

## **The Quest for Equity in the Provision of Health Care in Ghana**

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### **Abstract**

Ghana has pursued extensive reforms of its health care system since the colonial days. The intended goals of such reforms apparently were to improve access, increase efficiency and reduce health inequalities. It has attempted to achieve these goals through a significant state control and interventions through public national health system, albeit some periods adopted market competition under the ‘cash-and-carry’ system. This study investigates the impact of health care reforms on some key health care outcomes. Our results indicate that health care reforms have had a pernicious effect on infant mortality and life expectancy. However, the effect on crude mortality rate seemed more benign, albeit not statistically significant, after controlling for GDP per capita. Thus, considering the structure of the Ghanaian economy, it is recommended that, a more socially based intervention seem in the medium term the best in order to reduce the level of inequality within and in comparison with the counterpart nations in Africa.

**Keywords:** Ghana, Health care reforms, Equity, Shortfall inequality

### **1. Introduction**

There has been huge support for equity across many national policy circles, albeit there is no universally agreed definition. Thus, how equity is defined in policy has implications for how the health-care system should be structured. Health care financing strategies have recently gained a lot of attention in international health policy debates and research (McIntyre, 2007). The most recent development in many Sub-Saharan African countries is the exploration of ways to back up or replace the user fees at the point of service use with more equitable alternatives in the health sector. Indirect payment

systems such as social and community health insurance are of increasing interest (Ekman, 2004). Indirect payment systems have become increasingly necessary, considering the fact that user fees and other direct payments have had and continue to have palpable adverse effects, particularly on poor individuals and households (Xu *et al*, 2003; Yates, 2009).

Generally, continental Africa is still limping in terms of development compared with other regions, though there have been some few isolated countries (e.g., Botswana) that have chalked some successes over the past two decades. Health and socioeconomic inequalities are implacable features among countries in Africa, and Ghana is no exception. As a consequence, Ghana has pursued extensive health sector reforms with the view to improving accessibility, efficiency and reducing health inequalities since independence. In the light of the pursuance of these health reforms, this paper seeks to find out whether the quest to achieving equity in the provision of health care has been successful. In doing so, the paper seeks to unravel the effectiveness of these reforms in reducing health inequities, particularly with reference to some performing countries in Africa. This in turn helps clarify not only domestic equity issues but also in comparison with international healthcare outcomes.

The paper uses both graphical and regression analyses in examining the impact of health sector reforms on shortfall inequality. It was found that health care reforms on average have had an insidious effect on infant mortality rate and life expectancy. However, the effect on crude mortality rate seemed more benign, albeit not statistically significant, after controlling for GDP per capita. The paper proceeds as follows: section 2 outlines some key philosophical perspectives of equity and on equity in health care delivery; section 3 examines the historical overview of the health care system in Ghana; section 4 focuses on the data and methods; section 5 presents the results and discussion and section 6 concludes the paper.

## **2. Philosophical and Theoretical Perspectives of Equity**

The disparity between the rich and the poor within many countries regarding their health status and other socioeconomic factors seems to

precipitate discussions on equitable distribution of resources in societies. In particular, there has been an increasing debate in the last few decades about health inequalities amongst economists, philosophers, social scientists and physicians. These discussions on how to define equity in health care make reference to five key philosophical perspectives on equity: libertarian (market-based) perspectives, utilitarian approaches, egalitarian theories, communitarian theories and deliberative democratic procedures.<sup>1</sup>

Libertarian perspective focuses on rights, claiming that if everyone is entitled to the goods they possess, a just distribution is whatever distribution results from people's exchange of those goods. Stated alternately, the society simply has no obligation to address social or health inequalities because any measure to do so would imply redistributive policies that ultimately infringe on individual liberties (Ruger, 2006). Hence the provision of one's health is an individual responsibility rather than a societal obligation. Utilitarian theories of health care judge actions (allocating resources) to be right or wrong based on their impact on societal utility. The morally correct action is the one which produces the greatest amount of happiness for society (Kymlicka, 2002). Thus utilitarian theories of health care justice do not consider individual inequities as long as the entire society is better off. Communitarian theories propose that there exists no universal norms of social justice, but rather those are constructed by each society through a process of social and political evolution. As a consequence, if achieving higher health status is not a priority of a particular society, then it has no responsibility to secure it for its members.

Rawls' theory of social justice proposes that behind a 'veil of ignorance' (1971, p. 12), where no one knows his/her place in society, rational and self-interested individuals would choose the 'difference principle' to govern distribution in society. This principle requires all inequalities to be judged in terms of securing the benefits for the least advantaged person in society. 'Equality of opportunity', described as the prevailing justification for economic distribution in our society (Kymlicka, 2002), requires that people should not be 'advantaged or hampered by their social background and that their prospects in

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1 See Ruger (2009) for in-depth exposition into the various ethical perspectives.

life should depend entirely on their own effort and abilities' (Baker *et al.*, 2004, p.25). Inequalities in income, power and other domains are unfair if people are disadvantaged or privileged by arbitrary and undeserved differences in their social circumstances (Kymlicka, 2002). Thus, egalitarian theories propose that everyone is entitled to the same level of health achievement and entitled to equal opportunities in achieving good health.

Deliberative democratic procedures are defended by those who believe that by espousing the principles of autonomy, political equality and due deliberation within an open public process, justice will prevail. However, they offer little guidance over what principles of justice should take precedence over others, if any.

### **3. Historical Overview of the Health Care System in Ghana**

The development of modern health care system in Ghana can be categorized into three phases (Senah, 2001). The first phase (1471-1844) saw the emergence and the subsequent establishment of biomedicine. The introduction of the new health care system was, however, the sole preserve of the colonial masters, established to protect them against the possible contraction of infectious diseases from the “unhygienic” conditions of the “natives’ environment” who they interacted with on a daily basis (Senah, 2001). Dummett (1993) adds that, the era before independence, funding of healthcare was the sole prerogative of the colonial government or the missionaries where they involved in the provision of healthcare at that time.

The signing of the bond of 1844 between the British and some local chiefs marked the beginning of the second phase of colonial health care system in Ghana. Not only did the signing of the bond enhance European commercial and Christian missionary activities in the hinterland, but it also promoted the realization that the colonial masters could not only enjoy good health without ensuring that the health needs of the natives were also met (Twumasi, 1975; Senah, 2001). As a consequence, colonial health services as well as other sanitary facilities were extended to the domestic servants, those in the civil and

military service that were in constant contact with their colonial masters (Senah, 2001).

The third phase started in 1868, when the first hospital was built in Cape Coast, as well as dispensaries in several rural communities (Senah, 2001). Subsequently, in 1923 the first national hospital, the Korle Bu Teaching Hospital was built to purposely serve the health needs of Ghanaians. The colonial era saw massive discrimination in the dispensation of health care to the natives and even against health workers.

Following independence in 1957, effective social and welfare services were prioritized as a consequence of the devastating effect of colonialism on the health sector. The first national government revamped the health sector by enlarging and modernizing facilities as well as training more medical personnel (Opare and Mills, 2000). Subsequently, Ghanaians could seek medical care in any government hospital, health center and pharmacy at zero financial cost as the health sector was financed by the State. Senah (2001) suggested that “between 1957 and 1963 the number of health centers increased from 1.0 to 41”, and of the £144 million that government budgeted, between 1963 and 1964, for projects, as part of public expenditure, about 31 % went towards the social services with much attention given to the health sector (p.85). Moreover, government’s health expenditure increased from 6.4% in 1965 to 8.2% in 1969 (Patterson, 1981). The above statistics show that the government spent more on the health care and human resource development compared to other departments.

Notwithstanding, the quality of care began to decline in the late 1960s, mainly because subsequent governments failed to invest in the health care system (Osei-Boateng, 1992). Thus, user fees were introduced in 1969 and continued in some variety until the introduction of the “Cash-And-Carry” or “Pay-As-You-Go” System in 1985. Upon adoption of the International Monetary Fund’s (IMF) and World Bank’s Structural Adjustment Program (SAP), the government was charged to reduce expenditure drastically and as a consequence, the full burden of paying for health care was borne by patients. Asenso-Okyere and Dzator (1997) have observed that costs of medicine alone

accounted for over 60% of treatment of malaria, one of the commonest illnesses in Ghana. Government expenditure on health was reduced from 10% of the national budget in 1982 to 1.3% in 1997. As many people could not afford to pay the requisite fees at point of delivery to seek medical attention, they avoided going to hospitals and health centers; instead, they engaged in self-medication or other cost-saving behaviours or practices (Asenso-Okyere *et al.*, 1998). As a result, in 2003 the then government introduced and passed into law a National Health Insurance Scheme (NHIS) bill, with the view to providing affordable safe health care to all residents of Ghana. Stated alternately, to remove the financial barriers of Ghanaians to access healthcare services and to ensure equitable access to quality services especially by the poor and vulnerable, the Government of Ghana initiated and passed the National Health Insurance Law, 2003 (Act 650) and the National Health Insurance Regulations, 2004 (L.I. 1809) aimed at abolishing the ‘Cash and Carry’ system and limiting out-of-pocket payments at the point of service delivery (Government of Ghana, 2004; Adjepong and Adjei, 2008).

The NHIS is financed from four main sources: a value-added tax on goods and services, a reserved portion of social security taxes from formal sector workers, individual premiums, and miscellaneous other funds from investment returns, Parliament and donors. The 2.5% tax on selected goods and services, called the National Health Insurance Levy (NHIL), is by far the largest source, comprising about 70% of revenues. Social security taxes account for an additional 23%, premiums for about 5%, and other funds for the remaining 2% (Yankah, 2009).

Outpatient utilization of healthcare services has increased over forty-fold from 0.6 million in 2005 to 25.5 million in 2011. During the same time, inpatient utilization increased over fifty-fold from 28,906 to 1,451,596 in 2011 (NHIA, 2011). This tremendous appreciation of outpatient and inpatient utilization of healthcare seems to suggest that, the scheme has increased accessibility particularly to the poor because healthcare has become somewhat affordable. In a sense, however, relative to its antecedent ‘Cash and Carry’ system, the current NHIS can be said to be more equitable.

## **4. Data and Empirical Strategy**

### **4.1 Data**

The dataset of the paper for the outcome and control variables are gleaned from World Population Prospects (2010) of the United Nations Department of Economic and Social Affairs and the World Development Indicators (2010). The outcome variables in this paper are crude mortality rate (CMR), infant mortality rate (IMR) and life expectancy at birth (LE). CMR is the number of deaths over a given period divided by the person-years lived by the population over that period. It is expressed as number of deaths per 1,000 population. IMR is the number of deaths of children less than 1 year old per 1,000 live births. Life expectancy at birth is the average number of years of life expected by a hypothetical cohort of individuals who would be subject during all their lives to the mortality rates of a given period. It is expressed in years. Data were relatively scanty on under-five mortality rate and hence the paper does not consider it as an outcome variable. The control variable used in this paper is real Gross Domestic Product (GDP) per capita.

### **4.2 Empirical Strategy**

Evaluating the performance of health care systems has been variously approached by different authors (see Murray and Frenk, 2000; Anand *et al.*, 2001; Ruger, 2006); yet others have specifically used different methods to evaluate health care reforms (see Daniels *et al.*, 2000). Also most of these studies evaluating reforms have used methods that do not control for the existing underlying time trends present in the variables of interest at the time the reforms were enacted. Moreover, micro level studies are difficult to compare with other countries since they often entail different variable definitions, different time periods and survey methods (Esteves, 2012).

However, the most consistent method with cross-country comparisons of inequalities in health capabilities is the measurement of shortfall inequalities (Ruger, 2009). This paper adopts the strategy by Ruger (2009) due to the fact this measure of shortfall inequalities can assess quantitatively how much a given society has realised its health potential and how much remains unrealised

since they compare the actual achievement of a given health system with the optimal average value of a given reference group (Ruger, 2009). Thus, in general if the objective of the study is to understand domestic inequities, then the reference group shall be the segment of the population who represents the highest achievement. Conversely, if the objective is for international comparisons, then the best performing country for a given indicator shall be used as the reference. This allows for flexibility and consistency. It must be emphasised however, that due to lack of consistent and reliable domestic data, this paper lends its focus on international comparison taking the whole of the Africa continent as the region for comparison. This is done since most African countries though, heterogeneous in culture and values, but are similar in many contexts including health care characteristics.

The first step in the empirical analysis was to determine the time interval to be used to evaluate the time series. Dataset from United Nations Population Division (2010) span from 1950 to 2010 and averaged over 5-year interval on all the variables except real GDP per capita which was taken from the World Development Indicators, World Bank. Data on real GDP per capita are reported annually starting from 1960. Hence, a 5-year average was taken in order to conform to the other dataset for the various regressions. Thus, in the regressions a total of 12 observations were obtained for each variable except where we controlled for real GDP per capita. However, regarding the graphical analysis, 12 observations were obtained for all the variables since it is exclusive of real GDP per capita.

In the second step, graphical analysis is done to ascertain the shortfall inequality which is given by:  $SI_x = |X_{optimal} - X_{actual}|$ , where  $X$  is the value of the indicator being analysed in each year of the time series. This is the absolute difference between the optimal average value and the actual value of the original indicators.

In the final step, bivariate and multivariate analyses are performed using ordinary least square regression. To actually evaluate the effects of the health reform, a dummy variable is created to proxy pre and post health care reforms while controlling for the overall time trend and GDP per capita. All statistical

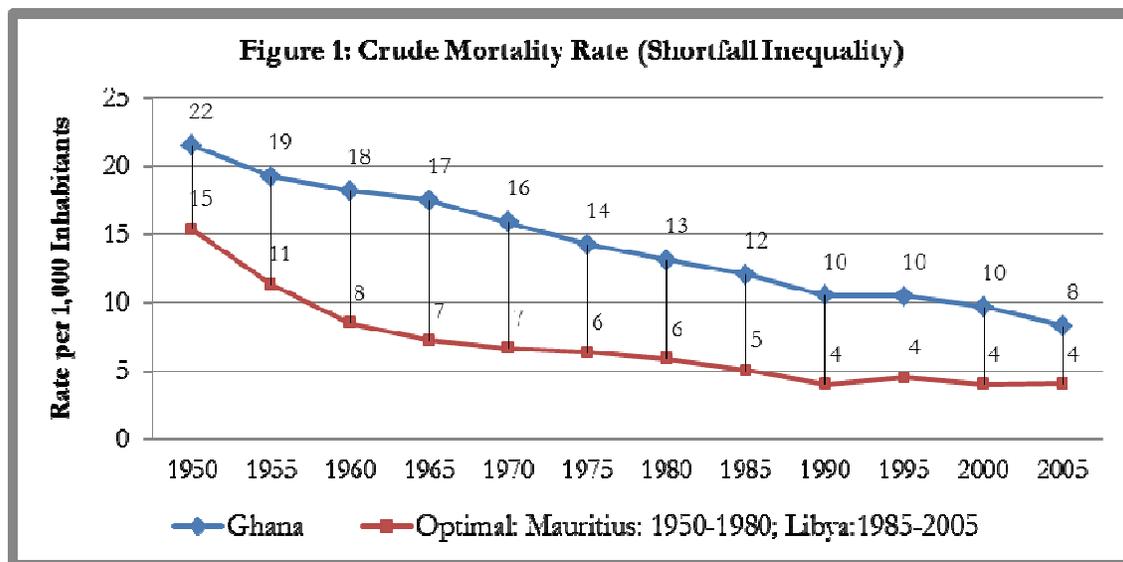
and graphical analyses were performed using Eviews 5.1 and Microsoft Excel respectively.

## 5. Empirical Results and Discussion

This section of the paper presents the results based on the data obtained. First graphical as well as the statistical analysis of each outcome variable are presented. The latter part of the section is devoted to discussing the general results.

### 5.1. Crude Mortality Rate

The casual inspection of the trends in crude mortality rate in Ghana shown in Fig. 1 over the period suggests a continuous reduction in the rates. It can be inferred from the figure that, the reduction of the shortfall inequality stalled after 1985, particularly considering the fact that the optimal value barely dropped.



Source: Author's Construct Based on Data from United Nations Population Division, 2010

Bivariate Analyses				
Dependent Variable : Crude Mortality Rate <sup>a</sup>			CMR: Shortfall Inequality <sup>b</sup>	
Variable	Coefficient	Adjusted R <sup>2</sup>	Coefficient	Adjusted R <sup>2</sup>
Time Trend	-1.165 [0.000]	0.982	-0.325 [0.0195]	0.379
Reform	-4.669 [0.0542]	0.254	-0.571 [0.6071]	0.027
Multivariate Analyses				
Variable	Coefficient	Adjusted R <sup>2</sup>	Coefficient	Adjusted R <sup>2</sup>
Time Trend	-1.084 [0.0000]	0.982	-0.385 [0.0214]	0.360
Reform	-0.564 [0.1263]		0.815 [0.4227]	
Time Trend	-1.099 [0.0000]	0.984	-0.625 [0.000]	0.933
Reform	-0.167 [0.6975]		0.183 [0.716]	
GDP per capita	0.008 [0.1999]		0.0027 [0.6729]	
Notes: a Regression when baseline values are considered. b. Regression when we consider the shortfall inequality, i.e., after taking the absolute difference between the optimal and the actual values. Values in [ ] are p-values				

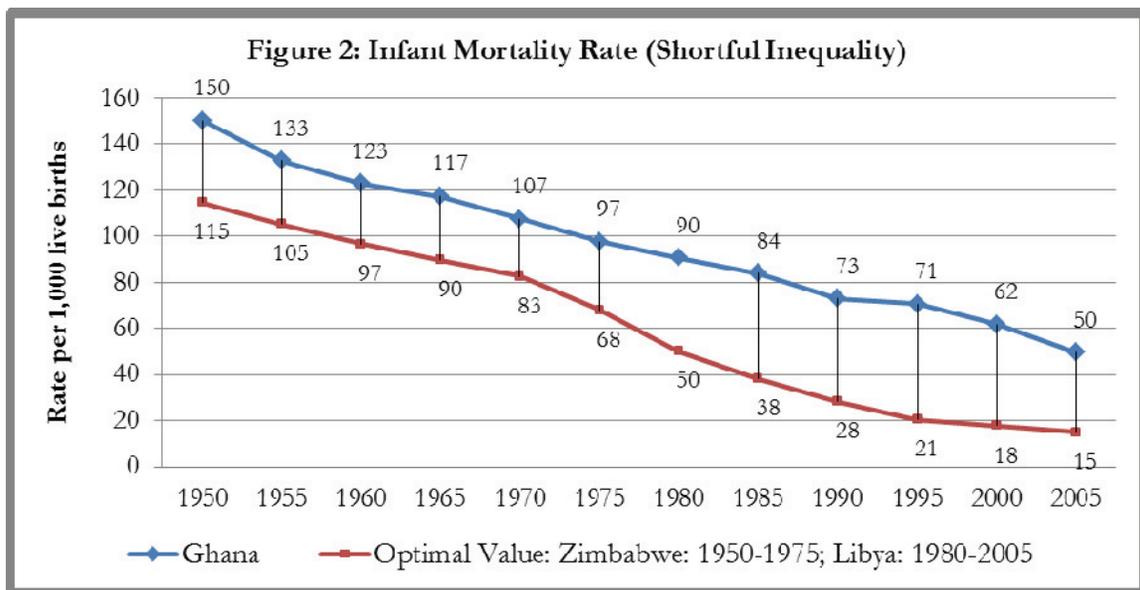
**Table 1: OLS Estimation of CMR and Shortfall Inequality**

The results of the bivariate regression (Table 1) corroborate the graphical revelation of mortality trends in Ghana. The results indicate that the baseline crude mortality rate has shown a persistent reduction of about 1.165 per year over the period under consideration. Also post-reform crude mortality rates averaged about 4.669 smaller. Similar pattern is observed when we consider shortfall mortality. After controlling for reform in the multivariate case, the results were consistent with the bivariate case; however, the pace of reduction was slower. Controlling also for GDP per capita slowed down the pace of reduction, but they were all not statistically significant.

When shortfall inequality was taken as the dependent variable, the bivariate results showed that, reforms reduced shortfall inequality. However, the multivariate results proved otherwise since the years after reform rather appeared to have reversed the trend, albeit not statistically significant. This probably explains the negative effects of introducing user fees in the delivery of health care in Ghana.

## 5.2. Infant Mortality Rate

Fig. 2 illustrates the trends in infant mortality rate in Ghana and the corresponding shortfall inequality. The figure indicates that the country has managed to reduce consistently the rate over the years; however, the periods after 1970 have seen a widening of the shortfall inequality. This apparently is due to the sharp deceleration in the optimal rate which relatively suggests that, much is still expected of Ghana to further reduce infant mortality rates.



Source: Author's Construct Based on Data from United Nations Population Division, 2010

Bivariate Analyses				
Dependent Variable : Infant Mortality Rate <sup>a</sup>			IMR: Shortfall Inequality <sup>b</sup>	
Variable	Coefficient	Adjusted R <sup>2</sup>	Coefficient	Adjusted R <sup>2</sup>
Time Trend	-8.418 [0.0000]	0.988	1.626 [0.0192]	0.381
Reform	-30.944 [0.0816]	0.200	9.645 [0.0581]	0.245
Multivariate Analyses				
Variable	Coefficient	Adjusted R <sup>2</sup>	Coefficient	Adjusted R <sup>2</sup>
Time Trend	-8.354 [0.0000]	0.987	1.247 [0.0969]	0.360
Reform	-0.871 [0.7245]		5.154 [0.3026]	
Time Trend	-7.968 [0.0000]	0.990	2.258 [0.0026]	0.825
Reform	0.457 [0.8491]		-1.493 [0.7066]	
GDP per capita	0.004 [0.8937]		-0.170 [0.0138]	
Notes: a Regression when baseline values are considered. b. Regression when we consider the shortfall inequality, i.e., after taking the absolute difference between the optimal and the actual values. Values in [ ] are p-values				

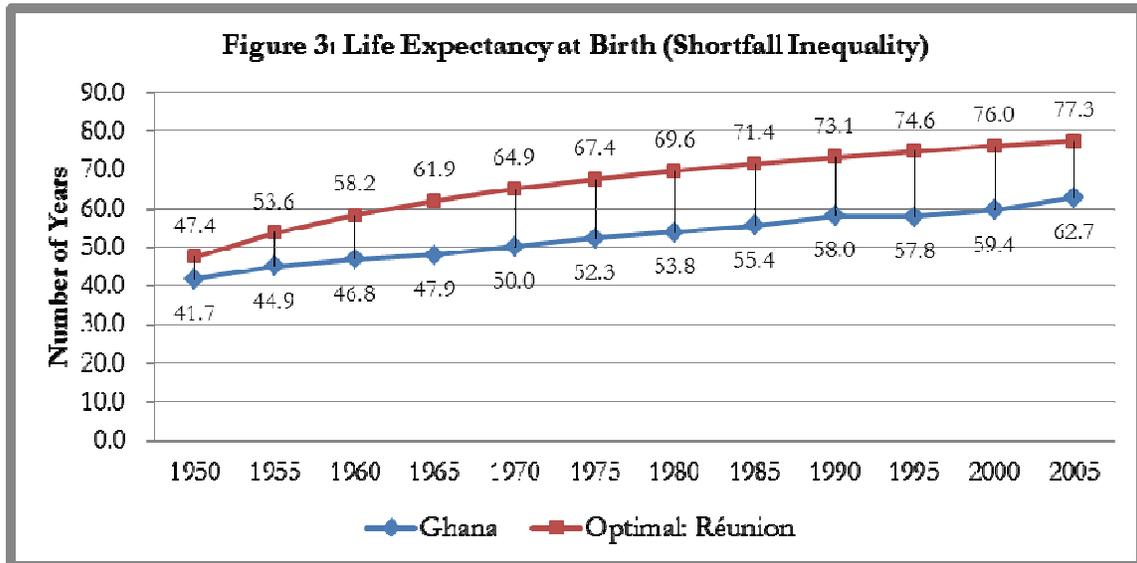
**Table 2: OLS Estimation of IMR and Shortfall Inequality**

As indicated by the coefficient of the time trend in the bivariate regression, the baseline infant mortality rate falls much faster in comparison with the crude mortality rate. The coefficient indicates a reduction of 8.418 per year. The results also indicate a reduction in average infant mortality rate of 30.944 post-reform. When controlling for both time and reforms, the pace of the reduction in infant mortality slowed down and in particular when GDP per capita was also accounted for, the trend reversed, albeit insignificant. Considering shortfall inequalities, the effect of the reform significantly aggravated the situation and in particular when the optimal rates were fast decelerating. However, after controlling for time and GDP per capita in the multivariate analysis, the effect of reforms reduced shortfall inequality but not significant.

### 5.3. Life Expectancy

Fig. 3 depicts the trends in life expectancy in Ghana and in relation to the optimal levels found within Africa. The graph indicates that over the period, the average life-span of Ghanaians has increased but at a relatively slower pace.

The relationship with the optimal values suggests that shortfall inequality has been relatively stable since the optimal life expectancy has also been increasing at a relatively slower pace, albeit, everywhere higher than the numbers recorded in Ghana. Despite the seemingly constant shortfall inequality, the figure suggests that, Ghana is still farther away from the optimal value in Africa.



Source: Author's Construct Based on Data from United Nations Population Division, 2010

<b>Bivariate Analyses</b>				
<b>Dependent Variable : Life Expectancy</b>			<b>LE: Shortfall Inequality</b>	
Variable	Coefficient	Adjusted R <sup>2</sup>	Coefficient	Adjusted R <sup>2</sup>
Time Trend	1.774 [0.0000]	0.987	0.752 [0.0019]	0.597
Reform	6.464 [0.0851]	0.194	4.890 [0.006]	0.502
<b>Multivariate Analyses</b>				
Variable	Coefficient	Adjusted R <sup>2</sup>	Coefficient	Adjusted R <sup>2</sup>
Time Trend	1.767 [0.0000]	0.986	0.534 [0.0123]	0.734
Reform	0.102 [0.8510]		2.969 [0.0351]	
Time Trend	1.721 [0.0000]	0.979	0.262 [0.0311]	0.733
Reform	-0.325 [0.6736]		1.807 [0.0582]	
GDP per capita	-0.005 [0.6069]		-0.004 [0.6762]	
Notes: a. Regression when baseline values are considered. b. Regression when we consider the shortfall inequality, i.e., after taking the absolute difference between the optimal and the actual values. Values in [ ] are p-values				

**Table 3: OLS Estimation of Life Expectancy and Shortfall Inequality**

The results from the bivariate regressions corroborate the graphical outcome. As per the results, life expectancy in Ghana increased by 1.774 on average per year. Post-reform years have also surprisingly seen improvement in life expectancy. However, accounting for time, reform and GDP per capita in the multivariate sense, post-reform periods saw a deleterious effect on life expectancy, albeit not significant. This suggests the debilitating effect of the introduction of user fees in the delivery of health care in Ghana.

When shortfall inequalities were considered, the bivariate analysis showed a significant positive impact in the periods after the reform. This reiterates the graphical revelation of a stable and constant shortfall inequality. In the multivariate case, there is significant improvement in life expectancy when time and reform are considered as the regressors. Furthermore, controlling for GDP per capita, also significantly increased shortfall inequality of life expectancy by 1.807 per year.

#### **5.4. Discussion**

Most developing countries currently rely on user fees to fund part of their care. Thus, most of these countries have undergone some massive health sector reforms. There is now widespread recognition of the problems caused by user fees, both in terms of inequitable access and inefficiency (Witter, 2005). As a consequence, it is exigent to measure the impact of such health sector reforms on health outcomes and the degree of their efficiency particularly in their attempt to improve accessibility to health care and reducing health inequities.

This paper has attempted to evaluate the health inequities in Ghana as a consequence of reforming the health sector using aggregated data for the period covering 1950 to 2005. The paper has sought to compare health outcomes of Ghana with the optimal values in continental Africa, following the health sector reforms. The results of the baseline analyses indicate that health reform in Ghana has not achieved much due to the introduction of user fees in health care services. Consequently, the pace of reduction in infant mortality and crude mortality rates has not been impressive, particularly in comparison with the optimal levels in Africa. Life expectancy has improved over the years but at a relatively slower pace, thus failing to catch up with the optimal level in Africa. Thus the reduction in health inequities has been relatively abysmal.

Further analysis of the shortfall inequalities corresponding to each of the outcome variables indicated that, health inequities have remained and are not significantly showing any tendencies of disappearing. Controlling for GDP per capita only had a significant impact of the effect of the reform on life expectancy. Shortfall inequality of life expectancy increased significantly by 1.807 per year.

The results suggest that user fees at the point of service have not yielded any significant positive results in terms of health outcomes. Micro level evidence suggests that high cost of user fees for instance, in deliveries limits access to skilled attendance, and contributes to maternal and neonatal mortality and the impoverishment of the vulnerable households. Witter *et al.* (2007) found that, in Ghana, though exemption mechanism had its attendant problems, it was well accepted and appropriate. Thus, with better financial sustainability,

such programmes should be encouraged in order to reduce unnecessary deaths of inhabitants and help improve on the human potentialities in developing countries to catch up with the developing world.

## **6. Conclusion**

This paper has attempted to investigate the impact of health care reforms on crude mortality rate, infant mortality rate and life expectancy in Ghana. Both statistical and graphical analyses were employed in examining the impact of health sector reform on shortfall inequality which was obtained by finding the absolute difference between some optimal values in Africa and their counterparts in Ghana. It was found that health care reforms have had a deleterious effect on infant mortality rate and life expectancy. However, the reforms have had a positive effect in improving crude mortality rate, albeit not statistically significant, after controlling for GDP per capita. Also, the reforms have exacerbated the inequalities pertaining in Africa particularly with regard to life expectancy and crude mortality. The reason why even after the reforms, we witnessed a continuous deceleration in the crude and infant mortality rates is probably due to the inhabitants reliance on other forms of accessing health care such as traditional medicine which have seen much improvement over the years. Also public health education on a number of issues like family planning, hygiene, among others has also intensified which have gone a long way in helping most inhabitants to undertake steps to improve their health status.

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