew Sullivan have promoted the strategy of the choice of a partner. Sullivan writes that "If every HIV-positive would do that', the epidemic would soon collapse' (Sullivan 2005: 112). Sullivan argued that although the fear of death did not enforce strict condom use, the "incentive of intimacy" (unprotected sex) could be enough to encourage choosing a partner (+/-).

Although choosing a partner who is either positive or negative (+/-) is widely advocated, the stigma surrounding HIV that discourages many from getting tested and sharing the information with their partners may render the strategy ineffective. However, for Andrew Sullivan and others, choosing a partner (+/-) is just part of a broader project to reform sexual norms.

The project, pushed by Andrew Sullivan as well as Larry Kramer, is an attempt to "civilize" promiscuous men and women by enticing them into a long-term relationship with strong normative pressures - marriage. Both blame promiscuity and anonymous sex for the epidemic. In his 2004 speech, Kramer asks, "does it occur to you that we brought this plague of AIDS upon ourselves?" (Kramer 2004). Sullivan, while less provocative, is no less clear: he lists among "the advantages of same-status marriage.., lower rates of promiscuity among the populace [and] lower rates of disease transmission" (Sullivan 1997).

Some analysts do not apologize for casual sex; they rather celebrate it. For example, Tim Dean (2009) argues that having sex with strangers is, in fact, "ethically exemplary" (Dean, 2009: 180). Douglas Crimp, in response to one of Kramer's invectives against promiscuity, affirms, "they insist that our promiscuity will destroy us when in fact *it is our promiscuity that will save us"* (Crimp, 1987:253). According to Crimp, promiscuity has allowed people to be sexually inventive and to develop new strategies for having safe sex. These scholars argue that a group's sexual ethic should be seen as a resource to draw upon rather than as part of the problem.

For the spread of HIVS/AIDS disease, the debates about choosing a partner (+/-) and promiscuity among men and women are often heated. In evaluating such claims, agent-based sexual behavior models offer sociologists and epidemiologists a unique tool to analyse competing claims associated with these two factors which are the choice of a partner and promiscuity. Epidemiologists have, in the past, used mathematical models to predict how quickly a disease will spread through a new population. Agent-based models, as documented by Foster and Purley (1989), allow researchers to test the effects of changes in human behavior coming from an emerging disease.

With these models, we can also test the effectiveness of different prevention strategies and interventions to determine what behaviors can contribute to or help to reduce the spread of HIV/AIDS disease. Though most sexually transmitted infections (STIs) and other diseases spread through a population in the same or similar ways, several factors make the spread of HIV and AIDS unique. HIV is transmitted through a more limited range of behaviors than other STIs, suggesting a sparser sexual network. The unique stigma attached to HIV also changes the dynamics of testing and disclosure between sexual partners.

The use of agent-based models to simulate HIV and AIDS transmission is not new. Some have been designed to be context neutral and interrogate the importance of knowing one's status (Wilensky, 1997). Others are closely calibrated to a specific population, using sexual network data and medically-accurate models of variable infectivity rates (Alam *et al*., 2008). To test the claims of the different views, a model is required that is specific to a population under discussion. Specifically, the model must incorporate a

relevant sexual mixing scheme that implements partner concurrency - "when one partnership begins before another one terminates" (Doherty *et al*., 2005: 191). Morris and Kretzschmar (1995) argue that partner concurrency is important to incorporate in sexual epidemiology models as it greatly affects the spread of HIV and AIDS through the network.

DESCRIPTION OF THE MODEL USED IN THIS STUDY

Our model, code-named Nutmeg, is essentially a simplistic virtual world, populated by hundreds of "agents" — virtual entities that represent men and women who have sex. Each run of the model starts with a new population of agents who interact with and affect each other during the course of the run. Time is measured by ticks: each agent may act exactly once per tick and their actions' effects persist through the run. Each tick gives agents the opportunity to find a new partner, have sex, and potentially acquire HIV, and live or die. Running the model for 1,500 ticks allows us to see the accumulated effects of many thousands of interactions between agents, simulating how the disease can spread over time. By changing the way agents behave in different runs of the model, we quantify and compare the effects that these behaviors would have over a period of time.

As much as possible, parameter values are modeled on real data. The initial prevalence and rate of transmission are based on data from high risk sexually-active men and women in Port Harcourt, Nigeria. Additionally, the Nutmeg model uses life expectancy figures that correspond to the most recent estimates of HIV-positive life expectancy related to the use of Highly Active Anti-Retroviral Therapy (HAART) (The Anti-Retroviral Therapy Cohort Collaboration, 2008). The pool re-entry and average relationship length variables allow for concurrent partnerships and non-recurring sexual liaisons. Table 1 provides data and information on the variables used in the model.

Upon initialization of the model, 200 agents are created and randomly positioned across a grid. Each grid has three properties namely the status of the agents, the list of their current partners, and a binary marker of whether or not an agent is looking for a new partner (that if he/she is "in the dating pool'). A status is assigned randomly to each agent based on the initial prevalence. The list of partners begins to empty but becomes populated and depopulated during the course of a run of the model.

Table 1: Variables used in the model, their definitions and values used for modelling with reference sources where appropriate

Variable	Explanation	Value
Transmission Rate	Chance of infection per sex act	3% (Jin *et al.*, 2010)
initSP	Initial prevalence rate of virus in the high-risk group	19% (Center for Disease Control, 2008)
repopRate	How often a new agent is created	Average every 5 ticks*
negMortality	Average lifetime of negative agent	500 ticks
pozMortality	Average lifetime of positive agent	300 ticks
avgRetLength	Length of average relationship	50 ticks
poolReentry	Average time between beginning a new relationship and rejoining the "partner pool"	30 ticks
Percchoosing	Percent chance choosing a partner is practised. Intensity of choosing a partner with (+/-) status	Varied
percOI S	Percent of sex partners that are non-recurring. This variable is related to one-night stand sexual activity	varied

Note:

* One tick corresponds to one full step of the simulation

During each step of the simulation that an agent is not already in the pool, he has a chance to enter the pool. In the pool, the agent will look for one new partner per tick until he finds one who is suitable. Discordant partnerships are rejected according to the choosing parameter of that run of the model. Once a partnership has been formed, it is determined to be long-term or non-recurring based on the relevant percOIS parameter. In discordant partnerships, there is a chance for the negative agent to convert based on the model's transmission rate.

When the partnership formed is longer-term, the agents take themselves out of the pool temporarily and add each other to their partner list. With every step in which an agent's partner list is populated, he cycles through each partner. For each discordant partner, there is a chance to convert. Additionally, each partnership has a chance to break up based on the average relationship length variable. Finally, each agent has a chance of dying with every tick. The rate of death is determined by status.

The Nutmeg Model is essentially designed to test the effects of choosing a partner (+/-) and promiscuity in the spread of HIVS/AIDS epidemic. However, the model does not incorporate re-infection with different strains of HIV, the increased risk of contracting HIVS/AIDS disease while infected with other STIs, variable transmission rates during different stages of the disease, wider population dynamics, varying rates of partner change, and unawareness of status or frequency of testing. Choosing a choosing a partner (+/-) can be used as a proxy for other strategies of risk mitigation.

Empirical Analysis with the Model
The model was run with several different parameter sets. The proportion of non-recurring sexual behavior related to "one-night stand" sexual activity was analysed based on these four intensity levels: 10%, 33%, 67% and 90%. These four different levels of promiscuity modelled, based on the concept of one-night stand sexual activity, (10%, 33%, 90% and 99%) correspond to (1) a conservative extreme, (2) a moderately-conservative, (3) a moderately-liberal and (4) a very liberal-extreme sexual ethic among the population modelled.

Choosing a partner with (+/-) status was analysed at four adherence levels: 0%, 50%, 90% and 99%. A 0% level of choosing a partner (+/-) corresponds to a population that is completely indifferent to status of the potential sexual partner. The 50% level of choosing a partner (+/-) signifies a relatively lax attitude or a high amount of uncertainty with regards to the choice or the determination of status of a potential partner. The last two values (90% and 99%) indicate very high attention paid to the status of the potential sexual partner and conscious effort to find a suitable partner based on the right HIV status.

The control parameter set [where choosing a partner level = 100%) was used to compare experimental runs to an "ideal world" in which the virus cannot be spread. Because the virus is never transmitted when choosing a partner (+/-) is practised strictly 100% of the time, the proportion of non-recurring encounters, based on the intensity of one-night stand sexual activity, does not affect transmission dynamics. Each set of parameters could be considered to be a scenario and was assigned a letter. Each scenario was run 20 times. Each run lasted exactly 1,500 ticks. The maximum prevalence and ending (or equilibrium) prevalence rates were recorded for each run and averaged across each scenario. The statistics were compared using one-tailed two-sample t-tests at a 0.05 alpha confidence level. Table 2 provides the data on the 16 scenarios.

Table 2: Data on the 16 parameter sets or scenarios using an alphabetical classification

Promiscuity index based on one-night stand sexual activity	Choice of a partner with (+/-) HIV status			
	0%	50%	90%	99%
10%	A	B	C	D
33%	E	F	G	H
67%	1	J	K	L
90%	M	N	O	P

SUMMARY RESULTS OF ANALYSIS

Under control conditions (baseline scenario) the virus was eradicated from the population in 17 out of the 20 runs. In each of the other three runs, the prevalence rate was under 1% by the end of the run with only one agent positive. Further, for these other three runs, the mean maximum preva1ence rate of the virus was equal to the initial prevalence rate of 19%, and the mean ending prevalence rate was 0.14%.

Tables 3 and 4 report the mean maximum prevalence and ending or equilibrium prevalence rates for each of the 16 scenarios. For these 16 scenarios (Scenarios A to P), the level of choosing a partner was found to have a more profound impact on the chances of eradication of the virus than the level of promiscuity. In order to separate the confounding effects of the two variables on prevalence rates, the results from each scenario are only compared with other scenarios with the same value for one of the two experimental variables used in the study.

As expected, choosing a partner positive or negative (+/-) was negatively correlated with the spread of the virus. As the percentage of choosing increased, the extent of the epidemic (as measured by peak and equilibrium prevalence rates) decreased. These findings were consistent across different values of the promiscuity variable. The percentage of non-recurring encounters significantly affected prevalence rates for some levels of choosing a partner (+/-) but not all. Additionally, the direction of influence that promiscuity had on prevalence rates changed based on the percentage of choosing a partner (+/-). Lower levels of choosing a partner (+/-) increased the prevalence rate of the disease. As expected, higher levels of choosing a partner (+/-) had the opposite effect of decreasing the prevalence rate.

Table 3: Estimated mean maximum prevalence rates of the disease for the 16 different scenarios

Promiscuity index based on one-night stand sexual activity	Choice of a partner with (+/-) HIV status			
	0%	50%	90%	99%
10%	91.4	88.0	63.3	22.2
33%	91.9	88.4	62.3	19.8
67%	91.6	88.0	58.2	19.6
90%	92.8	88.8	55.7	19.3

For scenarios with percentage of choosing a partner set at zero level, (scenarios A, E, I and M), increased promiscuity tends to correspond to higher maximum preva1ence rates; however, it does not have a clear effect on the equilibrium or ending prevalence rates of the virus. The difference between mean maximum prevalence rates for scenarios A and M is statistically significant with a p-value of 0.001 level. Although the effect is not very important or strongly pronounced, the direction of the influence is consistently statistically significant, which suggests that at 0% rate of choosing a partner (+/-), high levels of promiscuity related to non-recurring sexual partnership do increase the prevalence rate of the disease.

Table 4: Estimated mean equilibrium prevalence rate of the disease for the 16 different scenarios

Promiscuity index based on one-night stand sexual activity	Choice of a partner with (+/-) HIV status			
	0%	50%	90%	99%
10%	79.5	73.4	50.4	2.3
33%	81.3	75.7	43.9	2.2
67%	78.8	74.4	44.9	0.7
90%	81.8	78.0	44.5	0.7

For scenarios, B, F, J and N, the rate of choosing a partner (+/-) is set at 50%. The maximum prevalence rates in this group of four scenarios do not vary much. However, the equilibrium prevalence rates for this group do increase with the promiscuity variable as shown in Table 3. Scenario N (promiscuity variable of 90%) has a greater equilibrium prevalence rate than scenario B (promiscuity variable of 10%) and Scenario J (promiscuity variable of 67%) with p-values of 0.005 and 0.004, respectively.

Scenarios C, G, K and O all have 90% rate of choosing a partner (+/-). The results indicate that the maximum prevalence rate of the disease decreases

with increasing level of promiscuity as defined by the proportion of one-night stand sexual activity undertaken. However, the mean equilibrium prevalence rate of the disease fluctuates with increasing level of promiscuity. The results from Tables 3 and 4 suggest that increasing proportions of non-partnered sexual encounters decrease the maximum prevalence rates of the disease. This robust finding is statistically significant between C and K with p-value less than 0.001, between C and O with p-value less than 0.001, between G and K with p-value of 0.005, between G and O with p-value less than 0.001, and between K and O with p-value of 0.03. However, the mean equilibrium prevalence rates are not statistically significantly different among G, K, and O; but each of the three scenarios has mean equilibrium prevalence rate significantly lower than that of C with p-values of 0.01, 0.02 and 0.006, respectively. This evidence suggests that an increased proportion of non-recurring sexual encounters (one-night sexual activities) do reduce the average prevalence rate of the disease.

For scenarios D, H, L and P which involve a fixed 99% rate of choosing a partner (+/-), the results as reported in Tables 3 and 4, show that the maximum prevalence rates and the mean equilibrium prevalence rates of the disease decrease with increasing intensity of promiscuity as defined by the level of one-night stand sexual activity. The trend is statistically significant with p-value 0.048 between D and L, and 0.001 between D and P for the values of mean maximum prevalence rates. The difference between the mean equilibrium prevalence rates is much more striking. The result is statistically significant between D and L with p-value of 0.02, between D and P with p-value of 0.02, between H and L with p-value of 0.049 and between H and P with p-value of 0.049.

These results for the 16 scenarios were also compared to the control scenario. The mean maximum prevalence rate for scenario D was significantly greater than the control scenario with a p-value of 0.02. However there was no statistically significant difference in the maximum prevalence rate of the disease between the control scenario and the three other scenarios involving a 99% rate of choosing a partner (+/-), H, L and P. For the mean equilibrium prevalence, however, each of the 16 scenarios had a rate which was statistically significantly greater than that of the control scenario.

DISCUSSION

Key Findings

The most interesting finding is that the promiscuity variable affects the prevalence of the disease in different ways for high and low levels of choosing a partner (+/-). For 0% and 50% choosing a partner (+/-) levels, increased promiscuity led to higher prevalence rates. For the two very high levels of choosing a partner (+/-) scenarios (90% and 99%), however, increased promiscuity caused lower prevalence rates of the disease. The most likely mechanism behind the first result follows traditional safe-sex narratives: the increase in the number of sexual partners increased exposure to HIV and AIDS. Because agents are temporarily taken out of the 'dating pool" when they enter a long-term relationship, agents in low-promiscuity runs have much fewer sexual partners than those in high-promiscuity runs. This finding corroborates the claims of conservatives that promiscuity was partially to blame for the severity of the HIV/AIDS crisis in the 1980s and 1990s. However, the effect is minimal and only exists for relatively low levels of choosing a partner (+/-).

The much more striking effect of the proportion of non-recurring partnerships is in high choosing a partner (+/-) runs. For the 90% and 99% choosing a partner (+/-) scenarios, an increase in promiscuity had the opposite effect: it reduced the spread of the disease. This finding was much more pronounced. It was statistically significant for most parameter comparisons in the 90% and 99% groups and with maximum prevalence as well as equilibrium prevalence. There are at least three plausible explanations for this phenomenon. First, it is possible that for high levels of relationship formation (low promiscuity) and high levels of choosing a partner (+/-) concordant partnerships will be formed much more often by negative couples. Since these couples are temporarily taken out of the dating pool, positive agents who have a harder time finding a concordant partner are over-represented, which means that the negative agents looking for a partner will choose discordant partners more often than the prevalence figures would suggest. This increases the exposure of negative agents to the virus and increases the chances they will become infected. On the other hand, with fewer relationships formed under conditions of high levels of non-recurring partnerships, the imbalance is less pronounced and discordant couples occur less frequently, lowering the risk of prevalence.

Another explanation relies on partnership concurrency. Long-term partnerships can form easily between (HIV negative) concordant couples. But partnership concurrency allows those partners to have other liaisons during the course of the relationship. If one of those partners becomes infected during the course of the relationship, the couple does not re-choose, leading to a higher incidence of discordant couples over time than the choosing figure suggests. The uninfected partner in one of these previously concordant relationships can quickly become infected as well, doubling the effects of the first transmission. Thus partnership concurrency can turn long-term relationships into a health hazard when partners do not maintain consistent honest communication about status and risk behaviors.

Finally, the simplest mechanism is just that in longer-term relationships, there is more sexual contact and therefore more opportunity to spread the disease. Even taking account of high levels of choosing a partner (+/-) once a discordant relationship is formed, the length of partnership almost guarantees that the disease will be spread. For higher levels of nonrecurring partnership, this factor contributes less to the epidemic because it is more likely that discordant partnerships will be one-night stand sexual activity and therefore have a single, low chance to transmit the virus.

Regardless of the narrative attached to this finding, the results are stunningly unanticipated. Despite the moralizing rhetoric of the conservatives seeking to end AIDS through "civilizing" sexually promiscuous men and women, this approach would seem to have the opposite effect. When individuals make an effort to choose promiscuity and non-recurring sexual partnerships, it may actually decrease the risk of HIV and AIDS transmission compared to having a series of long-term partners which may involve one partner cheating or having sexual liaison with an infected person.

We must consider these figures in the light of the results of the Ministry of Health study of Port Harcourt which reported that 44% of HIV-positive people were unaware of their status or believed they were negative. Many of these men and women even believed themselves to be at low-risk. With such a high amount of uncertainty or false information, high levels of choosing a right partner (+/-) are a practical impossibility. Even assuming complete

transparency (as the Nutmeg model does), a plausibly high level of choosing a partner (+/-) only maintains the disease at an equilibrium; it does not do enough to eradicate it. While additional factors not considered in the model could push the prevalence down further, it is clear that, unless very strictly practised, choosing a right partner (+/-) alone is not enough to reduce the prevalence of the disease.

Ultimately, choosing a right partner (+/-) depends on trust and honest disclosure about status and about one's certainty about that status. Without enough certainty, reliable information and honesty between sexual partners, the levels of choosing a partner (+/-) that could reduce the prevalence rate of the disease significantly and end the epidemic will remain out of reach. Although it is an admirable measure to reduce personal risk and lower the overall prevalence rate, it does not seem likely that even high levels of choosing a right partner (+/-) can stem the spread of HIV and AIDS.

Model Validity

Our next concern in interpreting the findings produced by the model is establishing their validity and our ability to make broader claims based on these results. Perhaps the most striking feature of the data is the high rate of prevalence recorded in most of the scenarios compared to the relatively modest 19% that is currently observed among men and women. There are several reasons why we see such high prevalence rates in the model and why the results of the Nutmeg model are relevant to AIDS prevention initiatives.

First, the model, by starting at 19% prevalence, is aimed at predicting the future course of the disease, not accurately reconstructing its past or current state. Second, while we do not have reliable estimates of the frequency with which men and women choosing a partner (+/-) employ various strategies, anecdotal evidence (Dean 2009) suggests that only a small percentage of men and women are actively indifferent to or seek out conversion, suggesting that the majority do take status into account (when known); thus, the real population figure for percentage of choosing a partner (+/-) is likely to be over 50% in ideal conditions.

Third, the Nutmeg model specifically does not include low-risk men and women who are exclusively monogamous, abstain from risk behavior such as anal intercourse or have a very low number of sexual partners. These individuals do not tend to affect the transmission dynamics of the disease, they only serve to decrease the population prevalence. Thus it is quite expected that the model's prevalence figures are higher than numbers observed in the broader population. Lastly, even though the figures for preva1ence rates obtained from the model do not currently correspond to observed rates in the population, the effect that the two variables have on lowering prevalence are still statistically significant.

The choice of values for the variables in the model is also subject to question. As previously mentioned, some values, such as the initial prevalence and transmission rates per high-risk sex act, are based on recent empirical research done in Port Harcourt. For other values, the most recent scholarly findings are unclear or irrelevant to the model. The number of agents in the model, for example, was set at 200 to give enough opportunity for random events to be averaged out over the entire set of agents, yet it is a small enough number to be manageable with the computer's limited CPU resources. The ticks in the model are not intended to correspond to any specific duration of time, but other variables such as mortality rates, pool reentry average relationship length, and the repopulation rate must be calibrated to the length of the model in ticks. Each of these variables was set in relation to the others such that partnership concurrency was a possibility but not a necessity for every relationship or every agent, so that the average number of partners was not too far outside the realm of plausibility and the model sustained enough agents to have meaningful action through the course of its run, accounting for agent deaths. Thus the figures for the HIV-positive and HIV negative mortality rates are not inherently meaningful; they are set in a ratio that approximates observed mortality rates in the study.

CONCLUSION

In concluding, it is important to stress that the Nutmeg model has several key limitations that narrow the scope of relevance of its findings. First, statistical significance establishes that an effect exists but does not suggest how important that effect is. Some effects were found to be statistically significant

but only raised or lowered prevalence by a percentage point or two. Other trends had much greater magnitudes, but the statistical test does not determine the size of an effect, only that it exists. Although we can make educated guesses about the importance of the effects from the data we have collected, the statistical tests cannot confirm hypotheses about magnitude of effect. For our purposes, this is not much of an issue: the direction of influence (increasing or decreasing the size of the epidemic) is more important than the precise magnitude of its effect in determining future policy and AIDS prevention interventions.

Additionally, this model's findings are limited to a very specific population of high-risk men and women in Port Harcourt. For example, the decision to exclude strict monogamy from the final version of this model was based in part on research and anecdotal evidence about the population in question. Among other populations, monogamy is more common and individuals have far fewer sexual partners. These are important factors that could seriously change the outcomes of an intervention. Concurrency is an important component of many of the mechanisms behind the findings observed in the data. Thus, if a population has very little partnership concurrency, it is entirely possible that increased promiscuity, for example, could have the opposite effects than observed in the Nutmeg model.

Despite the limitations of the model there are some policy recommendations that can be made. HIV and AIDS prevention education should definitely stress choosing a partner (+/-) as a risk-mitigation strategy but emphasize that its effectiveness is limited unless followed consistently. While it is important for men and women to understand the positive effects of choosing a partner (+/-), it is equally important that they grasp the extent of its efficacy as well. If they do not, they could be lulled into a false sense of security, believing that choosing a partner (+/-) most of the time, even 90% of the time is enough to mitigate their risk of infection. The truth is that even for these high levels of choosing a partner (+/-) the virus can still be spread and maintained over generations. Its limited effectiveness must be considered alongside the real harm choosing a partner (+/-) can cause.

The implications of the findings regarding promiscuity are less certain. Although in our model promiscuous sexual behavior does reduce the risk of

HIV infection when coupled with high levels of choosing a partner (+/-), it puts an individual at greater risk for other, more easily transmissible, sexually transmitted infections. While these other STIs are not life-threatening and many are curable, they are a real health hazard that makes the value of promiscuity unattractive.

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WHY EVICTIONS DO NOT DETER STREET TRADERS: A CASE STUDY IN ACCRA, GHANA

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ABSTRACT

Like many major cities in developing countries, Accra, the capital city of Ghana, faces increasing congestion of vehicles, pedestrians and traders around its central business district. Repeated attempts to evict street traders have proven unsustainable. Using Accra as a case study, this paper investigates the apparent disconnect between urban authorities' concept of centralized city planning, the rapidly expanding informal economy, and the scope for alternative approaches to accommodate informal workers. Samples of street traders from two markets with high and low risk of evictions are compared to understand their motivations and how evictions affect their choice of location, livelihoods, and willingness to invest in fixed locations. The study finds that, while some risk-averse traders may relocate to outlying markets, many return because profits are higher in the congested areas. One implication is that growing urban centres need improved planning and consultative models to accommodate informal self-employment consistent with both regulatory requirements and workers' needs.

Keywords: Accra, Evictions, Ghana, Hawkers, Informal Economy, Integrated Urban Planning, Public Space, Street Traders

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INTRODUCTION

Since the colonial era, the 'conventional approach of creating Central Business Districts (CBDs) with concentrated work/business functions at a central point have often led to congestion problems' (Adanu, 2004). Most African cities inherited colonial spatial planning where the rich and poor are separated, with the poorer residents on the periphery of city centres (Skinner, 2008a). The uni-centric nature of Accra makes the CBD a preferred destination for both consumers and rural-urban migrants looking for work – mostly informal self-employment, especially trading (Thompson, 2009). Street traders locate in strategic areas where there is heavy human and vehicular traffic, resulting in tension over competing uses of public space and a policy dilemma with respect to the appropriate balance between public safety, customer convenience, and livelihoods of poorer urban residents. The focus of Accra's urban authorities on formalizing the use of public spaces has led to recurrent evictions of traders from central market areas, with little lasting success. This article investigates the sources and implications of such conflict and what alternative approaches might be available to planners in emerging urban centres.

THEORETICAL FRAMEWORK

The core issues are the growing importance of the informal economy in developing countries and access to urban public space, which can be defined as all physical spaces and social relations that use such spaces within the non-private realm of the city, including pavements, parks and vacant spaces (Bhowmik, 2010). In developing countries, urban public space becomes a valuable resource for the urban working poor to earn their livelihood. Among the many varieties of informal activity in the CBD, street traders have attracted particular attention due to their visibility and numerical strength (Asiedu and Agyei-Mensah, 2008).

Growth of the Urban Informal Economy

Rapid population growth and rural-urban migration in most developing countries in the latter part of the 20th Century have resulted in urban concentration and dominance of informal employment (Smith, 2003; Chen, 2006). Globalization appears to have contributed both to the structural persistence of informal employment and the interdependence of formal and

informal economies. Many formal businesses, from shops to telecommunications companies, depend on informal operators to reach their clientele (Kotoh, 2008). In Ghana, the informal share of the workforce has continued to rise from 83.9% in 2000 to 86.2% in 2010 (Ghana Statistical Service, 2013).

Informal street traders alone, about two-thirds of them women, account for about 10 to 20 per cent of total employment in African cities, providing an important source of livelihood with low barriers to entry (WIEGO 2012). It has also been argued that street trading plays an important role in the smooth running of the urban economy, especially in terms of the supply of goods and services (Bromley, 1998). A study in Malaysia viewed hawkers 'as effective and efficient agents in the distribution of goods and services through their linkage with the formal sector.... to keep the cost of living in the city low...and widen consumer choice' (Hassan, 2003). In other words, street trading can be viewed not only as contributing to the welfare of those involved but also as having a positive impact on the wider urban society: 'Ghana's economic future depends significantly on what [small] traders are up to' (Hart, 2008: 4).

The term 'informal sector' originated from an attempt to describe how people earned their livelihoods in Accra in the early 1970s (Hart, 1973). Although some associate 'informality' with 'illegality,' an estimated 70-80 per cent of the non-agricultural workforce is engaged in 'informal' activities which are legal, even if they are not registered or not located in compliance with urban zoning (Baah, 2007). Indeed, in Ghana, it is perfectly legal to do business in one's own name without formal registration, so there is little barrier to entry (Kwankye *et al.*, 2008).

According to Chen (2006), debates on the informal economy often revolve around the relationship between the informal and the formal sectors. Chen distinguishes three schools of thought with regard to the role of the informal economy: dualist, structuralist and legalist. In the dualist view, informal economic activities are totally separate and are not linked to the formal sector. The structuralist views the informal sector as subordinate to the formal sector: in pursuit of profits, formal corporations use the informal economy to erode employment relations and thereby reduce their labor and input costs,

while the informal economy depends on the formal economy for sustenance. The legalist views the existence of informal businesses as a rational response by small enterprises to over-regulation by government bureaucracies. In this view, informal enterprises often find it cumbersome, costly and time-consuming to comply with bureaucratic procedures associated with registration of their businesses in regulatory frameworks designed for large firms.

De Soto (1989) argues that the attempt by the State to expand and encompass every aspect of economic activity has led to a degeneration of the relationship between the formal and informal sectors, as the poor find it increasingly difficult to establish businesses that meet the legal requirements. In his view, overregulation may actually contribute to the growth of the informal economy, as it provides an opportunity for people to avoid the bureaucratic regulatory system. Given the persistence and importance of the informal economy, the question is whether urban planning can be adapted to accommodate this sector rather than exclude it.

Urban Development and Conflict over Public Space

Four main components of sustainable urban development have been identified in the process of planning for sustainable development of some 50 Swedish municipalities: social, ecological, economic and organizational (Swedish National Board, 2001). Socially, urban planning should give inhabitants a sense of belonging, security, and ability to interact with one another. Ecologically, finite resources should be conserved through mechanisms to limit the spread of substances harmful to the environment. Economically, sustainable cities should put in place structures to ensure that the local economy is differentiated and has the potential of creating employment opportunities for the people (Adanu, 2008). Organizational sustainability seeks to ensure that every individual has the right to take part in the decision-making process of the city. Urban public space is seen as a key physical asset in the livelihood strategies of the urban poor. Social organizations and networks as well as mutual trust are needed to facilitate cooperation for the use of urban public space. Lyons and Snoxell (2005) state that this approach attributes agency to the poor in so far as they can strategize in the use of public space.

In practice, however, development policies in the 1960s and 1970s tended to favour urban concentration and capital-intensive industries and to exclude the growing informal economy (Sethuraman, forthcoming). According to the Centre on Housing Rights and Forced Evictions (COHRE, 2008), authoritarian top-down planning and large projects (including hosting international events) are sources of conflict with disadvantaged sections of society that lack formal tenure rights, and 'the costs of forced evictions almost always include an increase in poverty.'

The crux of the matter is control over public space. In some cities, licenses are used to exclude informal trading (Lyons and Snoxell, 2005). The fascist government of Benito Mussolini in Italy (1922) was one of the first to recognize the importance of dominating public space, through strictly implemented measures that regulated use and removed encroachers (mostly poor) with force (Brown, 2006). The bye-laws of the Accra Metropolitan Assembly (AMA) make it illegal to trade on the streets; thus it is a matter of *location*, rather than the activity. Even when the AMA attempted to close off a street for trading, shop owners succeeded in getting a court order to evict the traders – who nevertheless soon returned – though, ironically, the court dismissed a subsequent suit to hold the AMA in contempt because the original order to evict the traders had been carried out (Daily Graphic, 2008).

The issue is not whether regulation is in order – the authorities clearly have a responsibility to ensure the security and health of the public – but whether the approach to such regulation adequately accommodates the interests of the workers and can realistically achieve the intended objective. Control over public space by the state or city authorities can be a form of control over the working poor, which de Haan (1998) characterizes as 'social exclusion' – 'a rupture of social bonds … *a process* through which individuals or groups are wholly or partly excluded from full participation in the society within which they live.' The notion of social exclusion has gained popularity in conceptualizing urban poverty in general (Skinner, 2008b).

Street Traders: Motivations and Coping Strategies

Street traders constitute a highly heterogeneous group of mainly self-employed workers (Smart, 1989). Poverty and the lack of alternative employment are the main drivers, and the low barriers to entry in trading

make hawking a dominant informal activity (Hassan, 2003). Over a third of street children are engaged in hawking (Anarfi, 1997), some on their own account, others to supplement family income. While men tend to enter street trade at a relatively young age and later move on, women, who constitute the majority, are more likely to enter later in life, especially if they become widowed or head of household (Mitullah, 2003). They are as likely to be long-time residents as migrants. It may be hypothesized that traders from different backgrounds and with different family responsibilities may adopt different strategies for coping with the vulnerabilities inherent in street trading. In particular, the literature on microfinance finds that, 'because women are less mobile and more fearful about social sanctions, they tend to be more risk-averse than men and more conservative in their choice of investment projects' (Armendáriz and Morduch, 2010: 218).

Three main classifications of street traders may be identified in terms of location: static, semi static and mobile (Jellinek, 1991). The static ones occupy a fixed market stall or kiosk where they can lock up at the close of work, and pay rent or daily fees. The semi-static traders normally occupy a particular site but dismantle or cart away their goods after hours of business; they also may pay some rent or fee for the space they occupy – even for space on a sidewalk outside city markets. The mobile ones (hawkers) move from place to place in order to catch peak selling opportunities or for ease of escape from the city authorities. While hawkers have the advantage of flexibility, they have little scope to invest in their business and grow beyond what they can carry. Since the threat of evictions raises the risks and hence the cost of trading, evictions tend to favor mobility over fixed locations, and hence to discourage investment and growth by informal traders.

Alternative Models

In some countries, authorities are taking a more positive view of informal trade as contributing to the economic life of the city and engaging in more collaborative approaches to break the recurrent cycles of eviction and return of hawkers – although this depends heavily on local context and politics. In 2014, the Lima, Peru, City Council passed an Ordinance giving the city government responsibility for including street vendors in economic development, providing them some social protection, and establishing a

tripartite oversight Commission with representatives from the municipality, street vendors' organizations, and neighborhoods (Vildoso and Miock, 2014). From 1988 to 2003, Bogotá's Mayors implemented one of the most ambitious public space campaigns in Latin America, working with informal vendor unions to relocate them to government-built markets, resulting in improved working conditions albeit declining income levels (Donovan, 2008). Through sustained dialogue and public-private partnerships to invest nearly $7 million of municipal funds and $60 million of private capital in some 50 shopping centers and markets available to vendors, Peruvian officials were able to relocate some 20,000 street vendors from the Historic Center of Lima (Raredon *et al*., 2010). In Belo Horizonte, Brazil, four shopping malls were created for vendors by the Municipality since 2006 in locations where street vendors used to ply their trades around the centre of the city (WIEGO, 2010).

According to the WIEGO Network (Women in Informal Employment: Globalizing and Organizing), 'inclusive urban planning requires a new vision of cities and the role played by the urban informal economy,' and StreetNet International has launched a campaign to promote 'World Class Cities for All….to contest the notion of a "World Class City" that excludes the working poor' (WIEGO, 2010). According to Lund and Skinner (2004), 'in 1999, the city of Durban in South Africa sought a policy to support the growth of economic opportunities for all informal workers, especially women,' adopting an integrative approach that included consultation with informal workers, modified structures to accommodate both traders and commuters around the Warwick Junction transportation node, and to involve them in maintaining order.

India is one of the few countries that have shifted from an exclusionary stance toward street vendors to an approach of accommodating and regulating them, with the adoption of a National Policy on Street Vending in 2004 (revised in 2009) and a Supreme Court ruling requiring legislation for street vending (WIEGO 2012). Manipur's Town Planning provides a rare example of progressive legislation that requires 'provision for four to six shops and ten hawkers for every 1000 persons' in residential areas (Sankaran *et al*., 2012).

Nevertheless, an integrated approach requires a continuous, consultative process with commitment and competence on the sides of both the authorities and trade associations. Despite having adopted a progressive informal economy policy in 2000 and spent considerable resources to construct facilities for traders around the Warwick Junction transport node, Durban's revamped City Council resumed evictions and police actions against traders after 2004 – perhaps associated with a desire to 'develop' the area in preparation for the 2010 World Cup (Skinner, 2008b).

Associations that represent or include self-employed workers can play a critical role. In cases such as Durban where (at least initially) 'traders have been incorporated into urban plans, traders are comparatively well organized' (Skinner, 2008b). In Dar es Salaam, some 240 self-help groups are represented by an 'umbrella organization – the Association of Small Scale Businesses – which acts as a lobbyist and pressure group and is involved in the selection of public space for business activities' (Nnkya, 2006). In general, however, Skinner (2008b) asserts that the evidence 'suggests that many traders are not affiliated to any organization at all. Where trader organizations do exist, they focus on one or more of three concerns – financial services, lobbying and advocacy, particularly at a local level and on product-specific issues. The role of trade unions appears to be increasingly important'. Nevertheless, it must be acknowledged that associations have their vulnerabilities and weaknesses, and may not be able to negotiate on behalf of all traders (Lyons and Brown, 2007).

Recent Experience in Ghana

In Ghana, some District Assemblies have been developing an alternative approach to dealing with informal enterprises that they do not want in the CBD – though more with respect to activities that are considered polluting or noisy, such as vehicle repair, metalworking and carpentry, rather than to street trading. In Bekwai in the Ashanti Region, a forced relocation exercise was subsequently ameliorated by improving the infrastructure (including electricity) at the relocation site and establishing a Business Advisory Centre, Rural Technology Facility, and other services (MEL, 2011). The Local and Regional Economic Development programme funded by the German Development Cooperation agency (GIZ) is supporting this approach of

establishing well-serviced light industrial sites on the outskirts of cities, with prior consultations and preparation of sites rather than an ad hoc approach (e.g., in Bechem in the Brong-Ahafo Region).

The two major Metropolises in Ghana, Accra (AMA) and Kumasi (KMA), however, have remained preoccupied with removing traders from the streets and the areas around markets located in the CBD. In April 2011, the AMA deployed some 200 city guards and police with cameras to evict and eventually prosecute traders in designated locations, and even threatened to take action against consumers who buy from hawkers (AMA, 2011; Peace FM, 2011). The failure to plan for informal commerce – and the preference of authorities for international sporting events over self-employment – is exemplified in the construction of a (little-used) field hockey stadium in a prime area of Accra's CBD next to a major transport station. This would have been an ideal location for a major market structure for the many traders and food sellers who continue to service patrons of the lorry park, despite efforts of the AMA to evict them at least since 1997 (Ghana Web, 1997).

Street traders in Accra have over the years adopted various strategies aimed at avoiding arrest, most recently in response to the special task force established by the AMA to enforce its bye-laws. According to Asiedu and Agyei-Mensah (2008), the street traders are always on the run, or engage in the sale of lighter goods for greater mobility in case of arrests. Some have adopted spatial strategies by relocating to other places where they can continue with their trading without harassment from the city authorities. But they found that many traders remain reluctant to move to the AMA's designated sites outside the CBD for fear of inadequate clientele and reduction in volume of sales, especially when allocation of sites is uncertain and non-transparent, or provisions are inadequate to ensure that all move at the same time. Thus, continuous congestion and the cycle of threats and attendant arrests have become part of the operational difficulties of street trading in Accra (Asiedu and Agyei-Mensah, 2008).

In general, national governments have taken little direct role because 'informal activities like street trading are generally seen as an urban management issue rather than as an economic development concern' (Skinner, 2008a). In Ghana, however, especially in election years, the national

government has sometimes intervened to postpone or at least moderate the severity of eviction exercises that might cost votes or cause disruption. According to MEL (2011), such pressure, as well as public outcry about the 'decongestion' exercise being carried out by AMA in 2006, led the AMA to construct a Pedestrian Shopping Mall ('Hawkers' Market') near Kwame Nkrumah Circle (MEL, 2011).

However, the Hawkers' Market has had little impact, largely due to poor consultation and design: it is not readily accessible to customers; it lacks secure storage space; electricity and cooked food are prohibited (to avoid fires; but making it less attractive to customers); allocation was seen as arbitrary and political; and the number of stalls (4000) was completely inadequate relative to the number of traders the AMA wished to relocate.

While the authorities take the view that hawkers refuse to comply when such space is made available, the view of the street sellers was that the stalls were too few and were allocated to those with influence – and that some of those hawking outside the Hawkers' Market reportedly do so on behalf of holders of stalls, because the poor design attracts few customers to come inside.

Although Ghana's markets have many associations, often organized by commodity, they generally cannot negotiate successfully with municipal authorities on broad issues unless they have a strong umbrella association. Although AMA did negotiate with some associations regarding the Hawkers' Market, those left out felt no obligation to abide by any agreements.

In Kumasi, various product associations have formed an umbrella Market Traders Association, which has a representative on the Kumasi Metropolitan Authority's General Assembly and was able to challenge a market fee increase in court (King, 2006). The Ghana Trades Union Congress has embraced informal workers and associations for many years. It has formed StreetNet Ghana as an alliance of market and street traders, and speaks out to defend traders' rights when eviction exercises take place (Skinner, 2008a; Daily Guide, 2011).

RESEARCH OBJECTIVES AND METHODOLOGY

The key question raised by the literature is why the recurrent evictions of traders by municipal authorities appear to have little sustained impact in reducing congestion in the areas being targeted, and what alternative approaches might work better. The implicit assumption of the authorities is that they can deter traders from operating in the CBD and other crowded areas by periodically seizing their goods, smashing their kiosks, and arresting or chasing them away. This study investigates what motivates traders' choice of location and type of trading (static, semi-static or mobile), and what alternatives they see as preferable and that might improve the success of relocation measures. The empirical focus is on the perspectives of the traders. Specific hypotheses investigated were:

1. Evictions have an adverse effect on traders' livelihoods;

2. Traders in high-eviction areas are more likely to be mobile, those in low-eviction area are more likely to be static;

3. Traders who are risk-averse (e.g., women) are more likely to locate in markets where evictions have not taken place;

4. Congested market areas that are frequently targeted for eviction exercises have higher profits that attract evicted traders to return rather than relocate to a lower-risk, lower-return market;

5. Traders would be willing to relocate with suitable incentives, structures and opportunities.

Methodology and Sample

Accra is typical of major African cities that were designed around a CBD model but whose population explosion has severely strained the carrying capacity of the centralized infrastructure, resulting in intensive street trading around transportation nodes. To test the hypotheses, two markets in the Ablekuma Central sub-metro (one of 13 sub-metros, with a population of about 200,000) of the AMA were purposively selected: Kaneshie, located next to a transportation node on the edge of the CBD and a regular target of eviction exercises; and Sukura, which is less central and has not been targeted. Kaneshie has a larger market structure and surrounding commercial area, and

is more densely populated with both traders and foot traffic. Both markets are overcrowded in that traders have spilled out onto the sidewalks and areas surrounding the market itself; hence the sample area was defined to include the streets with heavy commercial activity surrounding the specifically constructed market.

 Kaneshie is targeted for a 'decongestion' exercise in part because the spillover encroaches on a major traffic artery and a pedestrian bridge. Although both markets offer a wide variety of consumer goods and foodstuffs, Kaneshie also has services and dealers associated with vehicles and transport, as well as more formal fuel stations, supermarkets, pharmacies and other formal shops.

Given the lack of any systematic data to use as a population frame of street traders to allow for the selection of a sample of informal traders, purposive and snowball sampling techniques were used to select 30 traders in each market for structured interviews using a questionnaire which was prepared and pre-tested for this purpose. Although the sample size was constrained by resources, 30 observations for each market were selected as adequate to conduct a χ^2 test for significant difference in responses between the two locations. Key informant interviews were conducted with sub-metro officials and with city guards, officials of the AMA and sub-metropolitan assembly responsible for keeping hawkers away from unauthorized public spaces). These officials assisted in identifying initial respondents who were typical of the types of traders found in that location, and these in turn were used to identify others until a sample of 30 was reached. This 'snowball' approach and the limited sample size mean that the results are not strictly statistically representative, and should be taken as illustrative rather than generalizable.

The 60 traders in the sample were predominantly young, with 73 per cent aged 15-40 years. The majority overall (66 per cent) and in both markets only completed junior high school ; 14 per cent had only primary or no education (Table 1). Traders in Kaneshie market were more likely to have gone beyond secondary school (29 per cent) than those in Sukura (13 per cent), who were relatively more likely to have no more than primary education; these differences, however, are not statistically significant. The sample was almost evenly divided between men (53 per cent) and women (47 per cent). The majority (57 per cent) of respondents in Kaneshie market were from Accra and

its neighbouring regions; long-distance migrants were found only in Sukura market.

RESULTS AND DISCUSSION

Impact of Evictions and Harassment

Respondents confirmed the presumed difference in vulnerability to evictions: 90 per cent of those in Kaneshie market had experienced evictions there, whereas only 46 per cent of Sukura traders had, but the latter had relocated to their current location after they were evicted from other markets. When asked for the main problem they encountered trading in their market, 100 per cent of Kaneshie respondents cited harassment, eviction/arrest, confiscation of goods or demolition of structures as a major problem, as against only 39 per cent of Sukura respondents, who mentioned mainly confiscation of goods; none cited eviction (Table 2). Typical of traders' views is the statement that: 'city authorities hindered their businesses by chasing traders from streets and sometimes physically assaulting them' (Anyidoho, 2013: 23). In contrast, 71 per cent of Sukura traders said they did not encounter any problems – a statistically significant difference.

Traders who had been evicted or otherwise affected by AMA 'decongestion' exercises stated that their livelihoods and families had been adversely affected. This concern is echoed in other studies of street traders: 'Demolitions lose us customers. When this happens…it is difficult maintaining the household and even more difficult to pay school fees' (Anyidoho, 2013: 30). A third (33 per cent) of respondents said that feeding their family became a problem, and nearly as many (28 per cent) stated that they could no longer afford to pay the school fees of their wards. In addition, a quarter (23 per cent) of respondents said that they had to suspend sending remittances to their parents after decongestion exercises, and another 15 per cent had difficulties paying their rent. Thus, hypothesis #1 is confirmed.

Table 1: Distribution of Sample by Education, Gender, Origin and Market (percentage of respondents)

	Kaneshie	Sukura	Total
Level of Education			
None/Primary	7.1	20.0	13.8
Junior High School	64.3	66.7	65.5
Secondary/Tertiary	28.6	13.3	20.7
Total	100.0	100.0	100.0
Men	63.3	43.3	53.3
Women	36.7	56.7	46.7
Total	100.0	100.0	100.0
Region of Origin			
Accra, Central, Eastern	56.7	36.7	46.7
Western, Ashanti, Volta	43.3	40.0	41.7
Brong-Ahafo, Northern, Upper East or West	0.0	23.3	11.7
Total	100.0	100.0	100.0
Type of location (fixed/mobile)			
Static (shop, kiosk)	10.0	60.0	35.0
Semi-static (fixed but stock removed daily)	16.7	26.7	21.7
Itinerant/hawking	73.3	13.3	43.3
Total	100.0	100.0	100.0
Number of respondents	*30*	*30*	*60*

Source: Survey data 2010. Two Kaneshie respondents failed to provide educational level.

Note: Details may fail to add to totals because of rounding.

Table 2: Problems Encountered by Traders by Location of Market (percentage of respondents)

Main problems encountered by traders	Location of Market		Total
	Kaneshie	**Sukura**	
Harassment from the city guards	50.0	7.1	29.3
Confiscation of goods	13.7	17.9	15.5
Frequent eviction and arrests by the police	26.7	0.0	13.8
Demolition of structures	10.0	3.6	6.9
No problem encountered	0.0	71.4	34.5
Total	100.0	100.0	100.0
Number of respondents	*30*	*28*	*58*

Notes: χ^2=39.03; df=4; p-value=0.00 significant

Source: Field survey data, 2010.

The impact of frequent evictions on traders' willingness to invest in a fixed location is indicated by the much greater proportion of traders (statistically significant at p=0.01) in the more risky Kaneshie market who are itinerant (73 percent; Table 1) compared to the high proportion of Sukura traders (60 percent) in shops or stalls. This difference exceeds what could be explained by the relative scarcity of market stalls and reflects the statement of a typical Kaneshie trader: 'I make good money here but I cannot put up any permanent structure because the AMA task force will destroy it when they come around.' The apparent confirmation of hypothesis #2 is also supported by the fact that those Sukura traders who had experienced eviction had done so in other markets and relocated to Sukura.

Women – who are noted in the literature as likely to be more risk-averse – were much more likely to be found in Sukura market (accounting for 56.7 per cent of the traders there) than in the more eviction-prone Kaneshie market (only 36.7 per cent of traders sampled; although this difference is not statistically significant). This evidence provides some support for hypothesis #3.

Motivation for Location and Return after Eviction

Given the adverse impact of eviction and other forms of harassment on the livelihoods and stability of traders, why do they continue to operate in a location such as Kaneshie? Most respondents (73 per cent) said their primary motivation was high profits, which required an assured customer base; they were much more likely to locate in Kaneshie market (64 per cent) than Sukura (36 per cent; Table 3). Conversely, those for whom the primary concern was avoiding harassment by city guards were far more likely to choose Sukura (88 per cent) than Kaneshie (13 per cent). The association of different motivations with different market locations is statistically significant. These results provide some support for hypotheses #3 and #4.

In order to further investigate this finding that traders in Kaneshie market were attracted by high profits and the number of customers there, they were asked why they return after being evicted. The results confirmed that high profits and sales are the principal attraction for 71 per cent of respondents (Table 4). Hence they are willing to risk periodic loss through confiscation of their goods, arrest, or payments to officials in order to maintain access to the high-return customer base of the congested market. They minimize this risk by remaining itinerant rather than investing in a fixed location, for maximum mobility when the need arises to flee from city guards. Indeed, the traders refer to the city guards who engage in eviction exercises as *aabaeei* ('they are coming!').

Furthermore, the traders feel entitled to the use of public space because of payments they make to city officials. Whether these payments are municipal taxes, local fees or outright bribes is unclear. Two-thirds of respondents said that they make regular payments to city authorities (mainly sub-metro officials and city guards), with a higher percentage in Kaneshie (71 per cent) doing so than in Sukura (61 per cent). Yet the AMA insists that it does not take taxes from hawkers because hawking on the street is against its bye-laws. At best, the traders are caught between local sub-metro officials who may be more permissive because of a revenue objective and the central AMA officials who periodically launch eviction campaigns. Whereas in the past such campaigns might occur years apart, since Ghana's 50th Anniversary in 2007, a steady stream of international events and an AMA Head intent on achieving

'millennium city' status have resulted in eviction exercises several times a year, at least in highly visible and congested areas such as Kaneshie market.

Table 3: Primary Motivation for Choice of Location by Market (percentage of respondents)

Primary motivation	Location of Market		Total	Number
	Kaneshie	Sukura		
High profits, assured customer base	63.6	36.4	100.0	*44*
Absence of harrassment from city guards	12.5	87.5	100.0	*16*
Number of respondents	*30*	*30*		*60*
Notes: χ^2=23.87; df=2; p-value=0.01 significant				

Source: Field survey data, 2010

Table 4: Reasons Why Traders Return to Same Location after Eviction (percentage of respondents)

Type of location (fixed/mobile)	Frequency	Percent
Profits are huge, so difficult to stay away	14	36.8
Make a lot of sales there	13	34.2
No way to survive apart from this business	6	1.8
Owners of store asked me to sell in front	5	13.2
Total	38	100.0

Source: Field survey data, 2010.

Alternatives

When asked what alternative they would propose to make eviction exercises unnecessary, a majority (70 per cent) of respondents suggested building new markets in locations that could be readily accessed by customers. They expressed their willingness to pay taxes or fees for the use of such public space. About a quarter emphasized the need for the government to create more employment opportunities for the youth.

The Kaneshie market structure built in the 1970s just outside the CBD actually represented sound planning; it took some years before it was fully utilized. But despite the continuing rapid expansion of the city since then, few major market structures have been built as new residential areas and major intersections have sprung up farther and farther away from town. Yet traders would welcome a more decentralized approach, confirming hypothesis #5: only 27 per cent said that they would not move to another market; the same percentage stated that they would move without qualification; while the remaining 47 per cent said they would move if the cost was reasonable or they could get the same level of sales.

The example of the Mallam market, located on the western end of Accra and far from the CBD, attests that a decentralized approach to trading in the city can work. This market was constructed in the late 1990s with the aim of easing congestion and the pressure of vehicular and other economic activities in the CBD. Like Kaneshie, occupation was initially low, but accelerated with urban growth and when decongestion exercises intensified in the centre of Accra. The Mallam market is now fully occupied, with brisk trading and other activities taking place. Thus there is some evidence in practice as well as in the survey that advance planning can help address congestion when accompanied by positive incentives – in particular, accessibility to customers. But examples of consultation between authorities and trade associations to minimize conflict are rare.

There is some indication that Ghanaian authorities are beginning to think more strategically about how better to incorporate the informal economy into urban planning. A draft 'National Strategy and Action Plan for Informal Enterprises' advocates increased support for local districts to 'set up more

industrial zones and markets with infrastructure and facilities suitable for informal enterprises' and mandates Assemblies 'to develop better methods of supporting and engaging local associations in planning, taxing and carrying out relocation exercises' (MESW, 2012).

Nevertheless, 'the local authorities often do not adequately involve the [traders] and their associations in the planning and construction of markets and industrial zones, which in many cases leads to operators rejecting the facilities'(MEL, 2011: 10), and unfortunate experiences with how spaces are allocated have made many traders skeptical of government: 'they will say they are building a market, but when it's finally done, people with more money would have taken it over and those who originally wrote their names are left out' (Anyidoho, 2013: 23).

CONCLUSIONS

The failure to continue building proper modern market centres with lockable stores and adequate modern toilet and sanitation facilities in numbers that keep pace with the expansion of the city and the influx of job-seekers who end up in informal self-employment appears to stem from the continued preoccupation of city authorities with the outmoded uni-centric CBD model of urban development and their control-oriented approach, which dates back to the colonial days. In fact, urban management regulations in Ghana are based on the antiquated Town and Country Planning Ordinance (Cap 84) passed in 1945. While this ordinance may have been adequate in the 1940s and under low urban growth rates, it is unrealistic under the current conditions of rapid urbanization and urban growth as well as the increasing demand for physical space within and around Accra (Owusu, 2008).

Unable to deal with the challenges of managing public space within the city of Accra, city authorities have employed the simplistic policy of eviction of traders as a means to deal with the increasing congestion in the city. This is not to argue in favor of congestion, but rather to make a case for seeking alternatives to the CBD model, ranging from a more decentralized, nodal approach to urbanization and consultative processes rather than authoritarian control. It may be, however, that such an approach can be more readily applied in emerging urban centers than in highly congested urban

centers such as Accra and Kuala Lumpur (Hassan, 2003), where planning has not kept pace with growth and street traders are reluctant to relocate to areas designated by authorities that are not strategically located in terms of both customers and nearby affordable living space.

The research presented in this study shows that, while such evictions do take a toll on traders and motivate some to seek more secure market locations, they are ineffective in deterring most traders from returning to the 'congested' markets and streets because of the greater customer base and profits there. They impose economic costs on the traders with little sustained benefit in the form of enhanced use of public space. Furthermore, the risk of harassment makes traders more likely to remain itinerant and less likely to undertake productivity-enhancing investment, thus limiting the contribution of informal activities to incomes and growth.

There are positive signs of a shift toward policies that are more attuned to the current reality that street trading and other informal activities constitute a major source of livelihoods and contribution to the functioning of growing urban centers. The adoption of a National Strategy and Action Plan for Informal Enterprises, as done in India, might help shift attitudes of municipal authorities and increase the resources available for the construction of new market areas in designated places that are attractive to buyers which will then provide as incentive for traders to move there.

Some of the smaller District Assemblies have adopted such an approach with respect to certain artisanal trades by developing services sites on the edge of town; an investigation of their strategies and how the informal workers responded to incentives would be a useful topic for further research. In the heavily-congested Metropolitan areas, the first step would appear to be amendment of restrictive by-laws to recognize the right of access of informal street vendors to public places, while introducing reasonable measures and consultative procedures to regulate (rather than ban and evict) them.

From the standpoint of municipal authorities, taking a more consultative approach to urban planning would require more effective umbrella associations that can represent the heterogeneous informal economy. Even within the retail trade sector, associations of shop owners may be in conflict

with street vendor associations, as has happened in Accra. Hence it is important to have consultative mechanisms in which informal associations can participate and to strengthen their ability to coordinate among themselves and advocate on behalf of their members.

LIMITATIONS OF THE STUDY

While the findings are consistent with expectations and with those of a subsequent study of street traders in Accra (Anyidoho, 2013), it must be noted that the sample size was small, confined to only two markets, and was not statistically representative. Thus, the findings should be taken only as illustrative of the conditions and motivations of some street vendors in Accra and not generalizable to other municipalities without verification through further research.

ACKNOWLEDGMENTS

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THE ROLE OF PENTECOSTAL CHURCHES AS AN INFLUENTIAL ARM OF CIVIL SOCIETY IN GHANA

MICHAEL PERRY KWEKU OKYEREFO[1]

ABSTRACT

This paper argues that in its bid to mediate between the State and the social world by promoting discourse, Pentecostalism in Ghana has become a strong arm of civil society. The general distrust in the weak state in Africa projects church organizations in the limelight, thereby making Pentecostal churches, for example, wield power by exercising their authority in the public sphere by means of public discourse on individual success and wealth creation (business entrepreneurship), good governance, and national development. Pentecostalism achieves this by cultivating civil society strategies such as media presence, organizational and leadership skills. By these means it exerts social, economic and political influence over the Ghanaian polity. At the same time, however, the weaknesses of Pentecostal-based organizations are akin to those of the leaders of State institutions and political leaders, as the ills and sins of the society also apparently affect them.

Key Words: Christianity, Churches, Civil Society, Good Governance, National Development, Pentecostalism, Political Economy of Religions

INTRODUCTION

Since Jürgen Habermas published his book *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society* in 1962 (Habermas, 1991), the concept 'public sphere' has gained wide currency among academics in theorizing on society. Habermas's notion of the 'salon' constituted the cradle of rational discourse that characterized a specific public, the European bourgeois society of the seventeenth and eighteenth centuries. What constituted an intellectual discourse of an exclusive sphere of the elite, a private space of social interaction, defined itself as such against a public space of interaction outside the salon.

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Out of the private space of interaction that was later extended to include the public space of interaction emerged a zone of rational discourse, a public sphere or civil society principally promoted by the media, which mediates between the state and the social world.

Central to this development is the question of how civil society, as a zone of communication and association, "can and should mediate between the law-making powers of the state and the essentially private pursuit of happiness by ordinary people" (Brooke, 1998: 4). The salon is the characteristically privileged exclusivity of an elitist, bourgeois arena that becomes extended to include public participation, seeking to eliminate rather than bracket inequality (Fraser, 1992: 136-137). To this end, the Habermassian concept of the elitist 'salon' and its historical, incidental function of combating socio-economic inequalities have inspired civil society principles.

I argue in this paper that the explosion of the growth of Pentecostal Churches in Ghana has involved re-negotiating and re-shaping the contemporary Ghanaian public sphere. Pentecostalism thus takes religion out of the 'salon' (church) onto the street in a peculiar fashion; it seeks to make an impact in the public domain by contesting power with the State and wielding influence over individuals and groups.

'P*ublic* religious expression' cannot be squared with 'any strict divide between the very concepts private and public'. Ghana's is an atmosphere quite charged with the notoriety of religiosity. I am aware that some scholars are highly skeptical of the entrenched view of some in Ghana, and Anglophone Africa, that Ghanaians, and for that matter Africans, are notoriously, or incurably, or essentially religious (whereas Europeans are thought to be secular and irreligious). Platvoet and Henk van Rinsum (2003) term this view an 'invention of tradition'. Their article received quite an eloquent but highly rhetorical response by Olabimtam (2003) to which Platvoet and van Rinsum (2008) replied. What I mean by Ghana's atmosphere being charged with the notoriety of religion then is simply the huge presence of religion in the Ghanaian public sphere.

The 2010 Population and Housing Census Report of Ghana published by the Ghana Statistical Service in 2013 indicates that 71.2% of the population profess the Christian faith, compared to Islam (17.6%) and traditional religion (5.2%). People not affiliated to any religion including atheists make up 5.3% of the population. Islam is the dominant religion in only one region of the country, the Northern region, where about 60% of the population are Muslims. Higher proportions of the population in the other nine regions of the country reported that they were Christians (Ghana Statistical Service, 2013).

What is remarkable is the growing presence of Pentecostal-Charismatic Churches, particularly evident in the founding of new ones. As I have argued elsewhere, Pentecostal-Charismatic churches seem to be springing up more rapidly than schools or businesses, unless the said churches could pass for businesses (Okyerefo, 2011a). About 39.8% of Christians in Ghana reported that they belong to Pentecostal/Charismatic Churches in 2010 up from the 2000 figure of 35.0%. The presence of these churches is felt everywhere in Ghana, on streets, in schools and in the media more than it ever was. It is a presence that seems to characterize the air many Ghanaians breathe in a new way. This unprecedented public presence of Pentecostal churches began in the 1970s/80s, when these churches increasingly sought to act as mediators in the Ghanaian public sphere. Habermas's 'salon' compares with the church in which traditional Christianity was enshrined, but which in Ghana today, is taken out into the streets by Pentecostalism.

The Pentecostal churches took advantage of the liberalization of the airwaves while the older churches were fighting for legislation that would allow them acquire their own airwaves, which they never did. Consequently, the historic churches have entered the Ghanaian airspace much more slowly; if anything, some of them are now taking a cue from the Pentecostal churches to use some of the numerous private FM stations or even TV. The scramble of religious groups, particularly Pentecostal churches, for media space in Ghana makes "the abundance of religion in the new media scene" (De Witte, 2005: 1) a striking reality. Indeed, De Witte (2005: 4) notes that "more than thirty different Christian broadcasts [...] fill about twenty-two hours of airtime on the three TV channels in Accra" during a week. This development warrants her assertion that there has been "'Pentecostalization' of the public sphere".

Meyer (2004: 92) had spelt this out at an earlier time when she referred to the phenomenon of "the pentecostalite cultural style" by which Pentecostalism transforms the Ghanaian public sphere. Asamoah-Gyedu (2007) underscores the huge media presence of Pentecostalism, characterising this brand of Christianity as a constantly changing reality that seeks to take full advantage of new technology.

The central question is what civil society image Pentecostalism has carved out for itself in the Ghanaian public sphere and how it seeks to govern the said public domain by promoting public discourse on individual success and wealth creation (business entrepreneurship) and by its teaching on good governance and national development. Given the background, this paper is in two parts. Part one develops the civil society image of Pentecostalism. The concept of civil society has gained increased recognition as a possible solution to improving political governance when the former watches the latter closely. Part two contends that Pentecostalism, as typical of civil society, actively seeks to partake in the governance of the Ghanaian public sphere by promoting public discourse on individual success and by striving to advance good governance and national development. This section of the paper also highlights weaknesses of Pentecostal organisations which are similar to those of State institutions.

METHODOLOGY

The paper draws on my ongoing research carried out in Accra on Lighthouse Chapel International (Lighthouse) and Royalhouse Chapel International (Royalhouse) since February 2007, while reference is made to research on the International Central Gospel Church (ICGC) by Gifford (1994), Gifford (1998), Gifford (2004), De Witte (2003) and De Witte (2005), and to the general characteristics of Pentecostalism as appropriate. It is a qualitative analysis of information gathered on these churches, mainly from interviews and participant observation during fieldwork. It is therefore important to introduce the churches examined and their founders.

Bishop Dag Heward-Mills, Founder of Lighthouse, was born in May 1963 to a Ghanaian father and a Swiss mother. While he was growing up, his entire family used to attend The Ridge Church (Anglican) in Accra. He joined the

Scripture Union Fellowship at Achimota Secondary School in Accra, rising to become a leader. This was the foundation of his student evangelism in the University of Ghana, Legon, where he eventually founded an evangelistic ministry, the Legon Calvary Road, in 1985. It was this movement that metamorphosed into Lighthouse. Heward-Mills, who trained as a doctor, entered "full-time ministry in January 1991" (Gifford, 2004: 25).

The Founder and General Overseer of Royalhouse, Rev. Sam Korankye Ankrah, was born on 23 February 1960 to a polygynous father and a devout Presbyterian mother. It was his mother who had him baptised and brought up Presbyterian. He too joined the Scripture Union in secondary school, St. John's Grammar School in Accra, later founded his own evangelistic ministry, the Showers of Blessing Incorporated (SOBI) at the University of Ghana. It was SOBI that would be transformed later into Royalhouse as a result of a spectacular spiritual experience he claims to have had in Holland on the night of 19 June 1991 when God called him into full time ministry back home in Ghana.

Mensa Otabil, a former Anglican, is the Founder and Pastor of the International Central Gospel Church (ICGC). The church, which he began in "February 1984 in a rented hall in central Accra", moved to its new site, also "in the inner city" in "December 1996". Although the church "draws about 7,000 on a Sunday to two services", his *Living Word* TV and radio preaching takes ICGC out of the confines of its premises into the Ghanaian public sphere where it is claimed some "25,000 watch his Sunday evening 'Living Word' telecast" (Gifford, 2004: 24).

CIVIL SOCIETY IMAGE OF PENTECOSTALISM

Ferguson (2006: 89) contends that "civil society" has widely "emerged as a keyword" in "the recent literature on 'democratization' in Africa". Ferguson traces the origin of the term 'civil society' to 18[th]Century liberal thought, particularly of "Scottish Enlightenment thinkers such as Francis Hutcheson, Adam Ferguson, and later, Adam Smith, in whose thought the term is associated both with the developing conceptualization of society as a self-regulating mechanism and with concepts of natural law". Hegel used the term "to denote an intermediary domain between the universal ideal of the state

and the concrete particularity of the family", a usage criticised by Karl Marx and later by Antonio Gramsci. Ferguson points out that the contemporary usage of the term is with reference to discussions of democracy, particularly regarding "voluntary organizations and NGOs that seek to influence, or claim space from, the state" (Ferguson, 2006: 90).

Civil society organisations became more prominent from 1980 with the election of Ronald Reagan as the President of the United States of America and the election of Margaret Thatcher as the Prime Minister of Great Britain in the previous year (1979). Their elections led to a major revival of economic liberalism in both academic and policy circles coming in the form of neo-liberalism which led to significantly reduced prominence of the State around the world. Civil society organisations increased in numbers and strength to fill the gap left by a weakened State resulting from extensive privatisation of government services and companies through structural adjustment programmes often supported by the World Bank and the International Monetary Fund (Buadi *et al*., 2013). Pentecostal Christian organisations were some of the non-State organisations which became prominent during the post-1980 period). The State, particularly in the developing world, "has grown into the largest domestic repository of resources for economic growth and social welfare" (Bratton, 1989: 407).

This fact makes the desire to control the enormous power vested in the State a matter of contestation among different interest groups. It is, however, questionable whether the State (and the powerful elements in society responsible for driving its course) actually imposes its will on its entire citizenry, and in all social situations. The fact is that the state-civil society di-chotomy has found a particular meaning in the global world order. It was appropriated in the developed world for "Ronald Reagan – Margaret Thatcher projects for 'rolling back the state'", while at the same time it provided "leverage both for battling dictatorships and for grounding a post-socialist mass democratic politics" in the developing world (Ferguson, 2006: 91).

Whatever situation prevails at any point in time and at any place has to be viewed against the backdrop of historical circumstances and cultural endowments that shape state and society relations. Bratton (1989: 408) contends that while strong and dominant states are "capable of engaging in

social engineering", weak and ineffective states are "buffeted, or at worst dismembered, by social forces beyond control". Since the state is embedded in society, state-society relations consist in a dynamic interaction between the state and "formal and informal organizations", ranging "from families to economic enterprises or religious organizations" (Bratton, 1989: 408).

Polson (2008: 47) opines that researchers have already established that religious organizations possess certain characteristics that make them capable to strengthen civil society. "Congregations act as civic training grounds" that impart skills such as "public speaking, committee work" and "meeting organization" to members "that they can use in other social arenas". Congregations foster "social networks that facilitate civil behaviours such as community volunteerism"; they promote "bridging social capital that en-courages members to become more engaged in their communities", and they tend to "collaborate with other service organizations".

Bratton (1989: 408) defines a state as "a set of organizations – legal, coercive, administrative – whose functionaries do not always act cohesively". This view of the state highlights "dominance and draws attention to political transactions between the state and autonomous organizations of citizens", i.e., "between the state and civil society" (Bratton, 1989: 409). Stepan (1988) distinguishes between the institutions of 'civil society' and 'political society' as the arena for the contestation over state power. The former consists of neighbourhood associations, women's groups and religious groupings, for example, while the latter is made up of political parties, elections and legislatures. It is important to note that in authoritarian regimes "political society is frequently absorbed by dominant groups into the state, but civil society characteristically has at least some spheres of autonomy" (Stepan, 1988: 4).

The weak post-colonial African state carries within it the conditions that seek secure alternatives. Africa, in the world media, is generally conterminous with anguish and moral concern, expressed by Pope John Paul II in the phrase: "a continent at risk" (John Paul II, 1999: 93). Disease and death and failed states characterize the "dark continent" (Ferguson, 2006: 2). The political catastrophe is evident in coups d'etat, one-party states with dictators seeking to entrench themselves permanently, civil wars and the general socio-

economic malaise of nations that can hardly give hope to, let alone sustain, their populace.

Out of this reality have arisen critical masses that look with suspicion on the affairs of the political machinery. Crucial segments of citizens and even international organizations feel it is their duty to keep a watchful eye on the course of political and socio-economic development of the developing countries in Africa and in other parts of the world. As watchdogs, such groups notoriously feel called to serve as a check on otherwise ruthless political elites that plunder the resources of their nations with impunity. In treading this course, such civil society groups hope to influence the course of good governance, upholding virtues such as transparency and fairness in a new political dispensation in these states.

Having said this, civil society is not necessarily to be conceived as "a source of opposition to the state" (Bratton, 1989: 417). Ferguson's analysis of the term 'civil society' depicts a concept overused, sometimes even uncritically, setting the state above and society below as though the two exhibited eternally a type of Hegelian thesis and antithesis. In fact, Bratton points out that while Hegel perceived civil society "as an intermediate stage of social organization between the family and the state that enables the expression and protection of private interests" (Bratton, 1989: 416), Gramsci saw it as "an array of educational, religious, and associational institutions that guarantee the ideological ascendancy (hegemony) of a ruling class" (Bratton, 1989: 416-417). However, in Bratton's view, classical writers such as De Tocqueville "tend rather to portray civil society as a buffer against the state", seeing "no other dike to hold back tyranny" (Bratton, 1989: 417).

Thus, the conceptualization on 'civil society' is as varied as civil society itself. The characteristics that run through the constitution of civil society, however, include civic organization, including churches, trade unions, sometimes even schools or academic centres that constitute themselves as groups, as well as individuals poised on advancing their interests or defending the interests of others. In doing so, it is not uncommon that such civil groups set themselves against the state or political society as the case may be in challenging the state to wake up to its responsibilities where it fails to deliver social resources in

Africa, for instance. At the same time, to show that civil society is not necessarily at odds with the state, it may even complement the state's effort in the provision of the said social resources. Since it is not uncommon to envisage the weakness of the state in Africa as deriving from external institutions as well, civil society may rally to the defence of the African state in the face of such institutions, for example.

Civil society flourishes on the building of social networks. According to Fukuyama (2001: 7), the importance of such networks, or what is technically referred to as social capital, in "the efficient functioning of modern economies" and "stable democracies" has been established. Fukuyama (2001: 7) defines social capital as "an instantiated informal norm that promotes co-operation between two or more individuals. The norms that constitute social capital can range from a norm of reciprocity between two friends all the way up to complex and elaborately articulated doctrines like Christianity or Confucianism". Arguing for a relationship between social capital, civil society and development, Fukuyama contends that beyond the State there are "other potential sources of social capital" such as "NGOs and foundations" that, "recognising the importance of social capital and civil society, have sought to foster the latter in a number of developing countries..." (Fukuyama, 2001: 18).

Obviously NGOs and foundations consist in voluntary associations that promote civil life. Religious groups, such as Pentecostal churches, generate an *esprit de corps* among members who seek to bring their influence to bear on public life. In this sense, just like the characteristically privileged exclusivity of Habermas's salon, an elitist, bourgeois arena that becomes extended to include public participation, Pentecostalism aims to take religion or Christianity out of the physical building of the church and the exclusive domain of membership into the public sphere in order that the values preached are lived out there. This process embraces a fluidity of membership in which non-members are also invited to participate.

The fact is that Pentecostal churches in Africa are busy building 'mega-churches' to house their members. But their ambition is not complete when these churches are full. In order to perpetuate this dream many of the new

Pentecostal churches founded in Africa today, unlike some of the NGOs that "tend to have little durability once the outside source of funds dries up" (Fukuyama, 2001: 18), seek to raise funds locally as well as from the transnational branches they are busy establishing in the global North and elsewhere. Apart from the biblical persuasion to contribute to the cause of the church, the 'we-feeling' members share makes them feel the urge to do so.

It can be argued, therefore, that religion, social capital and civil society are all part of the same continuum. If religion is a source of social capital, then it promotes civil society. Obviously," not all forms of religion are positive from the standpoint of social capital" (Fukuyama, 2001: 19). But even for terrorists, as the 9/11 episode depicts, for example, religion could serve as a rallying point, albeit for a negative end, as far as the larger public sphere or the global arena is concerned. Pentecostalism, however, exhibits certain positive aspects of globalization, such as "new ideas, habits and practices ..., from accounting to management practices" (Fukuyama, 2001: 19) that are charac-teristic of NGOs, for example, and thereby pursues a course that transforms the Ghanaian public sphere. I will spell out this transformative drive in the next section of the paper.

THE PENTECOSTAL BID TO BECOME A MAJOR FORCE IN THE GOVERNANCE OF THE GHANAIAN PUBLIC SPHERE

On Wednesday, 13 August 2008, Radio Gold (an FM station in Accra) broadcast Pastor Mensa Otabil's teaching, the *Living Word*, just after the 2pm news bulletin. His radio teaching is a programme that is broadcast each day at the same hour on Radio Gold. His topic on 13 August was *success*, one Gifford identified already in 1994 as one of Otabil's pivotal themes (Gifford, 1994). So just as in some of his previous teachings, his objective on 13 August was to teach listeners how to succeed. Essentially, he said, success was the endeavour to realize and bring to fruition the God-given talents human beings have. Knowing one's own gifts or talents is, therefore, an important first step on the path to success. The second step is to put these gifts to good use in order to ensure their full realization. Consequently, to use his expression, "square pegs in round holes or round pegs in square holes" cannot guarantee success.

I chanced on this teaching when I had gone to the general office of my academic department to ask one of our secretaries to print a document for me. The three workers in the office had tuned into the said radio station in order to listen to Otabil's teaching for the day. These workers, who are of various religious persuasions, told me they tuned in to listen to the *Living Word* every day. They told me how useful they sometimes found Otabil's teaching as a guide for their daily lives, which explains why they would listen to him at the same time each day as they worked on their schedules. Listening to him for the brief moment I spent in that office, I felt he taught with the kind of confidence characteristic of one who feels he has made a mark on the Ghanaian public sphere as an inspirational speaker. His weekly TV broadcast of the *Living Word* on Sunday evening is said to attract an audience well beyond those of the Pentecostal-Charismatic persuasion (De Witte, 2003).

Otabil's *Living Word* is but an example of the increasing popularity the Pentecostal explosion is enjoying in Ghana. This paper argues that in order to succeed in its endeavour, Pentecostalism enters into the spirit of 'civil society' by re-negotiating and re-shaping the contemporary Ghanaian public sphere. Pentecostalism takes religion out of the private enclave of believers, the church, which is reminiscent of Habermas's 'salon', into the Ghanaian street. Pentecostalism pursues this goal in a peculiar fashion by means of its 'mega media' and 'mega church' presence that cannot but be noticed by the public. What is more, the Pentecostal churches in Ghana seek to make an impact in the public sphere by contesting power with the state in terms of wielding influence over individuals and groups.

In striving to govern the Ghanaian public domain, Pentecostalism carves out a civil society image for itself by promoting public discourse on individual success and wealth creation (business entrepreneurship) and its teaching on good governance and national development in a manner typical of civil society in Ghana. This includes organizing workshops, seminars and business meetings in hotels and auditoriums, bringing together both members and non-members of the church, and making sure these activities are fully carried into the Ghanaian public sphere using the mass media. Ukah (2003: 1) argues that the media contribute immensely to harness Pentecostalism "to a project of Westernised system of commodity consumption".

Bishop Eddy Addy of Lighthouse is one of two immediate assistants of the founder of the church, as well as the head of the Anagkazo Bible and Ministry Training Centre at Korle Bu, a suburb of Accra. In an interview with him on 12 August 2008, Eddy Addy insisted that the main core of Lighthouse business was the proclamation of the word of God. He believes the word of God is enough to change people and, thereby, transform society. Therefore, Lighthouse does not specifically take 'good governance', for example, as its theme in order to address the Ghanaian political process. However, he admits that the theme comes through in the church's teachings as spelt out in Dag Heward-Mills's book, *Leadership*. The sermons preached by their many pastors and the leadership courses organized by the church also address related themes meant to change the hearts and minds of people, not only members of the church, thereby transforming their actions and consequently their social world. Despite Eddy Addy's insistence on the proclamation of the word of God, Lighthouse also seeks to strike a chord at the practical level of life in the Ghanaian public sphere by the kind of intervention that is characteristic of secular organizations.

Through the printed medium, the 'audiovisualization' and 'televisualization' of religious word and practices, as well as discussions on public discourse, particularly at leadership conferences, Lighthouse seeks not only to reach and change its members' lives but also those of the public at large. Lighthouse does not organize business club meetings like 'The Winner's Club' of Pastor Mensa Otabil. The Winners' Club meets at Novotel (Hotel) in Accra for seminars on success, i.e., how to use 'vision' and 'imagination' on one's path to success, the kind of message delivered during his *Living Word* broadcast of 13 August 2008. Gifford (1994: 247) contends that Otabil seeks to build each individual "who believes he wants to be someone" into an "achiever". The Rev. Sam Korankye Ankrah has a club similar to Otabil's. The Royalhouse Business Executives & Professionals Partners (BEPP) of the vision, now called the King's club, is intent on making kings of people in their various spheres of endeavour. The club is directed by the founder himself by means of the word of God, and by resource persons who are invited to address members.

The Rev. Derek Amanor who is the resident pastor of the headquarters of Royalhouse in Accra insists that Royalhouse addresses themes like 'good governance' and seeks to influence social and political discourse in Ghana generally through the radio and TV programmes organized by the church. In an interview with him on 12 August 2008, he said Royalhouse places premium on such discussion because the church is part of society and members' lives are affected by the social world order prevailing in the nation at any point in time. The founder of Royalhouse, therefore, specifically encourages members to be involved in politics; he proposes this vision to members out of his concern for national development and his hope to see a member of his church become president of the nation someday.

On 3 July 2008, the Rev. Sam Korankye Ankrah was among several Ghanaians honoured by the President of the Republic of Ghana. He was awarded the 'Order of the Volta – Religion', one of the highest national awards. Derek Amanor believes the Founder was granted this recognition by the State because of his numerous humanitarian interventions on the front of social, educational and healthcare commitment in the country. More important than the purposes for which ICGC and Royalhouse have established business clubs is the social networking generated through such clubs. They serve as social capital and link members of the business community together in the pursuance of their common interests, even though these are usually more economic than religious.

Lighthouse organizes a leadership conference annually. The 'Iron Sharpeneth Iron' (ISI) conference brings together mainly pastors, both local and international, to Ghana for leadership training under the direction of Dag Heward-Mills and resource persons. Annual camp meetings are also held in different regions in the world such as the UK, the US and Kenya, giving intensive leadership formation and training captioned the MACANEH – with a training pack on CD. 'Macaneh' is a Hebrew word which means an encampment or to summon an army. The connotation here is to form people armed with the necessary weapon ready for battle. Similarly, the Lighthouse Vision Street, as its mobile bookshop is referred to, travels around to sell books on street corners in Ghana, seeking to reach non-church members as well with Lighthouse literature in a bid to change their lives.

Some successful business people in Ghanaian civil life seem to acknowledge Dag Heward-Mills as a great leader endowed with the strong leadership qualities that account for his success in building a transnational religious empire that has established branches on all the continents of the world within a relatively short period and at a time when many businesses can hardly cross borders and boundaries. Consequently, Ken Ofori Atta, Executive Chairman of the Databank Group, invited Heward-Mills to discuss success and leadership at a leadership conference for the bankers of his firm on 18 March 2004 under the theme 'Moving from 3rd to 1st World'.

In March 2008, Sir Sam Jonah, former President of Anglogold Ashanti and a visiting professor at the Wits Business School, invited Heward-Mills also to present a seminar as part of a Graduate elective course on 'Profile in Leadership/Leadership in Africa' at the Wits Business School, University of Witwatersrand in South Africa. In that seminar Heward-Mills discussed the topic 'Africa and challenges of critical skills for Leadership'. Such a celebration of a religious leader by two prominent members of Ghanaian civil life is an ad-mission that the religious group he heads is to be included among the many civil society groups operating in the Ghanaian public sphere.

While Pentecostal pastors are increasingly taking centre stage in making their presence felt in Ghanaian society, politicians are seen more and more in their churches. In the *Daily Guide* headline of 3 December 2013 Archbishop Nicholas Duncan-Williams of Action Chapel International told President John Dramani Mahama "Free The Money", referring to the economic difficulties in the country. And President Mahama was attending the church service. Where the politicians go, there goes the press.

Eddy Addy asserts that the church makes people better workers, husbands, wives or citizens in general through its preaching. According to him, this is the main work of the church and not the establishment of social institutions, which endeavour should be the proper domain of the State. However, he contends that bad governance and the lack of good leadership in Africa have led the churches in Africa in general to step in and improve peoples' lives since the churches believe that they are answerable to God for their mission. This way, Addy says, the churches reflect the plenitude of God's love in all spheres

of human life. No wonder they are involved in building our nations today, he adds, for otherwise a huge percentage of development projects in the developing world would not be executed.

But Eddy Addy's contention is not new. The Christian churches, according to Hastings (1994: 275-278), have been involved in development projects in Africa throughout the long history of these churches on the continent. Debrunner (1967) indicates the important role played by European Christian Missionaries and their African counterparts throughout the 19th Century and the first six decades of the 20th Century in a multi-purpose form of evangelism which provided valuable agricultural extension services as part of their package of Christian livelihood mission activities which included spreading the message of Christianity, improved health and education services. For example, the Swiss-German Basel Missionaries and their Evangelical Church established major churches, schools and agricultural extension centres in hitherto remote forested places such as Agona Nsaba in the Central Region in the 19th Century where the Evangelical Church helped in the planning and development of the town in addition to the acquisition of a large religious exclusion zone. This sets the scene for a criticism of the modern Pentecostal movement, which is that their mega churches and influential leaders are largely concentrated in the big cities rather than the remote areas of the country.

The question, however, is what ideology drives the historic (older) churches, on the one hand, and the Pentecostal churches, on the other, in their involvement in development projects? Service in the older churches does not necessarily produce a self-image in the contemporary media, while the media are useful to Pentecostal churches for marking their presence in public space. So while the older churches may offer service for the sake of it, Pentecostals do not see service as an end in itself but a means to an end; after all, faith gospel will consider a pastor who gains great wealth through his ministry as one who is enjoying God's blessing.

This difference notwithstanding, the apparent mistrust the West generally has in the African state has contributed to raise the profile of both the historic and Pentecostal churches. Today, like civil society, they are considered to be in

the vanguard for developing Africa. The corruption scandals of African politicians generally have led to a lack of confidence of civil society and Western governments in African leaders. The trust which the state should otherwise enjoy as the protector of and provider for its citizenry is thus reposed in civil society, some of which is constituted by religious bodies that are, therefore, entrusted with development aid money, for example, since they are perceived to deliver.

In all the cases illustrating these churches' activities above, the modus operandi, such as the extensive media activities, the organization of business groups and leadership courses, resonate with civil society practice. Garner (2000) observes that the impact of these new churches on developed societies is negligible. There they attract occasionally negative headlines and are still minority groups. However, "in Latin America and Africa their gains have been numerically more significant, prompting assertions that 'the church' has become a – if not *the* – major facet of civil society" (Garner, 2000: 311). This is not to say that the new churches do not hit the headlines in Latin America and Africa also for some of their leaders' love for money and exploitation of their members.

The civil society modus operandi observable in the new churches is expressed in the promotion of public discourse. The churches, private space of believers, so to speak, become extended to commune with non-members in the public sphere. The media plays a significant role in this development by which the church seeks to govern the minds and, sometimes, even the actions of people in the Ghanaian public, such as teaching people how to transform their lives economically. As pointed out earlier, civil society is a zone of rational discourse in the public sphere. Some of the media activities of these churches, their leadership formation, promotion of business entrepreneurial skills, as well as teaching on good governance and national development, inform this discourse in Ghanaian society. By these means, Pentecostalism seeks to gain sway in the Ghanaian public sphere so as to govern the minds and actions of, at least, some of its citizenry.

FAILURES AND WEAKNESSES OF PENTECOSTAL ORGANISATIONS

At the same time, it can be argued that the same failures that have led to a weakened State in many parts of Africa also afflict various Pentecostal organizations. American political economist, John Kenneth Galbraith developed the theoretical concept of countervailing power to describe organised groups that neutralise or oppose an underlying order or force. Invoking this theoretical concept, Pentecostal organisations can be described as providing a countervailing force *vis a vis* the State.

Despite the increasing importance of Pentecostal churches as a countervailing force in governance in Ghana, these churches are also seen by many observers in Ghana as taking away from the poor to enrich the wealthy (Daily Graphic, 2014a). The lifestyles of many of its pastors are not seen to be consistent with that of Jesus Christ, the Founder of Christianity, who chose to walk to deliver his messages, lived under harsh conditions with the poor, and was known to have used the symbol of the affluent — the donkey — only once (Anaman, 2014). The issue of Christian Ministers and believers imitating properly the life and values of Jesus Christ of Nazareth has been restated recently by the Head of the Methodist Church in Ghana, Reverend Professor Emmanuel Asante as reported in the Daily Graphic newspaper (Daily Graphic, 2014b).

What is more, the donkey was a symbol of peace while the horse was a symbol of war, which makes one wonder why Pentecostal members usually refer to themselves as 'prayer warriors'. There is a clear disconnect between the teachings of Jesus Christ and the living standards of many modern leaders of Pentecostal organisations in Ghana who live in multi-million cedi mansions in the most affluent parts of the country. Further, like the political leaders that they often criticise, the homes and churches of many influential Pentecostal leaders, are often connected to the infrastructural systems of government-owned utility companies, allowing them, just like the political leaders and the elites in the country, to enjoy highly subsidised rates on water and electricity services (Anaman, 2014).

For example, the residents in Trasacco Valley and East Legon, affluent areas of Accra, currently (October 2014) pay about 1.35 Ghana cedis per kilolitre piped water up to the consumption of 20 kilolitres each month supplied by the

Ghana Water Company, a government-owned company, while the poorest people in Accra living around Ayi Mensah and Danfa pay several times that cost as charged by the Danfa-Kweiman Community Water Board (Mahama *et al*. (2014: 320). The water rate paid by the poorest people in Ayi Mensah and Danfa was actually increased from 2.75 to 4.1 Ghana cedis per kilolitre in February 2014 and is currently over three times the rate paid by customers of the government-owned Ghana Water Company living in affluent parts of Accra (Anaman, 2014).

Anaman (2014) also argues that the community utility service boards in peri-urban and rural areas actually ensure that the poorest of the poor pay several times more for basic utilities than the very wealthy who are subsidised by the State for these services. Just like the same officials of State organizations who are criticised by the Pentecostal churches, these churches often build their private homes and churches close to the network systems of publicly-owned companies in order to reap the benefits of subsidies provided by the State. In reality, the wealthiest of society in Ghana, including the leaders of the major Pentecostal churches, are subsidised by the State for electricity, water and even fuel while the poorest often pay the maximum rates or do not have access at all.

The Ghana Statistical Service in its 2010 Population and Housing Census Analytical report indicated that the informal sector of the economy of Ghana employs about 86.2 percent of the working population of 10,373,678 (Ghana Statistical Service, 2013). Much of the informal sector pays small amounts of taxes to the State. Most of the taxes collected by the Government of Ghana are paid by the estimated 1.5 million workers in the formal sector of the economy (government and private formal). Pentecostal Churches, largely due to their exempt status, pay virtually no taxes to the State. It can be argued that the tax-exempt status of churches has been a major driver of the growth of these organizations. The essence of tax-exemption was in recognition of the contribution of religious groups to the growth and development of the state, such as through the provision of non-profit-making facilities like schools, hospitals and other social services. Pentecostal churches, unlike the historic churches, are less known in this endeavour, despite recent attempts by some of them (Okyerefo, 2011b).

To this end, it is clear that Pentecostal churches are not a panacea for the excesses or injustices caused by the political leaders and influential people that run the State apparatus in Ghana. In many cases, the behaviour of their leaders is consistent with the behaviour of State officials in rent-seeking activities. A case in point is the tax-exempt status of many of these wealthy Pentecostal churches and other religious groups that hardly pay any taxes to the State and yet enjoy numerous benefits provided by the State such as good motorable roads that are maintained at considerable cost by the State and which are frequently used by these organisations, with many leaders plying these roads in very expensive cars. Pentecostal organisations, like many religious organisations, have consistently strived to keep this tax-exempt status. As indicated earlier, the bulk of taxes that ensure these benefits are largely paid by a few people in Ghana in the relatively low income brackets.

Another point raised by Anaman (2014) is the entrenched marginalisation of traditional African religions by Pentecostal churches, which he argues is inconsistent with the fundamental teachings of Jesus Christ about inclusion. Jesus Christ consistently preached the inclusion of everybody. Ironically, the Ghanaian media is rife with reports about some Pentecostal leaders secretly patronising the services of traditional African religious priests to get "supernatural powers" for the promotion and development of their churches, only to turn around constantly to attack and berate these traditional religions without any provocation (also refer to this issue raised by the Daily Graphic Editorial October 1 2014, page 14).

In the same vein, as indicated by Anaman (2014), by systematically attacking many symbols of traditional African religions that promote environmental conservation, Pentecostal churches in Ghana have direct and indirect impacts on the destruction of the natural environment. Many customs and rituals that enhanced the stability of the ecosystem have been systematically attacked by the Pentecostal churches without offering credible alternatives. What we see in Ghana is the extensive environmental degradation caused by people who are mostly Christians and many of these Christian organizations have not done enough to enhance the protection of the natural environment. The role of traditional Akan religions of Ghana in environmental conservation has been discussed by scholars such as Bempah (2010).

I consider the Achimota Forest as a case in point with regard to environmental degradation by Christian activists. The only forest reserve in Accra, Achimota Forest, together with the green belt around the University of Ghana, forms the lungs of the city. Yet, as I have argued elsewhere, the activities of prayer groups in Achimota Forest are contributing to the degradation of a hitherto pristine environment by exposing the soil to erosion and by prayer group members leaving behind heaps of garbage in the forest, particularly non-degradable plastic packs (Okyerefo, forthcoming).

CONCLUSION

This paper suggests that the Ghanaian public sphere is a contested space in which political and religious institutions seek to exert their influence. The processes by which they achieve this may differ, such as the overt objective of political parties to rule and the covert action of religious institutions to achieve the same purpose. This is a dynamic process in which the public sphere, rather than being viewed as fixed and immutable, should be seen as allowing for change that emerges from social interaction and different historical contexts associated with social actors and their communities.

Ghana's historical context at this time is fraught with countless emerging Pentecostal churches that, as argued in the paper, contest for power in the public sphere. In pursuing this goal, the tool Pentecostalism has at its disposal is its civil society self-image, hewn out of the stone of civil society's own self-understanding as having been mandated to influence and claim space from the State. Ironically, many of the so-called excesses of the State in Ghana and in Africa are also committed by civil society organizations and Pentecostal churches.

Ghana was ranked the most religious country in the world based on the latest 2012 Gallup Poll of Religiosity and Atheism with 96% of surveyed Ghanaians declaring themselves to be religious and believing in a Supreme Being or God. According to the 2010 Population Census and Housing Census, 94.8% of Ghanaians declare themselves to be religious with 71.2% of the population being Christians and 28.3% of Ghanaians belonging to Pentecostal and Charismatic Churches. However, there is apparent widespread corruption and moral degeneration on the part of many religious people, both laypersons and

leaders, in both private and public spheres. Hence the blame of a weakened State and corrupt society cannot be put solely at the doorsteps of political leaders, but also on religious organisations that seem to be winning large numbers of people for the cause of Jesus Christ and the Christian Ministry and yet there appears to be no systematic improvement in the degree of moral decay in the country in both private and public domains.

There is also no real or concerted attempt made by religious leaders to considerably reduce the widening income inequality and the growing material wealth gap between the rich and the poor in Ghana. The Ghana Living Standards Survey 6, undertaken by the Ghana Statistical Service, whose report was released in the middle of 2014, confirms that Ghana now has the highest growth in income inequality in Africa over the last decade despite the reduction of the proportion of the population of those classified as living below the poverty line from 28% to 24%. Many religious leaders in Ghana including Pentecostal leaders see their wealth as a blessing from God while many poor people seek solace in religion as a way to reduce their suffering in current lives while hoping for better lives in this life and beyond apparently supporting the Marxian view of religion being opium of the masses (Daily Graphic, 2014a).

Finally, it is not clear whether the current wave of explosion in the growth of Pentecostal churches can go beyond the lives of the leading founders of these churches. While the State of Ghana established on 6 March 1957, has survived well over 50 years with many of its institutions functioning, albeit not necessarily at the optimum level, it remains to be seen whether the active Pentecostal organisations can survive and function successfully after the demise of their current leaders.

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