THE ROLE OF WEALTH IN INFANT MORTALITY IN SUB-SAHARAN AFRICA WITHIN URBAN AND BETWEEN URBAN AND RURAL AREAS

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ABSTRACT

This study investigates the role of wealth in infant mortality in Sub-Saharan Africa, hereafter (SSA). Using recent data from Demographic and Health Surveys (DHS), we document the differences that exit within urban and between urban and rural residents in Sub-Saharan Africa based on wealth.

Our findings lead us to conclude that there is a statistical significant difference both within urban residents and within rural residents on wealth and infant mortality. Furthermore, we find that literacy is significant in explaining association with infant mortality. Our findings lend credence to previous studies on the importance of wealth and literacy on any policy program to address health inequalities in developing countries

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INTRODUCTION

Children health outcomes in Sub-Saharan Africa (SSA) have generally focused on malnutrition, urban and rural differences as well as literacy. Previous studies of health inequality in children in the region have examined differences across countries and sub-regions. (Molyneus,C.S et al., 1991; Zere E., and Mclyntre D., 2003; Amouzou, A,. and Hill, K., 2004). Over the last two decades, there has been growth in urban population in SSA (Balbo M., 2006). Case et al. (2002) concludes that children from lower income households with chronic conditions have worse health than do those from higher income households. Khanam et al. (2009) concludes that parental health and, in particular, the mother's health plays a significant role, in reducing the income coefficient thus suggesting an underlying mechanism that can explain the observed relationship between child health and family income. Anyamele (2009) concludes that among the eleven selected countries in SSA, six countries had significant negative association of wealth and child mortality.

Therefore, this study examines the differences between health outcomes of children in different wealth quintiles in urban and rural areas within countries and across countries in SSA. The study uses recent data from Demographic and Health Surveys (DHS) in SSA between 2003 and 2007. The logistic regression model is employed to enable the results to be interpreted using odds ratio analysis. Child mortality affects a country's labor force quality and productivity over the long run. On aggregate, we expect the differences in child mortality between children in higher wealth quintiles and children in lower wealth quintiles to be higher both among urban and rural dwellers. Similarly, we expect the differences to be significant in countries that are less urbanized than in countries with higher proportion of the population residing in urban areas.

Child mortality on average decreased in SSA from the 1960s to 1990 but appears to have remained at the 1990 levels over the last decade (Balbo M., 2006; World Urbanization Prospects, the 2007 Revision, United Nations, Executive Summary, 2008). A look at Table 1 shows that the under-five mortality rate decreased by 9.35% between 2000 and 2006 among the 20 countries listed in SSA. At the same time urban populations increased by 2.75% over the same period in these countries. From Table 1, we see that under-five mortality remained the same for Angola and Democratic Republic of Congo (D.R.C.) from 2000 to 2006. At the same time, urban population for Angola increased by 4 %, while in D.R.C. it increased by 3% over the same period. Table 1 also shows that four of these countries experienced increases in under-five mortality rate between 2000 and 2006. These countries are Burkina Faso with 5.15%, Ghana with 6.19% and Kenya with 3.14% and Swaziland with 15.49%. During the same period, each of these four countries

experienced increases in their urban populations, with Burkina Faso showing 2% increase, Ghana, 5%, Kenya, 1%, and Swaziland, 1% respectively. Table 1 shows that Malawi had the highest decrease in under-five mortality between 2000 and 2006. Children under five years of age mortality decreased by 22.58% in Malawi, followed by Ethiopia, with 18.0%, Tanzania saw a decrease of 16.31% while Madagascar showed a decrease of 16.05% over the same period. Recent studies have focused on the rising level of urban poor in SSA (Sastry, N.,2004; Magadi, M., et al., 2003; Brockerhoff, M. and Hewett, P., 2000). In response to the slums and overcrowding of the rapid urbanization, there still is considerable inequality in access to safe drinking water, electricity, and health care (Sastry, N., 2004; Magadi, M., et al., 2003; Booysen, F. le R, 2002; McMichael, A .J. 2000). Improving self-treatment has enormous potential to reduce morbidity and mortality associated with childhood fever in low-income urban areas

Table 1

Trends in Urban Population and Under-five Child Mortality in SSA 2000-2006

Country	*Population in urban area in 2000 (%)*	*Population in urban area in 2006 (%)*	*Under 5 mortality rate in 2000 (Per 1000)*	*Under 5 mortality rate in 2006 (Per 1000)*	*Under 5 % change in mortality rate 2000-2006*
Angola	*50*	*54*	*260*	*260*	*0.0*
Benin	*38*	*40*	*160*	*148*	*-7.5*
Burkina Faso	*17*	*19*	*194*	*204*	*5.15*
Cameroon	*50*	*56*	*151*	*149*	*-1.3*
Cote d'lviore	*43*	*45*	*137*	*127*	*-7.29*
Ethiopia	*15*	*16*	*150*	*123*	*-18.0*
D.R.C	*30*	*33*	*205*	*205*	*0.0*
Ghana	*44*	*49*	*113*	*120*	*6.19*
Kenya	*20*	*21*	*117*	*121*	*3.4*
Madagascar	*26*	*27*	*137*	*115*	*-16.05*
Malawi	*15*	*18*	*155*	*120*	*-22.58*
Mali	*28*	*31*	*224*	*217*	*-3.12*
Namibia	*32*	*36*	*69*	*61*	*-11.59*
Niger	*16*	*17*	*270*	*253*	*-6.29*
Nigeria	*44*	*49*	*207*	*191*	*-7.72*
Rwanda	*14*	*20*	*183*	*160*	*-12.57*
Senegal	*41*	*42*	*133*	*116*	*-12.78*
Swaziland	*23*	*24*	*142*	*164*	*15.49*
Uganda	*12*	*13*	*145*	*134*	*-7.58*
Tanzania	*22*	*25*	*141*	*118*	*-16.31*

Source: Author's calculation from World Health Organization 2008

(Molyneux, C.S., et al, 1999). After accounting for socioeconomic and environmental differences, the treatmentsworks as well in urban areas as they do in the rural areas of Kenya.

Urban poor in African countries where maternal health care is relatively good tend to be worse off than their rural counterparts (Magadi, M.A., et al., 2003). In South Africa, significant differences in under–five

child malnutrition favor the richest (Zere, E. and McIntyre D., 2003). Rapid urbanization in SSA is due to flight from rural poverty and high fertility rates in urban areas (McMichael, A .J. 2000). Fifty percent of child mortality results from undernourishment, which is a direct result of socioeconomic status (Victoria, C.G., et al, 2003). Todd (1996) presents a comprehensive literature on health problems found in urban areas. The work of Wagstaff documents differences in child mortality due to socioeconomic status in developing countries (Wagstaff A., 2000).

The present study uses odds ratios to measure the differences in child mortality in different households' wealth quintile. It should be noted that the choice of wealth index has an impact in the magnitude of the outcome demonstrating a relationship between socioeconomic status and health inequality (Houweling, T., et al., 2003). Care-seeking behavior, for example, is worse in poorer than in relatively rich families, even within rural areas (Schellenberg, J.A., et al., 2003). Richer groups have a higher probability of obtaining care when sick, are more likely to be seen by a doctor, and have a higher probability of receiving medicines when they are ill, than the poorer groups (Makinen, M., et al., 2000). The American Academy of Pediatrics, in their 2000 report, listed socioeconomic status as one of the areas that future research should explore to enhance our understanding of child health (Schultz, T. P., 1999). Clearly, there is a need to better understand the role that wealth plays in health outcomes in children in SSA.

DATA

The data for this study are from Demographic and Health Surveys (DHS) for selected sub-Saharan African countries (2003 to 2007). DHS surveys apply probability based sampling separately to urban and rural strata, to provide valid samples of urban and rural populations at the national level. The DHS surveys are conducted in single rounds with two main survey instruments: one is household schedule and the other is individual questionnaire for women of reproductive age 15 to 49 years. The household schedule collects a list of household members and basic household demographic information and is used to select respondents that are eligible for individual survey. The individual survey provides information on household assets, reproductive histories, health, and nutritional status of the women's young children. To account for the differences between wealth quintile within urban and rural areas, we use logistic regression. The use of logistic regression allows us to obtain the odds ratio of which group has lower or higher odds of child mortality based on wealth quintile.

Children under-five mortality is summarized in the multivariate model below as:

$$\ln\left(\frac{P}{1-P}\right) = Bo + BrDr + BiXi \qquad (1)$$

where P is the probability of dying before the age of 60 months for the ith child. Ln (P/1-P) is the logit transformation, β_0 denotes the constant term, B_r is coefficient for the dummy variable rural or urban residence and X_i denotes all other covariates. Urban residence is=1, rural=0, wealth is assigned values of 1 to 5, literacy has values of 1 to 3.

RESULTS AND DISCUSSION

Table 2 shows the differences in child mortality in urban and rural areas of the countries in SSA. Table 2 shows that Madagascar with 120 per 1000 mortality has the least under five-mortality rate in rural population among the countries in SSA. It also shows that Nigeria with 242.7 per 1000 has the highest children under-five year rural mortality rate among the countries in SSA. From Table 2 we see that under-five

mortality rate in rural population is higher in the West African countries than in Central African and Southern African countries among the countries in SSA. The urban children under-five year mortality shows the same trend in these regions of Africa. Again, Chad with 179.4 per 1000 mortality rate in urban population is the highest among the countries in urban mortality from Table 2. This is followed by Mali with 158.2, Nigeria with 152.9 and Niger with 139.2 respectively.

The lowest urban mortality rates among the countries are Madagascar with 73.3, Ethiopia with 98.0 and Benin with 115.7 and Malawi with 116.4 respectively. Table 2 also shows the relative odds of children under-five year mortality between urban and rural population among the countries in SSA. From Table 2 we see that the relative odds of children under-five year mortality between the urban and rural population among the countries in SSA is highest in Niger with a relative odd of 1.66. Madagascar, Nigeria, Rwanda, Mali, DRC, Cameroon and Malawi have relative odds of 1.64, 1.59, 1.57, 1.48, 1.45, and 1.41 respectively. Past studies have concluded that *per capita* income has a negative association with child mortality in sub-Saharan Africa (Amouzou, A. and Hill, K., 2004). As is commonly found in studies of child mortality,

place of residence, wealth, and literacy are the key socioeconomic factors associated with child mortality.

Table 2

Urban and Rural Under-Five Mortality in Selected SSA Countries

Country and Year	Urban	Rural	Ratio of Urban/Rural
Benin 2006	115.7	143.2	1.24
Cameroon 2004	119.3	168.8	1.41
Chad 2004	179.4	207.7	1.16
DRC 2007	121.7	177	1.45
Ethiopia 2005	98	134.8	1.37
Mali 2006	158.2	234.2	1.48
Malawi 2005	116.4	163.9	1.41
Madagascar 2005	73.3	120	1.64
Niger 2006	139.2	230.6	1.66
Nigeria 2003	152.9	242.7	1.59
Rwanda 2005	122.6	192.1	1.57

Source: Demographic and Health Surveys (DHS), Data sets (2003-2007); Various Sub-Saharan African Countries, Calverton, MD

Our dependent variable is child mortality; the explanatory variables are urban residence, rural residence, literacy, and wealth. In Benin, the odds ratio for child mortality among urban residents falls by 11.61%. In Cameroon, we see the odds failing for urban residents by 15.45%. Chad shows a decrease of 29.75% for urban residents. The following countries all shows a decrease in odds of mortality for those living in the urban areas: Democratic Republic of Congo (23.13%), Ethiopia (25.42%), Mali (17.74%), Malawi (26.96%), Madagascar (21.70%), Niger (39.16%), Nigeria (16.89%) and Rwanda (33.15%). In some countries, urbanization has inverse association with child mortality. Kenya, Liberia, Mozambique and Namibia are examples. Niger, Rwanda, Chad, Malawi, Ethiopia, DRC, and Madagascar experienced the most reduction in child mortality associated with urbanization. The least impact of urbanization and childortality are in Benin, Cameroon, Nigeria, and Mali.

We find a negative significant effect of literacy on child mortality in the countries of SSA. The more literate the population is, the more the odds of child mortality fall. Our results show the following odds for urban richest quintile in SSA: Angola, 39, Benin, 10, Cameroon, 15, Chad, 21, DRC, 22, Ethiopia, 8.0, Mali, 19, Malawi, 26, Madagascar, 30, Nigeria, 25, Namibia, 52, Niger, 20, Rwanda, 29, and Senegal, 16. Burkina Faso, Chad, Cote d' Ivoire, Ethiopia, Ghana, Guinea, Kenya, Tanzania, Uganda, and Zimbabwe show no significant association between literacy and child mortality. Within the urban richest quintile in SSA, Mozambique and Swaziland show increase in mortality with literacy. For the countries where literacy has a significant negative association with child mortality among the urban richest quintile, Namibia, Angola, Madagascar, Malawi, Nigeria, DRC, and Chad seem to benefit the most from literacy. Benin, Cameroon, and Senegal seem to have the least reduction in child mortality from association of literacy among the urban richest quintile in SSA. When the second richest quintile is used, Burkina Faso shows a reduction in infant mortality by 24 and significant at 1 percent significance level.

Table 3

Urban and Rural Odds Ratio of Under-Five Child Mortality in SSA Countries

Country	Odds Ratio	Odds Ratio	Wealth Richest	Literacy	N
Angola	0.61*	1.63***	0.14 (0.54)	-0.03 (0.45)	2932
Benin	0.90*	1.10*	-0.31(3.05)	-0.21(5.24)	16075
Burkina Faso	0.91	1.09	-0.29 (2.35)	-0.09 (1.52)	10645
Cameroon	0.85*	1.17*	-0.22* (1.65)	-.12*(3.15)	8125
Chad	0.79*	1.25*	0.11 (0.87)	-0.10 (1.37)	5635
Cote d' Iviore	0.89	1.11	-0.13 (0.70)	0.08 (1.33)	3633
D.R.C.	0.78***	1.27***	-0.46 (3.50)	-0.13***	8992
Ethiopia	1.04	0.96	-0.59*4.11)	-0.24(1.53)	9861
Ghana	0.87	1.13	0.11 (0.52)	-0.26*2.64)	3844
Guinea	0.98	1.02	-0.42 (2.40)	-0.55 (1.50)	6364
Kenya	0.98	1.02	0.01 (0.04)	-0.13*2.65)	5949
Madagascar	0.70***	1.41***	-0.15 (0.92)	-0.16*2.50)	5415
Malawi	0.74**	1.34**	-0.17 (1.48)	-0.09*2.82)	10912
Mali	0.81***	1.22***	-0.39*(3.91)	-0.09*1.90)	14238
Mozambique	1.16**	0.86**	-0.46*(4.35)	-0.08**.29)	10326
Namibia	0.48*	2.05*	-1.06 (0.99)	-0.26 (1.23)	310
Niger	0.80*	1.24*	-0.31*(2.59)	-0.03 (0.55)	9193
Nigeria	0.75***	1.32***	-0.52*(3.47)	-0.23*4.95)	6029
Rwanda	0.71***	1.39***	-0.29*(2.66)	-0.14*3.93)	8649
Senegal	0.84**	1.18**	-0.61* (3.69)	-0.15*2.68)	10944
Swaziland	1.41**	0.70**	-0.10 (0.69)	-0.04 (0.51)	2812
Tanzania	1.02	0.98	-0.38* (2.70)	-0.08*2.05)	8564
Uganda	0.97	1.03	-0.13 1.04)	-0.15 (4.01)	8369
Zimbabwe	0.85	1.17	-0.02	-0.11	5246

*** p≤.01 ** p≤ .05 * p≤ .10; *** t ≤ .01, t ** ≤ .05, * t ≤ .10; t-values in parenthesis

From Table 3, we see that urban residents have significant reduction in odds of mortality than rural residents in SSA with the exception of Mozambique and

Swaziland. It is also obvious from Table 3 that Namibia has the highest odds of reducing child mortality in urban area. Angola, Madagascar, Rwanda, Malawi, Nigeria, DRC, Chad, Mali, Senegal, Cameroon and Benin respectively.

In addition, the richest quintile shows that there is a high association of wealth with reduction in child mortality in 13 of the countries in SSA. Rwanda, Benin, Niger, Tanzania, Mali, DRC, and Mozambique are all significant at 1 percent level of significance. Burkina Faso and Guinea are significant at 5 percent level of significance while Cameroon is significant at 10 percent level of significance. From Table 3, we see that literacy has a high significant association with reduction in child mortality in 14 of the SSA countries. Benin, Cameroon, DRC, Ghana, Kenya, Madagascar, Malawi, Nigeria, Rwanda, Senegal, and Uganda are significant at 1 percent level of significance. Mali, Mozambique, and Tanzania are significant at 5 percent level of significance.

An examination of Table 4 shows the differences within urban residents at different wealth quintile. In Angola those in the lowest wealth quintile has odds of a reduction in child mortality of 22 percent at 1 percent significance level. Although not significant, the wealthiest quintile has odds of mortality increasing by 15 percent in Angola. In Benin, the first quintile has odds of mortality decreasing by 27percent at a significance level of 1 percent. Burkina Faso shows the wealthiest quintile with a 26 percent reduction in odds of mortality at 5 percent significance level while the last quintile shows an increase of 15 percent in odds of mortality at 10 percent level of significance. In Cameroon, the first quintile has 20 percent odds of reduction in child mortality at 10 percent level of significance. However, Chad shows 75 percent odds of reduction in child mortality in the last wealth quintile at 5 percent level of significance. This result and the one of Angola are opposite of what we expected and thus are unique. DRC, Ethiopia, Mali, Mozambique, Niger, Nigeria, Rwanda, Senegal, and Tanzania all show reduction of child mortality ranging from 46 in Senegal to 26 in Rwanda all at 1 percent level of significance. Guinea has a 35 percent reduction in child mortality at 5 percent significance level for those in the first wealth quintile. Kenya, Madagascar, Mali, and Rwanda have odds of mortality increasing by 23 percent, 31 percent, 16 percent, and 17 percent respectively at 5 percent significance level for the last wealth quintile. Senegal shows an increase of 25 percent for the last wealth quintile at 1 percent level of significance.

The results show that urban residents in SSA countries have better odds of survival past their fifth birthday than rural residents. While this difference is evident within countries, the magnitudes of the differences are equally evident across countries. (Amouzou, A. and Hill, K., 2004) found that urbanization reduces child mortality by 20%. Their study used a fixed effect model to allow for interaction of variables. Our results for the different countries are similar to theirs. While they used *per capita* income and different data set, our wealth variables performed very well. While much attention has focused on the growing urban slums in SSA, it is obvious across the countries that the health inequality as measured by child mortality is biased against *rural* dwellers. Table 3 shows that in Benin, living in the urban area reduces mortality rate by 12% percent while the rate of mortality increases by 13% for those who live in rural areas.

Table 4
Logistic Regression Model for Under-Five Child Mortality in Urban Richest Quintile SSA Countries

Country	Wealth Richest	Urban	Wealth Poorest	Urban	LR Test	N
Angola	0.14 (0.54)	-0.49*2.97)	-0.38*(2.31)	-0.63*(3.79)	11.02*	2932
Benin	-0.31*(3.05)	-0.10*1.60)	0.03 (0.52)	-0.17* (2.72)	69.38***	16075
Burkina Faso	-0.29* (2.35)	-0.09 (0.77)	0.14*(1.87)	-0.24*(2.60)	25.50***	10645
Cameroon	-0.22* (1.65)	-0.16*1.86)	0.07 (0.82)	-0.19* (2.38)	31.32***	8125
Chad	0.11 (0.87)	-0.23 (1.80)	-0.28*(2.37)	-0.21* (2.44)	7.36*	5635
Cote d' Iviore	-0.13 (0.70)	-0.11 (0.87)	0.18 (1.42)	-0.07 (0.55)	2.79	3633
D.R.C.	-0.46* (3.50)	-0.24*2.85)	0.07 (0.94)	-0.36* (4.46)	85.72***	8992
Ethiopia	-0.59*(4.11)	0.04 (0.25)	-0.08 (1.03)	-0.44* (3.68)	36.31***	9861
Ghana	0.11 (0.52)	-0.13 (0.80)	-0.07 (0.57)	-0.12 (0.80)	10.25***	3844
Guinea	-0.42*(2.40)	-0.02 (0.18)	0.13 (1.41)	-0.20*(1.95)	15.60***	6364
Kenya	0.01 (0.04)	-0.02 (0.13)	0.21*(1.92)	0.03 (0.33)	7.55*	5949
Madagascar	-0.15 (0.92)	-0.35*2.61)	0.27*(1.92)	-0.34*(2.69)	30.12***	5415
Malawi	-0.17 (1.48)	-0.30*2.21)	0.06 (0.78)	-0.37* (3.01)	26.64***	10912
Mali	-0.39* (3.91)	-0.20*2.70)	0.15*(2.43)	-0.34*(5.38)	76.09***	14238
Mozambique	-0.46* (4.35)	0.15*(1.96)	-0.02 (0.27)	-0.01 (0.09)	34.88***	10326
Namibia	-1.06 (0.99)	-0.72*1.77)	0.47 (1.24)	-0.71*(1.68)	8.86**	310
Niger	-0.31* (2.59)	-0.22 (1.84)	-0.15*(1.70)	-0.47* (5.37)	42.38***	9193
Nigeria	-0.52* (3.47)	-0.28*3.22)	0.08 (0.96)	-0.36*(4.11)	99.81***	6029
Rwanda	-0.29*(2.66)	-0.33*2.99)	0.16*(2.02)	-0.42*(4.06)	55.46***	8649
Senegal	-0.61* (3.69)	-0.17*1.96)	0.23*(2.81)	-0.19* (2.12)	47.48***	10944
Swaziland	-0.10 (0.69)	0.35*(2.27)	0.19 (1.16)	0.36* (2.47)	5.37	2812
Tanzania	-0.38*(2.70)	0.02 (0.19)	-0.04 (0.46)	-0.15 (1.37)	17.59***	8564
Uganda	-0.13 (1.04)	-0.03 (0.24)	0.12 (1.45)	-0.09 (0.68)	23.89***	8369
Zimbabwe	-0.02 (0.12)	-0.16 (0.94	-0.03 (0.25)	-0.19 (1.37)	5.34	5246

*** p≤.01 ** p≤ .05 * p≤ .10; *** t ≤ .01, t ** ≤ .05, * t ≤ .10; t-values in parenthesis

This represents a 25% difference between living in urban and rural area in Benin. In Cameroon, the odds fall by 16% for urban dwellers while they increase by 18% for rural dwellers, a 34% difference. For Chad, the odds fall by 30% in the urban area and increase by 42% in rural areas, a difference of 72%. DRC shows a 23% reduction in child mortality for those in urban areas and a 30% increase for rural residents, a 53% difference. Ethiopia, Mali, Malawi, Madagascar, Niger, Nigeria, and Rwanda all show substantial differences in child mortality between living in urban and rural areas as well: Ethiopia 60%, Mali 39%, Malawi 63%, Madagascar 49%, Niger 103%, Nigeria 37%, and Rwanda 82%.

Notably, the differences between urban and rural areas, while wide everywhere, are much larger in the West African countries than in the other parts of SSA with the exception of Rwanda. Table 4 gives the logistic regression result for wealthiest urban and poorest urban quintile in each of the countries in the study. In Angola, as stated earlier, the poorest wealth quintile

sees a reduction of 22 percent in odds of mortality. In Benin, the results show the wealthiest quintile with a 27 percent reduction in odds of child mortality at 1 percent significance level.

POLICY IMPLICATIONS

It is obvious that the most recent policies on child health care have benefited urban dwellers more than rural dwellers in SSA. Clearly, policymakers and health care professionals must incorporate poverty alleviation programs into future programs to address the differences that exist within residents in urban areas as well as residents within rural areas. Future national health policies must focus attention on both the growing urban-rural differences in health outcomes as well as the differences within urban residents based on income quintile. There is need for policymakers and health professionals to focus attention on ways to address the health care needs of the urban poor as well as rural residents to help reduce the gap in health inequality in child mortality between urban and rural areas in SSA.

CONCLUSION

From the most recent DHS data, we find among the countries of SSA that variability in mortality between wealthiest urban and wealthiest rural children ranged from a low of 48 among the wealthiest Namibia in urban area and a high of 205 in wealthiest Namibia in rural area. Benin has the lowest variability in child mortality rate between the wealthiest quintile in urban and the wealthiest quintile in rural area. Our study also finds that differences in child mortality between urban and rural areas after controlling for wealth range from 157 in Namibia to 20 in Benin. Furthermore, our result finds that within urban residents that the odd of mortality falls for those in wealthiest quintile than those in lower wealth quintile in SSA countries. These results are consistent with other studies (Amouzou, A. and Hill, K., 2004; Brockerhoff, M. and Hewett, P., 2000).

We can conclude that wealth quintile has significant negative association with child mortality within urban and between rural areas in SSA countries, and that the magnitude of the difference is higher in some countries than others. The results of the present study also underscore the importance of poverty in any health care program or policy in SSA.

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