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SAGA Working Paper
July 2006
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Inequality and Poverty in Africa in an Era of Globalization: Looking Beyond Income to Health and Education

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Strategies and Analysis for Growth and Access (SAGA) is a project of Cornell and Clark Atlanta Universities, funded by cooperative agreement #HFM-A-00-01-00132-00 with the United States Agency for International Development.

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Inequality and Poverty in Africa in an Era of Globalization: Looking Beyond Income to Health and Education

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Revised
July, 2006

Presented at the UNU-WIDER Conference on "The Impact of Globalization on the Poor in Africa," Johannesburg, South Africa, 1-2 December, 2005

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This research is supported SAGA, a cooperative agreement between USAID and Cornell and Clark-Atlanta Universities. See www.saga.cornell.edu.

Abstract

This paper describes changes over the past 15-20 years in non-income measures of well-being – education and health – in Africa. We expected to find, as we did in Latin America, that progress in the provision of public services and the focus of public spending in the social sector would contribute to declining poverty and inequality in health and education, even in an environment of stagnant or worsening levels of income poverty. Unfortunately, our results indicate that in the area of health, little progress is being made in terms of reducing pre-school age stunting, a clear manifestation of poor overall health. Likewise, our health inequality measure showed that while there were a few instances of reduced inequality along this dimension, there was, on balance, little evidence of success in improving equality of outcomes. Similar results were found in our examination of underweight women as an indicator of general current health status of adults. With regard to education, the story is somewhat more positive. However, the overall picture gives little cause for complacency or optimism that Africa has, or will soon reap the potential benefits of the process of globalization.

INTRODUCTION

How globalization affects poverty and inequality in developing countries is the subject of considerable debate, a debate that is complicated by the fact that globalization means different things to different people. For applied work, the question of how to define globalization in a conceptually meaningful and empirically feasible way is quite demanding, with little clear agreement in the literature as to the best way forward. But if the literature to date has been less than decided about the proper definition of the cause in the globalization-to-poverty/inequality relation, it has been quite consistent on the effect variables: both poverty and inequality are almost always measured in terms of income (or proxies for it), especially in the empirical literature. (Deaton, (2004) is an important exception.) Our goal in this paper is to challenge that consistency by examining poverty and inequality of non-income dimensions of well-being. In doing so, we take seriously Sen's argument that well-being is multidimensional (Sen, 1979, 1985, 1987; Dreze and Sen 1989), an idea that is widely accepted in theory, but much less common in empirical work. Nevertheless, there are readily available and useful empirical measures of important non-income dimensions of well-being. It is those measures that interest us here. This is not to say that income poverty and inequality are unimportant, but rather, that income is not the only dimension of well-being that matters, in theory and in applied work.

To further motivate our work, we note that many measures of well-being, especially those that concern health, are not highly correlated with incomes, either within a given country or across countries (Haddad et al. 2003). Most importantly for the present analysis, in a prior paper using similar methods, we found that in Latin America, where progress on income poverty has been modest and where income inequality may well be worsening, health and education poverty and inequality have both decreased significantly over the past 15-20 years in virtually every country for which we have data. This paper examines whether the same is true in Africa.

While we are greatly concerned with broadening the definition of poverty and inequality in empirical work, we are noncommittal about the proper definition of globalization. While we will examine some correlations between our poverty and inequality measures and a standard measure of openness (trade divided by GDP), for the most part, we assume that globalization is occurring in Africa (as elsewhere) and that there is more of it now than there was 15-20 years ago. Given that assumption, observed changes in non-income poverty and inequality can be correlated with globalization, though inferring causation would be a heroic leap.

The particular measures that we use are children's heights, women's body mass, and women's educational attainment. The first two are good measures of health, the third of education, two dimensions that are important capabilities. Indeed, the Human Development Index, inspired by Sen's work, includes an income indicator (GDP per capita), a health indicator (life expectancy at birth), and an education indicator (adult literacy). We focus on the latter two pillars, and compare progress in these dimensions both in terms of levels of deprivation – measured in terms of the share of the population

that is malnourished and have not completed primary schooling − as well as the changes in the distribution of these outcomes among the population.

In addition to their theoretical importance, we choose these indicators for two practical reasons. First, they are widely available for many countries and at several points in time during the past 15-20 years,[1] allowing us to examine a large number of spells of change in these indicators. Second, both anthropometry and educational attainment are far less subject to measurement error than income and expenditures measures, and both are directly attributable to individuals so that we avoid the difficult issue of intra-household allocations.

Our methods are largely descriptive. We first examine how health and education poverty and inequality change over time in a given country. We then decompose the observed changes in poverty into a component due to the change in the mean and another due to the change in the dispersion of the distribution. That is, we examine to what extent the change in health and education poverty across spells can be attributed to a change in the mean of the distribution, holding the dispersion constant, versus the change in the dispersion while keeping the mean constant. Doing so allows us to relate and compare the relative importance of changes in inequality to the overall process of improvement or deterioration in living standards. Based on our empirical results, we highlight the limited progress observed in Africa in improving health and education outcomes, and contrast that with other regions of the world where globalization has been accompanied by more favorable outcomes.

DATA AND METHODS

We use data from 54 Demographic and Health Surveys (DHS) conducted in 20 African countries that have at least two such surveys. Overall, we have 34 spells of change in health and education poverty in our analysis, usually around five years long. The DHSs are nationally representative surveys with large sample sizes and questionnaires that are virtually identical across time and countries. In most surveys, households are selected based on a standard stratified and clustered design, and, within the household, one woman age 15-49 is selected at random as the focus of the interview. In addition, all living children up to a given age (usually 60 months, but sometimes 36 months) born to that woman are weighed and measured. The data that we use pertain to these women and children.

There are many potential health and education variables, and related "poverty" lines that can be used to measure deprivation in these dimensions. Since we are interested in *distributions* of well-being, we must use continuous variables, which rules out discrete variables such as mortality (the health variable in the Human Development Index). Likewise, we cannot rely on predicted variables, because the prediction equation will compress the distribution.

[1] Specifically, we rely upon the Demographic and Health Survey (DHS) data described below.

For a variety of reasons which we discuss elsewhere (Sahn and Younger 2005a,b), the first health indicator that we employ is the standardized height of pre-school age children. There is a large body of evidence to argue that a child's growth is an excellent objective indicator of his/her general health status (Cole and Parkin 1977; Mata 1978; Tanner 1981; Mosley and Chen 1984; WHO 1995; Martorell et al. 1975, Beaton et al. 1990; Strauss and Thomas 1995; Behrman and Deololikar 1988). As summarized by Beaton et al. (1990), growth failure is "…the best general proxy for constraints to human welfare of the poorest, including dietary inadequacy, infectious diseases and other environmental health risks." They go on to point out that the usefulness of stature is that it captures the "…multiple dimensions of individual health and development and their socio-economic and environmental determinants (p. 2)."

Most analyses of children's heights (or weights) measure them in z-scores: the distance the child's height is from the median of a reference population of healthy children, measured in standard deviations and standardized by age and gender (WHO, 1983). But z-scores can be negative (and usually are for poor populations), while most standard distributional statistics require that the underlying measure of well-being be positive. We thus work with "standardized heights." This variable is calculated as the height that this child would have if s/he were are 24-month old girl. Put another way, given a child's z-score (whatever the age and gender), we assign that child the height corresponding to the same z-score in the 24-month-old girls' distribution. The poverty line that we assign for this variable is the standardized height that is two standard deviations below the median of the distribution of the reference population of healthy children, a practice that is standard in the literature.

A second health indicator we employ to assess the health of the adult population is the Body Mass Index (BMI) for women ages 15-49, calculated as (weight in kilograms)/(height in meters squared). Like with children's heights, we use a conventional cut-off point of 18.5 as a poverty line for this variable. It is important to note that, unlike height, education, or income, welfare does not necessarily increase monotonically with body mass, which violates one of the standard axioms of most distributional measures (more is better). Yet in Africa, the share of women who are obese is sufficiently small that we can interpret our results for this variable as if "more is better" applies.

For education, we use the number of years of schooling for women aged 22 to 30 as our indicator of well-being. We limit our analysis to women above 22 because we want avoid censoring for women who have not yet reached the age at which they should have completed post-secondary school. Likewise, since we want to focus our attention on those who have finished their schooling in the not-too-distant past, we use an upper age limit of 30 years of age. [2] A potential weakness of using years of schooling as a measure of well-being is that it does not control for differences in school quality and is

[2] Note that very few women actually attend post-secondary school in these samples, so we could use a younger sample of even more-recent graduates using 18 rather than 22 as our lower age limit. The results that we report later for education are almost identical if we do this.

thus an imperfect measure of the well-being that comes from education. However, given that our comparisons are within countries and over relatively short time periods (usually five years), the implicit assumption that school quality is constant may not be too restrictive. We define the education poverty line as completing six years of schooling. Since this is somewhat arbitrary, we have tested the sensitivity of our results to this assumption by varying the education poverty line three years in each direction, and find little difference in our results.

Measuring Poverty and Inequality

Given the poverty lines defined above, we use the headcount as our poverty measure, i.e. the share of the sample that falls below the poverty line. For inequality, we follow the standard approach used in the income literature where we examine the variation or dispersion of a health or educational outcome *per se*.[3] This "univariate" approach to measuring non-income dimensions of inequality contrasts with the more common approach to examining health (and education) inequality which examines differences in health (or other social indicators) across a variety of social and economic strata such race, ethnicity, location, gender, and, most commonly, income. Making comparisons of health or education across populations with different social and economic characteristics is often referred to in the literature as the "gradient" or "socioeconomic" approach to health inequality.[4]

We would argue that the univariate approach is the correct one, at least in the context of our efforts to promote the notion that well-being should be measured in multiple dimensions. The gradient approach implicitly gives primacy to inequality in the income dimension. Inequality in the dimension of health or education is only relevant insofar as it is correlated with income inequality. By implication, a given distribution of health or educational outcomes is only undesirable if it is correlated with the income distribution, but acceptable if it is not, an implication of the gradient approach which makes it undesirable for our purposes. Given our univariate approach, we use the Gini coefficient to measure inequality.

Decomposition

[3] We follow previous work using the univariate approach, including Thomas, Wang, and Fan (2000) and Lopez, Thomas, and Wang (1998) who develop the concept of an education Gini index based on school attainment data for working-age adults and Pradhan, Sahn, and Younger (2003), LeGrand (1987), and Murray, Gakidou and Frenk (1999) who applied the univariate approach to health.

[4] See, for example, van Doorslaer et al. 1997; Wagstaff, Paci, and van Doorslaer 1991; Wagstaff and van Doorslaer 2002 in the case of health, and Filmer and Pritchett 2001 in the case of education. The gradient approach is useful for examining the correlation of a health or educational outcome with a given characteristic. Interest in this correlation arises from various types of discrimination, prejudice, and other legal, social, and economic norms that may contribute to stratification and fragmentation, and subsequent inequality in access to material resources and various correlated welfare outcomes.

Datt and Ravallion (1992) show that the change in the share of the population that falls below the poverty line can be decomposed into two components: one due to changes in the mean of the distribution and another due to changes in its dispersion. More precisely, any distribution can be characterized by its mean and its Lorenz curve. As a result, the share of a population that is poor can be expressed as a function of its mean, μ, its Lorenz curve, L, and the poverty line, z. We then decompose the change in poverty between period t and $t+n$ into a growth component, defined as the change in poverty due to a change in the mean of the distribution while holding the Lorenz curve constant at that of the reference sample, and the redistribution component, defined as the change in the Lorenz curve while keeping the mean of the distribution constant at that of the reference sample (Datt and Ravallion 1992).

The Datt and Ravallion decomposition is not robust to the choice of the reference sample. To avoid this problem we rely on Kakwani's (1997) approach to the decomposition problem and average the Datt and Ravallion decompositions calculated with each sample as the reference. We have previously adopted this practice (Sahn and Younger 2005), as have others (McCulloch, Cherel-Robson, and Baluch 2000; Dhongde 2002; Shorrocks and Kolenikov 2001). Besides having the advantage of being consistent with the axiomatic properties proposed by Kakwani, it eliminates the residual in the methodology developed by Datt and Ravallion, which is difficult to interpret.

RESULTS

We first examine the headcounts and Gini coefficients for each of our measures of well-being in each country and survey (Tables 1, 2, and 3). For children's heights, we find that among the 32 spells for which we have data, there were 13 cases where the headcount worsened, 10 in which it improved and 9 where it remained the same. Of course, this summary of the changes in spells obscures important inter-country differences, as well as differences within a country where we have more than one spell. For example, there was a substantial decline in the share of children who are in poor health in Namibia between 1992 and 2000, but just the opposite in Niger. But perhaps of greater interest is that in those countries with two or more spells, it is usually the case that the changes over time do not tend to work in the same direction. For example, Zimbabwe witnessed a large decline in the headcount between 1988 and 1994, only to witness a substantial worsening between 1994 and 1999. In a similar vein, the deterioration in the health of Nigeria's children that occurred between 1986 and 1990, and again between 1990 and 1999 reversed itself in 2003 where there was a substantial decline in the headcount. Thus, both between and within countries, there is no clear evidence of steady improvement in children's heights.

For inequality of children's heights, we also find more cases of worsening than improvement. Specifically, there are 20 cases where height inequality increased, four where it declined, and eight where it remained constant over time. Mozambique between 1997 and 2003 stands out among those countries that showed the greatest improvement in

inequality, while Burkina Faso, Mali and Zimbabwe stand out by witnessing a worsening degree of inequality across the multiple spells in each country.

While the inequality figures have some interest in their own right, our major concern is the extent to which changes in inequality are contributing to, or impairing, progress in terms of the overall reduction in poverty. Tables 4, 5, and 6 present the Datt-Ravallion-Kakwani decompositions of the change in the headcounts for children's heights, women's BMI, and women's educational attainment, respectively. For heights, in 21 out of 32 spells, the absolute value of the mean component of the decomposition is larger than the dispersion share. This is particularly true when the changes are large. A good example of this if found in the three spells from Ghana; in each case the share of the overall change contributed to by the mean shift is at least twice the magnitude of the change in the dispersion. The predominance of the changes in the mean in driving changes in poverty, however, is not to say that the dispersion component is trivial or important. Take the case of Senegal between 1986 and 1992. There was an insignificant overall change in the rate of stunting, from 23 to 22 percent of the pre-school age population. However, if there was not a worsening in the dispersion of heights, stunting would have declined to 18 percent. Similarly, more than two-thirds of the decline in stunting over the spell in Cameroon, from 23 to 29 percent, was accounted for by the declining inequality in children's health. We finally note that averaging the impact of the both the mean and dispersion affects across all spells, the former equals -0.01 and the latter 0.01. Thus, overall, the average affects of both components of our decomposition is basically zero.

Given that there is an obvious upper bound to children's heights, we might expect that any improvements would be concentrated in the left part of the distribution. If that were the case, then we would tend to observe a correlation between increases in the mean and reductions in the dispersion of the distribution.[5] But that is not the case here. The mean and dispersion components for children's heights move together in about half of the cases and against each other in half.

We have information for fewer spells in the case of the share of underweight women. This is because women's anthropometry was not a standard part of the health module of the DHS in the earlier surveys. The results, however, differ somewhat from the information on child health. In the majority of cases there was no change in the share of women who are wasted; only in three of 19 spells did the share of underweight women increase, while they declined in six cases. Our examination of Ginis for BMI indicates increasing inequality: in 15 out of 19 spells the BMI distribution became less equal. This rise in inequality is largely due to increased skewing in the right hand tail of the distribution – reflecting in part the increase in BMI of women who were already at the high end of the distribution, even where the share of underweight women in the population remained largely unchanged.

When we examine the BMI decompositions, we find that like the case of children's standardized heights, there are more cases, 11 out of 19, where the mean shift

[5] We do, in fact, find this consistently in Latin America (Sahn and Younger, 2005a).

is of a greater magnitude than the dispersion effect. In fact, when taking the average of the mean and dispersion affects across all spells, we find the average of the former is 6 percent, and the average of the latter is 2 percent. So, while both effects are contributing to declining average undernourishment among women across the survey, the mean effects are stronger. However, once again, the dispersion effect is not trivial in many instances. A good example is the case of the most recent spell in Burkina Faso. Between 1999 and 2003 there was a 20 percent increase in the share of wasted women. This was almost entirely due to increases in inequality, despite that the mean remained nearly constant. Another interesting case of the mean shift and dispersion effects nearly canceling each other out is the final spell in Kenya, between 1998 and 2003. There was only a one percentage point increase in the share of underweight women. However, if the dispersion remained the same, and the observed mean shift occurred, the share of wasted women would have declined over six percentage points.

We also find that the mean and dispersion effects tend to move in opposite directions in the case of BMI. Thus, we find many instances, for example, where the dispersion is increasing, mostly driven by increases in the right hand tail of the distribution, which also contributes to overall increases in the mean.

Our final indicator of deprivation is years of schooling for women age 22-30. We use a cut-off point of six years of schooling for our headcount measure and find a greater proportion of positive spells than the other indicators: out of the 34 spells, schooling poverty declined in 19 cases, worsened in two cases, and remained constant in 13 cases. Kenya and Zimbabwe are notable for their quite dramatic improvements across multiple spells. In contrast, there are a number of countries with extremely high shares of women who have not completed six years of schooling, concentrated in francophone West Africa, and where little improvement is noted over one or more spells. In fact, the single spell of data we have from Cameroon is the only case where a substantial improvement in the share of women who have competed six years of schooling is found in francophone West Africa.

When we look at the change in univariate inequality of schooling, and its overall contribution for changes based on the mean-dispersion decompositions, we find that first, in 23 of the 34 spells the overall level of education inequality declined. Like both health indicators, the mean shift is of a greater magnitude than the impact of the changes in dispersion in terms of explaining overall differences in the headcount. This is the case in 24 out of 34 spells. Overall, the average dispersion affect across all spells is zero, while the average mean shift affect is 11 percent, indicating it is the latter which is driving improvements in the education poverty headcount. Nonetheless, once again the dispersion effects are often quite important in explaining the overall level of improvement, or lack thereof. In a case such as Uganda between 1995 and 2000, the education headcount fell by 6 percentage points from 76 to 70 percent. However, if it were not for the increased inequality in education, the decline in the share of women not completing primary school would have been much greater, to 61 percent. Similarly, the improvement in the share of women completing six years of schooling in Nigeria

between 1999 and 2003 would have been 10 percentage points, rather than three, if inequality was not worsening during the period.

We also note that like BMIs, the mean and dispersion effects tend to move in opposite directions, again, reflecting that most of the improvement in these indicators, unlike the case of child health, is in the right side of the distribution.

A final point we take up is the question of whether the spells of changes have any association with changes in several indicators of globalization. First, we look at the relationship between our welfare indicators and various indexes of globalization. These include a simple measures of trade openness defined as imports plus exports)/GDP and four indices of globalization constructed by researchers at Warwick University.[6] The first is an index of economic globalization, composed of measures of trade openness as defined above; inflows plus outflows of foreign direct investment as a proportion of GDP; and employee compensation. The second is an index of social globalization which includes foreign population as proportion of total; inflows of foreign population as proportion of total population; worker remittances as a proportion of GDP; number of tourists as proportion of total population; international outgoing telephone traffic in minutes per capita; internet users as a percentage of population; number of films, books, and newspapers imported and exported per capita; and pieces of international mail. The third index is of political globalization, which includes the number of foreign embassies in the country; the number of UN peacekeeping operations in which country participates; and the number of memberships of International organisations. Finally, there is an aggregate globalization index that combines these three components. These annual indexes are constructed to be consistent over time and across countries.

Despite the difficulties of attributing causation, we nonetheless look at simple correlations to get some insight into the relationship of our welfare indictors, both in terms of headcount ratios and Gini coefficients, and these indicators of globalization. In Table 7 we first report the results of the simple correlations for the various globalization indexes and the headcount. We present correlations results first when the headcounts and the indexes are for the same years, and also when the indexes are lagged 3 years for the height-for-age of children less than 36 months of age, and where the indexes are lagged 10 years for the schooling correlations. [7] While the lags are somewhat arbitrary, the logic of the use of lags for the correlation with children's growth is that height-for-age captures the accumulation of effects of economic, social and health conditions over the past few years which may be better captured by the lagged indexes. And given that the children in the sample are 0 to 36 months of age, we consider a three year lag to be a reasonable one to employ. In contrast for education where our headcounts are for young women aged 22-30,[8] we report the results with a 10 year lag, which generally corresponds to a period

[6] For more details, see: http://www2.warwick.ac.uk/fac/soc/csgr/index/

[7] The results in general are not sensitive to the choice of lags. For example, if we lag education by 10 years all the significant results are the same sign and magnitude.

[8] As noted earlier, we choose not to use the entire sample of women aged 15-49 because, at the younger end, we want avoid censoring for women who have not yet reached the age at which they should have completed post-secondary school and, at the older end, we want to limit our attention to those who have finished their schooling in the not-too-distant past.

of time in terms of the indexes when most of the women would have been in their teens, an age when they would have been in secondary school if they had not dropped out early.

In the case of the height-for-age headcount, we find that there is a negative and significant correlation with our trade openness indicator and the social globalization index, both with and without lags. For the BMI headcount, we find the same result for the openness and social globalization indexes. When it comes to years of schooling, we again observe several negative and significant correlations for trade openness, economic globalization, political globalization, and political globalization with lags.

In the case of the correlations with the Gini coefficients, we find that the higher the globalization indexes, the greater the health inequality in terms of both the child health and BMI indicators. More specifically, for the height-for-age headcount, the correlation is positive and significant in the cases of economic and political globalization, as well as the aggregate index. And in the case of BMI, this applies to the trade openness indicator, economic globalization, political globalization and aggregate globalization indexes.

Just the opposite finding is found in the case in term of years of schooling where greater openness is accompanied by less inequality. This applies to the trade openness, economic globalization and political globalization indexes. Perhaps the difference with the health outcomes captures the fact that there has never been much gender discrimination in either health for kids or access to food for adults, but there has been for schooling. This, however, seems to be improving (Glick and Younger 2004), mostly at the primary level as secondary school remains rare for girls in Africa. Thus one could envisage a situation where there is both a significant reduction in education poverty (measured at primary graduation) and reduced inequality as the gender gap is closed.

Table 8 reports correlations of the changes in both globalization indexes and our non-income outcomes. The difference correlations control for country-specific characteristics that do not vary over time, including those that are difficult or impossible to measure and thus control for. If the relationship between openness and the outcomes is linear, this correlation of differences provides more reliable estimate of that relationship. As can be seen in table 8, there are only three significant correlations: a positive correlation between changes in the headcount index and changes in the trade openness indicator, and two positive correlations – for the height-for-age and BMI Ginis. While these three correlations can be interpreted to suggest that an increase in globalization is accompanied by more poverty and inequality, overall, the lack of significant indicate that we do not find any relationship between changes in globalization and changes in non-income poverty headcounts or inequality.

DISCUSSION

Our aim in this paper is to describe changes in non-income measures of well-being in Africa over the past 15-20 years, a period during which we assume that Africa

has been "globalizing." We adopted this focus because, while there is much discussion in the literature on *income* poverty and inequality, there is very little on other dimensions of well-being that we feel deserve equal consideration when evaluating a country's economic and social progress. We were also encouraged by evidence from Latin America that indicates that measures of education and health have improved significantly, and their inequality has decreased, in the past two decades, even as traditional income poverty has declined only a little and income inequality may well have increased (Sahn and Younger 2005a).

Our hope was to find similar results for Africa where, like Latin America, income poverty and inequality are not improving. This is not an unreasonable aspiration. The underlying factors that determine income inequality are different from those that contribute to health and education inequality. For example, the nature of labor market is an important determinant of income inequality, as are the distribution of productive assets, the differential returns to human capital, and the role of non-earned incomes, including remittances from overseas workers. In contrast, education and health inequality are strongly influenced by public provision of basic services and social infrastructure. The availability and access to these institutions may have little relationship to the underlying distribution of incomes.

Progress in the provision of public services (including access to and adoption of basic health technologies such as oral rehydration) and the focus of public spending in the social sector, such as building primary schools, is expected to contribute to declining poverty and inequality in health and education, even in an environment of stagnant or worsening levels of income poverty. Investments in health and education as a share of GDP in Africa have been commensurate, and in many cases greater than other regions of the world (Table 9). Even in terms of per capita expenditures in real dollars, Africa does better than South Asia in terms of health, and East Asia and the Pacific, and South Asia in terms of education. Furthermore, there has been a push in Africa over the past decade to focus on the delivery of primary services in the social sectors. We thus expected that such policies would have reduced inequalities and lifted up those at the bottom of the distribution of well-being measured in terms of health and education outcomes, even in the absence of substantial improvements in incomes and income equality.

Unfortunately, our priors were wrong. In the area of health, changes in children's heights suggest that little progress is being made in terms of reducing stunting, a clear manifestation of poor overall health. Indeed, only one third of the spells indicated improvement along these dimensions; and there were more spells indicating a worsening in the headcount ratio of stunted children. Likewise, our health inequality measure showed that while there were a few instances of reduced inequality along this dimension, there was, on balance, little evidence of success in improving equality of outcomes, despite efforts to focus expenditures and interventions on those in the bottom end of the distribution.

Our examination of underweight women as an indicator of general current health status of adults indicated that in only six of 19 spells did the share of underweight women

decline. And even more disheartening, inequality in women's standardized weights actually worsened in most cases, an artifact of standardized weights increasing far more among women in the upper ranges of the BMI distribution than those in the bottom of the distribution.

With regards to education, the story is somewhat more positive: schooling poverty declined in just over half of the 34 spells for which we have data, and likewise for inequality in two-thirds of the cases. But even here, we had somewhat higher expectations given all the investments and attention paid to raising primary school enrollments.

In this paper we also attempted to relate directly changes in non-income indicators of poverty and inequality to various indexes of globalization. A general story emerges that countries that are more globalized tend to show a lower rate of stunting among young children, underweight among women, and low levels of school enrollments. It is also the case that in the same countries greater globalization is associated with more inequality in terms of health, but not education. Despite that there were several strong correlations between globalization measures and health and education poverty and inequality, we would admonish against drawing the conclusion that these are causal relationships. In fact, when we control for fixed effects looking at the correlation of differences over time, almost all of the correlations become statistically insignificant. This applies to whether we look at contemporaneous changes or lag globalization indexes relative to the various outcomes analyzed. There's just nothing here to suggest that globalization is correlated (positively or negatively) with health and education outcomes. While these results may be viewed as somewhat disappointing, they likely reflect the complexity and context specific nature of the dynamic processes that both contribute to changes in the globalization indexes employed, and how they transmit through very different economic and social structures to affect non-income poverty.

Finally, we acknowledge that we are not capturing all non-income dimensions of well-being, broadly speaking, nor even all dimensions of health and education poverty and inequality. For those dimensions other than child stunting, mother's BMI and years of schooling, the story of limited progress in eliminating health and education poverty and inequality may not hold, although, we suspect it does. Nonetheless, we need to be cognizant of this possibility and appropriately cautious in generalizing from the limited dimensions over which we conduct our analysis. This implies a need to further consider other indicators of well-being. But more important is to gain a fuller understanding of the processes that contribute to differences in income versus other indicators of inequity and poverty, as well as explaining the relatively discouraging outcomes presented in this paper. This is best done through intensive country studies, rather than painting with a broad brush as we have done in this paper. However, the bottom line seems clear: the evolution of income inequality and poverty in Africa during the 1990s and first part of the new millennium gives little cause for complacency or optimism.

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Table 1 - Poverty headcounts and Gini coefficients for childrens' heights

			Tests for equality				Tests for equality		
	survey	Headcount	vs. first	vs. second	vs. third	Gini	vs. first	vs. second	vs. third
Burkina Faso	1992	0.288				0.0392			
	1999	0.311	1.82			0.0404	1.43		
	2003	0.339	4.63	2.45		0.0451	8.08	5.73	
Benin	1996	0.253				0.0351			
	2001	0.270	1.37			0.0362	1.36		
Cote d'Ivoire	1994	0.247				0.0344			
	1998	0.223	-1.60			0.0354	0.99		
Cameroon	1991	0.230				0.0342			
	1998	0.298	4.46			0.0383	4.14		
Ghana	1988	0.295				0.0336			
	1993	0.261	-2.23			0.0353	1.80		
	1998	0.203	-6.26	-4.08		0.0339	0.31	-1.55	
	2003	0.271	-1.61	0.65	4.78	0.0361	2.77	0.96	2.55
Kenya	1988								
	1993	0.316				0.0368			
	1998	0.313		-0.23		0.0397		3.43	
	2003	0.303		-1.09	-0.85	0.0375		0.91	-2.65
Madagascar	1992	0.493				0.0336			
	1997	0.486	-0.52			0.0362	3.66		
	2003	0.447	-3.35	-2.91		0.0437	11.87	8.76	
Mali	1987	0.240				0.0354			
	1995	0.303	4.11			0.0409	5.35		
	2001	0.336	6.38	3.68		0.0429	7.31	3.23	
Malawi	1992	0.420				0.0364			
	2000	0.442	1.79			0.0418	7.40		
Mozambique	1997	0.380				0.0404			
	2003	0.369	-0.91			0.0365	-5.35		

Table 1 - Poverty headcounts and Gini coefficients for childrens' heights continued

			Tests for equality				Tests for equality		
	survey	Headcount	vs. first	vs. second	vs. third	Gini	vs. first	vs. second	vs. third
Nigeria	1986	0.302				0.0335			
	1990	0.365	4.37			0.0422	9.66		
	1999	0.456	8.69	5.91		0.0519	14.86	8.42	
	2003	0.359	3.80	-0.49	-6.07	0.0453	12.25	3.61	-5.54
Niger	1992	0.357				0.0400			
	1998	0.413	4.67			0.0392	-1.08		
Namibia	1992	0.291				0.0351			
	2000	0.204	-6.13			0.0344	-0.76		
Rwanda	1992	0.426				0.0350			
	2000	0.369	-4.60			0.0402	6.55		
Senegal	1986	0.230				0.0311			
	1992	0.221	-0.48			0.0346	3.04		
	1997								
Togo	1988	0.293				0.0342			
	1998	0.220	-5.14			0.0337	-0.52		
Tanzania	1992	0.394				0.0344			
	1996	0.405	0.97			0.0364	2.84		
	1999	0.379	-1.05	-1.76		0.0334	-1.37	-3.71	
Uganda	1988	0.412				0.0368			
	1995	0.357	-4.27			0.0355	-1.63		
	2000	0.358	-4.18	0.02		0.0349	-2.38	-0.84	
Zambia	1992	0.368				0.0337			
	1996	0.391	2.03			0.0361	3.53		
	2001	0.444	6.44	4.53		0.0393	7.69	4.49	
Zimbabwe	1988	0.300				0.0305			
	1994	0.216	-5.66			0.0323	2.03		
	1999	0.269	-1.95	3.73		0.0410	9.89	8.82	

Table 2 - Poverty headcounts and Gini coefficients for women's BMI

			Tests for equality				Tests for equality		
	survey	Headcount	vs. first	vs. second	vs. third	Gini	vs. first	vs. second	vs. third
Burkina Faso	1992	0.137				0.0691			
	1999	0.125	-1.50			0.0639	-3.05		
	2003	0.197	9.12	11.07		0.0822	8.58	13.45	
Benin	1996	0.140				0.0778			
	2001	0.101	-5.02			0.0940	8.10		
Cote d'Ivoire	1994	0.079				0.0777			
	1998	0.082	0.53			0.0890	5.48		
Cameroon	1991								
	1998	0.070	11.79			0.0839	46.61		
Ghana	1988								
	1993	0.113				0.0823			
	1998	0.107		-0.68		0.0897		2.68	
	2003	0.091		-2.77	-2.15	0.1014		8.01	5.08
Kenya	1988								
	1993	0.094				0.0784			
	1998	0.109		2.19		0.0832		2.60	
	2003	0.118		4.05	1.43	0.0987		13.53	9.31
Madagascar	1992								
	1997	0.190				0.0641			
	2003	0.184		-0.74		0.0733		7.54	
Mali	1987								
	1995	0.146				0.0736			
	2001	0.114		-5.43		0.0844		8.43	
Malawi	1992	0.086				0.0693			
	2000	0.080	-0.97			0.0728	2.61		
Mozambique	1997	0.109				0.0696			
	2003	0.081	-4.45			0.0796	6.93		

Table 2 - Poverty headcounts and Gini coefficients for women's BMI continued

			Tests for equality				Tests for equality		
	survey	Headcount	vs. first	vs. second	vs. third	Gini	vs. first	vs. second	vs. third
Nigeria	1986								
	1990								
	1999	0.156				0.1191			
	2003	0.141			-1.75	0.1003			-6.88
Niger	1992	0.177				0.0746			
	1998	0.190	1.49			0.0727	-1.22		
Namibia	1992	0.128				0.1007			
	2000								
Rwanda	1992								
	2000	0.082				0.0716			
Senegal	1986								
	1992	0.137				0.0875			
	1997								
Togo	1988								
	1998	0.105				0.0779			
Tanzania	1992	0.089				0.0730			
	1996	0.088	-0.16			0.0773	2.87		
	1999								
Uganda	1988								
	1995	0.089				0.0687			
	2000	0.094		0.78		0.0786		6.34	
Zambia	1992	0.097				0.0791			
	1996	0.083	-2.25			0.0762	-1.78		
	2001	0.141	7.08	10.14		0.0838	3.13	5.35	
Zimbabwe	1988								
	1994	0.047				0.0850			
	1999	0.054		1.45		0.0922		3.71	

Table 3 - Poverty headcounts and Gini coefficients for women's years of schooling

			Tests for equality				Tests for equality		
	survey	Headcount	vs. first	vs. second	vs. third	Gini	vs. first	vs. second	vs. third
Burkina Faso	1992	0.940				0.8779			
	1999	0.947	0.95			0.8975	4.13		
	2003	0.905	-4.64	-5.71		0.8552	-5.14	-10.10	
Benin	1996	0.893				0.8100			
	2001	0.898	0.54			0.7564	-8.71		
Cote d'Ivoire	1994	0.862				0.7101			
	1998	0.835	-1.80			0.6723	-4.58		
Cameroon	1991	0.718				0.5462			
	1998	0.543	-9.37			0.4643	-10.08		
Ghana	1988	0.507				0.5119			
	1993	0.530	1.23			0.4792	-3.67		
	1998	0.492	-0.83	-2.04		0.4486	-7.39	-3.63	
	2003	0.494	-0.73	-1.98	0.12	0.4330	-9.57	-5.71	-2.02
Kenya	1988	0.482				0.4056			
	1993	0.386	-6.41			0.3498	-9.49		
	1998	0.276	-14.38	-7.75		0.2974	-19.67	-10.26	
	2003	0.261	-15.76	-9.01	-1.14	0.3037	-18.33	-8.91	1.33
Madagascar	1992	0.726				0.4891			
	1997	0.748	1.51			0.4982	1.59		
	2003	0.741	1.01	-0.56		0.4760	-2.34	-4.13	
Mali	1987	0.943				0.8962			
	1995	0.933	-1.12			0.8657	-5.55		
	2001	0.929	-1.64	-0.65		0.8603	-6.79	-1.36	
Malawi	1992	0.809				0.6402			
	2000	0.739	-5.52			0.4978	-22.87		
Mozambique	1997	0.924				0.6549			
	2003	0.893	-3.93			0.6190	-6.72		

Table 3 - Poverty headcounts and Gini coefficients for women's years of schooling continued

			Test of equality				Test of equality		
	survey	Headcount	vs. first	vs. second	vs. third	Gini	vs. first	vs. second	vs. third
Nigeria	1986	0.661				0.4990			
	1990	0.809	8.87			0.6706	22.91		
	1999	0.625	-2.04	-15.34		0.5329	4.63	-24.03	
	2003	0.599	-3.41	-16.49	-1.84	0.5484	6.40	-19.62	2.57
Niger	1992	0.972				0.9230			
	1998	0.947	-4.08			0.8845	-8.78		
Namibia	1992	0.408				0.3551			
	2000	0.228	-11.13			0.2594	-17.46		
Rwanda	1992	0.762				0.5701			
	2000	0.640	-8.81			0.4895	-13.47		
Senegal	1986	0.910				0.8433			
	1992	0.903	-0.68			0.7956	-7.49		
	1997	0.871	-3.70	-3.16		0.7509	-15.16	-7.52	
Togo	1988	0.836				0.6979			
	1998	0.881	3.38			0.6304	-8.72		
Tanzania	1992	0.433				0.4319			
	1996	0.320	-8.29			0.3884	-6.61		
	1999	0.328	-6.36	0.44		0.3824	-6.15	-0.74	
Uganda	1988	0.795				0.5494			
	1995	0.758	-2.59			0.5088	-5.70		
	2000	0.699	-6.62	-4.41		0.4580	-13.17	-8.45	
Zambia	1992	0.453				0.3480			
	1996	0.465	0.79			0.3527	0.85		
	2001	0.476	1.44	0.67		0.3407	-1.32	-2.36	
Zimbabwe	1988	0.532				0.3301			
	1994	0.286	-13.15			0.2953	-5.63		
	1999	0.157	-21.61	-8.89		0.2397	-15.37	-10.75	

Table 4 - Datt-Ravallion-Kakwani decompositions for children's heights

Country	Period	First	Second	Difference	t-value	Mean	Dispersion
Burkina Faso	1992-1999	0.286	0.309	0.023	-1.806	0.044	-0.021
	1992-2003	0.286	0.336	0.050	-4.437	0.039	0.010
	1999-2003	0.309	0.336	0.026	-2.282	-0.002	0.028
Benin	1996-2001	0.250	0.269	0.019	-1.496	0.013	0.005
Cote d'Ivoire	1994-1998	0.244	0.219	-0.025	1.673	-0.026	0.001
Cameroon	1991-1998	0.229	0.293	0.064	-4.236	0.020	0.044
Ghana	1988-1993	0.294	0.258	-0.036	2.423	-0.045	0.009
	1988-1998	0.294	0.200	-0.094	6.458	-0.092	-0.002
	1988-2003	0.294	0.267	-0.027	1.816	-0.043	0.016
	1993-1998	0.258	0.200	-0.058	4.087	-0.046	-0.012
	1993-2003	0.258	0.267	0.009	-0.643	0.004	0.005
	1998-2003	0.200	0.267	0.067	-4.782	0.048	0.019
Kenya	1988-1993						
	1988-1998						
	1988-2003						
	1993-1998	0.312	0.309	-0.003	0.258	-0.029	0.026
	1993-2003	0.312	0.301	-0.011	0.954	-0.026	0.015
	1998-2003	0.301	-0.008	0.002	0.000	-0.010	0.000
Madagascar	1992-1997	0.492	0.483	-0.008	0.623	-0.018	0.010
	1992-2003	0.492	0.446	-0.046	3.324	-0.082	0.036
	1997-2003	0.483	0.446	-0.037	2.782	-0.060	0.023
Mali	1987-1995	0.238	0.301	0.063	-4.083	0.027	0.036
	1987-2001	0.238	0.335	0.096	-6.364	0.044	0.053
	1995-2001	0.301	0.335	0.034	-3.693	0.020	0.014
Malawi	1992-2000	0.415	0.440	0.025	-2.022	-0.003	0.028
Mozambique	1997-2003	0.378	0.367	-0.011	0.958	0.012	-0.024
Nigeria	1986-1990	0.301	0.362	0.060	-4.171	0.014	0.047
	1986-1999	0.301	0.455	0.153	-8.653	0.061	0.092
	1986-2003	0.301	0.358	0.056	-3.739	-0.006	0.062
	1990-1999	0.362	0.455	0.093	-6.063	0.044	0.049
	1990-2003	0.362	0.358	-0.004	0.319	-0.019	0.015
	1999-2003	0.455	0.358	-0.097	6.082	-0.063	-0.034
Niger	1992-1998	0.355	0.411	0.056	-4.660	0.060	-0.004
Namibia	1992-2000	0.290	0.202	-0.088	6.210	-0.076	-0.012
Rwanda	1992-2000	0.423	0.366	-0.057	4.580	-0.088	0.031
Senegal	1986-1992	0.230	0.217	-0.013	0.666	-0.045	0.033
	1986-1997						
	1992-1997						

Table 4 - Datt-Ravallion-Kakwani decompositions for children's heights continued

Country	Period	First	Second	Difference	t-value	Mean	Dispersion
Togo	1988-1998	0.292	0.217	-0.075	5.283	-0.071	-0.004
Tanzania	1992-1996	0.391	0.402	0.011	-1.005	-0.004	0.015
	1992-1999	0.391	0.378	-0.013	0.899	0.000	-0.012
	1996-1999	0.402	0.378	-0.024	1.646	0.001	-0.026
Uganda	1988-1995	0.410	0.354	-0.056	4.387	-0.044	-0.011
	1988-2000	0.410	0.355	-0.055	4.268	-0.042	-0.013
	1995-2000	0.354	0.355	0.001	-0.052	0.002	-0.001
Zambia	1992-1996	0.366	0.389	0.023	-2.016	0.012	0.012
	1992-2001	0.366	0.440	0.074	-6.280	0.051	0.024
	1996-2001	0.389	0.440	0.051	-4.372	0.037	0.014
Zimbabwe	1988-1994	0.298	0.214	-0.084	5.640	-0.099	0.015
	1988-1999	0.298	0.264	-0.034	2.116	-0.100	0.066
	1994-1999	0.214	0.264	0.050	-3.543	-0.011	0.061

Table 5 - Datt-Ravallion-Kakwani decompositions for women's BMI

Country	Period	First	Second	Difference	t-value	Mean	Dispersion
Burkina Faso	1992-1999	0.137	0.125	-0.011	1.50	0.011	-0.022
	1992-2003	0.137	0.197	0.060	-9.12	0.017	0.043
	1999-2003	0.125	0.197	0.071	-11.07	0.006	0.065
Benin	1996-2001	0.140	0.101	-0.039	5.02	-0.090	0.051
Cote d'Ivoire	1994-1998	0.079	0.082	0.004	-0.53	-0.023	0.027
Cameroon	1991-1998	.	0.070	.	.	.	.
Ghana	1988-1993	.	0.113	.	.	.	.
	1988-1998	.	0.107	.	.	.	.
	1988-2003	.	0.091	.	.	.	.
	1993-1998	0.113	0.107	-0.007	0.68	-0.029	0.022
	1993-2003	0.113	0.091	-0.023	2.77	-0.088	0.065
	1998-2003	0.107	0.091	-0.016	2.15	-0.066	0.050
Kenya	1988-1993	.	0.094	.	.	.	.
	1988-1998	.	0.109	.	.	.	.
	1988-2003	.	0.118	.	.	.	.
	1993-1998	0.094	0.109	0.015	-2.19	0.001	0.014
	1993-2003	0.094	0.118	0.024	-4.05	-0.041	0.065
	1998-2003	0.109	0.118	0.009	-1.43	-0.044	0.053
Madagascar	1992-1997	.	0.190	.	.	.	.
	1992-2003	.	0.184	.	.	.	.
	1997-2003	0.190	0.184	-0.006	0.74	-0.047	0.041
Mali	1987-1995	.	0.146	.	.	.	.
	1987-2001	.	0.114	.	.	.	.
	1995-2001	0.146	0.114	-0.031	5.43	-0.066	0.035
Malawi	1992-2000	0.086	0.080	-0.006	0.97	-0.016	0.011
Mozambique	1997-2003	0.109	0.081	-0.027	4.45	-0.056	0.028
Nigeria	1986-1990	.	.	.	.	.	.
	1986-1999	.	0.156	.	.	.	.
	1986-2003	.	0.141	.	.	.	.
	1990-1999	.	0.156	.	.	.	.
	1990-2003	.	0.141	.	.	.	.
	1999-2003	0.156	0.141	-0.015	1.75	0.030	-0.044
Niger	1992-1998	0.177	0.190	0.013	-1.49	0.011	0.002
Namibia	1992-2000	0.128	.	.	.	.	.
Rwanda	1992-2000	.	0.082	.	.	.	.
Senegal	1986-1992	.	0.137	.	.	.	.
	1986-1997	.	.	.	.	.	.
	1992-1997	0.137	.	.	.	.	.
Togo	1988-1998	.	0.105	.	.	.	.

Table 5 - Datt-Ravallion-Kakwani decompositions for women's BMI continued

Country	Period	First	Second	Difference	t-value	Mean	Dispersion
Tanzania	1992-1996	0.089	0.088	-0.001	0.16	-0.012	0.011
	1992-1999	0.089	.	.	.	.	.
	1996-1999	0.088	.	.	.	.	.
Uganda	1988-1995	.	0.089	.	.	.	.
	1988-2000	.	0.094	.	.	.	.
	1995-2000	0.089	0.094	0.005	-0.78	-0.030	0.034
Zambia	1992-1996	0.097	0.083	-0.014	2.25	-0.010	-0.004
	1992-2001	0.097	0.141	0.044	-7.08	0.026	0.018
	1996-2001	0.083	0.141	0.058	-10.14	0.035	0.023
Zimbabwe	1988-1994	.	0.047	.	.	.	.
	1988-1999	.	0.054	.	.	.	.
	1994-1999	0.047	0.054	0.008	-1.45	-0.014	0.022

Table 6 - Datt-Ravallion-Kakwani decompositions for women's years of schooling

Country	Period	First	Second	Difference	t-value	Mean	Dispersion
Burkina Faso	1992-1999	0.940	0.947	0.007	-0.950	0.016	-0.009
	1992-2003	0.940	0.905	-0.035	4.641	-0.035	0.000
	1999-2003	0.947	0.905	-0.043	5.710	-0.052	0.009
Benin	1996-2001	0.893	0.898	0.006	-0.536	-0.012	0.018
Cote d'Ivoire	1994-1998	0.862	0.835	-0.026	1.802	-0.095	0.068
Cameroon	1991-1998	0.718	0.543	-0.175	9.367	-0.189	0.014
Ghana	1988-1993	0.507	0.530	0.023	-1.227	-0.026	0.049
	1988-1998	0.507	0.492	-0.016	0.834	-0.026	0.010
	1988-2003	0.507	0.494	-0.013	0.734	-0.026	0.012
	1993-1998	0.530	0.492	-0.039	2.044	-0.029	-0.009
	1993-2003	0.530	0.494	-0.036	1.978	-0.029	-0.007
	1998-2003	0.492	0.494	0.002	-0.121	0.032	-0.030
Kenya	1988-1993	0.482	0.386	-0.095	6.411	-0.039	-0.057
	1988-1998	0.482	0.276	-0.205	14.375	-0.256	0.051
	1988-2003	0.482	0.261	-0.220	15.756	-0.279	0.059
	1993-1998	0.386	0.276	-0.110	7.753	-0.122	0.012
	1993-2003	0.386	0.261	-0.125	9.005	-0.110	-0.015
	1998-2003	0.276	0.261	-0.015	1.138	0.036	-0.051
Madagascar	1992-1997	0.726	0.748	0.022	-1.508	0.017	0.005
	1992-2003	0.726	0.741	0.014	-1.014	-0.017	0.031
	1997-2003	0.748	0.741	-0.008	0.559	-0.017	0.010
Mali	1987-1995	0.943	0.933	-0.010	1.117	-0.014	0.004
	1987-2001	0.943	0.929	-0.014	1.642	-0.014	0.000
	1995-2001	0.933	0.929	-0.004	0.647	-0.010	0.006
Malawi	1992-2000	0.809	0.739	-0.070	5.518	-0.136	0.066
Mozambique	1997-2003	0.924	0.893	-0.030	3.930	-0.022	-0.008
Nigeria	1986-1990	0.661	0.809	0.148	-8.869	0.136	0.011
	1986-1999	0.661	0.625	-0.036	2.044	-0.092	0.056
	1986-2003	0.661	0.599	-0.063	3.414	-0.092	0.029
	1990-1999	0.809	0.625	-0.184	15.337	-0.147	-0.038
	1990-2003	0.809	0.599	-0.210	16.491	-0.145	-0.065
	1999-2003	0.625	0.599	-0.026	1.837	-0.092	0.066
Niger	1992-1998	0.972	0.947	-0.025	4.076	-0.049	0.024
Namibia	1992-2000	0.408	0.228	-0.180	11.126	-0.127	-0.054
Rwanda	1992-2000	0.762	0.640	-0.121	8.811	-0.126	0.005
Senegal	1986-1992	0.910	0.903	-0.007	0.676	0.044	-0.052
	1986-1997	0.910	0.871	-0.039	3.695	-0.053	0.014
	1992-1997	0.903	0.871	-0.032	3.163	-0.059	0.028
Togo	1988-1998	0.836	0.881	0.045	-3.378	0.026	0.019

Table 6 - Datt-Ravallion-Kakwani decompositions for women's years of schooling continued

Country	Period	First	Second	Difference	t-value	Mean	Dispersion
Tanzania	1992-1996	0.433	0.320	-0.113	8.290	-0.014	-0.099
	1992-1999	0.433	0.328	-0.106	6.355	-0.014	-0.092
	1996-1999	0.320	0.328	0.007	-0.441	-0.007	0.014
Uganda	1988-1995	0.795	0.758	-0.036	2.589	-0.036	0.000
	1988-2000	0.795	0.699	-0.096	6.617	-0.143	0.048
	1995-2000	0.758	0.699	-0.059	4.409	-0.145	0.086
Zambia	1992-1996	0.453	0.465	0.012	-0.794	-0.042	0.055
	1992-2001	0.453	0.476	0.022	-1.440	-0.042	0.065
	1996-2001	0.465	0.476	0.010	-0.671	-0.039	0.049
Zimbabwe	1988-1994	0.532	0.286	-0.246	13.151	-0.199	-0.046
	1988-1999	0.532	0.157	-0.375	21.613	-0.325	-0.050
	1994-1999	0.286	0.157	-0.129	8.890	-0.027	-0.102

Table 7 - Correlations between globalization and non-income measures of well-being

		HAZ		BMI		Years of schooling	
		Headcount	**Gini**	**Headcount**	**Gini**	**Headcount**	**Gini**
Trade Openness	coeff	-0.2849 [a]	-0.0315 [b]	-0.3327 [a]	0.4928	-0.3620	-0.3090
	p-value	0.0406	0.8246	0.0385	0.0014	0.0071	0.0230
Economic Globalization	coeff	0.1037	0.4081	-0.2873	0.5013	-0.3554	-0.3413
	p-value	0.6143	0.0385	0.2194	0.0243	0.0634	0.0755
Economic Globalization Lagged	coeff	0.1363	0.4349	-0.0486	0.6898	-0.1756	-0.1442
	p-value	0.4807	0.0184	0.8256	0.0003	0.4230	0.5117
Social Globalization	coeff	-0.4665	-0.0769	-0.4791	0.1309	-0.2823	-0.1281
	p-value	0.0216	0.7209	0.0326	0.5823	0.1623	0.5327
Social Globalization Lagged	coeff	-0.4786	-0.1333	-0.5598	0.1140	-0.2097	-0.0529
	p-value	0.0155	0.5253	0.0083	0.6227	0.5130	0.8702
Political Globalization	coeff	-0.2213	0.2373	-0.0432	0.5982	-0.3890	-0.2728
	p-value	0.1394	0.1123	0.8112	0.0002	0.0063	0.0607
Political Globalization Lagged	coeff	-0.1183	0.2904	-0.0429	0.6852	-0.4361	-0.3344
	p-value	0.4035	0.0368	0.7954	0.0000	0.0035	0.0284
Aggregate Globalization	coeff	0.0681	0.5612	0.3919	0.7016	-0.2889	-0.1307
	p-value	0.8095	0.0295	0.1854	0.0075	0.2607	0.6170
Aggregate Globalization Lagged	coeff	0.3368	0.6456	0.6949	0.8071	-0.1151	0.0817
	p-value	0.2196	0.0093	0.0084	0.0009	0.8059	0.8617

Table 8 - Correlations between changes in globalization and changes in non-income measures of well-being

		HAZ		BMI		Years of schooling	
		Headcount	**Gini**	**Headcount**	**Gini**	**Headcount**	**Gini**
Differences in Trade Openness	coeff	0.3265 [a]	0.3542 [b]	-0.2513	0.4519	-0.0409	0.1872
	p-value	0.0682	0.0467	0.2993	0.0521	0.8183	0.2890
Differences Economic Globalization	coeff	-0.0691	0.2429	-0.0661	-0.1214	-0.3677	-0.1838
	p-value	0.8225	0.4240	0.8881	0.7954	0.1776	0.5120
Differences Economic Globalization Lagged	coeff	0.3939	0.4215	-0.1393	-0.2203	0.2465	0.4729
	p-value	0.1312	0.1039	0.7010	0.5409	0.4649	0.1418
Differences Social Globalization	coeff	-0.2880	-0.0458	0.0160	-0.0752	-0.4031	-0.0274
	p-value	0.3641	0.8877	0.9700	0.8595	0.1529	0.9259
Differences Social Globalization Lagged	coeff	-0.1098	-0.0321	-0.1141	0.0563	-0.9668	0.7897
	p-value	0.7086	0.9133	0.7536	0.8772	0.1645	0.4205
Differences Political Globalization	coeff	-0.0349	0.1851	-0.3216	-0.2838	-0.1451	-0.2205
	p-value	0.8656	0.3654	0.2839	0.3473	0.4613	0.2595
Differences Political Globalization Lagged	coeff	0.0102	0.0188	0.0582	0.2162	0.0256	0.2904
	p-value	0.9557	0.9186	0.8131	0.3741	0.9076	0.1788
Differences Aggregate Globalization	coeff	0.2450	0.3617	-0.2912	-0.7866	-0.5156	-0.3779
	p-value	0.6399	0.4812	0.7088	0.2134	0.1909	0.3561
Differences Aggregate Globalization Lagged	coeff	0.5486	0.5537	0.4977	-0.0268	na	na
	p-value	0.2023	0.1973	0.3935	0.9658	na	na

[a]Positive coefficient means that an increase in openness over time is associated with an increase in the share of stunted individuals e.g. higher headcount.

[b] Positive coefficient implies that an increase in openness is associated with an increase in the Gini, e.g. greater inequality.

Table 9 - Indicators of health and education spending by region

region	years	Openness	% openness change (1995-2001)	Health (%GDP)	health/cap (current US$)	edu (%GNI)	edu/cap (current US$)
East Asia & Pacific	1995	59.923					
	1996	55.541					
	1997	58.889					
	1998	62.506		4.411	35.653	2.284	17.042
	1999	62.378		4.553	40.466	2.265	18.205
	2000	71.598		4.914	47.824	2.313	20.064
	2001	70.102	16.987	5.068	51.757	2.309	20.821
South Asia	1995	27.148					
	1996	26.769					
	1997	27.185					
	1998	27.801		4.779	19.961	3.195	13.265
	1999	28.653		5.208	22.871	3.208	13.953
	2000	31.632		5.606	25.055	3.477	15.397
	2001	31.282	15.224	5.472	24.805	3.498	15.703
Latin America & Caribbean	1995	37.911					
	1996	39.152					
	1997	39.570					
	1998	39.701		6.931	280.352	4.04	159.513
	1999	40.378		7.119	252.071	4.074	140.345
	2000	42.066		6.906	265.859	3.977	149.966
	2001	41.460	9.360	7.046	259.49	4.096	146.982
Sub-Saharan Africa	1995	59.760					
	1996	59.712					
	1997	60.145					
	1998	60.336		6.49	33.847	4.944	24.58
	1999	60.540		6.593	33.581	4.893	23.616
	2000	64.828		6.279	32.228	4.85	23.14
	2001	64.912	8.621	6.326	31.467	4.605	21.27
Middle East & North Africa	1995	57.019					
	1996	55.028					
	1997	53.119					
	1998	52.253		5.325	69.073	5.189	84.561
	1999	52.621		5.222	68.7	5.254	84.32
	2000	55.697		5.073	71.959	5.29	90.279
	2001	54.419	-4.561	5.329	73.832	5.322	59.65