Poverty Reduction and Human Development in Africa

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Abstract This paper uses cross-national data to investigate the extent to which the adoption of human development strategies has resulted in a reduction of poverty in Africa. Inter-country variations in income and human poverty reinforce the established patterns of well-being within the continent, as countries in Northern and Southern Africa have the lowest levels of poverty. The empirical analysis reveals that inter-country differences in poverty levels can be accounted for by variables indicative of the different facets of human development. These include public expenditure on education, primary school enrolment, female educational enrolment, expenditure on health, and good governance. Other significant variables apart from those pertaining to human development are economic growth, high external debt, the prevalence of HIV/AIDS and the geographical disadvantage of being a landlocked country. The paper also shows that foreign aid has had a limited effect on poverty reduction in Africa.

Key words: Poverty, Africa, Human development, Governance, Economic growth, Income, Education, Health, Debt, Aid, HIV/AIDS, Landlocked country

Introduction

Poverty has become increasingly entrenched in Africa and continues to defy efforts to eradicate it. Fifteen of the 20 poorest countries of the world are in Africa, and a major finding of the World Bank poverty assessments in the 1990s is that the level of poverty in Africa is increasing (Bloom and Sachs, 1998; Hanmer *et al.*, 1999). The number of poor people in sub-Saharan Africa increased from 242 million in 1990 to 291 million in 1998 (World Bank, 2001a), and close to 50% of Africa's population survives on less than US$1 per day. The poverty situation in Africa has been compounded by conflicts and civil wars, political instability, droughts, high external debt, and by the rapid rise and spread of HIV/AIDS.

   Poverty was traditionally defined as the inability to attain a minimum

standard of living (World Bank, 1990). More recently, it has come to be seen as the result of the deprivation of basic capabilities, which leads to reduced life expectancy, health, participation, personal security, degradation of the environment, as well as the absence of real opportunities to lead a valuable and valued life (United Nations Development Programme [UNDP], 1997a; Boer, 1997; Sen, 1999). Viewing poverty as more than lack or insufficiency of income sheds further insight on its causes and allows for the formulation of more effective anti-poverty strategies.

Many African countries have now adopted what can be described as human development strategies to address poverty. This follows a period that witnessed the virtual collapse of the economy of many countries and their subsequent adoption of various structural adjustment and economic stabilization programs proposed by the International Monetary Fund (IMF) and the World Bank. This period has been described as one of crisis and retrenchment, whereby concern for people was increasingly replaced with a concern for balancing budgets and payments (Streeten, 1999).

Human development as defined by the UNDP is the process of enlarging people's choices and their level of achieved well-being by expanding their capabilities and functioning. Sen (1994) emphasizes human capabilities and expanding choice for its own sake as the essence of human development. Streeten (1999) notes that in the absence of these capabilities, few choices would be available to people. Human development therefore seeks to enable people to lead full, productive, satisfying and worthwhile lives by raising their incomes and improving other components of their standard of living such as life expectancy, health, literacy, control over their own destiny, personal liberty and freedom, and as essential steps for fulfilling human rights (Anand and Sen, 1994; Griffin and Knight, 1994; Sen, 1994; UNDP, 2000).

African countries have increased levels of investment in education, health and nutrition; increased participation in decision-making; and reduced military spending, among other human development strategies. However, the outcomes have been mixed, and there have been large variations in their poverty performance. Evidence presented by Demery (1999) shows that countries such as Burkina Faso, Nigeria and Zimbabwe witnessed an increase in poverty within the past decade, while countries like Ethiopia, Ghana and Uganda experienced a decrease.

The purpose of this paper is to investigate the extent to which the adoption of human development strategies has resulted in a reduction of poverty in Africa, using cross-national data to show variations in income and human poverty among African countries. It will address the following questions: What impact will higher levels of investment in education and health have on poverty in African countries? What is the link between good governance and poverty reduction? Is political stability associated with declining levels of poverty? The aim is to improve understanding of the role of human development in poverty reduction and to enhance the Poverty Reduction Strategy Paper process in African countries, which is currently

plagued by "... a lack of understanding of the fuller dimensions of poverty" (Hanley, 2002, p. 49).

Extent and variations in poverty levels in Africa

Inter-country variations in income poverty

In order to determine the extent or incidence of poverty within the various countries, it is necessary to have an indication of the proportion of those living below the poverty line in each country. Two sets of such data were obtained. The first is the percentage of a country's population living below the national or official poverty line. Given that national poverty lines are country specific and inherently arbitrary, making cross-country comparisons is a dicey operation. The second set of data is the proportion of a country's population living on less than US$1 per day. This is often referred to as the international poverty line. This measure permits cross-country comparison, since it suggests that a person living on US$1 per day in Botswana has the same income as a person living on US$1 per day in Mali.

Data on the percentage of people living below the national poverty line and those below US$1 per day are presented in Tables 1 and 2, respectively. As the tables show, there is no information on the national poverty line for nearly one-half of the countries within the continent, while information on the international poverty line is missing for over one-third of countries, in spite of an intensive search. Moreover, some of the data presented in Tables 1 and 2 date back to the mid-1980s and early 1990s, and as such might not be reliable. In any case, there is little evidence to suggest that the poverty conditions in some of these countries may have improved over the years. In fact, the indication is that poverty appears to have worsened.

The percentage of the population living below the national poverty line can be grouped into very high, high, medium and low levels of poverty. The countries with a very high incidence of poverty include Zambia, Madagascar, Gambia, Sierra Leone, and Chad, where between 64% and 86% of the population lives below the national poverty line. Countries with a high incidence of poverty include Mauritania, Rwanda, Malawi and Uganda, where at least 50% of the population is below the poverty line. Medium-level countries include Lesotho, Benin, Kenya, Cameroon and Burundi, with more than 30% living below the official poverty line. Finally, countries with the least levels of poverty include Mauritius, Tunisia, Morocco, and Algeria, where less than one-quarter of the population is deemed to be poor.

According to the international poverty line, countries with very high levels of poverty are Guinea-Bissau, Zambia, Uganda, Burkina Faso and Niger — where between 62% and 87% of the population survives on less than US$1 per day. Countries with high levels of poverty include Sierra Leone, Madagascar, Ghana and Lesotho. Examples of countries with moderate levels of poverty are Botswana, Cameroon, Guinea and Kenya, where between 26% and 38% of the population survives on less than US$1 per a day. Finally, countries experiencing the lowest levels of poverty are Algeria,

Table 1. Percentage of population living below the national poverty line

Country	Population below the poverty line (%)*	Survey year
Algeria	22.6	1995
Benin	33.0	1995
Burundi	36.2	1990
Cameroon	40.0	1984
Cape Verde	44.0	1994
Chad	64.0	1995–1996
Egypt	22.9	1995–1996
Gambia	64.0	1992
Ghana	31.4	1992
Guinea	40.0	1994
Guinea-Bissau	48.8	1991
Kenya	42.0	1992
Lesotho	49.2	1993
Madagascar	70.0	1993–1994
Malawi	54.0	1990–1991
Mauritania	57.0	1990
Mauritius	10.6	1992
Morocco	19.0	1998–1999
Niger	63.0	1989-19-93
Nigeria	43.0	1992–1993
Rwanda	51.2	1993
Senegal	33.4	?
Sierra Leone	75.0	1994
Sao Tome & Principe	46.0	1994
Tanzania	51.1	1991
Togo	32.3	1987–1989
Tunisia	19.9	1990
Uganda	55.0	1993
Zambia	86.0	1993
Zimbabwe	25.5	1990–1991

Sources: UNDP (1999, 2002), World Bank (2000, 2001a).
*Percentage of population living below the poverty line deemed appropriate for the country by its authorities.

Egypt, Morocco, Tunisia and South Africa, where the proportion of the population living below the international poverty line varies between 2% and 11.5%. Although countries in North Africa have the lowest levels of poverty on both measures, it is worth restating that this is from an income perspective, which paints a partial picture.

Inter-country variations in human poverty

The Human Poverty Index (HPI), which was first presented by the UNDP in 1997, seeks to present a multidimensional nature of poverty within a single index.[1] The HPIs for various African countries are presented in Table 3. This provides an indication of how widespread human poverty is within the

Table 2. International poverty line: population below US$1 per day

Country	Population below US$1 per day (%)*	Survey year
Algeria	<2.0	1995
Botswana	33.3	1985–1986
Burkina Faso	61.2	1994
Cameroon	33.4	1996
Central African Republic	66.6	1993
Cote d'Ivoire	12.3	1995
Egypt	3.1	1995
Ethiopia	31.3	1995
Gambia	59.3	1998
Ghana	44.8	1999
Guinea	26.3	1991
Guinea Bissau	87.0	1991
Kenya	26.5	1995
Lesotho	43.1	1993
Madagascar	49.1	1999
Malawi	54.0	1994
Mali	72.8	1994
Mauritania	28.6	1995
Morocco	< 2	1990–1991
Mozambique	37.9	1996
Namibia	34.9	1993
Niger	61.4	1995
Nigeria	70.2	1997
Rwanda	35.7	1983–1985
Senegal	26.3	1995
Sierra Leone	57.0	1989
South Africa	11.5	1998
Swaziland	40	?
Tanzania	19.9	1993
Tunisia	< 2	1995
Uganda	69.3	1989–1990
Zambia	63.4	1998
Zimbabwe	36.0	1990–1991

Sources: UNDP (1998, 2002), World Bank (2001b).
* Percentage of population living on less than US$1 per day at 1985 international prices.

respective countries. With a coverage of 46 countries, the data on human poverty are more comprehensive than those on income poverty. Countries where human poverty is most pervasive include Benin, Burkina Faso, Chad, Guinea, Mali, Niger and Sierra Leone. Within these countries, human poverty affects over 50% of the population. Human poverty is moderate in countries such as Cameroon, Egypt, Kenya and Comoros. Countries with the lowest incidence of poverty are Algeria, Cape Verde, Libya, Mauritius, South Africa, Tunisia, Botswana, Lesotho and Swaziland.

Table 3. Human Poverty Index for African countries (2000)

Country	HPI (%)	Country	HPI (%)
Algeria	23.4	Libya	16.2
Benin	46.8	Madagascar	36.7
Botswana	28.3*	Malawi	42.5
Burkina Faso	58.4*	Mali	47.3
Burundi	46.1**	Mauritania	47.9
Cameroon	30.7	Mauritius	11.3
Cape Verde	22.0*	Morocco	35.8
Central African Republic	45.2	Mozambique	47.9
Chad	50.5	Namibia	34.5
Comoros	31.9	Niger	62.5
Congo Democratic Republic	39.7	Nigeria	34.9
Congo Republic	30.0	Rwanda	44.3
Cote d'Ivoire	42.3	Senegal	45.2
Djibouti	34.3	Sierra Leone	57.7**
Egypt	31.2	South Africa	20.2*
Eritrea	42.9	Sudan	32.7
Ethiopia	56.5	Swaziland	27.4*
Gambia	48.5	Tanzania	32.7
Ghana	28.7	Togo	37.9
Guinea	50.5**	Tunisia	21.9*
Guinea Bissau	49.3	Uganda	40.8
Kenya	31.9	Zambia	40.0
Lesotho	25.7	Zimbabwe	36.1

Sources: UNDP (1999, 2000, 2002).

* Figures are for 1998.

** Figures are for 1997.

Explanatory framework for inter-country variations in poverty levels

The model outlined in this section seeks to explain inter-country variations in poverty levels from the human development perspective. We hypothesize that variations in the income and human poverty among African countries can be attributed to differences in the adoption and implementation of human development strategies. These strategies are in part reflected in governments' commitment towards expanding human capabilities — particularly in the areas of education and health, as well as in good governance. In addition, it is hypothesized that other economic, social, external, and geographical factors will in part account for variations in poverty. Linking these variables in an equation, we have the following:

$$POV_i = f(EDUC_i, HEALTH_i, COMHD_i, GOGOV_i, OTHERS_i) \qquad (1)$$

where POV_i denotes the various measures of poverty in country i; $EDUC_i$ is a row vector of variables indicative of investment and enrolment in education; $HEALTH_i$ relates to variables that describe government's commitment to, and the state of, health infrastructure; $COMHD_i$ is a variable that indicates government's commitment to the goals of human development; $GOGOV_i$ is a vector

Table 4. Definition of variables used in explaining poverty levels

Variable	Definition	Mean	Standard deviation	Source
Expenditure on education (1995-1997)	Percentage of GNP accounted for by public spending on public education plus subsidies to private education at all levels	4.10	2.30	UNDP (2002), World Bank (2001a)
Primary school enrolment (1998)	Primary school enrolment as a percentage of relevant age group	62.24	21.39	UNDP (2002), World Bank (2001a)
Female educational enrolment (1998)	Ratio of girls to boys in primary and secondary education	81.07	16.51	World Bank (2001a)
Expenditure on health (1998)	Public and private health expenditure per capita (PPP US$)	37.70	50.67	UNDP (2002)
Physicians (1990-1999)	Number of graduates of medicine per 100,000 people	23.33	41.96	UNDP (2002)
Commitment to human development (2000)	GDP per capita (PPP$) rank minus HDI rank*	−8.39	18.67	UNDP (2002)
Voice and accountability (2000-2001)	Aggregate measure of the extent of political rights, civil liberties and freedom of the press	−0.48	0.72	Kaufmann *et al.* (2002)
Political stability (2000-2001)	Aggregate measure of the extent of political stability within a country	−0.60	0.71	Kaufmann *et al.* (2002)
Economic growth	Average annual growth in GNP per capita between 1975 and 1998	2.40	2.61	UNDP (2000)
Foreign aid (2000)	Official development assistance and official aid per capita (PPP US$)	32.98	36.70	UNDP (2002)
External debt burden**	Equals 1, if country is heavily indebted	0.65	0.48	IMF and World Bank (2001)
HIV/AIDS (2001)	Percentage of adults (15–49 years old) living with HIV/AIDS	8.60	10.01	UNDP (2002)
Landlocked**	Equals 1, if country is landlocked	0.28	0.46	

* A positive figure indicates that the HDI rank is better than the GDP per-capita rank; a negative figure indicates the opposite.
** Otherwise equals zero.

of variables indicative of the extent of good governance; and OTHERS$_i$ pertains to other (non-human development) variables that can also affect the level of poverty. A further breakdown and definition of these variables[2] are presented in Table 4. Three measures of poverty — percentage of a country's population living below the national poverty line, percentage living on less than US$1 per day, and the HPI — constitute the dependent variables.

Specification of explanatory variables

A major aspect of human development is its emphasis on education or the acquisition of knowledge. This is seen as a key instrument for empowerment, improving productivity and combating absolute poverty (Deng, 1995; Woden

et al., 2001). In this study, the impact of education on poverty is assessed by three variables — public expenditure on education, primary school enrolment, and female educational enrolment. It is expected that countries that perform well on these education-related variables will have lower levels of poverty. Another key area of human development pertains to health. The two input measures used in analyzing the impact of African governments' commitment to health care are health expenditure per capita and the number of physicians per 1000 people.

The commitment of various governments to achieving the goals of human development may be seen in the extent to which the concept of human development features in policy dialog, strategic planning and policy recommendations. In this paper, government's commitment to human development is measured by the difference between a country's Gross Domestic Product (GDP) per-capita rank and its Human Development Index (HDI) rank, although it should be recognized as a distant proxy of government's commitment to the goals of human development.

Human development further emphasizes good governance and a vibrant civil society where people are able to participate effectively in the processes and events that shape their lives. The quality of governance can affect welfare, quality of life and development outcomes through various complex direct and indirect channels (Thomas *et al.*, 2000). In seeking to obtain empirical measures of governance for over 160 countries, Kaufmann *et al.* (1999a, 1999b, 2002) define six clusters of governance: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and the control of corruption.

For each of these clusters, a large number of qualitative indicators drawn from various sources were combined into aggregate governance indicators using an unobservable components model, thereby providing estimates for each of the six clusters of governance for the different countries. The units of governance range from –2.5 to +2.5, with higher values corresponding to better outcomes of governance.[3] This aggregate approach provides more precise measures of governance than single indicators (Globerman and Shapiro, 2002). Furthermore, these measures are available for a large sample of countries, thereby making cross-national analysis possible. A major disadvantage is that these measures of governance are highly correlated.

In assessing the impact of governance on poverty in Africa, two of the six measures of provided by Kaufmann *et al.* (2001) are used. These are: *voice and accountability*, which includes civil liberties, political rights and freedom of the press; and *political stability*, which is indicative of possibility that the government in power can be destabilized or toppled by unconstitutional means. The reasoning behind the choice of these two measures is that in countries with guaranteed civil and human liberties, people's freedom is assured and, as such, they are able to participate effectively in the decisions affecting their everyday lives. As for political stability, it implies the absence of civil strife.[4] The prevalence of civil strife is an indication of political instability and unrest, and often associated with policies that are harmful to the poor (Banerji and Ghanem, 1997).

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Apart from human development-related factors, there are other variables that may explain differences in poverty among African countries. The exclusion of these variables may imply that estimates obtained on the basis of only the human development variables are biased. For this reason, a number of economic, external, social and geographical variables are included. The first is economic growth, measured by the average annual growth in Gross National Product (GNP) per capita between 1975 and 1998.

An external factor likely to account for variations in poverty levels is the amount of foreign aid that a country receives. This is measured by official development assistance and official aid per capita. Although the motives for foreign aid have varied from idealism, international solidarity, political expediency, and ideological confrontation to commercial self-interest (UNDP, 1994), a key objective for the flow of aid from donor to recipient countries is to alleviate poverty (Oxfam, 1995; White, 1996).

Closely related to the issue of foreign aid is the heavy debt burden of many African countries. The past two decades have witnessed a steady increase in the indebtedness of African countries (World Bank, 2001a). In 2000, Africa's long-term debt was US$315 billion (Colgan, 2001 cited in Poku, 2002a). Indeed, the IMF and World Bank (2001) identify the debt burden as a contributory factor to poverty in Africa. In order to examine the impact of Africa's indebtedness, a dummy variable indicative of countries with unsustainable debt burden is used. This variable identifies heavily indebted countries in the IMF and World Bank-supported Heavily Indebted Poor Countries (HIPC) Initiative.[5] A country is defined as heavily indebted or has an unsustainable debt burden if the external debt for that country after traditional debt relief mechanisms is above 150% of the net present value of debt to exports (IMF and World Bank, 2001).

Another factor that can adversely affect poverty levels in Africa is the HIV/AIDS pandemic that is currently ravaging the continent. "AIDS has the potential to push economies into decline and then keep them there" (Whiteside, 2002, p. 323). About 71% of worldwide infections occur in Africa (UNAIDS, 2000). In 2001 alone, 2.3 million people died of AIDS (Cohen, 2002). In the worst affected countries — Botswana, Lesotho, Namibia, South Africa, Swaziland, Zambia and Zimbabwe – the incidence of HIV/AIDS among the adult population varies between 22% and 39% (UNDP, 2002). In this study, the percentage of adults (15–49 years old) living with HIV/AIDS is used in assessing the impact of the AIDS epidemic on poverty levels.

Finally, disadvantageous geography can account for differences in poverty levels (Bloom and Sachs, 1998; Gallup *et al.* 1999). The variable used in this respect relates to whether a country is landlocked. Given the disadvantages associated with landlocked location, it is hypothesized that landlocked countries will have higher levels of poverty.

Explaining inter-country variations in poverty levels

In using the ordinary least-square regression model to examine the effects of human development and other variables on levels of poverty, the following

Table 5. Ordinary least-squares regression results explaining inter-country variations in poverty levels

Variable	Percent of population living below the national poverty line	Percent of population living on less than US$1 per day	Human Poverty Index
Expenditure on education	−2.539 (1.64)***	−3.887 (1.67)***	—
Primary school enrolment	−0.256 (1.53)***	—	−0.168 (2.55)*
Female educational enrolment	—	−0.343 (1.36)***	−0.156 (1.92)**
Expenditure on health	−0.132 (1.10)	−0.074 (0.63)	−0.057 (1.94)**
Physicians	—	−0.086 (0.79)	—
Commitment to human development	—	—	−0.191 (2.74)*
Voice and accountability	−9.379 (2.29)*	9.120 (1.20)	−0.937 (0.57)
Political stability	13.972 (3.20)*	−4.590 (0.63)	−0.347 (0.19)
Economic growth	−4.478 (2.77)*	0.178 (0.10)	−0.012 (0.02)
Foreign aid	0.181 (2.96)*	0.257 (1.77)**	—
External debt burden	—	—	7.038 (2.63)*
HIV/AIDS	0.482 (1.58)***	0.646 (1.44)***	−0.067 (0.55)
Landlocked	5.788 (1.02)	7.984 (1.01)	4.968 (2.09)**
Constant	80.04 (8.47)*	72.327 (3.78)*	55.61 (7.33)*
R^2	0.776	0.636	0.791
Adjusted R^2	0.670	0.471	0.731
F-ratio	7.312	3.85	13.24
N	30	33	46

Absolute *t*-values are in parentheses; –, not included in the model.
* Significant at the 0.01 level and above (one-tail test).
** Significant at the 0.05 level (one-tail test).
*** Significant at the 0.1 level (one-tail test).

computational strategy was adopted. First, preliminary regression runs with all the 13 independent variables presented in Table 4 were carried out for each of the three measures of poverty. The initial results produced a sizable number of insignificant variables with very low *t*-values. In order to obtain models of the best fit, variables with extremely low *t*-values and some with 'wrong' signs were discarded. To allow for comparison with the final models, the preliminary regression models with all the independent variables are presented in Appendix A. The re-estimated models with the reduced set of variables are presented in Table 5. An examination of the correlation coefficients of these variables indicates that they are unaffected by multicollinearity, as there are no pair-wise correlations in excess of 0.80 — a situation that indicates the presence of multicollinearity[6] (Hauser, 1978).

Education

Table 5 shows that education plays a major role in explaining inter-country variations in both income and human poverty. The first significant variable in this regard is public expenditure on education. The coefficient indicates that a 1% increase in the proportion of GNP allocated to education will, other things being equal, reduce the proportion of a country's population

living below the national and international poverty lines by 2.54% and 3.89%, respectively. This finding is indicative of the role that adequate investment in education can play in alleviating poverty in Africa. In particular, Jimenez (1994) notes that investment in basic social infrastructure such as education constitutes sound development strategy. However, Hanmer *et al.* (1999) caution that in Africa, an increase in educational spending may not always translate into a reduction in poverty because a sizeable proportion of governments' spending on education is taken up by wages, which accounts for as much as 95% in the case of Senegal.

An increase in primary school enrolment is associated with a reduction in both the proportion of the population living below the official poverty line, as well as in human poverty. This demonstrates the importance of universal primary education — a Millennium Development Goal — as a powerful tool for economic and social empowerment. In this regard, estimates obtained by Wodon *et al.* (2001) for Latin America reveal that completed primary schooling can increase levels of expected income by between 21% and 26%. This is particularly significant for countries such as Burkina Faso, Burundi, Djibouti, Eritrea, Ethiopia and Niger where primary school enrolment is less than 40% of the relevant age group.

Increased enrolment in female education brings about a reduction in both the percentage of the population living on less than US$1 per day and those affected by human poverty. These findings highlight the poverty reduction potential of female education in Africa. Apart from high returns, increased female education can reduce fertility levels, improve the productivity of women and contribute to national growth (Herz *et al.*, 1991; World Bank, 1997). All these justify the need to correct gender imbalances in education.

Expenditure on health

Expenditure on health has a significant impact: the coefficient reveals that a $1 increase in health expenditure per capita will bring about a reduction of 0.06% in human poverty. Health is associated with major dividends: healthy children learn better and healthy adults work better (Reeves, 1998). Perhaps it also signifies the possibility that investments in the health sector have been appropriately targeted to benefit the poor. In many African countries, expenditure on social services tends to favor the elite rather than the poor, as less than 40% of budgeted social expenditure is earmarked for social services that benefit the poor directly (ul Haq, 1996).

Commitment to the goals of human development

The extent of a country's commitment to the goals of human development — as expressed in the levels of its HDI versus its GDP per capita — is significantly related to human poverty. The coefficient suggests that countries that perform better on the HDI than on GDP per capita will have lower levels of poverty.

Good governance

Table 5 shows that good governance is important in explaining inter-country variations in the national poverty lines. In particular, the coefficient for *voice and accountability* reveals that a unit increase in this component of governance will bring about a reduction in the proportion of a country's population living below the official poverty line. This is in line with results obtained by Kaufmann *et al.* (1999b) and Globerman and Shapiro (2002), which indicate that good governance leads to better development outcomes. The impact of the second component of governance used — *political stability* on the proportion living below the national poverty line — is counterintuitive. The coefficient suggests that countries scoring high on this measure of governance are likely to have higher levels of poverty. The anomalous outcome for political stability may be attributed to its relatively high correlation with voice and accountability given that the various dimensions of governance are interrelated.

Economic growth

The impact of economic growth suggests that a 1% increase in the annual growth of a country's GNP per capita will be associated with a reduction of about 4.5% in the proportion of the population living below the national poverty line. Estimates by Hanmer *et al.* (1999) indicate that medium-term to long-term growth rates of 5–8% per annum may be required to reduce poverty in Africa. This raises two key issues. First is the ability of African countries to attain such levels of economic growth, given that growth rates in recent times have barely exceeded 5%, and are unlikely to do so in the foreseeable future. Second, Hanmer *et al.* (1999) argue that even if the growth rates required to reduce poverty were attained, African countries will have to contend with the high levels of inequality that have been shown to increase over time and with economic growth.

Foreign aid

Official development assistance has a counterintuitive effect on income poverty, as the coefficients indicate that an increase in foreign aid per capita does not correspond to a reduction in the proportion of a country's population living below the national and international poverty lines. This finding is in line with conclusions reached by the UNDP (1994), Oxfam (1995) and World Bank (1998) to the effect that foreign aid is not adequately channeled to poor countries where they are most needed, but to strategic allies, and, as such, may not be an antidote for poverty.

External debt burden

The external debt burden emerges as one of the most important 'non-human development' variables explaining inter-country variations in human poverty.

In particular, the coefficient implies that being highly indebted will increase the extent of a country's human poverty by 7.04%. This finding supports the notion that most African countries service their external debt at the expense of providing major social services and poverty reduction investments. For instance, in Ethiopia, 45% of the US$783 million from export earnings spent on debt payments in 1996 is a far cry from its investment in health (Poku, 2002a). Similarly, in Zambia, debt service payments due in 1998 amounted to US$123 million or 69% of funds budgeted for social services. In Tanzania, what is spent on debt servicing each year is in excess of three times what is spent on health care (Colgan, 2001). Indeed, Poku (2002a) notes that, with the exception of South Africa, all African countries spend more on debt service than on health care.

HIV/AIDS

The prevalence of HIV/AIDS is associated with increasing levels of poverty. Specifically, the coefficients imply that a 1% increase in infected adults will increase the proportion of the population living below the national and international poverty lines by 0.48% and 0.65%, respectively. However, the impact of HIV/AIDS on poverty is likely to be more complex than the data suggest[7]. There are various ways by which the HIV/AIDS epidemic increases levels of poverty. First, at the national level, it may result in the reallocation of scare financial resources from productive areas to the treatment of HIV/AIDS related ailments. This will mean fewer funds for governments to spend on poverty reduction programs (Whiteside, 2002). Second, HIV/AIDS robs a country of its most productive population, thereby reducing the level of human capital. Third, AIDS is creating an unfavorable investment environment in Africa, as companies doing business there have to contend with increased spending on employee health costs and lower productivity on account of increased absenteeism (Poku, 2001). Finally, AIDS exposes family members to poverty and jeopardizes their economic and social futures via the elimination of the breadwinner (Bloom and Sachs, 1998; Poku, 2002b).

Disadvantageous geography

The final significant variable is the geographical disadvantage of being a landlocked country. This feature intensifies the extent of human poverty, as the coefficient implies that landlocked countries are likely to be 5% poorer. This finding highlights the role of physical constraints in determining the extent of poverty in Africa, and it is consistent with those obtained by Bloom and Sachs (1998), Gallup *et al.* (1999) and Wodon *et al.* (2001).

Concluding remarks

This paper has sought to account for variations in income and human poverty among African countries while focusing on the effects of human development strategies. Inter-country differences in poverty levels are accounted for by

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variables indicative of the different facets of human development. These include public expenditure on education, primary school enrolment, female educational enrolment, expenditure on health, and good governance in terms of open and accountable political structures. Other significant variables apart from those pertaining to human development are economic growth, the external debt burden, the prevalence of HIV/AIDS, and the geographical disadvantage of being a landlocked state.

The findings consistently show that improvements in education and health will lead to a reduction in poverty. Increased investment in these sectors is one of the best uses to which a country can put its resources. Improvements in the educational sector should seek to increase female enrolment and overall enrolment in primary education. With respect to the health sector, emphasis should be on primary and preventive heath care. The foregoing will go a long way towards achieving some of the Millennium Development Goals.

Good governance in terms of *voice and accountability* will also bring about a reduction in poverty, and more African countries should embrace the principles of democracy and good governance. The UNDP (1997b) notes that, in many cases, poverty is perpetuated by exclusion from decision-making and lack of participation in the policy-making process.

Finally, there are at least three areas in which the international community can play a more proactive role in reducing poverty in Africa. These relate to the external debt burden, which constitutes an insurmountable obstacle to poverty reduction, the HIV/AIDS pandemic whose solution is clearly beyond the capacity of most African countries, and the flow of foreign aid and its link to human development concerns.

Notes

1 Details on how the HPI was calculated are given in the technical notes of the 2002 *Human Development Report* (UNDP, 2002).
2 For a number of countries, there were several missing values for some independent variables. These were replaced with the mean values for the poverty category to which a particular country belongs.
3 Details of the method of estimating measures of the various components of governance are presented in Kaufmann *et al.* (1999a, 1999b). The six measures of governance can be found online (http://www.worldbank.org/wbi/governance/datasets.htm#dataset).
4 Initial analysis revealed high pair-wise correlation among the six measures of governance. In order to minimize the problem of multicollinearity, the two measures of governance with the lowest pairwise correlation were chosen. These are *voice and accountability* and *political stability* with a correlation coefficient of 0.61.
5 Further information of the HIPC Initiative can be found online (http://www.imf.org/external/pubs/ft/exrp/debt/eng/index.htm).
6 The highest pair-wise correlation among in the independent variables is 0.69, which is between expenditure on education and health expenditure per capita.
7 The result may reflect the recent nature of the AIDS/HIV data in comparison with the income poverty data, which date back to the early 1990s.

References

Anand, S. and Sen, A. (1994) 'Sustainable human development: concepts and priorities', *UNDP Occasional Paper Series*, No. 8, UNDP, New York.

Barnerji, A. and Ghanem, H. (1997) 'Does the type of political regime matter for trade and labor market policies?', *World Bank Economic Review*, 11, pp. 171-194.

Bloom, D.E. and Sachs, J.D. (1998) 'Geography, demography and economic development in Africa', *mimeo*, Harvard University, Cambridge, MA.

Boer, L. (1997) 'Human development to eradicate poverty', *Third World Quarterly*, 18(4), pp. 777-779.

Cohen, D. (2002) 'Human capital and the HIV epidemic in sub-Saharan Africa', *Working Paper 2*, ILO Programme on HIV/AIDS and the World of Work, ILO, Geneva.

Colgan, A.L. (2001) 'Africa's debt', *Africa Action Position Paper*, Africa Action, Washington, DC.

Demery, L. (1999) *Poverty Dynamics in Africa: An Update*, World Bank, Washington, DC.

Deng, L.A. (1995) 'Poverty reduction: lessons and experiences from sub-Saharan Africa', *Environment and Social Development Working Paper, No. 6*, African Development Bank, Abidjan.

Gallup, J.L., Sachs, J.D. and Mellinger, A.D. (1999) 'Geography and economic development', *International Regional Science Review*, 22(2), pp. 179-232.

Globerman, S. and Shapiro, D. (2002) 'Global foreign direct investment flows: the role of governance infrastructure', *World Development*, 30(11), pp. 1899-1919.

Griffin, K. and Knight, J. (1994) 'Introduction', in K. Griffin and J. Knight (Eds.), *Human Development and the International Development Strategy for the 1990s*, Macmillan Academic and Professional, London.

Hanley, E. (2002) 'Thinking and doing things about poverty II: the poverty reduction strategy process in Africa', *Progress in Development Studies*, 2(1), pp. 47-51.

Hanmer, L.C., Pyatt, G. and White, H. (1999) 'What do the World Bank's poverty assessments teach us about poverty in sub-Saharan Africa?', *Development and Change*, 30, pp. 795-823.

Hauser, P.D. (1978) 'Some problems in the use of stepwise regression techniques in geographical research', *Canadian Geographer*, 18, pp. 148-158.

Herz, B.K., Subbarao, M.H. and Raney, L. (1991) 'Letting girls learn: promising approaches in primary and secondary education', *World Bank Discussion Paper 133*, World Bank, Washington, DC.

IMF and World Bank (2001) *Debt Relief for Poverty Reduction: The Role of Enhanced HIPC Initiative* (http://www.imf.org/external/pubs/ft/exrp/debt/eng/index.htmhttp://www.imf.org/external/pubs/ft/exrp/debt/eng/index.htm).

Jimenez, E. (1994) Human *and Physical Infrastructure: Public Investment and Pricing Policies in Developing Countries*, World Bank, Washington, DC.

Kaufmann, D., Kraay, A. and Zoidon-Lobatón, P. (1999a) 'Aggregating governance indicators', *Policy Research Working Paper, No. 2195*, World Bank, Washington, DC.

Kaufmann, D., Kraay, A. and Zoidon-Lobatón, P. (1999b) 'Governance matters', *Policy Research Working Paper, No. 2196*, World Bank, Washington, DC.

Kaufmann, D., Kraay, A. and Zoidon-Lobatón, P. (2002) 'Governance matters II', *Policy Research Working Paper, No. 2772*, World Bank, Washington, DC.

Oxfam (1995) *The Oxfam Poverty Report*, Oxfam, London.

Poku, N.K. (2001) 'AIDS in Africa: an overview', *International Relations*, 15(6), pp. 5-14.

Poku, N.K. (2002a) 'Poverty, debt and Africa's HIV/AIDS Crisis', *International Affairs*, 78(3), pp. 531-546.

Poku, N.K. (2002b) 'The Global AIDS Fund: context and opportunity', *Third World Quarterly*, 23(2), pp. 283-298.

Reeves, D. (1998) 'Poverty in a global economy', in M.T. Snarr and D.N. Snarr (Eds.), *Introducing Global Issues*, Lynne Rienner Publishers, Boulder, CO.

Sen, A. (1994) 'Development as capability expansion', in K. Griffin and J. Knight (Eds.), *Human Development and the International Development Strategy for the 1990s*, Macmillan Academic and Professional, London.

Sen, A. (1999) *Development as Freedom*, Knopf, New York.

Streeten P. (1999) 'Ten years of human development: special contribution', in *UNDP Human Development Report*, Oxford University Press, New York.

Thomas, V., Dailami, M., Dhareshwar, A., Kaufmann, D., Kishor, N., Lopez, R. and Wang, Y. (2000) *The Quality of Growth*, Oxford University Press, New York.

Ul-Haq, M. (1996) 'Human development in sub-Saharan Africa', *Development: Journal of the Society for International Development*, June(2), pp. 39–40.

UNAIDS (2000) *Report on the Global HIV/AIDS Epidemic*, UNAIDS, Geneva.

UNDP (1994) *Human Development Report*, Oxford University Press, New York.

UNDP (1997a) *Human Development Report*, Oxford University Press, New York.

UNDP (1997b) *Governance for Sustainable Human Development*, UNDP, New York.

UNDP (1998) *Human Development Report*, Oxford University Press, New York.

UNDP (1999) *Human Development Report*, Oxford University Press, New York.

UNDP (2000) *Human Development Report*: Oxford University Press, New York.

UNDP (2002) *Human Development Report*, Oxford University Press, New York.

White, H. (1996) 'How much aid flow is used in poverty reduction', *IDS Bulletin*, 27, pp. 83–99.

Whiteside, A. (2002) 'Poverty and HIV/AIDS in Africa', *Third World Quarterly*, 23(2), pp. 313–332.

Wodon, Q., Castro-Fernandez, R., Lee, K., Lopez-Acevedo, G., Siaens, C., Sobrado, C. and Tre, J. (2001) 'Poverty in Latin America: trends (1986–1998) and determinants', *Cuadernos de Economia*, 38, pp. 127–153.

World Bank (1990) *World Development Report 1990: Poverty*, Oxford University Press, New York.

World Bank (1997) *Taking Action to Reduce Poverty in Sub-Saharan Africa*, World Bank, Washington, DC.

World Bank (1998) *Partnership for Development: Proposed Action for the World Bank, Discussion Paper*, World Bank, Washington, DC.

World Bank (2000) *World Development Indicators*, World Bank, Washington, DC.

World Bank (2001a) *World Development Report 2002/2001: Attacking Poverty*, Oxford University Press, New York.

World Bank (2001b) *World Development Indicators*, World Bank, Washington, DC.

Appendix A: ordinary least-squares regression results explaining inter-country variations in poverty levels (full specification)

Variable	Percent of population living below the national poverty line	Percent of population living on less than US$1 per day	Human Poverty Index
Expenditure on education	−2.34 (1.37)***	−3.937 (1.54)***	−0.640 (0.86)
Primary school enrolment	−0.314 (1.83)**	−0.167 (0.51)	−0.200 (2.76)*
Female educational enrolment	0.295 (1.69)**	−0.430 (1.30)	−0.180 (2.03)**
Expenditure on health	−0.104 (0.74)	0.001 (0.00)	−0.071 (1.75)**
Physicians	0.079 (0.99)	−0.151 (1.09)	0.027 (0.65)
Commitment to human development	0.112 (0.51)	−0.226 (0.73)	−0.184 (2.36)**
Voice and accountability	−10.578 (2.38)**	6.238 (0.73)	−0.319 (0.16)
Political stability	13.089 (2.84)*	−2.462 (0.31)	−0.917 (0.46)
Economic growth	−5.795 (3.30)*	0.511 (0.25)	−0.039 (0.08)
Foreign aid	0.176 (2.72)*	0.358 (2.11)**	0.019 (0.61)
External debt burden	5.171 (0.67)	−14.778 (1.15)	7.968 (2.61)*
HIV/AIDS	0.277 (0.77)	0.530 (1.11)	−0.035 (0.24)
Landlocked	7.870 (1.42)***	7.714 (0.94)	4.333 (1.73)**
Constant	57.221 (3.17)*	98.234 (3.50)*	55.655 (7.01)*
R^2	0.836	0.666	0.800
Adjusted R^2	0.695	0.438	0.719
F-ratio	5.897	2.917	9.848
N	30	33	46

Absolute *t*-values are in parentheses; –, not included in the model.

* Significant at the 0.01 level and above (one-tail test).

** Significant at the 0.05 level (one-tail test).

*** Significant at the 0.1 level (one-tail test).