

Growth, Distribution and Poverty in Africa. Messages from the 1990s.

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Abstract:

This paper reviews recent evidence on the trends in household well-being in Africa during the 1990s. It draws on the findings of a series of studies on poverty dynamics which utilize the better data sets now available. It begins by taking a broad view of poverty, tracing changes in both income poverty and in other more direct measures of individual welfare. Experiences have been varied: some countries have seen sharp falls in income poverty, but others have witnessed a marked deterioration in their living standards. Economic growth has in the aggregate been pro-poor. But the aggregate numbers hide significant and systematic distributional effects which have caused some groups to be left behind. The paper draws four key conclusions. The first is that economic policy reforms (improving macroeconomic balances and liberalizing markets) have been conducive to reductions in poverty. The second is that location matters for poverty reduction strategies in Africa. Some regions by virtue of their sheer remoteness have been left behind when growth picks up. The role of infrastructure (especially access to roads) is crucial. Third, education and access to land emerge as key private endowments to help households benefit from emerging economic opportunities, and to enable them to escape poverty. Finally, the evidence reviewed here underscores the significance of social protection in a poverty reduction strategy. The impact of rainfall variations and ill health are the risk factors featured as having profound effects on poverty outcomes in Africa.

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I. Introduction

Does the Dollar and Kraay (2000: 27) view, that ‘anyone who cares about the poor should favor the growth-enhancing policies of good rule of law, fiscal discipline, and openness to international trade’ apply to Africa in the 1990s? Or was the growth path the reforms induced characterized by increasing inequality, denying benefits to the poorest (Stewart, 1995; Mkandawire and Soludo, 1999; Forsyth, 2000). There is no simple answer to this question, given the many changes that affected people’s lives and livelihoods in Africa during the 1990s. In addition to economic and political reforms, external opportunities and constraints shifted during the decade, with many countries experiencing sharp movements in their terms of trade. Some countries faced internal civil strife and political instability. Others had to endure severe droughts. And there have been serious health shocks, such as AIDS and malaria, affecting rich and poor alike. The effects of these changes on growth and poverty were further conditioned by the private and public endowments households possessed—their physical assets, their human capital, and their access to infrastructure and public services. This complexity makes for considerable debate about the relationship between policy, growth and poverty in Africa—a debate that was previously not always well served with hard evidence.

It is by now widely accepted that economic growth is at least a necessary condition for sustainable poverty reduction (Kanbur, 2001). Yet, historically growth rates have been low in Africa. Reviewing the literature of cross-country growth studies Collier and Gunning (1999) conclude that the explanations for this phenomenon are to be found in geography (the land-locked, tropical character of many countries), in macroeconomic policies (notably economic policy volatility and a lack of openness to international trade), and in microeconomic policies, which have disproportionately taxed rural producers, eroded social capital, undermined the provision of public services, and resulted in a retreat into subsistence by rural producers.

Despite these important insights from cross country analysis, the reasons for ‘Africa’s growth and poverty paradox’ (Easterly and Levine, 1997) remain much debated. The limited number of countries, and the high correlation between the explanatory variables, means that the findings are often highly sensitive to the specification of the estimation model. Cross-country studies typically examine average long term growth, and are therefore unable to deal with some of the important growth dynamic issues, such as the deterioration in African growth after the 1960s, and the tendency for growth in Africa to be episodic in nature (Collier and Gunning, 1999). The use of country-wide averages in this literature also limits what can be said about the distributional

dimension of growth, particularly its relation to poverty. And the fact that the cross country evidence often emphasizes immutable factors (such as geography and linguistic or ethnic fragmentation), limits its relevance to policy formulation in any particular country.

Collier and Gunning also find that the messages from household-level analysis are different from those of the cross-country literature. Among the factors explaining poverty at the household level ‘disease and climate feature most prominently, and these are largely omitted in the aggregate analysis’ (Collier and Gunning, 1999: 83). They hint that these growth-retarding risks might explain the ‘Africa dummy’ in growth regressions¹. Also, the lack of credit appears more constraining to rural households than would be suggested by the aggregate growth models. It is unlikely that cross country analysis alone will resolve the growth-poverty issue (Brock and Durlauf, 2000; Bourguignon, 2000; Deininger and Okidi, 2001).

Ravallion (2001) also calls for a more microeconomic approach to the analysis of policies, growth and poverty. Using household survey data in a sample of 50 developing countries and 120 spells² of poverty change, he estimates that on average the growth elasticity of headcount poverty is -2.5 .³ But that average masks a great deal of variation across countries—variations related to the level and trends in income inequality. Inequality impinges on the growth-poverty relationship in three ways. First, high initial inequality can harm subsequent growth, though the body of evidence on this is somewhat mixed.⁴ Second, high initial inequality reduces the poverty-reducing potential of growth. This is because even when income distributions remain unchanged, poor groups gain from overall growth roughly in proportion to their initial share in the national pie. The higher the initial inequality, the lower the share of the poor, and the less poverty reduction is generated by a growth in mean income.⁵ Third, *changes* in inequality will modify the poverty reducing effects of mean income growth. Among the countries experiencing increasing living standards in his sample, Ravallion finds that the annual reduction in poverty was only 1.3 percent in countries where inequality was rising—compared with 9.6 percent in the countries experiencing falling inequality. He concludes:

¹ In support of this hypothesis Guillaumont, Guillaumont, and Brun (1999) find that economic, political and natural volatility are important factors in explaining the poor growth performance of African economies.

² A ‘spell’ is a period between two household surveys.

³ This is based on the growth in mean household income/consumption. If growth is taken to be per capita private consumption from the national accounts, the elasticity is approximately -2 .

⁴ Using more recent and more comparable data, Knowles (2001) finds significant negative effects of inequality on growth.

⁵ According to Ravallion (2001: 1810) a country with high inequality (with a Gini of say 60 percent) would be expected to have a growth elasticity of poverty of -1.2 . If the initial Gini were only 30 percent, the elasticity would be -2.1 .

‘These observations point to the importance of more micro, country-specific, research on the factors determining why some poor people are able to take up the opportunities afforded by an expanding economy—and so add to its expansion—while others are not. Individual endowments of physical and human capital have rightly been emphasized in past work, and suggest important links to policy. Other factors that may well be equally important have received less attention, such as location, social exclusion and exposure to uninsured risk.’ Ravallion (2001: 1813)

This monograph applies this advice to Africa by utilizing the much-improved data base in the region. It addresses three central questions:

- First, what does recent household survey evidence tell us about the evolution of overall poverty and inequality in Africa and its relation with economic growth (and stagnation)?
- Second, moving beyond the national averages, did particular population groups or geographical regions gain or lose from the episodes of reform-induced growth?
- Third, among the wide array of disparate events and factors affecting growth and poverty trends, which emerge as key in explaining changes in income distribution and poverty?

The monograph builds on the results of a series of *Poverty Dynamics* country studies⁶ which exploit household survey data in Africa covering the 1990s. It examines the main factors behind observed poverty trends by first taking a *macro-perspective*, linking the historical changes in income poverty in our sample countries to changes in economic environment—the macro-economic and sectoral policy frameworks, and the institutional settings. It then exploits the survey data to greater depth by taking a *micro-perspective*. This assesses how households (and poor households in particular) have been affected by the events of the 1990s, distinguishing between the effects of policies and of shocks. When available, household panel data have been used (Ethiopia and Uganda), though important insights were also obtained from repeated cross sections (Zimbabwe, Ghana, and Madagascar). We highlight the main insights emerging from this sample of micro-econometric country studies in Africa .

Considering that well-being is multifaceted, the paper begins with a review (in section II) of the changes that have occurred in income, education, nutrition and health. We first examine how these four different dimensions of well-being have evolved during the 1990s at the aggregate level. We then move beyond the aggregates and examine their evolution across income quintiles,

⁶ The selection of countries was based on the availability of comparable measures of consumption, and includes Ethiopia, Ghana, Madagascar, Mauritania, Nigeria, Uganda, Zambia, and Zimbabwe. The paper

focusing particularly on how welfare of the poorest groups fared. The section concludes by describing the evolution of overall income poverty and inequality, and its relation with economic growth. In the two subsequent sections we seek to explain the systematic changes in income distribution and poverty in Africa, taking both macro (Section III) and micro (Section IV) perspectives. Concluding observations are made in the final section.

II. Living standards during the 1990s

To set the scene, Table 1 reports four basic measures of well-being: private consumption, primary school enrollment, child malnutrition, and child mortality. The first and obvious point to note is that living standards are very low in these countries. By the close of the decade, no country enjoyed an annual per capita consumption in excess of \$500, and in Ethiopia it was just \$86. All countries fall far short of universal primary enrollment, and in some (for example, Ethiopia) primary enrollments are unacceptably low. Malnutrition is also a very serious problem, especially in Ethiopia and Madagascar. In Ethiopia, about two thirds of children exhibit signs of stunting or long-term malnutrition (defined as the percentage of children with low height for age compared with a reference population). Even in Ghana, Mauritania and Zimbabwe, there is evidence of stunting in about a quarter of the population under 5 years of age. Perhaps the most poignant indicator of the very low welfare levels of these countries is the incidence of child deaths. Under-age-five mortality exceeds 100 (per 1000) in all countries. In Zambia, almost one in five children fail to survive to their fifth birthday. Too many African children are dying needlessly.

also draws on an analysis of time series data from the Demographic and Health Surveys. References to these *Poverty Dynamics* studies are given in the bibliography.

Table 1: Evolving living standards in eight African countries during the 1990s

	Real private consumption per capita (constant 1995 US \$) ⁽¹⁾			Net Primary School Enrolment Rates ⁽²⁾			Child Malnutrition ⁽³⁾			Child Mortality ⁽⁴⁾		
	Year one	Year two	Annual growth rate (%)	Year one (%)	Year two (%)	Change (%) points	Year one (%)	Year two (%)	Change (%) points	Year one (per 1000)	Year two (per 1000)	Change (per 1000)
Positive growth:												
Ethiopia 1994-1997	80	86	2.6	19	25	+6	66	55	-11	190	175	-15
Ghana 1992-98	275	304	2.0	70	82	+12	26	26	0	119	104	-15
Mauritania 1987-95	297	361	3.6	28	41	+13	48	23	-25	-	149	-
Uganda 1992-97	211	258	4.7	68	86	+18	43	39	-4	165	162	-3
Stagnation or decline:												
Madagascar 1993-1999	223	222	0.0	48	64	+16	50	49	-1	170	149	-21
Nigeria 1992-96	206	173	-3.4	94	98	+4	38	-	-	136	147	11
Zambia 1991-98	362	266	-6.6	73	66	-7	40	42	+2	194	189	-5
Zimbabwe 1991-96	595	439	-5.2	83	86	+3	30	23	-7	77	108	31

⁽¹⁾ Growth rates calculated based on least squared method, which is less sensitive to the choice of base and terminal period.

⁽²⁾ Net enrolment rates = percentage of children of school age enrolled in primary school as a fraction of the total number of children in that age group. Figures obtained from the surveys analyzed in the Poverty Dynamics studies. First year figure for Ethiopia refers to 1996. Figures for Nigeria reflect gross enrollment rates in 1994 and 1996 and are obtained from World Development Indicators.

⁽³⁾ Child malnutrition defined as the percentage of children stunted, i.e. z-score of height for age which is less than -2; the reference periods for these figures approximate to those in column 1;

⁽⁴⁾ Child mortality under 5 (per 1000 live births); the reference periods approximate to those in column 1.

Source: World Bank data and country studies under *Dynamics of Poverty* study.

Second, there are differences in the *changes* in these indicators over time. In four countries economic living standards appear to have improved. But in Madagascar, average real consumption remained more or less unchanged, while it fell sharply in Nigeria, Zambia and Zimbabwe. Similarly, improvements in primary school enrollment in Ethiopia, Ghana, Mauritania and Uganda contrast with unsatisfactory outcomes in Zambia. Ethiopia and Mauritania experienced sharp reductions in long-term malnutrition, but there was little progress elsewhere. In all countries the long term downward trend in child mortality appears to have continued through the decade, except in Zimbabwe, a result probably related to the AIDS epidemic (among other factors), and in Nigeria. Also the 2000/1 round of the Uganda Demographic and Health Survey suggests that child mortality in Uganda has been unchanged (and possibly even increased) since 1995 (UDHS, 2001).

Third, the trends in the indicators are generally consistent with each other, though there are some important exceptions. In the four countries experiencing economic growth (Ethiopia, Ghana, Mauritania and Uganda) the trends in human development indicators match the improvement in economic well-being, albeit in different degrees.⁷ But in those experiencing stagnation and decline, the signals are noisier. In some cases the education indicator improved despite the stagnation or decline in economic living standards (Madagascar, Nigeria and Zimbabwe). Child mortality improved in Zambia and child malnutrition improved in Zimbabwe during episodes of deteriorating economic circumstance. Such outcomes (and the experience of Uganda after 1995) serve as a reminder that focusing only on one dimension of well-being can be misleading when tracking poverty dynamics over time (World Bank, 2000).

Inequality in human development

The indicators in Table 1 are averages for the population as a whole. We now review the *distribution* of these indicators across the populations, identifying especially changes in the welfare of poorer households. We begin with the human development indicators. Primary school enrollments are particularly low in Ethiopia (Table 2), and to a lesser extent in Mauritania. The poorest households in these countries typically do not enroll their children in primary schools. But there have been major strides in raising primary enrollments during the decade in Ghana, Madagascar, Mauritania, and Uganda. And where there have been education enrollment gains, they have included the poor. Only Zambia seems to have lost ground.

Table 2. Primary net enrollment rates by consumption quintile for seven African countries

Survey Year	Ethiopia		Ghana		Madagascar		Mauritania		Uganda		Zambia		Zimbabwe	
	1996	1997	1992	1998	1993	1999	1987	1995	1992	1997	1991	1998	1991	1996
Poorest quintile	15	17	54	70	29	53	19	25	54	80	57	50	78	81
Second quintile	15	24	69	81	43	65	25	41	63	87	67	62	82	85
Third quintile	18	27	73	86	59	64	29	49	69	88	75	69	84	87
Fourth quintile	21	28	77	87	60	68	32	50	75	87	82	75	86	89
Richest quintile	30	33	87	90	60	78	50	60	86	89	86	81	89	91
Q1/Q5	0.50	0.52	0.62	0.78	0.49	0.68	0.47	0.42	0.63	0.89	0.67	0.62	0.88	0.89

Source: Country studies under Dynamics of Poverty study (see bibliography).

Because income data were not collected in the Demographic and Health Surveys, Sahn et al. (1999, 2000a) constructed a proxy index for income based on assets and household amenities. This enabled them to examine trends in child health capabilities (survival and nutrition) by wealth

⁷ Though mortality levels seem to have plateaued in Uganda after 1995 (UDHS, 2001).

class. The poorest 20 percent of the populations appear to be the worst affected by the deterioration in pre-school child nutrition (Table 3). Stunting (measured by height-for-age) has deteriorated among the poorest in three countries (Ghana, Senegal and Tanzania) and improved in four (Madagascar, Uganda, Zambia and Zimbabwe). But short-run malnutrition, or wasting (measured by weight for height), has increased among the poorest quintiles of five countries (Ghana, Madagascar, Senegal, Uganda and Zimbabwe). In general, these data indicate a major problem of increased wasting during the 1990s including among the poor. This is not fully understood, and clearly calls for further investigation.

Table 3. Malnutrition by wealth quintile for eight African countries

Percent of children between 3 and 36 months of age with anthropometric z-score less than -2

Survey Year	Ghana		Madagascar		Senegal		Tanzania		Uganda		Zambia		Zimbabwe	
	1988	1993	1992	1997	1986	1992	1991	1996	1988	1995	1992	1997	1988	1994
Height for age:														
Poorest quintile	34	38	53	50	27	35	43	46	48	43	49	46	41	23
Second quintile	33	30	45	40	23	30	44	44	45	40	45	49	37	24
Third quintile	30	29	51	51	24	30	43	42	44	40	39	43	27	25
Fourth quintile	27	23	50	49	25	20	40	39	42	33	30	33	25	22
Richest quintile	21	17	44	46	13	14	26	28	27	25	27	27	12	12
<i>Q1/Q5</i>	<i>1.6</i>	<i>2.2</i>	<i>1.2</i>	<i>1.1</i>	<i>2.1</i>	<i>2.5</i>	<i>1.7</i>	<i>1.6</i>	<i>1.8</i>	<i>1.7</i>	<i>1.8</i>	<i>1.7</i>	<i>3.4</i>	<i>1.9</i>
Weight for height:														
Poorest quintile	7	16	6	10	7	15	9	8	2	6	7	5	1	5
Second quintile	9	10	8	7	4	14	7	10	4	7	7	7	2	4
Third quintile	8	15	7	7	7	12	5	9	4	7	5	6	1	5
Fourth quintile	8	10	4	5	8	12	6	9	0	4	6	5	1	6
Richest quintile	7	9	4	5	4	8	7	6	0	4	6	4	1	5
<i>Q1/Q5</i>	<i>1.0</i>	<i>1.8</i>	<i>1.5</i>	<i>2.0</i>	<i>1.8</i>	<i>1.9</i>	<i>1.3</i>	<i>1.3</i>	-	<i>1.5</i>	<i>1.2</i>	<i>1.3</i>	<i>1.0</i>	<i>1.0</i>

Source: Sahn et al. (1999).

Most countries have experienced declines in mortality among the poor, the exceptions being Kenya and Zambia (Table 4). The trends are not always uniform across wealth groups, with a widening of the mortality gap between rich and poor. The ratio of mortality levels among the poorest to the richest quintiles has increased in most cases—where mortality has been falling, it has fallen faster among the richest group. The exceptions are Zambia and Zimbabwe.

Table 4: Infant and under-age three mortality by asset index for nine African countries

For five-year cohorts of children born one and three years prior to the survey, respectively. Per 1000 births.

	Ghana		Kenya		Madagascar		Mali		Senegal		
Survey Year	1988	1993	1988	1993	1992	1997	1987	1995	1986	1992	1997
Cohort at risk	'83-'87	'88-'92	'83-'87	'88-'92	'87-'91	'92-'96	'82-'86	'90-'94	81-85	'87-'91	'92-'96
Infant mortality											
Poorest quintile	120	90	78	90	121	128	173	157	114	96	101
Third quintile	92	85	76	56	109	103	168	156	96	76	70
Richest quintile	74	48	55	45	88	73	102	98	81	38	47
Ratio Q1/Q5	1.6	1.9	1.4	2	1.4	1.8	1.7	1.6	1.4	2.5	2.1
Under-age-three mortality											
Poorest quintile	160	152	93	128	200	191	318	266	224	169	157
Third quintile	138	108	83	67	176	166	237	256	175	136	120
Richest quintile	113	80	60	54	135	85	184	148	114	60	66
Ratio Q1/Q5	1.4	1.9	1.6	2.4	1.5	2.2	1.7	1.8	2.0	2.8	2.4
<hr/>											
	Tanzania		Uganda		Zambia		Zimbabwe				
Survey Year	1991	1996	1988	1995	1992	1997	1988	1994			
Cohort at risk	'86-'90	'91-'95	'83-'87	'90-'94	'87-'91	'92-'96	'81-'87	'89-'93			
Infant mortality											
Poorest quintile	114	116	141	107	134	143	66	57			
Third quintile	97	89	115	100	129	101	69	54			
Richest quintile	76	66	103	73	72	103	37	39			
Ratio Q1/Q5	1.5	1.8	1.4	1.5	1.9	1.4	1.8	1.5			
Under-age-three mortality											
Poorest quintile	156	144	189	182	217	224	84	71			
Third quintile	152	138	184	168	187	184	92	70			
Richest quintile	127	91	158	100	103	147	36	53			
Ratio Q1/Q5	1.2	1.6	1.2	1.8	2.1	1.5	2.3	1.3			

Source: Sahn et al. (1999).

Income inequality

We turn now to income distribution, and to the issue of whether episodes of growth in the 1990s in Africa were associated with changes in income inequality. Increasing reliance on markets and the withdrawal of the state might be expected to increase income inequality (people with low levels of education, and limited access to public services and markets being less likely to take advantage of the opportunities growth presents). But on the other hand, the previous tendency for the state to tax agriculture and the rural sector heavily, and the removal of such state intervention, might result in improved national income distributions.

We present Gini coefficients, a popular measure of inequality⁸, to describe how income inequality evolved in our sample of countries (Table 5). All underlying ‘welfare’ measures⁹ are based on real total household expenditures.¹⁰ The surveys were designed to enable comparisons over time within a country, though due to different survey designs caution is warranted in making comparisons across countries. Nonetheless, the differences in the degree of income inequality in our sample of countries are striking. At one extreme, Zimbabwe has a highly unequal distribution (a Gini ratio of over 0.6),¹¹ reflecting unequal land distribution, a result in part of its colonial history. Income distributions in Ghana and Uganda, are far more egalitarian.

In terms of evolution, the picture is one of very little change in *overall* income inequality in these countries, except in Zambia. Reforms and growth have clearly not led to a significant deterioration in consumption inequality, as popular belief would hold (Forsyth, 2000). Nevertheless, these aggregate measures of inequality can be misleading. They may in fact mask a great deal of distributional change, an issue we review further in section IV below.

⁸ Recall that the Gini ratio varies from 0 (perfect income equality) to 1 (perfect inequality). The higher the value, the greater the inequality.

⁹ While most welfare measures are based on expenditures, we use the terms ‘income’ and ‘consumption’ interchangeably. For most countries, expenditure is normalized on the number of ‘equivalent’ adults in the household. In Urban Ethiopia Nigeria and Madagascar, the welfare measure is real household expenditure *per capita*.

¹⁰The only exception being Rural Ethiopia (1989-95) where the welfare measure used is real household food consumption expenditure.

¹¹ Intuitively, the Gini index of a population represents the expected income difference between two randomly selected individuals or households. From Table 1 we know that in Zimbabwe real average per capita consumption in 1996 amounted to US\$439. The corresponding Gini index is 0.64 (Table 5). Thus, in 1996 the per capita consumption of any two randomly selected Zimbabweans differed on average by US\$281 (= 0.64*US\$439)—a clear indication of high inequality given that average per capita consumption is only US\$439.

Table 5: Consumption inequality⁽¹⁾ during the 1990s in eight African countries

Gini coefficient	Year 1	Year 2	Change
Ethiopia ⁽²⁾			
1994-1997 (rural)	0.43	0.42	-0.01
1994-1997 (urban)	0.44	0.48	0.04
Ghana 1992-98			
Rural	0.34	0.37	0.03
Urban	0.34	0.35	0.01
All	0.37	0.39	0.02
Madagascar 1993-99			
Rural	0.42	0.36	-0.06
Urban	0.41	0.38	-0.03
All	0.43	0.38	-0.05
Mauritania 1987-95			
Rural	0.43	0.37	-0.06
Urban	0.40	0.36	-0.04
All	0.43	0.39	-0.04
Nigeria 1992-96			
Rural	0.51	0.44	-0.07
Urban	0.51	0.51	0.00
All	0.51	0.47	-0.04
Uganda 1992-2000			
Rural	0.33	0.32	-0.01
Urban	0.39	0.40	0.01
All	0.36	0.38	0.02
Zambia 1991-98			
Rural	0.61	0.48	-0.13
Urban	0.47	0.43	-0.04
All	0.58	0.48	-0.10
Zimbabwe 1991-96			
Rural	0.58	0.57	-0.01
Urban	0.60	0.59	-0.01
All	0.68	0.64	-0.04

⁽¹⁾ Real expenditures per adult equivalent – real per capita expenditures for urban Ethiopia., Nigeria and Madagascar.

⁽²⁾ Purposively sampled villages and urban centers; not nationally representative.

Source: Country Studies under Dynamics of Poverty study.

Trends in poverty during the 1990s

If growth episodes were not associated with significant changes in inequality, did they lead to poverty reduction? Table 6 reports poverty estimates for the countries covered by the *Poverty Dynamics* study. As with the inequality measures, real household consumption per adult equivalent (or in some cases, per capita) is taken as the central economic welfare measure. Poverty lines in all cases (except Mauritania) are derived from a food consumption basket, estimated to yield a minimum caloric intake, with adjustments made for essential non-food consumption. These poverty lines are typically much higher than the Purchasing Power Parity

\$1/day poverty line. The average poverty incidence in 24 spells of poverty change in African countries analyzed by Ravallion (2001) was 31 percent (based on the \$1/day line). This compares with (unweighted) average headcounts of 58 percent in our sample of nine spells. The country-based poverty lines in our countries are, therefore significantly higher than the PPP\$1/day benchmark. Because of differences in survey design and in the specifics of how the welfare measure and poverty lines are derived, the data in Table 6 are not comparable across countries. But the research has been designed to ensure comparable estimates over time.

Table 6: Consumption poverty in eight African countries during in the 1990s

	<i>Poverty headcount (P_0)</i>			<i>Severity index (P_2)</i>		
	<i>Year1</i>	<i>Year2</i>	<i>Percentage change</i>	<i>Year1</i>	<i>Year2</i>	<i>Percentage change</i>
	Percent					
Ethiopia ¹⁾						
1989-1995 (rural)	61	51	-16	17	12	-29
1994-1997 (rural)	39	29	-26	8	6	-25
1994-1997 (urban)	39	36	-8			
Ghana						
1992-1998	51	39	-24	9	7	-22
Madagascar						
1993-97	70	73	5	17	19	12
1997-99	73	71	-3	19	19	0
Mauritania						
1987-1995	58	35	-40	17	6	-65
Nigeria						
1985-92	46	43	-7	8	9	13
1992-96	43	66	53	9	17	89
Uganda						
1992-1997	56	44	-21	10	6	-40
1997-2000	44	35	-20	6	5	-16
Zambia						
1991-1996	69	80	14	30	31	1
1996-1998	80	76	-5	31	26	-16
Zimbabwe						
1991-1996	26	35	35	4	5	25

1) The two rural samples are different and not comparable. They are based respectively on six and fifteen purposively sampled rural villages for 1989-1995 and 1994-1997; urban figures are based on per capita household expenditures in seven large towns including Addis Ababa and Dire Dawa; not nationally representative

Source: World Bank data and country studies under *Dynamics of Poverty* study

The poverty measures we report here are derived from the familiar class of poverty indices after Foster, Greer and Thorbecke (1984). The general formula for these poverty measures is:

$$P_a = \frac{1}{n} \sum_{i=1}^q \left(\frac{z - y_i}{z} \right)^a \quad a \geq 0 \quad (1)$$

where n is the total population, q the number of poor people, y_i the income (consumption) of individual i , z the poverty line, and α a ‘poverty aversion’ parameter. The larger is α , the greater weight is placed on the very poorest people. If $\alpha = 0$, equation (1) becomes simply q/n , which is the *head-count ratio*, or the incidence of poverty. Estimates of the *headcount* (P_0) are reported in the first data panel of Table 6. Setting $\alpha=2$ involves taking the square of the proportionate poverty gap. This measure (P_2) is given in the second panel in Table 6, and is sometimes known as the *severity index*. We report this index because it is sensitive to the distribution of income *among* the poor. It is particularly sensitive to changes in the living standards of the poorest of the poor. The data suggest the following:

- Most countries can be considered as having to deal with ‘mass’ poverty. Over 70 percent were estimated to be poor in Madagascar and Zambia. And 66 percent of Nigerians were estimated to be poor in 1996.
- There is no uniform trend. While consumption poverty incidence declined substantially in several countries (Ethiopia, Ghana, Mauritania and Uganda), it rose sharply in Nigeria and Zimbabwe. Poverty has fluctuated in Zambia and Madagascar, increasing marginally in the former and remaining more or less unchanged in the latter.
- Where the incidence of poverty has declined, the data suggest that the poorest sections of the population (in Lipton’s phrase, the ‘poorest of the poor’) have also benefited. This is suggested by the significant downward trend in the severity index (P_2). In several cases the percentage fall in the P_2 measure was greater than that in P_0 .

Poverty, inequality and economic growth

In some cases these changes in poverty occurred in a context of economic decline (Nigeria and Zimbabwe, and Madagascar and Zambia during the earlier periods). In others they accompanied overall economic progress (Ethiopia, Ghana, Mauritania and Uganda). To shed more light on the relation between poverty, inequality and growth, Table 7 presents a decomposition of poverty incidence into two components: changes explained by changes in mean consumption (keeping the *distribution* of consumption unchanged); and changes arising from changing consumption distribution (with the mean kept constant). The poverty measure that is decomposed in the table is the elasticity of headcount poverty with respect to changes in mean household expenditure.¹²

¹² This is defined as the proportionate change in headcount poverty divided by the proportionate change in mean per capita household expenditure. For details of the method used see Kakwani and Pernia (2000).

Overall, changes in poverty incidence are due predominantly to changes in mean expenditure (Table 7). Where there has been economic growth, both mean and redistribution effects have the same sign, and have combined to reduce poverty (in Ghana, Mauritania and Uganda). But the mean effect largely dominates the redistribution effect. In contrast, where there has been recession, mean and redistribution effects typically have opposite signs, and the redistribution effect substantially mitigates the poverty increasing impact of lower mean incomes (Madagascar, Nigeria and Zimbabwe). Better-off groups clearly bear a heavier burden of income losses during periods of economic decline in Africa.¹³

Table 7: Relative importance of mean and distribution in the evolution of poverty incidence

	Percentage change in mean per capita expenditure	Percentage change in poverty headcount	Poverty Elasticity wrt mean expenditure	Explained by changes in:*	
				Mean	Distribution
Ghana					
1992-1998	23.7	-23.5	-0.99	-0.93	-0.06
Madagascar					
1993-1997	-17.5	4.7	-0.27	-0.77	0.50
1997-1999	0.6	-2.7	-4.51	-0.79	-3.72
Mauritania					
1987-1995	49.5	-39.7	-0.82	-0.74	-0.07
Nigeria					
1992-1996	-41.1	53.6	-1.30	-1.33	0.02
Uganda					
1992-1997	17.1	-21.4	-1.21	-1.07	-0.15
Zambia					
1991-1996	-25.7	14.5	-0.56	-0.56	0.00
1996-1998	13.2	-4.6	-0.35	-0.43	0.08
Zimbabwe					
1991-1996	-28.8	34.6	-1.23	-2.22	0.99

* Decompositions based on Kakwani and Pernia (2000);

Source: World Bank data and country studies under *Dynamics of Poverty* study.

To assess further the extent to which these episodes of growth and recession are ‘pro-poor’ we follow Kakwani and Pernia (2000) in defining,

$$f = \frac{h}{h_g}$$

where h is the *observed* elasticity of headcount poverty with respect to changes in mean expenditure, and h_g is the elasticity of headcount poverty assuming the distribution of income did not change during the period. f can be defined as an index of ‘pro-poor growth.’ Growth can be

considered pro-poor if $\phi > 1$.¹⁴ Table 8 compares estimates of f for these seven African countries with recent experience in Asia. On the basis of this sample of countries, growth and recession episodes in Africa have tended to be pro-poor, and indeed more so than the Asian experience.

Table 8: Pro-poor growth indices (f) in selected African and Asian countries

<i>Growth episodes:</i>			
Ghana, 1992-1998	1.07	Thailand, 1992-1996	0.61
Mauritania, 1987-1995	1.10	Lao PDR, 1993-1998	0.21
Uganda, 1992-1997	1.14	Korea, 1990-1996	1.03
Zambia 1996-1998	0.82		
<i>Recession/stagnation episodes:</i>			
Madagascar, 1993-1997	2.85	Thailand, 1996-98	0.73
Nigeria, 1992-1996	1.02	Korea, 1997-1998	0.84
Zambia 1991-1996	1.00		
Zimbabwe, 1991-1996	1.81		

For details of method see text.

Asian country estimates are simple means across years within the sub-periods shown.

Sources: Table 7; Kakwani and Pemia (2000).

Taking all nine spells of poverty change in our sample of African countries, we obtain a growth elasticity of poverty incidence of just -0.93 (Figure 1).¹⁵ While growth is ‘pro-poor’, its quantitative impact on the headcount is limited in this sample. This is due to the shape of the base year distributions, since in most cases initial Ginis are low, and the distributions do not change significantly. It is a reflection of the depth of poverty—large numbers are subsisting well below the poverty line (and poverty lines are set well above modal consumption). The growth elasticity of the severity index (P_2), at -1.42 (with a standard error of 0.35) is higher, indicating

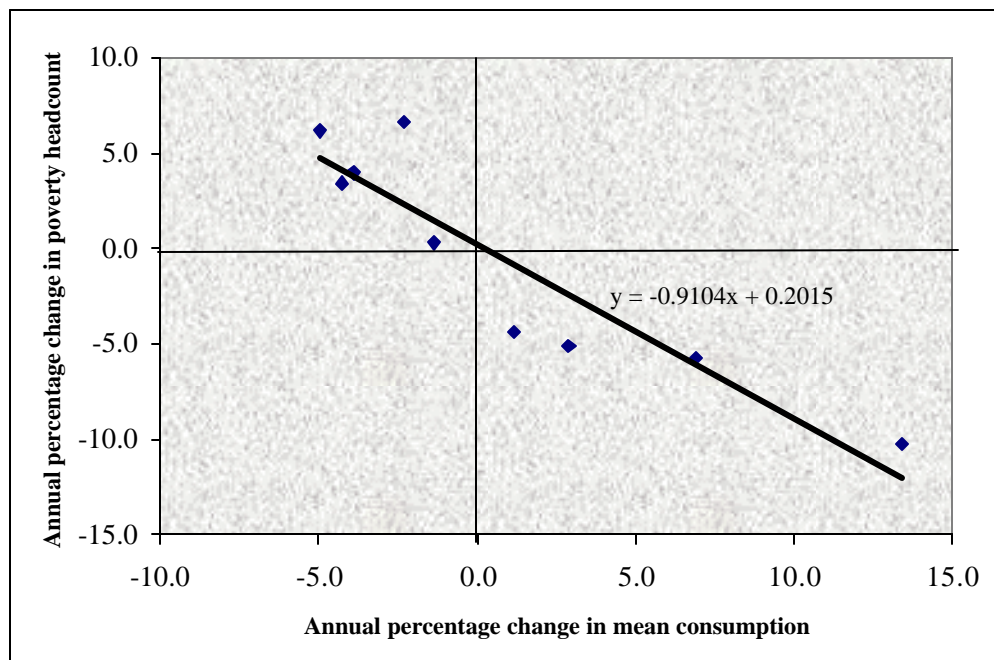
¹³ The tendency for income inequality to narrow as higher income groups bear the brunt of economic recession was also noted by Grootaert (1996) in analyzing poverty changes in Côte d'Ivoire in the 1980s. Though this does not seem to have occurred in Zambia during 1991-1996.

¹⁴ When mean household expenditures are declining, $\phi = \eta_g / \eta$, so that a recession would also be considered pro-poor if $\phi > 1$.

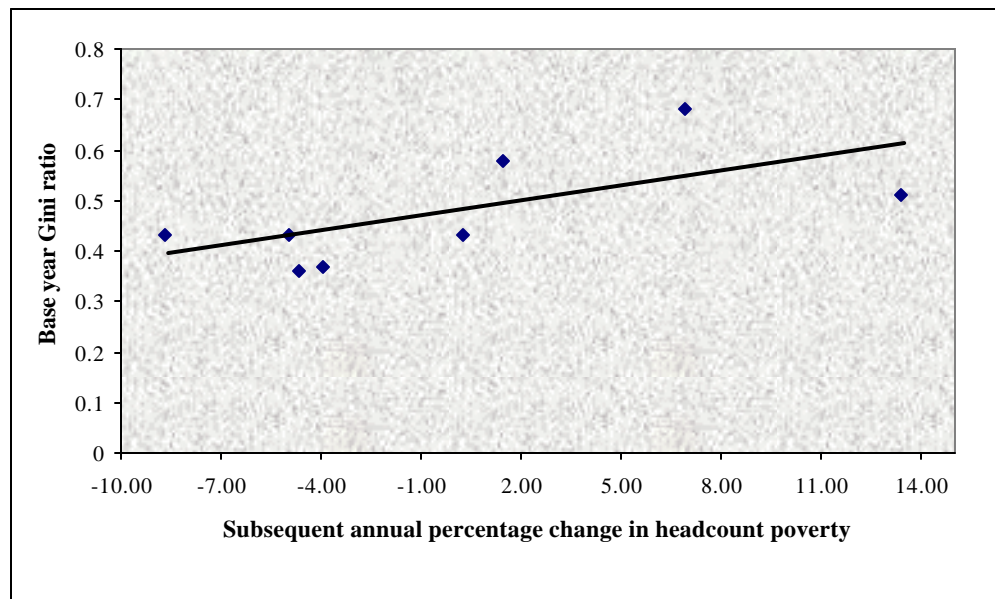
¹⁵ This is simply the slope coefficient in the regression of the proportionate change in headcount poverty on the proportionate change in the survey mean. The standard error on the slope coefficient is 0.18. Note that the regression line in Figure 1 runs almost through the origin, a reflection of the fact that income inequality has been stable over this period. The historical elasticities we observe for this sample of African countries are significantly lower than that estimated by Ravallion (2001) to be typical of low-income countries (-2.5). Given the different poverty lines used (he uses the much lower benchmark of PPP\$1/day) and the different method of computation, his estimates are not comparable with ours.

that growth has improved the economic wellbeing of the poorest, though not enough to take them out of poverty.

Figure 1: Relationship between changes in poverty and mean expenditure



As discussed above, countries with lower initial inequality typically grow more rapidly in subsequent years, and experience greater poverty impact from that growth. The experience of this (albeit small) sample of African countries is consistent with this view (Figure 2). The countries that had lower levels of initial inequality (as evidenced by the Gini ratios), were more likely to experience declines in poverty in subsequent years. That said, it is worth noting that the three countries with identical initial year Gini ratios (of 0.43)—Ethiopia, Mauritania, and Madagascar—experienced subsequent annual poverty changes of (respectively) -8.7, -5.0, and +0.2 percent. While the pattern across countries suggests that higher levels of inequality are associated with lower subsequent growth and poverty reduction, there is sufficient variation around this empirical regularity to counsel caution.

Figure 2: Initial inequality and subsequent poverty trends

III. Growth and systematic changes in income distribution: a macro perspective

Our review of the evidence so far suggests that growth has been pro-poor in these African countries. These changes have occurred during an era of economic policy reform, institutional change and profound internal and external shocks, such as droughts, disease, and fluctuating commodity prices. These events have effects at all levels—they influence the growth rate of the economy at large, they affect the functioning of markets and of government, they change village and community life, and they impinge directly on the lives of households and individuals. Understanding how these changes have influenced poverty outcomes, therefore, calls for knowledge at both the macro (economy-wide) and micro (household/individual) levels. And this is the approach we take here. We first assess how macro changes (in economic and institutional environments) have affected poverty outcomes. This provides the context in which we then review (in section IV) the microeconomic evidence linking poverty outcomes to policies and shocks.

Macro-economic reforms and poverty trends

We begin by reviewing the relationship between macroeconomic policy reforms and income poverty. To do so, we elaborate and update the analysis of Demery and Squire (1997) who

examined the empirical association between improvements in macroeconomic balances and poverty reduction based on data of the late 1980s and the early 1990s. With better comparable household data now available (including emerging panel data), and with another decade of economic reform in many countries, we are in a good position to revisit this issue.¹⁷

Following Bouton et al. (1994) we calculate a macroeconomic policy index or score, based on changes in three key elements of sound macroeconomic policy: fiscal, monetary, and exchange rate policy. The overall macro-policy score is a weighted average of these components, the weights being derived from international cross section growth regressions. These scores are computed for the three-year period prior to each survey, and changes in the index are then compared. The index is so computed that increases in the score (either lower negative values or higher positive values) indicate an *improvement* in economic policy (Table 9). Details of the changes in the different policy instrument indicators, and the computations made in deriving the macro-policy score are given in Annex Table A3.

Table 9: Changes in macro-economic policy scores, selected countries.

	<i>Change during:</i>	<i>Fiscal policy</i>	<i>Monetary policy</i>	<i>Exchange rate policy</i>	<i>Average Score</i>	
					<i>Unweighted</i>	<i>Weighted</i>
Côte d'Ivoire	1985-88	-3	1	-1	-1.0	-1.5
Ethiopia	1989-95	-1	0.5	2.5	0.7	1.0
	1994-97	2	1.5	2.5	2.0	2.2
Ghana	1988-92	-1	1.5	2	0.8	0.8
	1992-98	0	-0.5	0.5	0.0	0.2
Madagascar	1993-97	0.0	-0.5	0.0	-0.2	-0.1
	1997-99	1.0	1.0	0.0	0.7	0.5
Mauritania	1987-95	3	0.5	2.5	2.0	2.4
Nigeria	1985-92	1	-0.5	3	1.2	1.9
	1992-96	1	-1	-2.5	-0.8	-1.0
Uganda	1992-97	2	1.5	-0.5	1.0	0.7
	1997-00	0	0.5	0.5	0.3	0.3
Zambia	1991-96	1	2	2	1.7	1.6
	1996-98	1	1	-1	0.3	0.0
Zimbabwe	1991-96	-1	-0.5	1.5	0.0	0.3

Sources: Demery and Squire (1997); authors' computations from World Bank data (see Annex Table A1).

Given weaknesses in the underlying survey data, we prefer not to retain two countries included in the original Demery and Squire piece (Tanzania and Kenya). For Ethiopia, Ghana and Nigeria,

¹⁶ The data used in many previous assessments were often of doubtful quality and given the lags involved in implementing the reforms, the 1990s might be a more appropriate decade to examine the growth path induced by economic policy reforms in Africa (Collier and Gunning, 1999, 101).

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we update the estimates by introducing trends in the 1990s. Finally, we add the cases of Madagascar, Mauritania, Uganda, Zambia and Zimbabwe, giving altogether a coverage of fifteen episodes of change in nine countries. Most countries experienced improvements in their macroeconomic policy indicators? those for the second period (i.e. the three-year period prior to the second survey) being generally better than those of the earlier period (the three years prior to the first survey). But there were only marginal improvements in Ghana (1992-98) and Zimbabwe (1991-96), and no change in Zambia during 1996-98. Macroeconomic destabilization is observed in two countries? Côte d'Ivoire during the 1980s, and Nigeria in the 1990s.

Setting these against the trends in poverty reduction (Figure 3) confirms that countries achieving improvements in their macroeconomic balances in Africa typically have not experienced (in the aggregate at least) increases in consumption poverty—rather the reverse.¹⁸ Nine of the fifteen episodes of change for which we have data indicate both macroeconomic policy improvement and subsequent poverty reduction. In the two cases where macroeconomic balances substantially deteriorated, poverty is indicated to have increased sharply. Only two of the fifteen observations (Zimbabwe, 1991-96, and Zambia, 1991-96) are in the ‘wrong’ quadrant in Figure 3 (improved macroeconomic policy and increased poverty).

The *association* between the macro-policy stance and poverty reduction does not necessarily imply any causative or direct behavioral link.¹⁹ Rather this evidence serves to highlight the close interactions between macroeconomic policies and economic well-being at the household level. An important feature missing from this analysis is any measure of policy persistence and consistency.²⁰ Collier and Gunning (1999) argue that the slow investment response to the reforms in part derives from a fear of policy reversals. Countries with a longer history of consistent policies (Ethiopia, Ghana, Mauritania and Uganda in our sample)²¹ are more likely to experience growth and poverty reduction dividends from the reforms. And the macro analysis is partial in another respect—the changes in the macroeconomic accounts took place alongside other reforms—mostly of a ‘structural’ nature (trade liberalization, agricultural marketing reforms,

¹⁸ Ali (1998) gets quite different results, with reforms being associated with increasing poverty. This is probably due to the different poverty data sets he uses (derived from IFAD data). Our concern here has been to use only data where careful attention has been paid to over time comparability. Without further information about Ali’s data, it is difficult to establish the specific reasons for the differences in results.

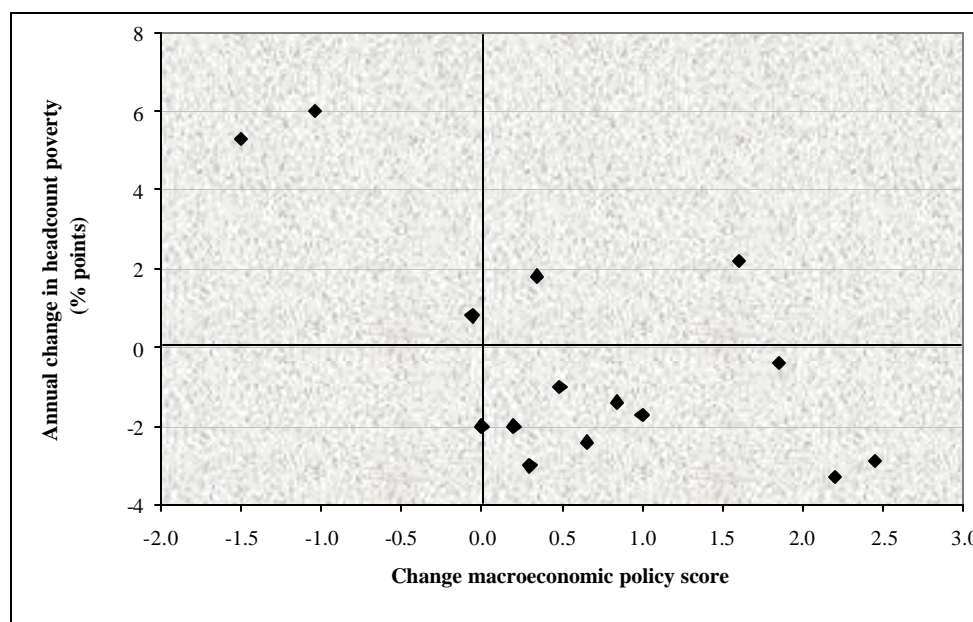
¹⁹ Both poverty changes and macro-policy scores might be favorably affected by a third factor, movements in the terms of trade, for example.

²⁰ Although we track and compare three-year averages of the macropolicy stance, we do so only for the two periods prescribed by the available household surveys.

²¹ These countries are described by Collier and Gunning (1999: 102) as ‘providing at least modest levels of social order, macroeconomic order and resource allocation.’

privatization, and so on)—and changing institutional environments. Both the institutional environment and the sectoral reforms are certain to be important as well, as is illustrated by the fact that quite similar poverty reductions occurred among some of the countries despite quite different changes in their macro-economic indicators (see south-east quadrant in Figure 3).

Figure 3: Macroeconomic policy reform and poverty trends



Institutional change and poverty trends

There is an accumulation of convincing empirical evidence pointing to the importance of political stability and good governance for growth and poverty reduction (Alesina and Perotti, 1994; Knack and Anderson, 1995; Collier, 1999; Collier and Gunning, 1999; World Bank, 2000). While the construction and consolidation of good indicators of political stability and good governance remain work in progress, the composite political risk index of the International Country Risk Guide (ICRG), and subsets thereof, have been frequently used by researchers to examine the effect of governance and institutional quality on growth and poverty. The composite index consists of twelve components covering different aspects of political stability (for example, government stability, internal conflict, external conflict), governance and institutional quality (for example, corruption, democratic accountability, bureaucracy quality). The key advantage of the

²² Both poverty changes and macro-policy scores might be favorably affected by a third factor, movements in the terms of trade, for example.

ICRG index is its broad coverage across countries and over time (1985 to current).²³ Evaluations of the different aspects of the index are provided by a private consultancy.

We find an improvement in the political risk score during all episodes of poverty change covered by the *Poverty Dynamics* study.²⁴ In Ethiopia (1989-95) the improvement followed largely from reduced risk of internal and external conflict following peace agreements with Eritrea. Better overall governance (as captured by the corruption, law and order, democratic accountability and bureaucratic quality indices), as well as greater government stability and reduced risk of internal conflicts drove progress in institutional quality in Ghana (1992-98) and Uganda (1992-97). Increased government stability was responsible for the change in Madagascar. And in Zimbabwe (1991-96) the improvement followed from reduced risk of an external conflict, a result of the end of the Cold War and the peace process in neighboring Mozambique. Greater external security is also an important factor in explaining the large improvement in the political risk score in Zambia, in addition to the substantial progress in internal political stability and security (law and order) following the peaceful handover of power by Kenneth Kaunda in 1991 after 27 years of autocratic rule.

Plotting the changes in the average annual political risk scores of the survey years of our countries against annual changes in the observed poverty incidence (Figure 4) suggests that improvements in political stability and governance are generally associated with reductions in poverty, though experiences vary across countries.²⁵ In nine out of the thirteen episodes these improvements were accompanied by poverty reduction. In one episode we observe a modest increase in poverty (Madagascar during 1993-97), while in the three other cases (Nigeria, Zambia during 1991-96, and Zimbabwe) the poverty increase was more pronounced. In Nigeria the

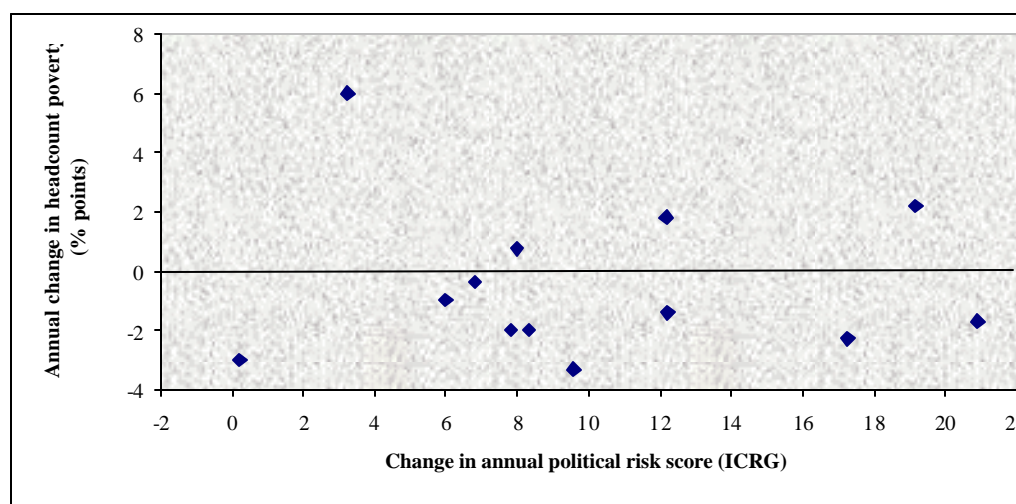
²³ The different components of the ICRG political risk index (maximum scores in brackets) are government stability (12), socio-economic conditions (12), investment profile (12), internal conflict (12), external conflict (12), corruption (12), military in politics (6), religion in politics (6), law and order (6), ethnic tensions (6), democratic accountability (6), bureaucracy quality (4). The maximum score is 100 with a political risk score below 49.9 indicating very high risk; a score between 50 and 59.9 high risk; 60 to 69.9 moderate risk; 70 to 79.9 low risk; and 80 or more very low risk. Similarly, a score of 49.9 percent or below on an individual risk component, would imply that the component can be considered as very high risk, a score in 50 to 59.9 percent range as high risk, and so on. For a detailed description of the ICRG rating system we refer to <http://www.icrgonline.com/icrgMethods.asp>.

²⁴ In all, thirteen episodes of institutional change were examined. Political risk scores for our survey periods were not available for Mauritania and Côte d'Ivoire.

²⁵ Using two year averages of the survey year and the year prior to the survey year to account for lags in the effect of institutional change on poverty does not change the results. Our findings are also robust to the use of a subset of the political risk indicator focusing on indicators of political stability (government stability, internal conflict, external conflict) and governance (corruption, law and order, democratic accountability and bureaucratic quality).

recorded improvement in the institutional environment was marginal (3.3 points) and was in all likelihood swamped by the adverse effects of the macroeconomic deterioration in the 1991-96 period. The other exceptions, Zambia and Zimbabwe, are more of a puzzle. The macroeconomic balances also improved during this 1991-96 episode of poverty increase (be it only modestly in Zimbabwe). So where did things go wrong? The answer to this cannot be provided here, but the very high initial inequality both in Zambia and Zimbabwe was a particularly serious challenge for growth and poverty reduction during the decade. Also, both countries experienced severe droughts in 1994, followed by mediocre rainfall in 1995, leaving households under considerable stress. This compares with above average rainfall in 1990, the year preceding the first survey. We discuss the Zimbabwe episode of poverty increase and the role of rainfall shocks in further detail below.

Figure 4: Change in political stability and governance and poverty trends



While our measures of political stability and the quality of governance are admittedly crude, these findings would support the general observation that increased political stability and improved governance go hand in hand with poverty reduction. Nevertheless, many difficult questions remain to be resolved. Which of the different components of institutional change (for example, political, economic, civil rights or social stability), have had the most significant impact? And what is the direction of causality and the channels through which institutional improvements and poverty reduction may affect each other (Aron, 2000)? These fall beyond the scope of this study.

IV. Growth and systematic changes in income distribution: a micro-perspective

The evidence from the African experience covered in this study indicates that growth (and recession) have been pro-poor. Yet, this conclusion must be qualified—it is true only in an aggregate sense. Further decomposition of national inequality and poverty measures—by geographical location and socio-economic group—indicates that the aggregate statistics often mask a wide variety of experience. Some groups and regions gained disproportionately from the newly created opportunities following economic reforms, while others lost out or even became impoverished. Similarly, overall Gini coefficients often appear stable over time despite substantial churning within and across geographical regions as illustrated by the experience in Ghana (discussed below). This suggests that the positive association between improved macro-environments and poverty reduction is conditioned by other factors such as location and infrastructure, households' private and public endowments, and the occurrence of shocks.

To disentangle the effects of these disparate events and factors on the different sections of African society it is tempting to use economy-wide modeling techniques. These can generate counterfactuals and provide insights into the respective impacts of policies and other shocks. Much of the serious work to date on policy reform and poverty in Africa has relied on such modeling approaches (Bourguignon and Morrison, 1992; Sahn et al., 1997). Yet, despite their advantages, these approaches also have a number of important limitations. The models typically impose a strong structure which sometimes leads to questions about their realism. They are most often calibrated at one point in time. As a result, they cannot always confidently track changes over time—the economic history. Indeed, such history usually involves policy-induced structural changes in the economy that are not captured in such experiments.

Exploiting different experiences across households, this section places emphasis instead on the micro-econometric evidence emerging from the much improved and richer household survey data sets. We begin by highlighting two *Poverty Dynamics* panel studies—Dercon (2002) on Ethiopia, and Deininger and Okidi (2001) on Uganda. Focusing on the factors they highlight as key for economic growth and poverty reduction, we then assess the evidence from the other case studies which use either repeated cross sectional regressions (Zimbabwe, Madagascar, Ghana) or simply an extensively documented narrative linking the macro-events to the observed evolutions in household welfare (Zambia and Mauritania).

The Ethiopia and Uganda studies are particularly informative for two reasons. First, both involve the use of panel data, which track changes in the living standards of the same households over much of the 1990s. Although not identical, both the methodologies they adopt and their results are similar. Second, both countries experienced far-reaching reforms in economic policy, inducing changes in market institutions, relative prices and producer behavior. The rural sector in Ethiopia had previously been largely ignored and heavily taxed. Yet, in the early 1990s agricultural reforms were initiated including the abolition of food delivery quota for farmers, and a relaxation (and later abolition) of restrictions on private grain trades. These measures substantially reduced the food marketing margins between surplus and deficit regions. The Birr was devalued by 142 percent and the foreign exchange markets were liberalized. This positively affected the farm-gate prices of tradeables, such as coffee and chat, though the effect was somewhat muted due to the existence of parallel markets. Producer prices for coffee evolved favorably during the period, partly because of an increase in the world price.

Uganda's rural sector lost considerable ground during the period up to 1985. Adversely affected by state intervention, civil strife and agricultural price disincentives (through overvalued exchange rates and the implicit taxation of state marketing boards), rural producers retreated into subsistence. The production of cotton, tea and coffee suffered accordingly. From the late 1980s on, government policy changed, dismantling the biases against rural producers. Coffee marketing and exports were liberalized, and direct export taxation was abandoned. Similar measures were taken in the cotton sector. The foreign exchange market was liberalized, leading to real exchange rate depreciation. The weighted real producer price of export crops in Uganda (77 percent of which are coffee) increased by 78 percent between 1989-91 and 1995-97. Decomposition of this increase indicates that changes in the nominal protection coefficient (producer price/border price), changes in the real exchange rate, and changes in the real world price contributed respectively 58, 9 and 11 percent (Townsend, 1999). Over the past decade, agricultural output has recovered, averaging between 4 to 4.5 percent per annum in real terms. And this growth has played an important role in reducing poverty (Appleton et al., 1999).

In sum, economic policy reforms in both Ethiopia and Uganda had significant effects on agricultural markets and the prices farmers received for both food and export crops. At the same time, however, the period witnessed other changes, including rainfall variation. Both Dercon (2002) and Deininger and Okidi (2001) use the panel data to assess how these different changes affected household incomes and consumption, and rural poverty.

Dercon (2002) uses panel data from six *rural* communities²⁶ in Ethiopia covering the period 1989 to 1995. The change in household real consumption per adult is explained through a reduced form regression model with an Oaxaca-Blinder type decomposition. In this approach changes in consumption and poverty can be explained by changes in endowments over time and changes in returns to endowments. The main regressors were changes in real crop producer prices (which Dercon shows to be closely related to the macro-economic and agricultural reforms that were implemented during the period), location (proxied by distance to an urban center), access to roads, private endowments (land, labor and education), and two shock variables, rainfall and ill health. His results are summarized in Table 10.

Table 10: Ethiopia, decomposition of consumption growth per adult and poverty gap ratio (percentage points)

	<i>Actual</i>		<i>Counterfactual: No reform & peace</i>		<i>Counterfactual: No risk</i>	
	<i>Growth</i>	<i>Poverty</i>	<i>Growth</i>	<i>Poverty</i>	<i>Growth</i>	<i>Poverty</i>
<i>Real crop price change</i>	15	-18			15	-16
<i>Change in returns to road access/location</i>	19	-23			19	-21
<i>Private endowments</i>						
Increase in land	7	-10	1	-2	7	-8
Change in returns to land	3	0			3	-1
Increases in adult labor	3	-4	3	-4	3	-4
Changes in returns to educated adults	0	0			0	0
Change in adult equivalent units	-5	7	-5	7	-5	7
<i>Shocks</i>						
Relative rainfall shock	-8	13	-8	14		
Illness shocks	-4	5	-4	5		
Residual	0	0	0	3	0	0
Percentage growth and percentage point poverty change (sum of above)	32	-29	-13	23	42	-44

Source: Dercon (2002)

²⁶ Because the study is not nationally representative, the results cannot be generalized to Ethiopia as a whole. Nonetheless, the methodology used and the empirical findings provide important insights in the linkages between economic policy, growth and poverty reduction.

²⁷ These reflect mainly changes in food crop prices. Coffee prices also improved, yet it was grown in only one of the six sampled villages, and the coffee harvest had failed that year in that particular village because of a pest attack and drought. The effect of changing export crop prices cannot be evaluated from this sample, but its importance has been assessed explicitly in the Uganda case study described below.

²⁸ Dercon (1995) shows that the cereal marketing margins mainly improved because of the liberalization of the grain markets and only on some routes did the end of the war have a significant effect.

²⁹ Adult education levels are extremely low, less than 1 year per adult, and they are assumed not to have changed. The effect of education as such, as opposed to changes in returns to education, has thus not been evaluated in this study.

³⁰ As the direct effect of changing producer prices has been controlled for, changes in returns to land result from other factors such as shifts in the underlying production technology potentially induced by the reforms.

Household consumption increased on average by 32 percent between 1989 and 1995, and poverty—here defined as poverty gap in logs—decreased by 29 percentage points. The growth in rural household incomes has been largely fueled by changes in relative crop prices³¹ and increased returns to location and access to road infrastructure. This is clearly illustrated by Dercon's simulations which show that consumption would have *declined* by 13 percent and poverty would have *increased* by 23 percent had there been no peace and no economic and agricultural reforms.³² Interestingly, all poor households (even those who fell into poverty) benefited from the relative price changes that occurred. But those who escaped poverty benefited most. These findings suggest that the reforms and increased political stability substantially improved well-being of the poor, both directly through a favorable change in relative prices, and indirectly through an increase in the returns to market connectedness as determined by road infrastructure and distance to urban centers.

In addition to public endowments, such as road infrastructure and location, private endowments are also found to be important for consumption growth and poverty reduction. Increases in land holdings (through redistribution) or improvement in the quality of the land owned, and increases in adult labor reduced poverty by 14 percentage points.³⁵ Returns to land also increased,³⁶ but because the poor typically possess little (and often less fertile) land, they profited much less than the average household from the increased returns to land. Finally, the occurrence of shocks (especially rainfall, but also illness shocks) had a large negative effect both on the growth process and poverty outcomes. If households had had access to full insurance protection from rainfall and health shocks, poverty would have declined by 42 percentage points compared with 29 percentage points in its absence. Dercon shows that the reason why households fell into poverty

³¹ These reflect mainly changes in food crop prices. Coffee prices also improved, yet it was grown in only one of the six sampled villages, and the coffee harvest had failed that year in that particular village because of a pest attack and drought. The effect of changing export crop prices cannot be evaluated from this sample, but its importance has been assessed explicitly in the Uganda case study described below.

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³⁴ Dercon (1995) shows that the cereal marketing margins mainly improved because of the liberalization of the grain markets and only on some routes did the end of the war have a significant effect.

³⁵ Adult education levels are extremely low, less than 1 year per adult, and they are assumed not to have changed. The effect of education as such, as opposed to changes in returns to education, has thus not been evaluated in this study.

³⁶ As the direct effect of changing producer prices has been controlled for, changes in returns to land result from other factors such as shifts in the underlying production technology potentially induced by the reforms.

during this period was mainly the combined effects of the rainfall and illness shocks. Agricultural marketing reforms are shown to have benefited even the households that lost ground during the period.

In sum, households that escaped poverty during the period not only benefited from better producer prices, they also enjoyed a more favorable location, and were endowed with good access to infrastructure and better land. Those who remained poor or who fell into poverty, did so in part because they were badly placed in terms of location and land. They were also at the receiving end of particularly bad luck—they suffered most from poor rainfall and from ill health.

Deininger and Okidi (2001) analyze changes in consumption and income observed for a panel of about 1,200 Ugandan households during the period 1992-2000. They regress household level changes in consumption and income against variables representing the change in relative producer prices of coffee, their access to infrastructure, their initial endowments of physical and human capital, the initial health status of households, and their social capital. They found these variables to be significant in explaining growth in Ugandan household incomes during the 1990s. As in Ethiopia, the effect of changes in relative prices (in this case an increase in farm-gate coffee prices largely brought about by market liberalization, but also by the devaluation and favorable world prices) on consumption growth was substantial.

Initial private endowments of education and other assets (mainly land) were also crucial for consumption growth. For example, if households had had 6 years of completed schooling on average (instead of the observed 3 years)—equivalent to completing primary schooling—growth in consumption would have been 2 percentage points higher. A difference of one standard deviation in terms of initial asset value (about half of which is accounted for by land) put households on a 2 percentage point higher consumption growth path. Households which in 1992 were afflicted by health problems—related to malaria in over 80 percent of cases—experienced consumption growth which was (other things constant) 1.8 percentage points lower than those not experiencing such problems. Households with access to electricity enjoyed consumption growth that was 6 percentage points higher than other households.

The above results offer insight into what determined the growth in income and consumption among Ugandan households. How did such growth affect poverty? To address this, Deininger and Okidi estimate a multinomial logit model of changes in poverty status (households are classified as either not changing their status, falling into poverty or escaping from poverty). They

find that the relative coffee price changes had a powerful poverty-reducing impact, indicating that their effect was broad-based and that price changes in tradable commodities directly benefited poor producers (and not only indirectly through the labor market.) Moreover, households with higher education, more initial assets (land), better health, and better access to infrastructure (electricity) and location (distance to municipality) were far less likely than others to fall into poverty, and more likely to escape from it.

The results from these micro-econometric analyses of panel data point to the following factors that appear to influence the relationship between economic growth and poverty reduction:

- First, many rural households stand to benefit directly from liberalization measures, as well as increased political stability and better governance. And the gains can be substantial. In so far as liberalization measures increase producer prices, rural producers will gain, and to the extent that food marketing margins tend to decline, rural consumers will gain as well. Nonetheless, some will gain more than others, depending on the product- and consumption-mix of the household.
- Second, a household's location is key in conditioning the extent to which it will benefit from liberalization measures. Specifically, whether the household had access to infrastructure and urban markets was an immensely important factor in governing the growth in household income. It explains about half of household consumption growth and poverty reduction in Ethiopia during 1989-95, and it was also quantitatively important for growth in Uganda household income. So, connectedness to markets as captured by access to infrastructure (especially roads, but also electricity) and distance to urban centers is likely to be a major factor in determining how growth in any country transmits its benefits to the population.
- Third, the potential for economic growth and poverty reduction further depends on a household's private endowments. Households with larger private endowments—be it more and better qualified labor or land—not only tend to be less poor, they are also better placed to profit from new opportunities generated by liberalization and institutional change.
- Finally, it is vital to separate out the effect of shocks when assessing the role of policy changes. Dercon highlights rainfall and health shocks, both of which are certain to be

relevant to poor households in most African countries. The importance of health shocks is also underscored by Deininger and Okidi for the Ugandan case. Export commodity price fluctuations, though not explicitly treated in these studies, form another important risk factor.

We now examine the evidence on distribution and poverty changes in other countries covered in this review, looking for echoes of the findings from the panel data of Ethiopia and Uganda.

Distribution, poverty and liberalization

The changes in relative prices through exchange rate devaluations, the opening of domestic markets, and changes in the structure of production are certain to lead to shifts in income distribution, with producers of tradable goods (mostly exportables) benefiting directly from the economic policy reforms. The Ugandan and Ethiopian studies show that these effects were evident during the 1990s, and that they directly benefited poor households. The experience of Ghana in West Africa echoes these East African findings. Ghana experienced sharp poverty reductions among cash (export) crop producers during the 1990s, a result of more favorable world cocoa prices and an increase in cocoa production. Table 11 compares trends in poverty among crop producers in rural Uganda and Ghana.

Table 11: Poverty incidence by rural activity, Ghana and Uganda in the 1990s.

	<i>Uganda:</i>				<i>Ghana:</i>			
	Population share (2000)	1992	2000	Percent reduction	Population share (1998)	1992	1998	Percent reduction
Food crop	45.9	63.3	45.7	-27.8	43.9	68.1	59.4	-12.8
Cash crop	21.3	62.7	29.7	-52.6	6.3	64.0	38.7	-39.5

Source: World Bank, *Poverty Dynamics* studies.

In both countries about two fifths of the population are food-producing farmers, of whom about two thirds were poor in the early 1990s. And in both countries, poverty fell among food producers, but the decline was not as great as that experienced by export crop producers. Most of the rural poor appear to have benefited from growth, but those producing export crops have benefited most. A much larger share of the population in Uganda grows cash crops (21 percent) than in Ghana (6 percent) which may explain the larger drop in poverty amongst food crop producers in Uganda. Reviewing the existing evidence on the experience with agricultural reforms in sub-Saharan Africa, Kherallah *et al.* (2000) arrive at a similar conclusion—export-crop

producers seem to have benefited more than food crop producers. What needs to be better understood is the *transmission* mechanism that led to economic gains of households not producing for export.

Potential pathways include rural labor markets, with higher export crop prices stimulating export crop production leading to increased demand for agricultural wage labor and ultimately higher agricultural real wages. Abdulai and Delgado (2000) find that in Ghana a one percent change in the domestic terms of trade between agriculture and non-agriculture leads to a 0.83 percent change in the real agricultural wage rate in the long run, underscoring the importance of labor markets in transmitting the effects of economic reforms. Increased liquidity in rural economies from agricultural exports can also have important spin-off effects, through an expansion of both investment in export and food crop production, and increased consumption of goods and services produced with previously underutilized local labor, land or capital. As a rule of thumb Delgado et al. (1998) posit that any policy enhancing producers' income from agricultural exports increases local rural income by twice the amount of the increased exports.

To understand the different evolution in poverty among food- and cash-crop producers, it is important to keep in mind that the former group tends to be much more heterogeneous than the latter. In export-crop growing regions, the effects of favorable export crop prices were transmitted to the food-crop growing households—either through the labor market or the input and product markets, or both. Transmission of such benefits to areas unsuitable for export crop production, especially when they are also remote, is much harder. For example, in Ghana food producers in more remote and less integrated regions (in the north) did not experience a similar reduction in their poverty as food growers in cash-crop (and better integrated) areas. Similarly, food crop producers in northern Uganda, which is also less accessible, appear not to have benefited from recent growth.

Periods of economic stagnation and recession also systematically affect some groups more than others. In Zimbabwe, for example, the increase in rural poverty during 1990/91 and 1995/96 was felt most keenly among the commercial farmers (Table 12). Disentangling exactly why some suffered more than others is a difficult undertaking. Some farmers might have suffered more than others from the drought (an issue taken up by Alwang, Mills and Taruvinga, 2002 and discussed below). It is also likely that the fall in incomes among commercial farmers was due to the decline in real tobacco prices, estimated by Townsend (1999) to be -2.5 percent per annum during 1990 and 1996/97. Other features of real price changes during the period identified by Townsend

(notably the increase in the real price of cotton and continued government intervention in the maize market) may also explain why the smallholder group of farmers have not suffered as much as the commercial farmers during this episode of drought and economic decline.

Table 12: Zimbabwe, incidence of rural poverty by farming category, 1991-1996

Expenditure /adult equivalent	1990/91		1995/96		Percentage change in:	
	<i>Mean</i>		<i>Mean</i>		<i>Mean</i>	<i>Poverty</i>
	<i>consumption</i> (Z\$ 1990/month)	<i>Poverty</i> headcount	<i>consumption</i> (Z\$ 1990/month)	<i>Poverty</i> headcount		
Communal	65.54	38.5	50.17	52	-0.23	35.1
Small scale commercial	93.15	18.7	65.95	34.4	-0.29	84.0
Large scale commercial	99.21	16.3	76.85	27.4	-0.23	68.1
Resettlement areas	57.51	47	46.47	50.6	-0.19	7.7
Rural	69.6	35.8	54.29	48	-0.22	34.08

Source: Alwang and Ersado (1999)

Distribution, poverty and location

The panel analysis of Ethiopian and Ugandan households provides strong empirical evidence that location is important in determining how growth influences income distribution. Other countries also experienced strongly divergent patterns in inequality across regions. In *Ghana*, for example, inequality fell sharply in Accra, Urban Savannah, and Rural Forest, while it increased sharply in the Coastal zone and Rural Savannah. Our conclusion is that overall indices of inequality can mask important changes in distribution? particularly across and within geographic regions.

Geography is even more important in explaining poverty trends. In some countries the decline in poverty is observed in both the rural and urban areas (Uganda, Mauritania, Ghana—Table 13). In others, the change is confined mainly to urban areas (Zambia between 1991-1996). It is clear from the case studies that within both the rural and the urban sectors, poverty changes have varied considerably depending on geographical location. Some geographical areas have not benefited as much as others from growth, and some have even lost ground during the period of recovery. The different experience in the evolution of poverty seems closely related to the extent to which the region or village is integrated within the overall economy. The experiences of Ghana and Madagascar are illustrative.

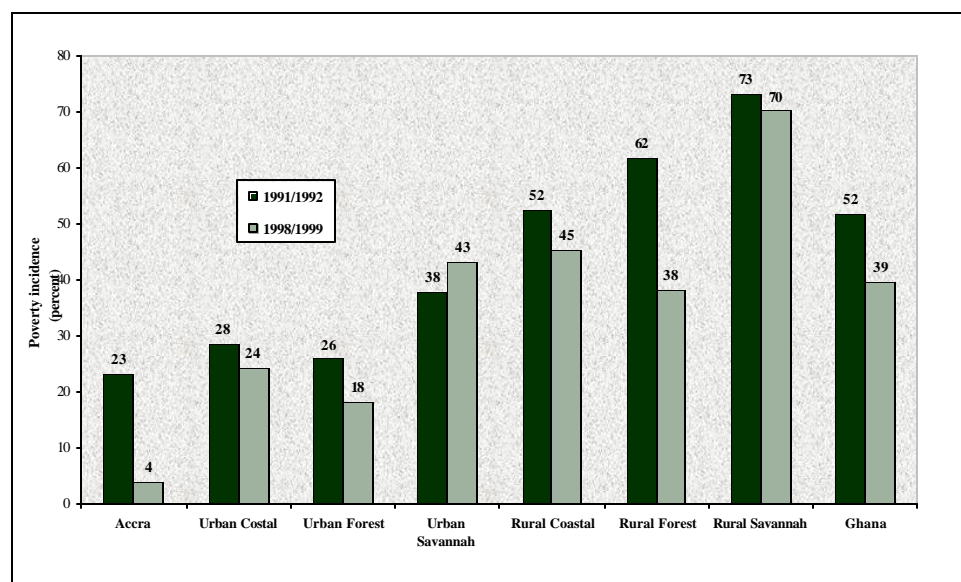
Table 13: Headcount poverty trends in rural and urban areas of seven African countries during the 1990s

	<i>Rural</i>				<i>Urban</i>		
	<i>Population share in year 1 (%)</i>	<i>Year 1 (%)</i>	<i>Year2 (%)</i>	<i>Change (% points)</i>	<i>Year1 (%)</i>	<i>Year2 (%)</i>	<i>Change (% points)</i>
Ghana 1992-1998	67	64	49	-15	28	19	-9
Madagascar 1993-1999	81	74.5	76.7	2.2	50.1	52.1	2
Mauritania 1987-1995	56	68	48	-20	45	17	-28
Nigeria 1992-1996	62	46	69	+23	37	58	21
Uganda 1992-1997	88	59	48	-11	28	16	-12
Zambia 1991-1996	62	88	90	2	47	62	15
	62	90	86	-4	62	59	-3
Zimbabwe 1991-1996	63	36	48	+12	3	8	+5

Sources: Studies under the *Poverty Dynamics* program.

Poverty in Accra fell sharply, but not in other urban areas (Figure 5). In the Savannah zone poverty *increased* in both urban and rural areas, and especially in the Northern Region and among subsistence farmers.³⁷ The fact that growth in Ghana saw aggregate poverty fall is very little comfort to food farmers and urban workers in the north of the country, who probably compare their fortunes with Accra residents. Important clues as to why Ghanaians in the north did not benefit from growth are found in recent papers by Badiane and Shively (1998) and Abdulai (2000), which conclude that markets (more specifically the maize market) in the remoter Northern Region are not very well integrated with the economy at large. This lack of integration most likely impeded the transmission of the benefits of growth to the region.

³⁷ This finding was confirmed by the repeated cross-sectional multivariate analysis (Coulombe and McKay, 2001).

Figure 5: Ghana, incidence of consumption poverty by zone, 1992–1998

Source: Coulombe and McKay (2001)

‘Remoteness’ is also important in understanding geographical differences in poverty outcomes in Madagascar. Paternostro, Razafindravonona and Stifel (2001) disaggregate poverty according to an index of remoteness, the latter being a weighted sum of indicators reflecting access to roads, bus stop, agricultural extension services, modern fertilizers, and distance to schools and health facilities (the weights were derived from factor analysis). Their findings (Table 14) indicate an association between the degree of remoteness and the likelihood of being in poverty. They also show that while rural poverty indicators were largely unchanged during 1997 and 1999, households assessed to be the most remote, experienced increased poverty—in contrast to the least remote quintile where poverty indicators actually improved.

Table 14: Madagascar, rural poverty by ‘degree of remoteness’

	<i>Headcount (P_0)</i>		<i>Depth (P_1)</i>	
	1997	1999	1997	1999
Rural	76.0	76.7	34.7	36.1
<i>Quintile of ‘remoteness index’</i>				
Most remote	78.0	82.8	34.8	42.4
2nd quintile	78.2	78.9	38.1	35.6
3 rd quintile	74.5	78.9	32.7	37.7
4 th quintile	77.0	77.7	36.6	36.5
Least remote	72.6	65.9	31.6	29.0

Source: Paternostro, Razafindravonona and Stifel (2001).

Distribution, poverty and private endowments

The experiences in Ethiopia and Uganda demonstrated that better-endowed households, particularly more educated households and those with more (fertile) land, were not only less likely to be poor, but also more likely to benefit from favorable changes in the macro-environment. The importance of education for poverty reduction is echoed by the micro-econometric evidence from Ghana, Madagascar, and Zimbabwe.³⁸ Both in Ghana and Madagascar, real consumption levels increase with educational attainment. And the returns to education across the different education levels increased from the first to the second survey year. These observations hold for both urban and rural areas. In Zimbabwe, a more precipitous increase in poverty following the economic decline was prevented because of previous investments in schooling that increased the educational attainment of the population in the 1990s (Alwang, Mills and Taruvinga, 2002). That incomes fell and poverty increased despite household efforts to invest in human capital, assets and migration (see Figure 7, panel B) can only be attributed to a reduction in the *rates of return* to these assets.

Evidence from Madagascar, the only other study which explicitly addresses the role of land holdings, confirms that consumption levels are higher for those who possess land, except for those with only a very small amount of land (less than 0.1 hectare per capita). Returns to land holdings also increase with the size of the plots owned. Returns to land holdings deteriorated from 1993 to 1999 for households with less than 0.4 hectares per capita, while they improved for those with more land. The changes in returns decreased poverty incidence among the latter group by 2 percentage points, while it increased poverty among the former by 0.82 percentage points. Paternostro, Razafindravonona and Stifel (2001) surmise that this difference follows from more extensive land use by smallholders in the face of demographic pressures forcing small farmers to expand their fields into less productive and more fragile areas.

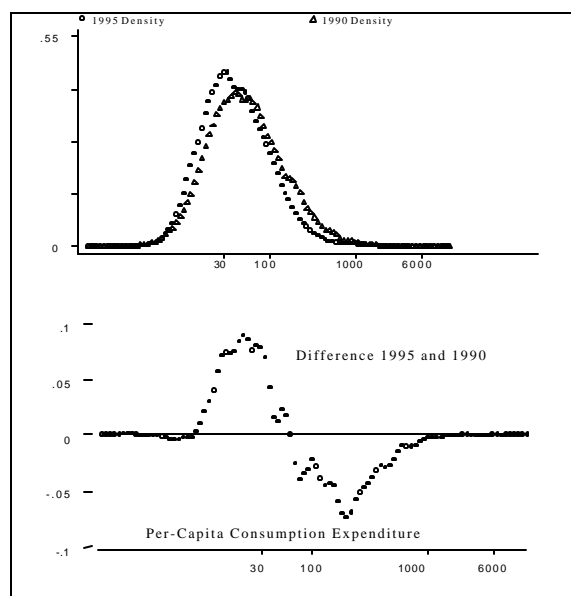
³⁸ One constraint these studies face is the absence of reliable price data (linked that is, to the household data), which would be needed to assess the direct impact of the reforms on consumption. Systematic changes in real producer prices are certain to have affected income distribution and poverty during this period. However, both the Madagascar and Zimbabwe studies control for rainfall shocks, an issue to which we return below.

Distribution, poverty and shocks

Poverty estimates provide a snapshot of the standard of living at a certain point in time and reflect both policy reforms as well as temporary external shocks such as droughts. When evaluating the evolution of poverty it is thus important to control for the effect of external shocks on comparative poverty figures. Controlling for all other factors, the Ethiopian panel analysis estimated that household income growth was reduced by about a fifth because of rainfall shortage (Dercon, 2002). The role of rainfall variations in influencing household income growth was also an important feature of the Zimbabwean and Madagascar experience.

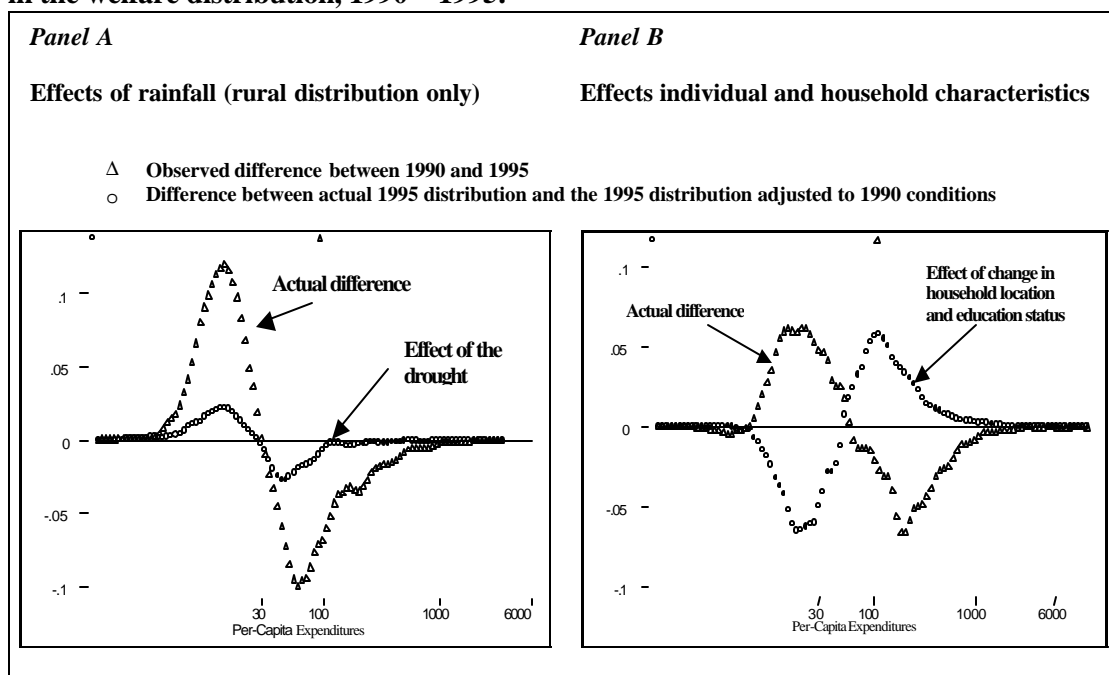
That poverty increased sharply in Zimbabwe during the 1990s is without question (Alwang, Mills and Taruvinga, 2002). The decline in economic well-being (and increase in poverty) is evident from the leftward shift in the distribution of real household consumption (Figure 6). The change occurred mainly in the vicinity of the poverty line (Z\$30 per month)—with a sharp increase in the numbers of people consuming just below, and a parallel decline in the numbers just above the poverty line. What is less clear is whether poverty increased because of the droughts that afflicted the country in 1991/92 and again in 1994/95, or because of the Economic Structural Adjustment Program (launched in 1991) which was being implemented at the same time. Alwang, Mills and Taruvinga (2002) apply non-parametric methods to simulate what the 1995 distribution would have been if the 1990 rainfall patterns had applied that year. This exercise confirms that the drought led to an increase in poverty during the early 1990s, but it also indicates that the drought alone cannot fully explain the deterioration in economic well-being (Figure 7 Panel A). As discussed before, actual changes in household location, assets and individual characteristics (notably the levels of educational attainment) would actually, other things constant, have *raised* consumption levels and reduced poverty (Figure 7 Panel B). Without such changes incomes would have deteriorated even more than they did.

Figure 6: Zimbabwe, shift in welfare distribution, 1990-1995



Source: Alwang, Mills and Taruvinga (2002)

Figure 7: Zimbabwe, simulated effects of rainfall and household characteristics on changes in the welfare distribution, 1990 – 1995.



Source: Alwang, Mills and Taruvinga (2002)

Evidence from Madagascar further underscores the importance of weather shocks in comparing poverty over time. Simulations indicate that 75 percent of the predicted change in household economic well-being and poverty incidence can be traced back to the relative change in drought

occurrence between 1993 and 1999. The insurance capacity of households against covariate shocks in many parts of Africa is clearly extremely limited.

IV. Concluding remarks

The evidence of the 1990s gives ground for cautious optimism. In the aggregate at least, episodes of growth have been poverty reducing in Africa, and countries which have experienced a recovery in their macro-economic balances and the quality of their institutions have seen the numbers in poverty decline. But there are three serious qualifications. First, experiences have varied enormously. Some countries have enjoyed a decade of sustained growth, and others have had to cope with crisis and decline. In the eight countries covered by the *Poverty Dynamics* study, four experienced significant declines in poverty (Ethiopia, Ghana, Mauritania and Uganda), two faced sharp increases (Nigeria and Zimbabwe), and in two (Madagascar and Zambia) there was no discernable trend, the outcome depending on the specific circumstances (rainfall, terms of trade) of the survey years in question.

The second qualification derives from the need to go beyond the averages. While it is true that *overall* income distributions (evidenced by the Gini ratio) have not changed during African episodes of growth, and that such growth (or recession) can be characterized as pro-poor in this aggregate sense, this can be misleading. Beneath the aggregate numbers exists a variety of experience. Neglect of this reality by policymakers—and sometimes also academics—has often impeded a constructive and fruitful dialogue with ‘civil society’ about appropriate poverty reducing policies (Kanbur, 2001). Third, the *Poverty Dynamics* work highlights the importance of taking different perspectives of poverty. Although trends in human development indicators are generally consistent with economic well-being, their dynamics have been quite different in some countries. The multifaceted nature of poverty calls for multivariate approaches to tracking and understanding its dynamics.

Focusing on income poverty, our review of the evidence shows that there have been systematic changes in income distributions and poverty in the countries covered. We have identified some of the main contours of these distribution changes, and highlighted four key policy messages: the importance of economic reform and political stability for poverty reduction; the role of location and remoteness in conditioning how the benefits of growth are distributed; the significance of private endowments (especially education and land) for the ability of households to take

advantage of new opportunities, and the consequent poverty outcomes; and finally the need to account for shocks in understanding distributional outcomes and poverty changes over time.

The ‘emerging picture’ described by Demery and Squire (1996) appears to be confirmed with the better data (reflecting also a longer time perspective than previous work). Improvements in the macroeconomic balances are associated with reductions in poverty in the region. There is also an emerging micro-picture concerning the consumption poverty impact of market liberalization. The analysis of household panel data by Dercon (2002) for Ethiopia and Deininger and Okidi (2001) for Uganda provide the most systematic and empirically convincing cases that policy-induced changes in relative prices can have poverty-reducing effects. Micro-evidence from Ghana provides some corroboration from West Africa.

The second policy message is the need for a geographical perspective on poverty. Whilst the various rounds of poverty assessments have established that the incidence of poverty varies considerably across different regions of a country, this recent work on poverty dynamics has shown that some regions, by virtue of their sheer remoteness, have been left behind somewhat as growth has picked up. Households with limited access to markets and public services have not benefited from growth during the 1990s. Public policy, and the provision of public goods (notably infrastructure services—from the Ethiopian case, especially roads and from the Ugandan case, electricity) must address these fundamental regional inequalities.

Third, both education and access to land emerge as key private endowments to enable households to escape poverty. The importance of education for poverty reduction is brought out in all our case studies—in rural and urban areas—with the marginal returns to education typically increasing by educational attainment. While land redistributions may not be appropriate in all countries, as argued by Dercon (2002) for Ethiopia, it is ultimately the productive capacity of land which matters. A more efficient organization of agricultural services and agricultural inputs, such as fertilizer, could go a long way towards improving productivity of land (Kherallah et al., 1999).

Finally, the empirical evidence reviewed here underscores the importance of social protection in a poverty reduction strategy. The impact of rainfall variations and ill health are the two risk factors featured. Dercon (2002) estimates that poverty reduction in the sample of Ethiopian rural communities would have been 18 percentage points greater had households been protected from the effects of ill-health and rainfall shortages. The importance of weather shocks for poverty

changes was also underscored by the findings from Zimbabwe and Madagascar. Deininger and Okidi (2001) find that ill-health amongst Ugandans back in 1992 noticeably increased the probability of being in poverty eight years later. And in light of households' greater exposure to the vagaries of world commodity prices following liberalization, policies to help the poor manage their risks have become even more important nowadays.

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Appendix: Background information on data sources.

The core objective of the *Poverty Dynamics* studies was to investigate poverty changes over time, using the much improved household survey data base in Africa. For this, comparable measure of household economic ‘welfare’ or wellbeing are called for. Issues of data comparability and the construction of a reliable welfare measure, therefore, have been central in each of the *Dynamics* studies. In this appendix we present some basic information on (i) the survey instruments and (ii) the construction of the welfare measures used in the studies covered by the monograph. While readers are referred to the individual studies for a detailed exposition of survey design and methodological choices made in building each individual welfare measure, we report here on some of their salient features.

Surveys Used.

For all countries investigated, data were obtained from household surveys collected by local statistical authorities; the only exception being Ethiopia where the authors constructed a purposively selected panel germane to their research objectives (in a collaborative venture with the University of Addis Ababa). Annex table A.1. reports details on the survey design, time frame, coverage and sample size. With the exception of Ethiopia, where the two panels used in the study covered only six and fifteen villages respectively, all the surveys are nationally representative. There are, however, a few omissions worth noting in interpreting the results presented. The surveys used in Mauritania did not sample the nomadic population (about 6 percent in 2000). In Uganda, the 1996-97 Monitoring Survey and the 1999-2000 Uganda National Household Survey did not cover four districts (6.9 percent of the population according to the 1991 Census) for security reasons. These districts reported relatively low levels of mean consumption in the 1992-1993 Household Income Survey. These omissions, however, affect only the representativeness of the sample. The analysts adjusted the sample to ensure over-time comparability.

Welfare Measurement

The welfare indicator commonly chosen was total household expenditure (Annex Table A2). With the exception of urban Ethiopia, Madagascar and Nigeria, where total expenditures are computed on a per-capita basis, all studies used adult equivalence scales to account for household composition. In general, the guiding principle in the selection of items included in each expenditure measure was to ensure comparability over time. Therefore, only items common

across surveys and for which questions were asked in a similar fashion were retained. In some cases, like Zimbabwe, surveys maintained a common design over time, thus allowing for a wide coverage of household consumption expenditures including use of services, consumption values from assets owned and imputed values from gifts remittances and transfers received. However, there have been instances where this approach led to a more restrictive coverage of household expenditures. For example, in Madagascar, where survey design changed over time, items such as livestock auto-consumption, gifts, remittances and in-kind payments and auto-consumption from non-food enterprises were omitted so as to ensure proper comparability⁴⁰.

In all cases, consumption included items where imputations were called for. These include imputed rent from owner-occupation, and imputed income from the consumption of food produced by the household. Methods of computing these imputations differed. Although consumption of own-produced food was included in all expenditure measures, for Ghana the authors used household self-estimation of the value of such items, while in Uganda the imputation was obtained using median unit values from household food purchases (i.e. market prices). Such procedures were applied consistently to data sets to preserve over-time comparability. But differences across countries would counsel caution in comparing results across countries.

There were also adjustments made to account for differences in prices, across both time and space. All studies computed total expenditures in real terms, where official price series have been used to express values in base year prices (Annex table A2). Moreover, with the exception of Zambia and Zimbabwe, regional and rural/urban price differences are also taken into account in the construction of the consumption measure.

Finally, Annex table A3 provides further detail on the computation of the macroeconomic policy scores used in the text.

⁴⁰ Such items however, accounted for only 4.3 percent of total expenditure in 1993. The highest number of items omitted is found in Ethiopia (1989-95 rural panel) where only food expenditures were included.

Annex table A.1: Household survey designs.

Country (name of survey)	Period covered	Sample design	Coverage	Omissions	Sample size: # hhs
Ethiopia 1989/97 Rural Panel	Same season across years	Purposively sampled panel	6 villages	See coverage	362
Ethiopia 1994/97 Rural panel	Same season across years	Purposively sampled Panel. Two-stage sampling design.	15 villages	See coverage	1,403
Ethiopia 1994/97 Urban Panel	Same season across years	Purposively sampled panel	7 major cities	See coverage	1,249
Ghana 1991/92 (GLSS3)	Sep 1991 – Sep 1992	Two-stage sampling; stratified.	National	none	4,552
Ghana 1998/99 (GLSS4)	Apr 1998 – Mar 1999	Same as above.	National	none	5,998
Madagascar 1993 (EPM)	May 1993 – Apr 1994	Multi-stage sampling; stratified	National	Islands of Nosy-Bé and Sainte-Marie About 0.4 of population – Census 1993-	4,508
Madagascar 1997 (EPM)	Oct 1997 – Dec 1997	Same as above.	National	Same as above	6,350
Madagascar 1999 (EPM 1999)	Sep 1999 – Nov 1999	Same as above.	National	Same as above	5,120
Mauritania 1987/88 (LSMS)	Nov 1987 – Oct 1988	Two-stage sampling. Stratified	National	Nomadic population	1,600
Mauritania 1995/96 (IS),	Oct 1995 – June 1996	Same as above.	National	Nomadic population	3,450
Nigeria 1992 (NISH)	Apr 1992- Mar 1993	Two-stage sampling . Stratified	National	none	8,955
Nigeria 1996 (NISH)	Apr 1996- Mar 1997	Same as above.	National	none	14,381
Uganda 1992/93 (HIS)	Feb 1992 – Mar 1993	Multi-stage sampling . Stratified	National	some rural areas of Kabale district	9,924
Uganda 1996/97 (MS 4)	Feb 1996 – Mar 1997	Same as above	National	Kitgum, Kasese, Gulu and Bundibugy districts. About 6.9 % of population – census 1991-	6,655
Uganda 1999/2000 (UNHS)	Aug. 1999 – Sept 2000	Same as above: note panel formed with part of HIS sample.	National	Same as above	10,696 (panel: 1,300)
Zambia 1991 (SDAPS)	Oct 1991 – Dec 1991	Three-stage sampling. Stratified	National	Omission of 15 districts out of 72	9,886
Zambia 1996 (SDAPS)	Oct 1996 – Dec 1996	Same as above	National	Omission of 15 districts out of 72	11770
Zambia 1998 (SDAPS)	Oct 1998 – Dec 1998	Same as above	National	None	16,710
Zimbabwe 1990/91 (ICES)	July 1990 – June 1991	Two-stage sampling . Stratified	National	None	14,264
Zimbabwe 1995/96 (ICES II)	July 1995 – June 1996	Same as above	National	None	17,555

Annex table A2: Welfare measure computations .

Country	Welfare Measure and Price Deflation	Main Reference
Ethiopia 1989/95	Total food consumption expressed in 1994 prices. Food consumption is deflated by a food price deflator using regional prices collected by the Central Statistical Authority.	Dercon, S., (2002). <i>The Impact of Economic Reforms on Households in Rural Ethiopia: A study from 1989 to 1995</i> . Poverty Dynamics in Africa Series, The World Bank, Washington D.C.
Ethiopia 1994/97 rural	Total expenditure expressed in 1994 prices. Expenditure is deflated by a regional consumer price index based only on food prices.	Dercon, S., (2000). 'Changes in Poverty and Social Indicators in Ethiopia in the 1990s. (At Last) Some Good News From Ethiopia.' Poverty Reduction and Social Development Africa Region, The World Bank, mimeo.
Ethiopia 1994/97 Urban	Total expenditure expressed in 1994 prices. For each site local prices were collected. Expenditure is deflated by using the ratio of each site poverty line to that the reference site as deflators.	Dercon, S., (2000). 'Changes in Poverty and Social Indicators in Ethiopia in the 1990s. (At Last) Some Good News From Ethiopia.' Poverty Reduction and Social Development Africa Region, The World Bank, mimeo.
Ghana 1991-92 1998-99	Total expenditure expressed in Accra, January 1999 prices. Geographic differences in the cost of living were estimated based on the GLSS4 price questionnaire, and GLSS4 expenditure data used as weights. Based on five localities, Paasche cost of living indices were constructed for food and non-food separately. Variations in prices within and between the sample years were allowed for using the Consumer Price Index, using separate series for food and non-food, as well as for Accra, urban and rural areas	Coulombe, H., and McKay, A., (2001). 'The Evolution of Poverty and Inequality in Ghana over the 1990s: A study based on the Ghana Living Standards Surveys' Office of the Chief Economist, Africa Region, The World Bank, mimeo (May).
Madagascar 1993 1997 1999	Total expenditure expressed in November 1993, Antananarivo prices. The price data recorded in the 1999 community questionnaire were chosen as the base for calculating regional price indices for 1999 and 1997. For 1993, regional deflation was done based on unit prices calculated from the survey. Temporal deflation was obtained using Antananarivo price index calculated by the Institut National de la Statistique (INSTAT)	Paternostro S., J. Razafindravonona, D. Stifel (2001). 'Changes in poverty in Madagascar: 1993-1999.' <i>Africa Region Working Paper</i> Series No. 19, The World Bank.
Mauritania 1987 1995	Total expenditure expressed in Nouakchott 1995/96 prices. Temporal deflation was obtained using Nouakchott CPI. Regional deflation was pursued calculating a Laspeyres index, based only on the five items that are available in all four regions and both surveys.	McCulloch, N., B. Baulch, and M. Chereh-Robson (2000b). 'Growth, Inequality and Poverty in Mauritania, 1987-1996.' Poverty Reduction and Social Development Africa Region, The World Bank, mimeo.
Nigeria 1992 1996	Total expenditure expressed in 1996 prices. Adjustment made to account for regional and rural/urban price differences using CPI of each region.	(i) Federal Office of Statistics (1999) <i>Poverty Profile For Nigeria: 1980-1996</i> (ii) Canagarajah, S., J. Ngwafon. and F. Okunmadewa (2000). <i>Nigeria's Poverty: Past, Present and Future</i> . Nigeria C. Department. The World Bank. Washington D.C., (mimeo).
Uganda 1992-93 1996-97 1999-2000	Total expenditure expressed in 1989 prices. Temporal deflation was done using the composite national CPI. Regional price deflation was obtained using unit values for purchases of major food items to construct regional food price indices for each survey.	Appleton, S., T. Emwanu, J. Kagugube, and J. Muwonge (1999). 'Changes in Poverty in Uganda, 1992-1997.' Poverty Reduction and Social Development Africa Region, The World Bank, mimeo.
Zambia 1991 1996 1998	Total expenditure in 1991 prices. Temporal deflation was done using the composite national CPI	McCulloch, N., B. Baulch, and M. Chereh-Robson (2000a). 'Poverty, Inequality and Growth in Zambia during the 1990s.' Poverty Reduction and Social Development Africa Region, The World Bank, mimeo
Zimbabwe 1990 1995	Total expenditure expressed in 1990 prices. Raw prices for the 23 items used to create the food poverty line were collected from CSO. An index was created using the food poverty line weights. The ratio of such index to a base value was used as deflator. Variability over time and province was ensured. No adjustment was possible for urban/rural differentials.	Alwang, J., B. Mills, and N. Taruvinga (1999). 'Changes in Well-Being in Zimbabwe, 1990-1996: Non-Parametric Evidence.' Poverty Reduction and Social Development Africa Region, The World Bank, mimeo.

Annex table A3: Computations of macro-economic policy scores.

	Change during:	Fiscal policy				Monetary policy				Exchange rate policy				Overall macro-economic policy				
		Change in overall fiscal balance excluding all grants (% of GDP)		Change in total government revenue (% of GDP)		Change in fiscal policy		Change in seigniorage		Change in inflation		Change in real effective exchange rate		Change in black market premium		Change in exchange rate policy		
		% points	Score	% points	Score	Score ¹⁾	% points	Score	% points	Score	Score ²⁾	% points	Score	% points	Score	Score ³⁾	Average score	Weighted ⁴⁾ average score
Cote d'Ivoire	1985-88	-11.6	-2	-5.2	-1	-3.0	-2.7	2	2.9	0	1.0	21.8	-2	-2.1	0	-1.0	-1.0	-1.5
Ethiopia	1989-95	0.3	0.0	-6.9	-1.0	-1.0	-0.7	1.0	2.9	0.0	0.5	-55.8	3.0	-56.0	2.0	2.5	0.7	1.0
	1994-97	2.5	1	6.1	1	2.0	-3.8	2	-6.8	1	1.5	-23.9	2	-126.6	3	2.5	2.0	2.2
Ghana	1988-92	-2.3	-1	0.1	0	-1.0	-1.2	1	-10.1	2	1.5	-23.5	2	-51.0	2	2	0.8	0.8
	1992-98	-5.0	-1	4.5	1	0.0	0.4	0	7.9	-1	-0.5	-11.9	1	-4.4	0	0.5	0.0	0.2
Madagascar	1993-97	0.8	0	-0.5	0	0.0	-1.1	1	13.7	-2	-0.5	-0.2	0	-8.0	0	0.0	-0.2	-0.1
	1997-99	1.7	1	1.6	0	1.0	-0.2	0	-16.8	2	1.0	2.3	0	1.4	0	0.0	0.7	0.5
Mauritania	1987-95	9.2	3	0.6	0	3.0	-1.3	1	-1.1	0	0.5	-35.8	3	-84.2	2	2.5	2.0	2.4
Nigeria	1985-92	0.4	0	12.3	1	1.0	1.0	-1	-1.8	0	-0.5	-518.9	3	-260.4	3	3.0	1.2	1.9
	1992-96	3.7	2	-4.6	-1	1.0	-1.2	1	31.4	-3	-1.0	53.3	-2	249.1	-3	-2.5	-0.8	-1.0
Uganda	1992-97	2.9	1	3.3	1	2.0	-1.8	1	-30.3	2	1.5	10.2	-2	-23.0	1	-0.5	1.0	0.7
	1997-00	-0.5	0	0.3	0	0.0	0.4	0	-4.5	1	0.5	-8.9	1	-5.8	0	0.5	0.3	0.3
Zambia	1991-96	1.7	1.0	1.0	0.0	1.0	-2.7	2.0	-63.2	2.0	2.0	-8.4	1.0	-350.7	3.0	2.0	1.7	1.6
	1996-98	2.2	1	-0.7	0	1.0	-0.9	1	-9.2	1	1.0	11.0	-2	1.7	0	-1	0.3	0.0
Zimbabwe	1991-96	-2.6	-1	-0.8	0	-1.0	1.6	-1	4.2	0	-0.5	-8.0	1	-40.6	2	1.5	0.0	0.3

Scoring criteria (as used in Adjustment in Africa, 1994)

-3																		
-2	≤-5.0										≥31.0							≥51.0
-1	-4.9 to -2.0						2.0 to 3.9				10 to 30.9							16 to 50
0	-1.9 to 0.9			≤-4.0			1.0 to 1.9				5.0 to 9.9			≥10.0				5.0 to 15
1	1.0 to 2.9			-3.9 to 3.0			-0.5 to 0.9				-2.4 to 4.9			5.0 to 9.9				5.0 to 15
2	3.0 to 4.9			≥3.1			-2.0 to -0.6				-9.9 to -2.5			-2.0 to 4.9				-9.0 to 4.0
3	≥5.0						-3.0 to -2.1				-49.0 to -10.0			-2.1 to -14.9				-29 to -10
														-15.0 to -30.9				-99 to -30
														≤-31.0				≤-100

¹⁾ Sum of scores for change in overall fiscal balance and change in revenue; ²⁾ Average of scores for change in seigniorage and change in inflation; ³⁾ Average of scores for change in the real effective exchange rate and change in the black market premium; ⁴⁾ Weights derived from cross-sectional growth regressions
Source: World Bank (1994); authors' computations from World Bank data.

ⁱ Countries were selected based on the availability of comparable measures of consumption and include Ethiopia, Ghana, Madagascar, Mauritania, Nigeria, Uganda, Zambia, and Zimbabwe. The paper also draws on an analysis of time series data from the Demographic and Health Surveys. References to these *Poverty Dynamics* studies are given in the bibliography.