Poverty in Mozambique:

Unraveling Changes and Determinants

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Abstract

The paper analyzes progress in poverty reduction in Mozambique between 1996/7 and 2002/3 using two cross-sectional national household surveys. The analysis shows that strong growth in household income has caused poverty to decline rapidly most broadly defined groups - the agricultural and non-agricultural sectors and in urban as well as in rural areas. Improvements were recorded in both monetary and non-monetary poverty measures. One key factor in ensuring broad-based growth was that inequality did not change significantly so poverty reduction could be broad-based. But despite good progress, more than 50 percent of the population still lives in poverty. Lifting this group out of poverty will require continued broad-based growth and further expansion of social services.

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Introduction and summary

This background paper for the 2005 Country Economic Memorandum surveys Mozambique's progress in poverty reduction over the last six years. Using two cross – sectional national household surveys (1996/7 and 2002/3), growth in household consumption, changes in the distribution of that growth and the role these two factors played in reducing poverty, are analyzed. Changes in non-income poverty measures are also analyzed, including changes in assets and access to services. The correlates of poverty in 2002/3 are analyzed using bivariate and multivariate techniques. Finally, a profile of household livelihood strategies and labor market behavior of households is provided as a basis for linking macro and sectoral strategies to households.

The main findings are that as a result of strong growth in incomes in the agricultural sector as well as the non-agricultural sector, poverty declined rapidly in Mozambique over the 96/97-02/03 period in rural areas and in most urban areas. The decline was broad based, and can be seen in improvements in both monetary and non-monetary poverty measures. One key reason for the good poverty performance is that inequality did not change much, so aggregate growth in consumption reached poor households and raised their consumption levels.

Despite this good progress, more than 50% of the population remains in poverty today. The poor in Mozambique are mostly living in rural areas and working in agriculture, although increasingly one earner in the household will get income from another sector as well. The adults have little education, and their children are less likely to be in school (although much more likely than in 1996/7). Many still do not have access to safe water, and live in fragile domiciles. Lifting the other 50% out of poverty will require continued broad-based growth in the economy, coupled with continued expansion of social services to the poorest.

Poverty trends[1]

Income poverty is conventionally measured by total household consumption. We used the Ministry of Planning and Finance consumption aggregate, which include a deflation of food prices temporally and spatially to correct for seasonal and spatial differences in food prices during the survey period. However, for comparisons of welfare among households, this measure has to be adjusted by size of household. This adjustment can be calculated on a per capita basis, which effectively assumes that the monetary requirements of all members are equal and there are no economies of scale. This is the approach used by the Ministry of Planning and Finance in calculating the poverty line and measuring the size of the poverty population. Alternatively, the per capita measure can be adjusted to reflect the needs of household members (the cost of

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[1] This section builds on the analysis done in the Ministry of Finance and Planning of these two surveys. See Ministry of Finance and Planning, 2004.

children, for example) and economies of scale. A simple adjustment uses the caloric requirements of males and females in different age groups to adjust for household size (called adult equivalent or AE). This approach weights children less than adults in comparing households, and was used in this analysis.[2] This is the only deviation from the Government approach, and as can be seen below, it hardly affects the aggregate poverty rate, although it should result some difference in the ranking of households, which will become important in the multivariate analysis later.

In calculating the number of poor, we used the Ministry of Planning and Finance poverty line in our analysis, and this line is set based on the value of a basket of basic need goods consumed by the poor. These baskets were computed using the data on the consumption patterns of the poor. The basket, and therefore the line, varies by province, reflecting regional consumption patterns and price variations. Lines were estimated separately for 1996/7 and 2002/3, using the prices in the survey. The data for 1996/7 were inflated to 2002/3 prices using temporal price indices derived from the poverty lines for each province for the two years.[3]

The most important point to note about poverty trends in Mozambique is that regardless of which method is used to adjust for household composition, poverty in Mozambique fell dramatically between 1996/7 and 2002/3. Graph 1 shows the national trend using consumption per AE, and Table 1 shows the change in the poverty rate by province, using both consumption per AE and consumption per capita. Nationally, rural poverty fell more than urban poverty.

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[2] See Deaton, 1997, for a discussion of the options in using an equivalence scale. See Ministry of Finance and Planning, 1998 for an analysis of the effect of various assumptions about the importance of cost factors associated with individuals and economies of scale on the measurement of poverty in Mozambique in 1996/7.

[3] This methodology is explained in Ministry of Finance and Planning (2004). Note that on a PPP basis, Mozambique's national poverty line is high – about $2 per capita per day. This is a higher poverty line in PPP terms than Uganda or Tanzania.

Graph 1: Poverty rates in 1996 and 2002
(based on per adult equivalent consumption)
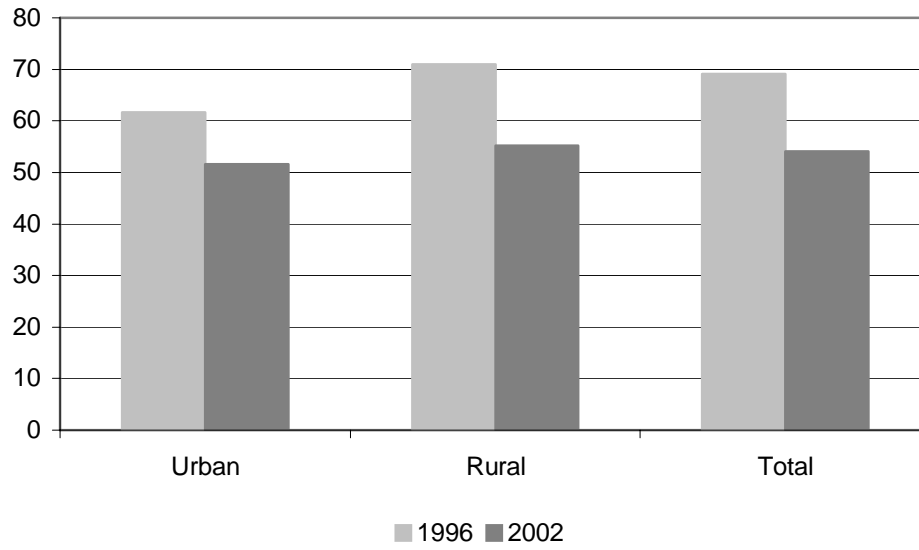
Table 1: Change in Poverty rate using two adjustments for household composition

% change in poverty rates	Using per capita consumption			Using per adult equivalent (AE) consumption			Using per AE consumption-consistent 1996 urban/rural	
	Urban	**Rural**	**Total**	**Urban**	**Rural**	**Total**	**Urban**	**Rural**
Niassa	-27.1	-26.3	-26.3	-27.5	-29.7	-29.2	-23.2	-30.3
Cabo Delgado	-15.5	15.0	10.1	-17.5	15.9	10.6	0.6	11.3
Nampula	-45.6	-11.6	-23.7	-44.9	-9.7	-22.0	-66.3	-9.7
Zambezia	-23.1	-35.1	-34.5	-21.1	-34.4	-33.8	-58.1	-33.7
Tete	-12.6	-29.3	-27.3	-12.3	-29.0	-26.9	-8.4	-28.9
Manica	-14.9	-36.0	-29.9	-14.2	-35.2	-28.7	-7.3	-34.9
Sofala	-44.5	-63.4	-58.9	-47.5	-65.5	-61.3	-47.1	-64.8
Inhambane	15.2	-3.0	-1.7	9.3	-3.6	-3.2	18.1	-7.3
Gaza	-17.4	-3.6	-6.4	-16.9	-6.6	-8.7	-14.1	-8.1
Maputo	28.2	5.5	5.3	37.2	8.2	9.6	33.1	7.4
Maputo City	12.8		12.8	12.5		12.5	12.5	
All	-16.5	-22.3	-21.8	-16.4	-22.3	-21.7	-19.4	-22.3

This result is somewhat misleading because the Government changed the definition of an urban area based on the census data, increasing the urban population by 50%. In the last column, we show the changes using a consistent definition of urban areas, and see that in the most urbanized locations, poverty did fall in step with rural areas.[4] Not only did poverty decrease overall and in most areas, but the depth (poverty gap) and severity (squared poverty gap) fell even more in percentage terms (Table 2). This is a very robust result, and suggests that the poverty reduction was broad

based.Table 2: Poverty Measures by Province

	Headcount			Poverty gap			Squared poverty gap		
	1996	2002	%D	1996	2002	%D	1996	2002	%D
All	69.1	54.1	-21.7	28.6	19.9	-30.4	15.1	9.9	-34.4
Urban	61.7	51.6	-16.4	25.8	18.9	-26.7	13.9	9.0	-35.3
Rural	71	55.2	-22.3	29.3	20.4	-30.4	15.4	10.3	-33.1
Niassa	69.9	49.5	-29.2	29.1	14.5	-50.2	15.3	6.2	-59.5
Cabo Delgado	56.8	62.8	10.6	19.2	20.8	8.3	8.8	8.9	1.1
Nampula	68.7	53.6	-22.0	28	18.7	-33.2	14.7	8.6	-41.5
Zambezia	68	45	-33.8	25.2	13.4	-46.8	11.7	5.6	-52.1
Tete	80.3	58.7	-26.9	38.5	25.7	-33.2	22.2	14.9	-32.9
Manica	62.3	44.4	-28.7	23.3	16.8	-27.9	11.1	9.1	-18.0
Sofala	88.2	34.1	-61.3	48.9	10.1	-79.3	31.8	4.1	-87.1
Inhambane	83.8	81.1	-3.2	37.4	42.1	12.6	20.2	25.8	27.7
Gaza	65.4	59.7	-8.7	23.2	19.9	-14.2	11.1	8.8	-20.7
Maputo	64.8	71	9.6	27.4	30.9	12.8	14.5	16.9	16.6
Maputo city	47.3	53.2	12.5	15.7	20.1	28.0	7.3	9.8	34.2

How does Mozambique's poverty level compare with other African countries? To answer this question, we used a different, internationally comparable measure of poverty: the percent of the population living on less than $1 (USD) in PPP terms, per day. According to this poverty line, 28.7% of the population would be classified as poor in 2002/3. Compared to 1996, poverty decreased by 9.2 percentage points (World Bank 2004). While Mozambique's PPP estimate is not fully comparable to other countries as Mozambique was not included in the 1993 world-wide PPP surveys, we can use this number to make approximate comparisons, taking into account that it is probably an underestimate of the PPP$ comparable to that of surveyed countries. Compared to the neighbors, Mozambique is poorer than South Africa (7.1% in 1995), Tanzania (19.9% in 1993) and Uganda (24.6% in 2002) but richer than Zambia (63.7% in 1998), and Malawi (41.7% in 1998) – Mozambique is no longer the country with the highest poverty rates in the area.

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[4] In this analysis, we will use the Government's (census based) definition of urban areas except where we are making explicit comparisons between the urban populations in the two surveys. In this case, we will label the tabulation as "consistent".

Regionally[5], poverty reduction was greatest in the Center, especially in rural areas. This result is in part driven by the large change in Sofala and Zambezia, two populous provinces. Government analysts believe that the change in Sofala is overstated owing to an under measurement of consumption in 1996/7. The next largest decline in poverty came in the North, including a large decline in Nampula. Oddly, the decline in the North was greater in urban areas than in rural, and poverty actually increased in Cabo Delgado. Government analysis attributes the increase in Cabo Delgado to poor sampling in both years but primarily in the earlier survey, which led to an underestimation of poverty in the 1996/7 data[6]. Poverty increased in the South, especially Maputo, as well as the surrounding province and in urban areas in Inhambane[7]. The small poverty reduction in the rural South was overwhelmed by the increase in urban poverty. Not only did poverty increase, but the depth and severity also increased in Maputo City and province.

Non-income welfare trends

Poverty is a multi-dimensional phenomenon, measured not only by monetary poverty but by measures of well being. Ideally, these indices move together. Table 3 shows some measures we have been able to tabulate from the survey data.

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[5] North includes Niassa, Cabo Delgado and Nampula; Center includes Sofala, Tete, Manica and Zambezia; South includes Gaza, Inhambane, Maputo Province and Maputo City

[6] Regional trends in poverty changes would show the same picture even when poverty rates are calculated without the provinces with measurement problems. Poverty reduction would still be highest in the Center when Sofala is excluded from the calculations (the reduction would be 21.6 rather than 28.2 percentage points) followed by the North without taking Cabo Delgado into account (poverty reduction in the North would be 16.3 percentage points rather than 10.5).

[7] If the Government team had used the same food basket for both survey years, poverty in Maputo City would have fallen by 2 percentage points, rather than increased. But the change in poverty nationwide would have been smaller (-6.2 compared with –15.3 with the new basket). The change in baskets corrects for the large change in relative prices which occurred between the two surveys caused in part by the devaluation, which raised the price of imported food and non-food items. Imported food and non- food items are consumed in greater quantities by urban residents, so their welfare declined relative to rural residents. This is especially true in Maputo, where housing and transportation costs are high, and an important part of the consumption bundle of the poor. Indeed, although poverty increased, the share of food in total household expenditures in Maputo fell as households are forced to spend more on getting to work, housing, etc. As a result, poor households in Maputo are showing a calorie deficit.

Table 3: Non-monetary measures of welfare

	All		1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile		Urban	Rural
	1996	2002	1996	2002	1996	2002	1996	2002	1996	2002	1996	2002	2002	2002
Food share	68	61	67	60	70	63	70	64	69	64	63	52	50	66
Durable goods														
Radio	29	65	20	59	26	63	25	65	28	66	38	68	65	65
TV	5	9	1	4	2	5	3	5	4	7	11	19	23	1
Clock	24	43	14	34	21	38	24	35	23	41	32	58	60	34
Motorbike	1	2	0	0	0	1	1	1	1	1	3	4	3	1
Bicycle	13	40	10	28	15	35	12	39	14	44	15	47	23	50
Housing[a]														
Durable wall	31	85	23	74	24	83	31	88	32	87	39	90	87	85
Durable roof	16	25	11	27	12	25	16	19	15	18	23	34	56	11

[a] Durable wall includes stone and wood walls; durable roof includes concrete, tile, lusalite and zinc roofs. The non-durable walls or roofs consist of natural materials such as reed and leafs. They also include the category "other".
[b] The significance of the difference between both years was tested (for the full sample) and proved significantly different at 1 percent for all variables.

The first line shows the share of household expenditures on food. This is a check on the monetary poverty measures above, because usually as households get richer they spend relatively less on food and relatively more on non-food. This measure decreased nationally and in all five quintiles of consumption. Households spend on durable goods once they have met basic needs, and Table 3 shows an increase in the percentage of households owning durables for all goods listed. All quintile groups were able to buy more radios and bicycles. Another savings vehicle is housing, or in this case, home improvements. Upgrading of houses has taken place in all quintile groups. Noteworthy is the improvement in the share of houses who have managed to acquire a better roof. This is usually a cash purchase, so the fact that it rose so sharply in the first and second quintiles is a good indicator of increases in wealth and welfare.

Access to public services has improved overall but there are differences between consumption quintiles and urban versus rural areas (Table 4).

Table 4: Access to services

	All[f]		1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile		Urban	Rural
	1996	2002	1996	2002	1996	2002	1996	2002	1996	2002	1996	2002	2002	2002
Water														
Use safe water	24	37	24	38	20	32	20	35	22	34	30	45	64	27
<30' to water	69	90	71	85	69	89	69	91	68	90	71	94	97	87
Sanitation														
Latrine[a]	35	45	29	47	33	46	33	41	35	38	41	52	72	33
Electricity														
Used in HH[b]	4	7	1	1	1	3	1	4	4	5	11	18	22	0
Health														
Recently ill[c]	11	16	9	14	11	15	11	16	13	18	14	17	14	17
Seeking help[d]	51	56	46	53	49	53	49	56	54	53	54	66	74	50
<30' health post[d]	-	35	-	33	-	30	-	35	-	32	-	42	68	21
Education														
Enrolled 7-12	51	93	39	90	48	92	48	93	58	93	62	95	96	91
Enrolled 12-18	41	69	32	68	39	66	39	70	47	71	49	69	75	64
<30' primary[e]	-	73	-	72	-	73	-	72	-	73	-	74	91	65
<30' secondary	-	15	-	14	-	14	-	12	-	12	-	23	41	4

[a] use of latrine includes latrines, improved latrines and better sanitation types such as toilet and bathroom
[b] electricity used for cooking and/or lighting
[c] incidence ill is not fully comparable between both survey years: recall period 1996/7 was one month while recall period 2002/3 was two weeks
[d] help : went for medical advice when sick, seeking help from traditional healers excluded
[e] distance (time) to sanitary post and school : only available at the household level for 2002 (in 1996 the question was included in the community questionnaire)
[f] The significance of the difference between both years was tested for the full sample and significant at 1 percent for all variables

With respect to water and sanitation we find that the use of safe water (i.e. private or public tap water and protected springs) has increased by 13 percent nationally and there is not much variation in this increase by consumption quintile. Also the distance to the water source that is mainly used by the household (which can be unsafe water) has decreased. In 2002/3 90 percent of the households are within half an hour from their water source. However, this does not take into account waiting time at the water source. The increase in households living within half an hour of their water source was lowest for the bottom quintile. The difference between access to safe water in rural versus urban areas is 27 and 64 percent respectively. The use of electricity increased only marginally, 3 percent on average but mainly driven by more electricity use in the top quintile. Only households in urban areas have access to electricity.

Access to health care as measured by the percentage of households seeking medical help when a household member falls ill, increased by 5 percent overall but there is still a large gap between the richest and the other quintiles (Table 5).

Table 5: Selected health outcome indicators

	TFR		Infant mortality		Under 5 mortality		Stunting	Wasting
	1997	2003	1997	2003	1997	2003	2003	2003
Total	5.6	5.5	147	124	219	178	41.0	4.0
Urban	5.1	4.4	101	95	150	143	29.2	3.1
Rural	5.8	6.1	160	135	237	192	45.7	4.3
Niassa	5.9	7.2	134	140	213	206	47.0	1.3
Cabo Delgado	4.9	5.9	123	177	165	240	55.6	4.1
Nampula	5.6	6.2	216	164	319	220	42.1	6.0
Zambezia	5.4	5.3	129	89	183	123	47.3	5.2
Tete	7.0	6.9	160	125	283	206	45.6	1.6
Manica	7.6	6.6	91	128	159	184	39.0	2.8
Sofala	6.1	6.0	173	149	242	206	42.3	7.6
Inhambane	5.5	4.9	151	91	193	149	33.1	1.3
Gaza	5.9	5.4	135	92	208	156	33.6	6.7
Maputo province	5.0	4.1	92	61	147	108	23.9	0.5
Maputo City	4.0	3.2	49	51	97	89	20.6	0.8
Poorest quintile[a]	-	6.3	188	143	278	196	49.3	5.6
Poorer quintile	-	6.1	136	147	214	200	46.7	4.3
Middle quintile	-	6.3	144	128	216	203	46.2	3.0
Richer quintile	-	5.2	134	106	187	155	35.2	3.9
Richest quintile	-	3.8	95	71	145	108	20.0	2.5

Source: Demographic and Health Survey, 1997 and 2003; Gwatkin, e.a., 2000
[a] Quintiles are wealth quintiles
TFR: total fertility rate for ages 15-49, expressed per woman
Stunting (height-for-age): percentage of children under age 5 who are below -2 standard deviations (SD) from the median of the International Reference Population (not comparable to 1997)
Wasting (weight-for-height): percentage below -2 SD (not comparable to 1997)

A gap exists between the top and the other quintiles with respect to distance to the nearest health post. In the top quintile 42 percent of the households mention they live within half an hour of a health post whereas in the other quintiles this is between 30 and 35 percent. Again we find a strong urban-rural gap: in urban areas 68 percent of the households mention they live within half an hour from a health post whereas in rural areas only 21 percent do. Despite the increase in access, the reported incidence of illness went up. This may reflect a change in the reporting period between the two surveys, or it may reflect that fact that as education and income increase, illness is more likely to be reported. In any case, on average in Mozambique, in any 2 week period in 2002, 16% of the population on average was ill, and only half of those sought help from a trained practitioner, suggesting that the risk of loss of time from work or school and/or a financial shock stemming from the need to pay for medical treatment is a large risk to poor households in Mozambique.

School enrollments increased dramatically, between surveys. Enrollment is still increasing with consumption quintiles but the gap has become much smaller (Table 6).

Table 6: **Access to services**

	All[f]		1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile		Urban	Rural
	1996	2002	1996	2002	1996	2002	1996	2002	1996	2002	1996	2002	2002	2002
Water														
Use safe water	24	37	24	38	20	32	20	35	22	34	30	45	64	27
<30' to water	69	90	71	85	69	89	69	91	68	90	71	94	97	87
Sanitation														
Latrine[a]	35	45	29	47	33	46	33	41	35	38	41	52	72	33
Electricity														
Used in HH[b]	4	7	1	1	1	3	1	4	4	5	11	18	22	0
Health														
Recently ill[c]	11	16	9	14	11	15	11	16	13	18	14	17	14	17
Seeking help[d]	51	56	46	53	49	53	49	56	54	53	54	66	74	50
<30' health post[d]	-	35	-	33	-	30	-	35	-	32	-	42	68	21
Education														
Enrolled 7-12	51	93	39	90	48	92	48	93	58	93	62	95	96	91
Enrolled 12-18	41	69	32	68	39	66	39	70	47	71	49	69	75	64
<30' primary[e]	-	73	-	72	-	73	-	72	-	73	-	74	91	65
<30' secondary	-	15	-	14	-	14	-	12	-	12	-	23	41	4

[a] use of latrine includes latrines, improved latrines and better sanitation types such as toilet and bathroom
[b] electricity used for cooking and/or lighting
[c] incidence ill is not fully comparable between both survey years: recall period 1996/7 was one month while recall period 2002/3 was two weeks
[d] help : went for medical advice when sick, seeking help from traditional healers excluded
[e] distance (time) to sanitary post and school : only available at the household level for 2002 (in 1996 the question was included in the community questionnaire)
[f] The significance of the difference between both years was tested for the full sample and significant at 1 percent for all variables

The distance to primary schools appears to be equal over all quintile groups: 73 percent of the population lives within half an hour of a primary school. At the level of secondary schools, there is a gap between the richest and the other quintiles. While on average 12 to 14 percent of the households live close (i.e. within half an hour distance) to a secondary school, 23 percent in the richest quintile do children under 12. There is a difference in enrollment rates between urban and rural areas but the difference is only 5% (96 versus 91 percent enrolled) while for secondary school age children it is much larger (75 versus 64 percent). The rural-urban difference with respect to distance to the nearest school is very large: while in urban areas 91 percent of the households live within half an hour from the nearest primary school only 65 percent of the rural households do. For secondary schools the gap is even wider: 41 in urban versus 4 percent in rural areas live close to a secondary school.

Although access to services has improved, health outcomes show a mixed picture. (Table5). Using data from the DHS surveys from the same period, we see that nationally, total fertility rates (TFR) have barely moved as a strong decrease in urban areas was balanced by a slight increase in rural areas. However, Mozambique's TFR is still lower than either Uganda or Tanzania. Infant mortality rates have also improved, but the gap between rural and urban remains large, and some provinces registered an increase: Niassa, Cabo Delgado, and Manica. Under five mortality has decreased except in Cabo Delgado and Manica. In Cabo Delgado poverty has increased by ten percent which could explain the increase in infant and under five mortality rates but in Manica poverty decreased by nearly 29 percent. The numbers for wasting (or short-term malnutrition) and stunting (long-term malnutrition) are not comparable between survey reports, so we only show the most recent number. The pattern continues for stunting: rural areas and the Northern provinces show the worst performance. Also for wasting, regional disparities exist and can be quite puzzling. For example, Sofala has the lowest poverty rates in 2003 but the highest prevalence of wasting and the fifth highest percentage of stunted children. The outcome on malnutrition is not exceptional. Income growth alone will not be sufficient to meet the MDG of halving the prevalence of underweight children (low weight-for-age) and direct interventions will be necessary (Haddad, 2003). In general, all health outcomes appear to be better in the top asset quintile. Infant and under five mortality rates have decreased in nearly all quintiles, and more so in the bottom wealth quintile but they are still twice as high as the numbers in the top quintile.

Generally we find that changes by quintile in non-monetary measures of welfare track consumption and poverty numbers quite well, as assets went up in all quintiles, food share went down and access to services improved. Outcomes have improved as well, so public policy appears to have played an important role in improving welfare. However both the rate of improvement and the value of the outcome measures differ across Mozambique. Addressing this will be the next policy challenge.

Inequality

One key reason for the strong poverty performance can be seen in the growth and distribution of consumption. Overall, consumption per AE grew at an average annual rate of 4.6, which is slightly higher than the growth of private consumption measured in the national accounts.

Table 7: Growth of consumption by quintile, 1996/7-2002/3

% Change	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile	Total
Rural*	21.6	30.0	31.1	31.1	30.1	27.5
Urban*	27.0	11.2	14.8	16.5	28.2	24.4
Niassa	52.9	49.7	40.7	37.5	48.8	45.8
Cabo Delgado	6.4	-5.2	-7.9	-8.8	21.5	6.2
Nampula	36.5	23.9	26.3	21.3	13.2	19.6
Zambezia	25.1	41.4	41.2	37.8	53.9	43.7
Tete	8.2	34.7	49.8	50.9	54.7	47.1
Manica	-3.6	27.3	34.2	30.0	18.6	22.5
Sofala	236.4	199.3	181.2	186.7	221.1	205.5
Inhambane	-27.2	-17.6	-9.7	-2.9	9.3	-2.0
Gaza	16.7	4.6	7.1	9.7	15.4	12.3
Maputo	-5.6	-12.1	-6.3	-9.3	-1.7	-5.1
Maputo City	-13.3	-13.8	-9.6	1.3	23.8	8.7
All	23.4	25.6	27.8	28.1	36.1	30.9

*These quintiles have been computed separately for the rural and urban populations, and are different than the national quintiles used elsewhere.

Table 7 shows the growth of consumption between 1996/97 and 2002/03 by national quintiles, and by separate quintiles for the rural and urban population. In rural areas, the average consumption of the bottom quintile grew less than the other quintiles: 21.6% compared with around 30% in all other quintiles. In urban areas, real consumption growth was highest in the bottom and top quintile but much lower than average in the middle three quintiles. As a result, growth did not translate into as much poverty reduction in urban areas. In Maputo City, average consumption per adult equivalent in the lowest three quintiles fell while in the two highest it increased, so poverty actually increased in Maputo City despite an overall increase in consumption. By contrast, in urban Manica and Nampula, consumption increased sharply in the lowest quintile, which overshadowed the decrease recorded in the highest quintile

These changes in the distribution of consumption can be summarized by the measures of inequality, the Gini and the Theil (Table 8).

Table 8: Measures of Inequality, 1996/7 and 2002/3

	1996		2002	
	Theil	**Gini**	**Theil**	**Gini**
Urban	0.404	0.452	0.462	0.463
Rural	0.238	0.355	0.256	0.363
All	0.288	0.383	0.343	0.403

Decomposition of the Theil Index in within- and between-group inequality (groups defined by urban/rural)

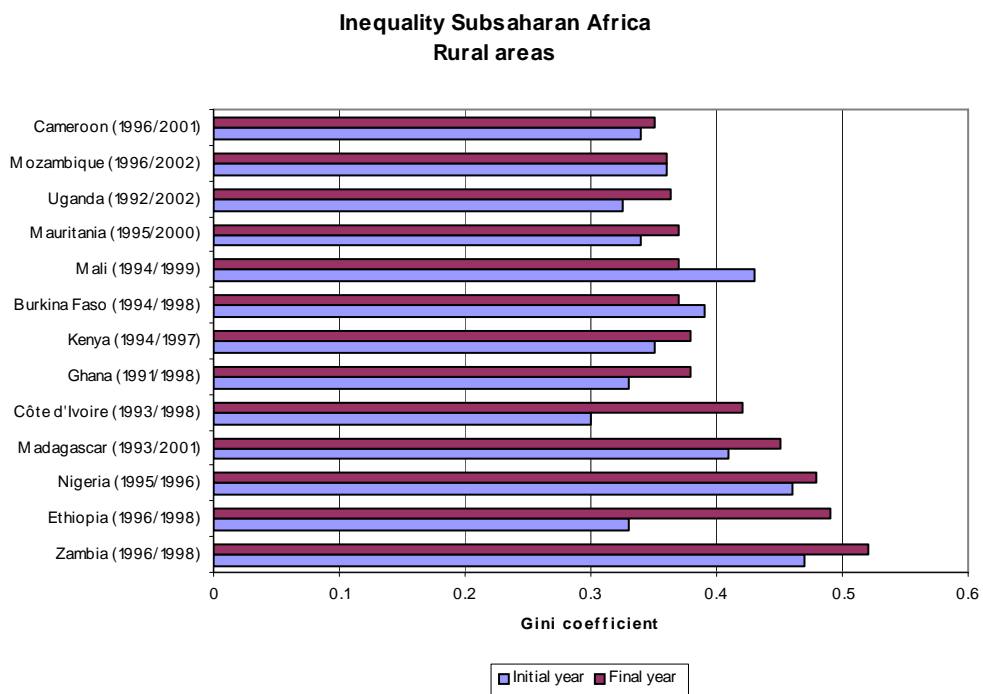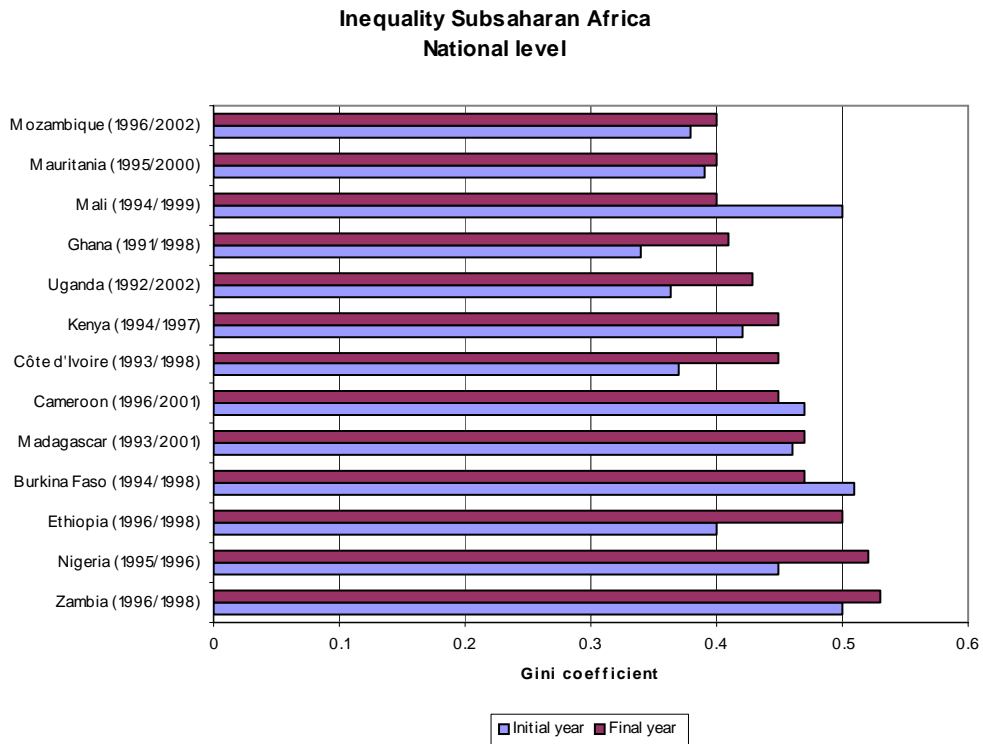|	1996	2002
Within-group inequality	0.280	0.334
Between-group inequality	0.008	0.008
% of within-group inequality	97.2	97.7

Decomposition of the Theil index in within- and between-group inequality (groups defined by provinces)

	1996	2002
Within-group inequality	0.264	0.323
Between-group inequality	0.024	0.020
% of within-group inequality	91.7	94.2

For Mozambique as a whole, there was an increase in inequality over the period, and the movement in the Ginis was less than the movement in the Theil. Inequality within urban areas is substantially higher than within rural areas, but as the Theil decomposition shows, the rural-urban gap is not a major factor in explaining national inequality, and it did not change over the period. In terms of within province inequality, most provinces stayed the same or had a slight increase, but within Maputo City and Cabo Delgado a large increase in inequality shows up, but in the latter province, this may be due in part to a sampling problem. However, using data from the 1996/7 survey and the census data to construct a poverty map, Elbers et al (2003) found similar results: low inequality between provinces, but higher inequality within provinces. Breaking these results down to districts and then down to administrative posts, within group inequality remains high, but inequality between groups also becomes important in explaining overall inequality. The areas with the highest inequality are clustered around Maputo, but, inequality is not monotonically associated with mean consumption. Compared with other countries in Africa, Mozambique's overall level of inequality is one of the lowest in Africa, but urban inequality is slightly higher than most countries on which the Bank has data (Graph 2).

Graph 2: Gini coefficients in SSA countries

Inequality Subsaharan Africa
National level

Gini coefficient

Initial year   Final year

Inequality Subsaharan Africa
Rural areas

Gini coefficient

Initial year   Final year

Inequality Subsaharan Africa
Urban areas
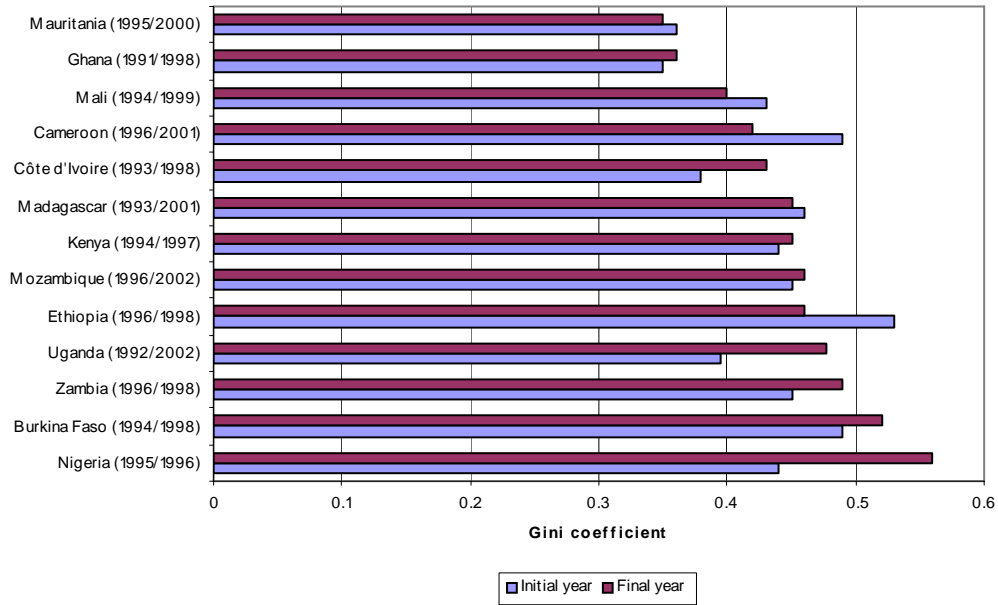
Graph 3 shows the growth incidence curve for Mozambique (and the mean percentile growth rate of 4.1%). It illustrates that there was substantial growth for all percentiles, but growth has been slightly higher for the wealthier households. This reflects the small increase in inequality.

Graph 3: Growth incidence curve
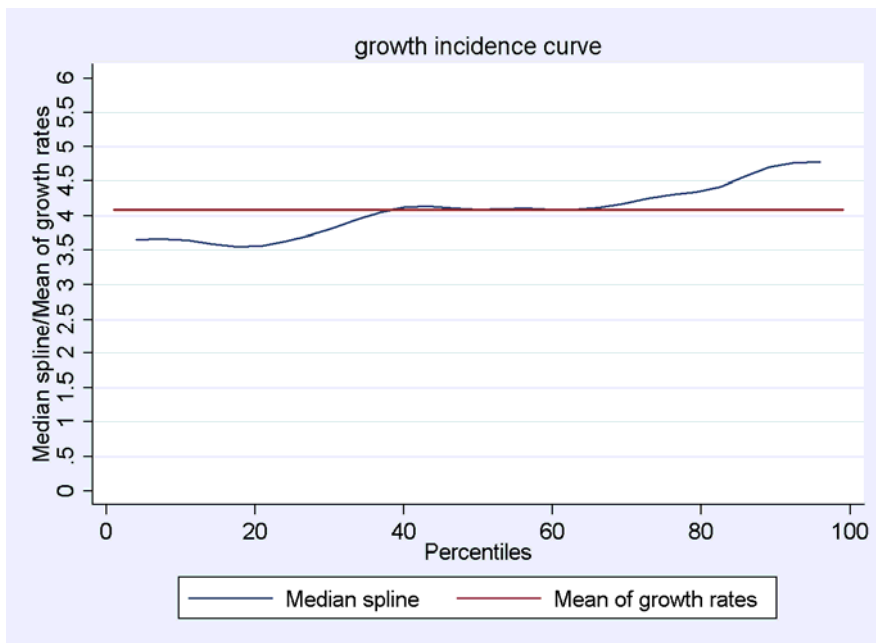
A summary of the changes can be found in Table 9.

Table 9: Growth of consumption

	Growth rate over the period 1996-97 to 2002-2003	Annual growth rate
Growth rate in mean	30.9	4.6
Growth rate at median	27.4	4.1
Mean percentile growth rate	27.2	4.1
Rate of pro-poor growth (headcount index of 69.1% and poverty line of 11240 Mt./day in 2002 real terms)	25.7	3.9

Looking at the growth rates of consumption over the relevant period (between IAF 1996-97 and 2002-03) at each percentile of the distribution, we see that poverty has unequivocally decreased from 1996-97 to 2002-03. The Ravallion-Chen (2003) "rate of pro-poor growth" is the mean growth rate of the poor, which is also positive, although less than the growth rate at the mean or the median, reflecting rising inequality[8].

Accounting for the change in poverty

As discussed above, the change in the national poverty rate is the result of changes in poverty rates of various subgroups, and the change in other factors such as inequality or population shift. These subgroups can for example, be defined by location, or by sector of activity of the household.

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[8] James e.a. (2005) also tackles the question to what extent growth in Mozambique has been pro-poor using the same data. They reach the same conclusions.

Table 10: Decomposition of change in poverty by geographical and sectoral dimensions

	Total Change in Poverty	Change in Mean Consumption	Change in Inequality	Residual
National decomposition				
Total change in poverty 2002-1996	-15.1	-16.9	1.3	0.5
Regional decomposition				
Change in poverty in the North	-10.5	-11.7	3.4	-2.3
Change in poverty in the Center	-28.2	-28.7	2.2	-1.7
Change in poverty in the South	0.7	-2.2	2.9	0.04
Regional+ urban decomposition				
Change in poverty in North urban	-40.5	-33.1	-11.4	4.0
Change in poverty in North rural	-5.1	-6.3	4.2	-3.0
Change in poverty in Center urban	-20.3	-25.3	2.3	2.8
Change in poverty in Center rural	-29.2	-29.0	2.3	-2.5
Change in poverty in South urban	7.1	-1.2	8.6	-0.4
Change in poverty in South rural	-3.2	-2.8	-0.9	0.5
Urban-rural				
Change in urban poverty	-10.1	-11.3	2.0	-0.8
Change in rural poverty	-15.8	-15.7	-0.6	0.5
Urban-rural (consistent def)				
Change in urban poverty	-12.1	-13.6	1.4	0.2
Change in rural poverty	-15.9	-18.4	1.4	1.1
Aggregate sectors				
Change in agriculture poverty	-14.4	-13.0	-0.7	-0.7
Change in industry poverty	-8.9	-19.3	6.9	3.5
Change in service1 poverty	-9.2	-11.2	-0.8	2.7
Change in service2 poverty	-19.9	-22.6	0.8	1.9
Head employment status				
Head is public employee	-24.9	-28.8	-0.1	4.1
Head is private employee	-12.5	-20.4	4.2	3.6
Head self-employed	-14.6	-15.1	0.3	0.2
Head is employer/co-operative	2.8	11.0	-14.2	6.0
Head in family business	-20.9	-16.3	0.5	-5.1

Individuals are assigned to the sector where the household head is employed. If the head is not employed they are assigned to the sector of employment of the oldest adult. If nobody works (less than 5% of all cases) they are assigned to agriculture; 'Service 1' includes trade, transports and services; 'service 2' includes health, education, and public administration. North includes Niassa, Cabo Delgado, Nampula; Center includes Sofala, Tete, Manica, Zambezia; South includes Gaza , Inhambane, Maputo Province, Maputo City.

In Table 10, the decomposition analyzes the role of: (a) growth in average consumption per AE for the group, and (b) inequality within the group, in accounting for the decline in poverty. Table 11 decomposes the change in poverty by regional and sectoral groups.

Table 11: Decomposition of change in poverty by geographical and sectoral dimensions

	Mozambique	North	Center	South
Poverty in 1996	69.1	65.9	73.4	66.1
Poverty in 2002	54.1	55.4	45.2	66.8
Total change in poverty 2002-1996	-15.1	-10.5	-28.2	0.7
Regional decomposition				
Change in poverty in the North	-3.4			
Change in poverty in the Center	-12.0			
Change in poverty in the South	0.2			
Total intraregional component	-15.2			
Population shift (regional migration)	-0.03			
Interaction component (residual)	0.1			
Provincial decomposition				
Change in poverty in Niassa	-1.0	-3.0		
Change in poverty in Cabo Delgado	0.5	1.5		
Change in poverty in Nampula	-2.9	-9.1		
Change in poverty in Zambezia	-4.6		-11.0	
Change in poverty in Tete	-1.6		-3.7	
Change in poverty in Manica	-1.1		-2.6	
Change in poverty in Sofala	-4.7		-11.1	
Change in poverty in Inhambane	-0.2			-0.8
Change in poverty in Gaza	-0.4			-1.5
Change in poverty in Maputo	0.3			1.2
Change in poverty in Maputo city	0.4			1.4
Total intraprovincial component	-15.4	-10.6	-28.4	0.4
Population shift (provincial migration)	0.02	-0.1	-0.1	0.4
Interaction component (residual)	0.3	0.2	0.3	-0.1
Urban-rural (consistent 1996 definition)				
Change in urban poverty	-2.5	-7.1	-2.4	2.7
Change in rural poverty	-12.7	-4.2	-25.8	-1.9
Total intrasectoral component	-15.1	-11.3	-28.2	0.8
Population shift (urban-rural migration)	0.0	-0.6	-0.1	-0.1
Interaction component (residual)	-0.0	1.3	0.1	0.0
Aggregate sectors				
Change in agriculture poverty	-11.3	-6.1	-21.9	-0.4
Change in industry poverty	-0.7	0.0	-1.8	1.1
Change in service1 poverty	-0.9	-0.6	-2.3	1.3
Change in service2 poverty	-0.8	-1.2	-0.9	0.1
Total intrasectoral component	-13.7	-7.9	-26.9	2.1
Population shift (sector shift)	-1.6	-1.4	-1.0	-1.8
Interaction component (residual)	0.2	-1.2	-0.3	0.4

Individuals are assigned to the sector where the household head is employed. If the head is not employed they are assigned to the sector of employment of the oldest adult. If nobody works (less than 5% of all cases) they are assigned to agriculture; 'Service 1' includes trade, transports and services; 'service 2' includes health, education, and public administration. North includes Niassa, Cabo Delgado, Nampula; Center includes Sofala, Tete, Manica, Zambezia; South includes Gaza , Inhambane, Maputo Province, Maputo City.

At the most aggregate levels, the modest change in inequality played a small role in the poverty outcome, as the dominant role was played by the total increase in aggregate consumption. At the regional level, the changes in inequality (both positive and negative) did have an effect on poverty. In the North, inequality declined *within* urban areas contributing to poverty reduction there, although inequality increased in the North as an aggregate. In the Center, the strong growth in consumption overwhelmed the small changes in inequality. In the South, average consumption increased slightly even in urban areas, but the increase in inequality in urban areas meant that none of it reached

the poor. Turning to households classified by the main activity of the head of household, not surprisingly, the good performance of agricultural households (both in consumption growth and the low inequality) stands out as a driver of poverty reduction. The few households whose head works in the public sector also saw a large gain in consumption translate into a good poverty reduction performance. Meanwhile, the industrial sector became more unequal, resulting in a lower than expected poverty performance. Classifying households by which type of employer the household head is working for, poverty reduction is mainly driven by growth in consumption, except for the group of households with a head who is an employer. This small group (which is probably not even comparable between surveys as, for example, most cooperatives were disbanded and state enterprises privatized) would have seen a increase in poverty if not for a decrease in inequality. Public employee households saw the largest increase in mean consumption.

Table 10 does not incorporate the relative weight of the groups in the poverty population. This effect is explored in Table 11, which shows the contribution to total poverty reduction of the growth in consumption of each group, weighted by the share in the population, and accounting for population shifts. The regional and provincial decompositions hold no surprises, as they confirm the results above – the good results in the populous Center overwhelm the weak results in the South and the more modest results in the North[9]. Likewise, the good performance of the urban areas outside of the South make up for the poor performance there. The decomposition shows that the effect of migration is zero at the national level, and very small in the regions. Finally, at the sectoral level, once again the importance of improvements in consumption in agricultural households stands out as the most dominant factor explaining Mozambique's poverty performance. The contribution of the sector shift was poverty reducing, but not large.

Determinants of Income and Poverty, 2002/3

Having analyzed the historical trends, we next look in more detail at the determinants of poverty and income from the 2002/3 household survey. We have already seen strong regional elements of poverty. Poverty is primarily a rural phenomenon, because Mozambique is a rural society and economy. However, half of the urban population (or 15% of the total population) is poor as well. Regionally, the poor are more likely to be found in the south than in the central provinces or even in the north (Table 12).

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[9] Even if we exclude Sofala and Cabo Delgado, the provinces where there were some measurement problems, from the calculations, the results are weaker but remain the same.

Table 12: Distribution of the province population across nation-wide quintiles of per adult equivalent consumption

1996	1st quintile group	2nd quintile group	3rd quintile group	4th quintile group	5th quintile group	Total
Niassa	21.2	21.3	18.2	19.3	20.0	100.0
Cabo Delgado	11.1	13.6	20.4	27.2	27.7	100.0
Nampula	20.1	17.9	21.4	20.7	19.9	100.0
Zambezia	11.5	25.9	20.2	23.5	18.9	100.0
Tete	32.7	23.4	17.1	14.9	11.9	100.0
Manica	10.6	23.0	20.1	20.4	25.9	100.0
Sofala	50.7	16.2	16.0	10.5	6.6	100.0
Inhambane	28.9	26.0	21.7	12.8	10.5	100.0
Gaza	13.1	17.2	23.7	23.3	22.8	100.0
Maputo	19.4	17.7	20.0	17.3	25.7	100.0
Maputo City	7.5	10.7	19.1	23.5	39.3	100.0
All	20.0	20.0	20.0	20.0	20.0	100.0
Quintile	5049	7032	9630	13920		

2002	1st quintile group	2nd quintile group	3rd quintile group	4th quintile group	5th quintile group	Total
Niassa	12.0	20.0	25.1	19.4	23.6	100.0
Cabo Delgado	18.9	28.9	20.7	20.0	11.5	100.0
Nampula	19.0	19.6	22.7	21.6	17.1	100.0
Zambezia	10.2	18.0	22.3	26.7	22.7	100.0
Tete	29.3	17.5	17.4	20.9	15.0	100.0
Manica	17.6	13.9	17.8	24.7	26.0	100.0
Sofala	7.5	15.9	19.0	19.9	37.7	100.0
Inhambane	52.2	21.0	11.7	7.2	7.9	100.0
Gaza	16.9	26.2	21.9	17.9	17.1	100.0
Maputo	36.6	21.3	16.2	12.1	13.8	100.0
Maputo City	19.8	21.5	17.2	13.9	27.6	100.0
All	20.0	20.0	20.0	20.0	20.0	100.0
Quintile	6199	9034	12241	17966		

The quintiles are in meticais/day (in 2002 real terms

Inhambane in particular is poor, as 70% of the residents are in the two lowest quintiles (a major deterioration from 1996/7). Maputo and Tete have around one third of their population in the lowest consumption quintile while Sofala, Manica and Maputo city have the largest share of their population in the upper quintile. Maputo and Maputo City are noteworthy for having a small share in the fourth quintile – a missing middle in their distribution. Next, we concentrate on the characteristics of each quintile (Table 13).

Table 13: Averages of variables used in consumption regressions, HH composition by consumption quintiles

	All		1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile	
	1996	2002	1996	2002	1996	2002	1996	2002	1996	2002	1996	2002
Demographics												
Household size	4.8	4.8	6.4	6.0	5.7	5.4	5.0	4.8	4.3	4.3	3.5	4.0
Children age 0-5	0.9	1.0	1.2	1.4	1.1	1.2	0.9	1.0	0.8	0.9	0.6	0.8
Children age 6-9	0.6	0.6	0.9	0.8	0.9	0.7	0.7	0.6	0.6	0.5	0.4	0.4
Children 10-14	0.7	0.6	1.1	0.9	0.9	0.8	0.8	0.6	0.6	0.5	0.4	0.4
Men age 15-59	1.1	1.1	1.4	1.2	1.3	1.1	1.2	1.0	1.0	0.9	0.9	1.0
Women age 15-59	1.3	1.3	1.6	1.5	1.4	1.4	1.3	1.3	1.2	1.2	1.1	1.1
Adults 60+	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Female head	21%	25%	20%	27%	20%	25%	19%	23%	24%	25%	23%	25%
Disabled adult(s)	7%	7%	9%	10%	8%	8%	8%	6%	6%	6%	6%	5%
Disabled child	2%	2%	2%	3%	2%	2%	3%	2%	2%	2%	1%	2%
Dependency ratio[a]	0.99	1.23	1.14	1.54	1.16	1.43	1.08	1.21	0.97	1.08	0.77	1.04
Head characteristics												
Age of head	42	43	46	46	43	43	42	42	41	42	40	41
Single head	5%	2%	3%	2%	3%	2%	3%	2%	4%	2%	8%	3%
Married head	69%	65%	70%	60%	73%	69%	71%	67%	70%	66%	65%	62%
Polygamous head	10%	11%	12%	13%	12%	8%	10%	11%	9%	10%	7%	11%
Divorced head	7%	11%	6%	11%	5%	11%	8%	11%	7%	12%	9%	12%
Widowed head	9%	10%	9%	13%	7%	9%	9%	9%	10%	10%	11%	11%
Head no education[b]	41%	29%	50%	38%	48%	32%	41%	29%	41%	31%	32%	21%
Head some education	31%	44%	32%	41%	28%	46%	34%	50%	31%	45%	30%	38%
Head completed EP1	18%	16%	14%	16%	17%	15%	18%	14%	20%	16%	20%	17%
Head completed EP2	7%	6%	4%	4%	5%	5%	6%	5%	7%	5%	10%	10%
Head completed ES1	2%	3%	0%	1%	1%	1%	1%	1%	1%	2%	3%	7%
Head over ES1	1%	2%	0%	0%	0%	1%	1%	1%	1%	1%	3%	7%
Rural population (%)[c]	80	68	81	69	84	68	80	71	83	73	70	59

a Economic dependency ratio, i.e. number of people not working/number of people working; b The education percentages add up to 100, showing the maximum schooling of the household heads, categories are exclusive. E.g. the percentage of household heads having completed primary schooling (EP2) would be 10%; cRural population at the individual level, i.e. percentage individuals living in rural areas

In the bottom quintile household size is on average higher compared to the household sizes in the other quintiles. But household size is decreasing in the lower quintiles while increasing in the top quintile (in particular the average number of young children appears to increase).[10] The economic dependency ratio increases in all quintiles but most in the bottom quintile, which has in 2002 a much higher economic dependency ratio than the other quintiles. The percentage of female headed households increases in all quintiles but mostly in the bottom quintile. Unlike in 1996 the bottom quintile has the highest percentage of female headed households. Furthermore, the highest percentage of households with disabled adults can be found in the bottom quintile. Age of the

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[10] We attempted to calculate the number of households with an orphan, but the data are not reliable on this point.

household head appears to be decreasing with consumption quintile. There is a decreasing trend in the percentages of household heads without any form of education but there are still many more in the bottom quintile. The household heads in the top quintile reached on average a much higher education. When we turn to sector of employment of the household head (Table 14) we see that agriculture is the most popular sector of employment but there is a decreasing trend.

Table 14: Household head employment sector and contract

	All		1st quintile		2nd quintile		3rd quintile		4th quintile		5th quintile		Urban	Rural
	1996	2002	1996	2002	1996	2002	1996	2002	1996	2002	1996	2002	2002	2002
Agriculture	82	75	87	80	86	80	82	81	84	79	74	60	42	89
Mining	1	1	1	1	1	1	1	0	1	1	1	1	1	1
Manufacturing	4	1	4	1	4	1	3	1	3	1	5	2	2	1
Construction	1	3	1	3	1	3	2	4	2	2	1	3	7	1
Transport	2	2	1	1	1	1	1	1	1	1	2	3	4	0
Trade	4	8	2	5	2	7	5	6	4	7	6	14	18	4
Services	3	6	2	6	2	4	2	5	2	4	5	8	15	2
Education	1	2	1	1	1	1	1	1	1	3	2	5	4	2
Health	1	1	1	1	0	1	1	0	1	0	1	1	2	0
Public administration	2	2	1	1	1	1	2	1	1	2	3	4	6	0

Type of contract of household head	All 2002	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile	Urban	Rural
Wage (in kind/cash)	16	13	12	12	14	27	40	7
Casual	3	3	3	3	2	2	7	1
Self-employed	81	83	84	85	83	71	52	92
Family worker	1	1	1	0	1	0	1	0

Numbers by contract type only for 2002, question/answers not comparable over both surveys.

There is a big difference between the top quintile and all other quintiles. In the top quintile the percentage of heads working in the agricultural sector has decreased much faster (by 14 percent) than in the other quintiles (by 1 to 7 percent). By 2002/3, only 60 percent of household heads in the top quintile were engaged in agriculture but in all lower quintiles 80 percent were still in this sector. In the top quintile more heads are working in trade, services, education and public administration. This corresponds with the type of contract of the household head. In the top quintile the percentage of heads being self-employed is at least 12 percentage points lower than in any other quintile while the difference in the percentage working for a wage is higher. The averages are indicative of some patterns that may exist but in order to isolate the separate effects of these variables on the determination of household income, we used multivariate regressions (Table 15).

Table 15: Consumption regressions with district fixed effects

	1996					2002				
	Urban		**Rural**		**Signif. of**	**Urban**		**Rural**		**Signif. of**
Dependent variable: in consumption	**Coef.**	**Signif.**	**Coef.**	**Signif.**	**difference**	**Coef.**	**Signif.**	**Coef.**	**Signif.**	**difference**
HH demographics										
No of children 0-5	-0.067	***	-0.051	***		-0.061	***	-0.045	***	
No of children 6-9	-0.146	***	-0.089	***	***	-0.093	***	-0.076	***	
No of children 10-14	-0.030	**	-0.112	***	***	-0.106	***	-0.108	***	
No of men15-59	-0.081	***	-0.091	***		-0.003		-0.064	***	***
No of women 15-59	-0.004		-0.054	***	***	-0.021	**	-0.028	***	
No of adult >60	0.025		-0.089	***	***	0.025		-0.028		
Any disabled adults	-0.171	***	-0.010		***	-0.052		-0.100	***	
Any disabled children	-0.069		-0.039			0.020		-0.052		
Age head	0.024	***	-0.009	***	***	0.006		-0.007	**	**
Age head square	-0.000	***	0.000	***	***	-0.000		0.000	**	**
Head female	-0.461	***	-0.122		**	0.092		-0.186		
Head marital status[a]										
base category= single male										
Head married	-0.253	***	-0.142	**		-0.027		-0.141		
Head polygamous	-0.192	*	-0.091			0.001		-0.024		
Head divorced	-0.242	*	-0.001			0.030		-0.058		
Head widowed	-0.389	***	-0.113			-0.277	**	-0.127		
Added effect of female head on										
marital status										
Head female*married	0.584	***	0.134		***	0.102		0.385	**	
Head female*polyg	0.285		0.081			0.036		0.199		
Head female*divorce	0.390	**	-0.011		*	-0.209		0.057		
Head female*widow	0.632	***	0.085		***	0.237		0.171		

	1996					2002				
	Urban		Rural		Signif. of difference	Urban		Rural		Signif. of difference
Dependent variable: in consumption	Coef.	Signif.	Coef.	Signif.		Coef.	Signif.	Coef.	Signif.	
Head education										
base category=head no education										
Head some education	0.190	***	0.070	***	***	0.129	***	0.062	***	*
Head completed ep1	0.409	***	0.184	***	***	0.234	***	0.131	***	**
Head completed ep2	0.615	***	0.159	***	***	0.451	***	0.298	***	**
Head completed es1	0.712	***	0.458	***	**	0.715	***	0.695	***	
Head over es1	0.996	***	0.688	***	**	1.142	***	0.542	***	***
Employment sector										
base category=head in agriculture										
Head mines	-0.096		0.276	***	***	0.231	***	0.174		
Head manufacturing	0.156	***	0.014		**	0.014		0.275	***	**
Head construction	0.138	**	0.072			0.036		0.038		
Head transport	0.225	***	0.362	***		0.293	***	0.660	***	***
Head trades	0.343	***	0.334	***		0.304	***	0.296	***	
Head services	0.232	***	0.372	***	*	0.113	***	0.158	***	
Head education	0.098		0.256	***		-0.072		0.283	***	***
Head health	-0.025		0.292	***	**	0.267	***	0.341	***	
Head public administr	0.124	**	0.355	***	**	0.156	***	0.132		
Constant	9.016	***	9.226	***		9.049	***	10.174	***	
District fixed effects[b]	yes		yes			yes		yes		
Observations	2428		5782			4001		4695		
Adj Rsq	0.340		0.392			0.364		0.374		

*** significant at 1%, ** significant at 5%, * significant at 10%; [a] Head marital status: We included interaction terms with the gender of the household head. The first set of coefficients on marital status represents the total sample effect. The interacted terms represent the marginal effect for female headed households. If the interaction terms (Head female*X) are significantly different from zero, the total effect for female heads is the effect obtained from the first set of coefficients plus the interaction effect; [b] In 1996, 128 districts were covered; in 2002, 144 districts.

Following conventions (Klugman, 2002), the dependent variable was the log of household consumption per adult equivalent. A log specification (a) reduces the effect of outliers on the variables thus producing a normally distributed variable and (b) allows the coefficient to be interpreted as the marginal percentage effect of the independent variable on household consumption. We used a broad set of independent variables in the analysis, and our results can be interpreted as the household production function for consumption[11]. We included some variables which may be partly endogenous, such as household composition, because we still wanted to control for the independent part so that it does not pollute the other coefficients. We also included the gender of the head, the presence of any disabled adults or children, marital status of the head as well as education and sector of activity of the head. We estimated separate regressions for urban and rural areas, as we found the structures were quite different. To control for regional effects, we used dummy variables for districts[12] (this shows up as district fixed effects

Starting with the regressions for 2002/3, we see that with the exception of older household members, most of the variables on household composition are significantly negative. It is noteworthy that with the effect of different demographic groups on household consumption is roughly the same in rural and urban areas. The only exception is the number of men between 15 and 59 years old. This suggests that men in rural areas may not bring in as much in terms of household consumption as they take out but men in urban areas do. Possibly there are better opportunities for men in urban areas to add to household consumption, corrected for all other variables that may affect opportunities. Having disabled children in the household does not seem to affect household consumption but the presence of disabled adults has a negative effect on household consumption in rural areas (in 1996/97 disabled adults had a negative effect on consumption only in urban areas). This is as can be expected as it adds to the dependency burden of the household. In rural areas the age of the household head has a negative effect on household consumption. Furthermore, we find that living in a household with a widowed head (regardless of gender) significantly reduces consumption in urban areas. In rural areas we find that living in a household with a married female head results in higher consumption. We suspect that these households have a husband who could be a migrant worker sending remittances to his family, or that they are actually polygamous households.

Education of head has the expected positive signs, with rising returns, reflecting the relative scarcity of secondary and post-secondary education (in rural areas post-lower secondary shows smaller effects than lower secondary. Possibly there is limited demand for holders of degrees of higher secondary and more in rural areas). Returns are higher in urban areas for all levels of education. For post-(lower) secondary the return shoots up in urban areas and goes down in rural areas. Controlling for education, having the head work in mining (urban), manufacturing (rural), transport, trade, services, education (rural), health, and public administration (urban) increases household consumption

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[11] Maximiano e.a. (2005)'s analysis of the determinants of poverty using the same data but slightly different variables or variable specifications leads to broadly the same results. Especially with respect to the importance of education, the results strongly confirm each other.

[12] The survey covered 128 districts in 1996 and 144 districts in 2002.

compared to agriculture. The premiums are significantly lower in urban areas for manufacturing, transport and education. Working in education seems to be equal to working in agriculture (controlling for education) in urban areas, which seems to suggest an emerging teacher pay issue in urban areas.

Comparing the results from 2002/3 with the results from 1996/7, we can observe some of the effects of the structural changes. For example, the payoff to education decreased in urban areas for primary levels, remained the same for secondary and increased for post-secondary education levels, although part of this change may be due to the reclassification of urban and rural areas. Transport and health as a sector of activity had a lower payoff in 1996/7 in all areas. The position improved for households with heads working in the education and manufacturing sectors in rural areas and working in mining and the public sector in urban areas, controlling for years of education of head. The premiums for working in trade or services decreased in both areas. Maybe because of higher supply (we see large increases in employment in these sectors) the premium decreased. The privatizations and restructuring of state enterprises which took place in the late 1990s may account for the large reduction in the premium for working in manufacturing sector in 2002/3 in urban areas where most of the sector is located.

Structure of income, livelihood strategies, and the labor market.

In low income countries, consumption data are usually more reliable than income data, as consumption is done regularly whereas income is often earned sporadically and it is difficult to calculate net income. Income may also be underreported as the respondents may either fear negative consequences if their incomes become known. As a result, it is often ignored in household surveys. When we compare income with consumption in the 2002/3 survey (Table 16) we immediately see the problem.

Table 16: Average difference between income and consumption 2002/3 (real, spatially adjusted per adult equivalent units)

	Consumption (1)	Income+AC (2)	Net total transfers (3)	Of which net remittances	Difference1 (2)-(1)	Difference2 (2)+(3)-(1)
All	15972	14450	533	138	-1522	-989
Urban	19882	16301	718	113	-3581	-2863
Rural	14309	13663	454	149	-647	-193
1st quintile	4524	4955	291	106	431	722
2nd quintile	7627	7563	312	98	-64	248
3rd quintile	10568	9929	384	101	-640	-255
4th quintile	14792	13859	497	164	-933	-436
5th quintile	35551	30330	1019	196	-5221	-4202

(1) Real consumption per adult equivalent units
(2) Income per adult equivalent units, including auto-consumption, no transfers
(3) Net transfers per adult equivalent units

Even correcting for auto-consumption and including private transfers[13], income is on average smaller than consumption. Nonetheless we felt that the data were reliable enough to analyze the structure of income in household groups in 2002/3.[14] Table 13 shows the structure of income as collected in the survey.

Table 17: Structure of income

+	Earnings from main job	Income from employment
+	Earnings from secondary job	
+	Value of in-kind received meals	
+	Value of in-kind received accommodation	
+	Value of in-kind received transport	
+	Value of other good received in-kind	
+	Other occasional earnings	
+	Revenue from business/self-employment	Income from self-employment
-	Costs incurred in business/self-employment	
+	Revenue from selling agricultural products	Income from selling products
+	Revenue from selling animal products	
+	Revenue from selling fish products	
+	Revenue from selling other products (food, beverages, clothes, wood, craft, building materials, hunting products, other products)	
+	Revenue from renting out housing	Income from capital
+	Revenue from renting out agricultural land	
+	Revenue from renting out means of transport	
+	Interests earned	
+	Income from lotteries	Occasional income
+	Income from inheritance	
+	Insurance payments received	
+	Other occasional income	
+	Pension	Pensions and alimony
+	Divorce pension	
+	Widowhood pension	
+	Alimony received	
=	CASH INCOME	
+	Autoconsumo (goods/services produced and consumed by HH)	Auto consumption
=	TOTAL INCOME	
-	Divorce pension paid	Private transfers out (NOT included: interests paid, payments to parties, clubs, associations, payments to non-profit organizations, payments for xitique)
-	Alimony paid	
-	Remittances paid	
+	Private cash transfers from relatives living outside the HH	Private transfers in (NOT included : income from non-profit and religious organizations and income received as xitique)
+	In-kind transfers from relatives living outside the HH	
+	Remittances from relatives living abroad	
+	In-kind remittances from relatives living abroad	

As questionnaire was comprehensive, it includes most major categories, and has a recall period of 1 month. However, we can expect nonetheless that there would be significant

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[13] Remittances are on average one fourth of total transfers (both in net terms, spatially and temporally adjusted and in per adult equivalent units).

[14] Both the 1996/7 survey and the 2002/3 survey contained income data, but the data from 1996/7 appears to be of poorer quality, and not comparable. As a result, we focus on the structure of income in 2002/3.

measurement error for self-employment incomes, as both revenues and costs would fluctuate over the year making recall difficult.

Households normally have multiple sources of income. Most households (88% in rural, 90% in urban areas) have at least one source of cash income, and many have more than one, in addition to income received in kind (e.g. from subsistence agriculture or self employment). Although subsistence production is by far the largest single source of income in rural areas (Graph 4), employment income, non-agricultural self employment income, as well as sales of agricultural produce provide an important share. In urban areas, subsistence agriculture is much less important (only 12% of total income), as employment income provides the largest share, followed by self-employment income. Other income can be income from capital, occasional income and income from pensions.

Graph 4: **Cash income (excluding private transfers) plus self-consumption**
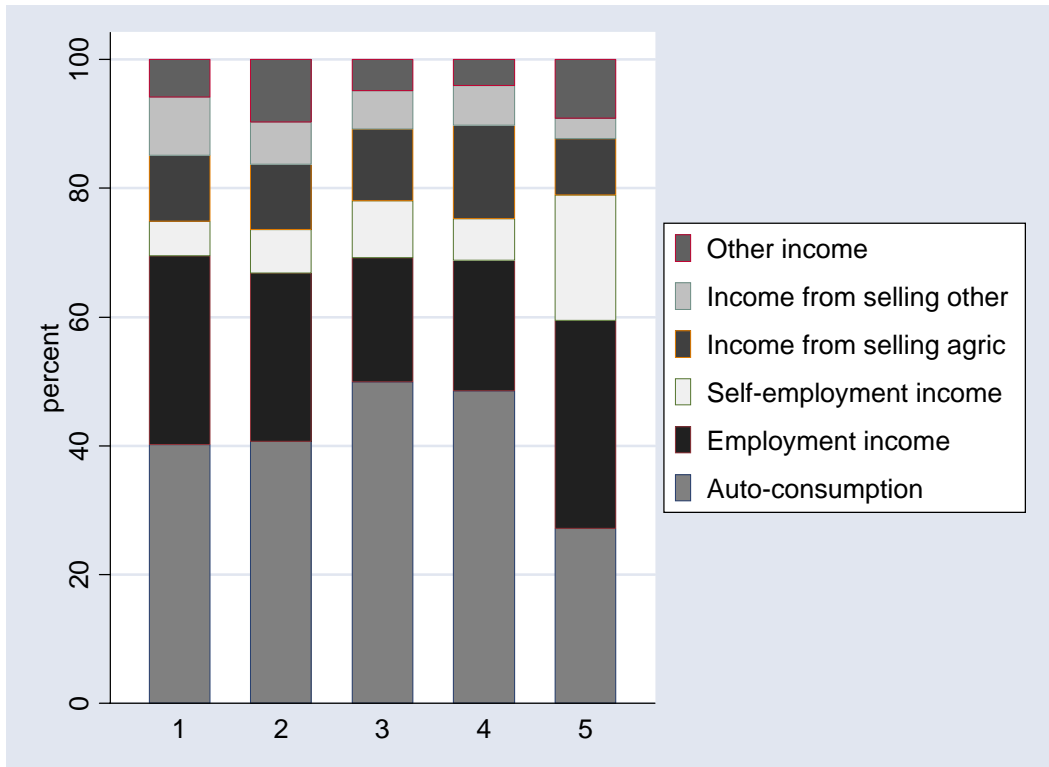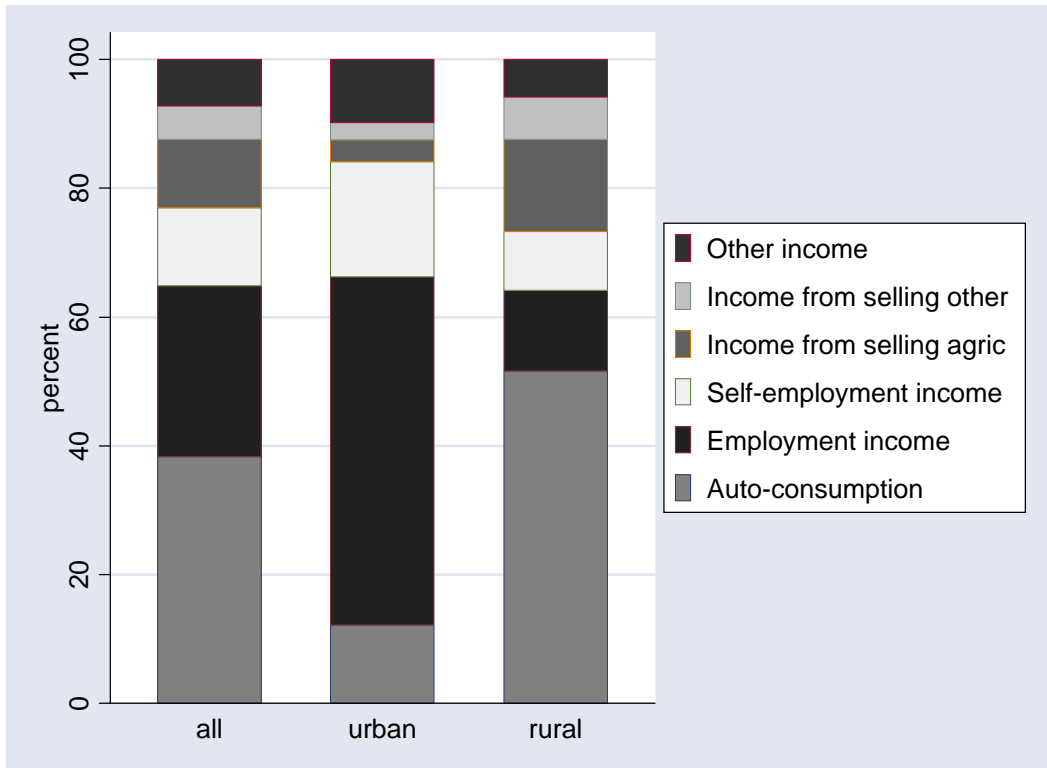
Pensions are a significant source of income in urban areas, but they are virtually absent in rural areas. Remittances (not included in the graph) are a small source of income. Only 2% of households reported receiving any income from this source. Surprisingly, this percentage did not vary by quintile, although it was slightly higher in urban areas. Table 17 shows that there is on average one person in the household earning cash income but two or more are working. Usually it is the head who receives the income (from one or multiple sources) and the spouse who helps in the head's activities or works on the household farm without actually being paid.[15]

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[15] The questionnaire defined undertaking household chores, "domesticos," as out of the labor force, not earning. However, this classification left about 5% of households without earners and ignored the contribution to household production of a mostly female population, despite including some of the fruits of their labor as income in kind. 42% of domesticos live in households from the lower two quintiles. As a result, we added these back into the labor force in both surveys and coded them as (a) working in agriculture and (b) working in a family business. This increased the labor force by 12.6% in 1996/7 and 4.1% in 2002/3

Table 18: Average number of people working/earning cash income per household

| | Number working | | Number earning cash[a] |
	1996	2002	2002
All	2.6	2.3	1.2
Urban	2.5	2.2	1.4
Rural	2.6	2.3	1.1
1st quintile	3.4	2.7	1.2
2nd quintile	2.9	2.5	1.2
3rd quintile	2.7	2.3	1.1
4th quintile	2.4	2.1	1.2
5th quintile	2.0	2.0	1.3

[a] private transfers are not included, income analysis only for 2002

The majority of those in the labor force are self-employed or working in a family business (Table 18).

Table 19: Structure of Labor Force

Sector employment rates, by sex and urban/rural (all those aged 10-59 and working)

| | 1996 | | | 2002 | | | 2002 | |
	All	Men	Women	All	Men	Women	Urban	Rural
Agriculture	89.2	80.7	95.9	80.7	68.7	90.1	51.3	93.0
Mines	0.5	1.1	0.0	0.5	1.0	0.1	0.9	0.4
Manufacturing	2.2	4.2	0.6	0.7	1.5	0.1	1.6	0.4
Construction	0.9	2.0	0.1	2.0	4.5	0.1	4.7	0.9
Transport	0.8	1.7	0.1	1.0	2.2	0.1	2.9	0.2
Trade	2.9	4.1	1.9	7.1	9.6	5.1	17.2	2.9
Services	1.7	3.1	0.6	5.0	7.4	3.1	14.1	1.1
Education	0.7	1.1	0.3	1.5	2.6	0.7	3.0	0.9
Health	0.4	0.5	0.4	0.4	0.5	0.4	1.1	0.2
Public administration	0.8	1.6	0.2	1.1	2.1	0.3	3.2	0.2
All	100	100	100	100	100	100	100	100

Type of contract, by industry and by urban/rural (2002) – All workers

	Receiving a wage	Casual workers	Family worker	Self-employed	All
Agriculture	1.7	0.5	43.9	53.9	100
Mines	59.5	5.4	0.9	34.3	100
Manufacturing	71.5	6.8	1.6	20.1	100
Construction	50.1	37.2	0.8	11.8	100
Transport	75.4	11.1	2.0	11.6	100
Trade	19.7	2.8	7.3	70.3	100
Services	70.7	8.5	13.0	7.8	100
Education	99.1	0.0	0.9	0.0	100
Health	85.5	0.9	0.7	13.0	100
Public administration	100.0	0.0	0.0	0.0	100
Urban	30.2	5.3	23.2	41.3	100
Rural	3.9	0.6	44.9	50.6	100
All	16.1	2.6	33.7	47.6	100

Type of contract, by industry (2002) – Men

	Receiving a wage	Casual workers	Family worker	Self-employed	All
Agriculture	3.2	0.8	22.0	74.0	100
Mines	60.1	5.9	0.0	34.0	100
Manufacturing	71.5	7.4	1.5	19.6	100
Construction	49.4	37.7	0.8	12.1	100
Transport	74.9	11.6	1.8	11.7	100
Trade	22.3	3.7	5.2	68.8	100
Services	75.9	10.8	4.2	9.2	100
Education	99.9	0.0	0.1	0.0	100
Health	82.8	1.8	1.4	14.0	100
Public administration	100.0	0.0	0.0	0.0	100
Urban	45.2	9.4	10.9	34.6	100
Rural	7.8	1.2	19.4	71.6	100
All	23.4	4.3	15.1	57.2	100

Type of contract, by industry (2002) – Women

	Receiving a wage	Casual workers	Family worker	Self-employed	All
Agriculture	0.3	0.2	64.5	35.1	100
Mines	52.5	0.0	10.0	37.5	100
Manufacturing	72.0	0.0	2.6	25.5	100
Construction	88.1	11.9	0.0	0.0	100
Transport	85.2	0.0	6.2	8.6	100
Trade	15.2	1.3	10.7	72.8	100
Services	60.1	3.7	31.2	5.1	100
Education	96.4	0.0	3.6	0.0	100
Health	88.1	0.0	0.0	12.0	100
Public administration	100.0	0.0	0.0	0.0	100
Urban	14.3	1.0	36.3	48.4	100
Rural	0.9	0.2	65.0	34.0	100
All	7.1	0.5	56.7	35.8	100

There is no fully comparable question in the 1996/97 IAF survey. In 1996/97 no distinction was made between receiving a wage and being a casual worker. When comparing the self-employed category (which was a separate category in both surveys) the total percentage does not change over both years. The percentage for men decreases by 0.1% and for women increases by 0.7%.

Men are more likely to be self employed, and women are more likely to be working in a family business. Women are found more often in agriculture, men in the traditionally male-dominated sectors of manufacturing, construction, transport. Both genders are found in trade, and the public administration is still male dominated. Within sectors, me are more likely than women to be wage earners, or in self employment. Women are likely to be helping in the family business in agriculture, transport, trade and services[16].

Table 19 shows the employment sector of the spouse given the sector of the head and given that both head and spouse are working.

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[16] The type of contract is not easily comparable between both surveys as the question was framed differently but self-employment was a separate answer and comparable in both. We found no change in the percentage self-employed workers, a decrease in the percentage for men of 0.1 and an increase for women of 0.7%.

Table 20: Sector of employment of head versus spouse, 2002

Head in: Spouse in:	Agriculture	Mining	Manu- fracturing	Construct	Transport	Trades	Services	Education	Health	Public adm.
Agriculture	98.2	85.0	86.2	82.6	62.2	79.7	74.1	70.5	65.5	65.1
Mining	0.0	0.8	0.0	0.0	0.0	0.1	0.3	0.4	0.0	0.0
Manufact	0.0	0.0	2.5	0.0	0.0	0.0	0.6	0.5	0.0	0.9
Construct	0.1	0.0	0.0	0.2	0.7	0.0	0.2	0.0	0.0	0.7
Transport	0.0	1.7	0.0	0.0	2.9	0.2	0.5	0.0	0.0	0.0
Trades	0.7	7.3	6.5	10.5	23.9	13.9	12.5	2.8	10.1	13.1
Services	0.6	1.5	4.2	6.6	8.2	5.2	9.2	10.3	4.3	9.4
Education	0.1	3.8	0.1	0.1	1.5	0.6	0.7	15.0	2.8	1.5
Health	0.1	0.0	0.0	0.0	0.3	0.1	1.4	0.1	15.0	7.0
Public adm	0.1	0.0	0.2	0.2	0.3	0.3	0.6	0.3	2.3	2.3

Agriculture includes all house workers; the figures are for households where both head and spouse are working; columns add up to 100.

In the category "head and spouse in agriculture" 57.0% is poor, in the category "head in agriculture, spouse in non-agriculture" 60.9% is poor. In the categories "head in non-agriculture, spouse in agriculture" and "both head and spouse in non-agriculture" 45.8 and 42.4% respectively is poor.

When the head is working in agriculture, 98 percent of the spouses also work in agriculture. As a result, these households do not have a strongly diversified income portfolio. Households where the head is employed in other sectors show slightly more diversification.

The highest percentage of spouses in mining, manufacturing, transport, education, health and public administration are observed when their husbands are also working in any of these sectors. But overall, spouses are most likely to be in the agricultural sector, even in urban areas. Income diversification does not seem to reduce poverty, for the majority of households. Where the head is in agriculture the poverty rate is higher if the spouse is in non-agriculture (Table 20). Where the head is employed in the non-agricultural sector, poverty is lower over all, but it is lowest when both are in non-agricultural activities.

Table 21: Poverty rates by sector of activity of head and spouse, 2002/3

	Head in agriculture	Head in non-agriculture
Spouse in agriculture	57%	46%
Spouse in non-agriculture	61%	42%

How have patterns of employment responded to changes in the structure of the economy over the period? Employment growth has been highly negative in manufacturing (probably owing to the restructuring and privatization of state industries and cooperatives) and slightly negative in agriculture (Table 21).

Table 22: Employment growth, average annual percentage

	Avg. annual percentage change
Agriculture	-1.2
Mines	1.4
Manufacturing	-16.4
Construction	15.0
Transport	4.1
Trade	16.6
Services	20.4
Education	15.2
Health	2.9
Public administration	5.2

There has been strong employment growth in construction, trade, services and education. Also the transport sector, health and public administration have grown in terms of employment. In Table 22 we show average annual employment growth rate, value added growth rates and value added per unit of labor growth rates by four sectors, i.e. agriculture (including fishery), industry, private services (transport, trade, services) and public services (education, health, public administration).

Table 23: Average annual growth rates, employment and value added, by sector

	Avg. annual growth of employment	Avg. annual growth of GDP at factor cost	Avg. annual growth of GDP at factor cost/employment
Agriculture	-1.15 %	5.11 %	6.33 %
Industry	-1.10 %	16.43 %	17.72 %
Services (private)	16.47 %	5.69 %	-9.26 %
Services (public)	8.81 %	7.41 %	-1.29 %

This table shows that labor has shifted out of the slower growing agricultural sector into the faster-growing service sector. Not surprisingly, aggregate labor productivity improved in agriculture and fell in the sectors where employment expanded. It also improved in industry as a result of the restructuring.

For those who do receive a wage (16 % of the labor force), we are able to analyze the determinants of these using regression analysis. We used the standard human capital specification, with the log of wages as the dependent variable, and including marital status and sector of activity to proxy for unmeasurable attributes which affect remuneration. Note that we do not have information on hours worked. If these are systematically different for any group captured by an independent variable (e.g. female, age, education, etc.) this variable will pick-up that effect as well.

We estimated the results for men and women separately and together (Table 23). When women and men are estimated in the same regression, the labor market penalty for being female is 28%, controlling for all other differences in characteristics. The separate estimations provide some insight into how this wage disadvantage plays out in the labor force. In the separate estimates, the structure of the male regression was significantly different from the women's regression, but surprisingly few of the individual betas estimated were significantly different from each other at the 95% level or above. Significant differences are found mainly for education and contract variables.

Table 24: Mozambique - Wage regressions, including agricultural workers, 2002/3 with district fixed effects
(dependent variable: logarithm of weekly wage)

	All		Men		Women		Sign. of
	Coefficient	Signifiance	Coefficient	Significance	Coefficient	Significance	difference
Age	0.060	***	0.063	***	0.055	***	
Age squared	-0.001	***	-0.001	***	-0.001	**	
Female (1=f)	-0.280	***					
Marital status							
Married	0.254	***	0.329	***	0.137		
Polygamous	0.215	***	0.267	***	-0.029		
Cohabiting	0.117	***	0.155	***	0.142	*	
Divorced	0.095		0.153	*	0.081		
Widowed	0.113		0.326	**	0.154		
Education							
Completed EP1	0.221	***	0.206	***	0.224	***	
Completed EP2	0.510	***	0.473	***	0.666	***	*
Completed ES1	0.842	***	0.786	***	1.074	***	**
Completed ES2	1.132	***	1.066	***	1.412	***	**
Completed ET1	1.001	***	0.929	***	1.235	***	
Completed ET2	1.484	***	1.406	***	1.605	***	
Teacher education	0.929	***	0.961	***	1.086	***	
Higher education	2.412	***	2.333	***	2.636	***	
Industrial sector							
Agriculture	-0.532	***	-0.488	***	-0.630	***	
Mining	0.768	***	0.783	***	0.342		
Construction	0.132	*	0.113		0.836	***	**
Transport	0.182	**	0.191	**	-0.030		
Trade	-0.095		-0.142		0.004		
Services	-0.031		-0.023		-0.038		
Education	0.096		0.098		-0.012		

	All		Men		Women		Sign. of difference
	Coefficient	Signifiance	Coefficient	Significance	Coefficient	Significance	
Health	0.098		0.031		0.164		
Public administration	0.044		0.068		-0.155		
Type contract							
Casual	-0.298	***	-0.255	***	-0.760	***	**
Constant	10.366	***	10.298	***	10.126	***	
District effects	yes		yes		yes		
Observations	2810		2218		592		
Adj Rsq	0.559		0.532		0.665		

The dependent variable is the logarithm of the weekly wage in the main job (including fringe benefits).

While married men realize a premium in the labor market, married women do not. Returns to education also differ between men and women after primary school, but in this case, women's returns are higher. In both cases, the structure of returns is linear until post secondary, where it becomes convex (as we saw in the consumption regressions). Given the low numbers who are able to complete any kind of post-secondary education, the possibility that these coefficients simply reflect the selectivity bias of those who are able to go to schools rather than any effect of the education per se can not be rejected.

These premia may reflect returns to different types of jobs (e.g. working in the mine vs. in the office) or it may reflect the fact that the sample of men is 4 times larger than the sample of women. Being a casual laborer rather than having a regular job seems much more disadvantageous for women.

Prospects for Future Poverty Reduction

One of the key Millennium Development Goals is reducing the poverty headcount by at least 50% by 2015. Mozambique has made good progress to date, but what are the prospects for the future? To answer this question, we prepared a simple simulation relation of growth in GDP to poverty reduction based on past trends (Table 24).

Table 25: Poverty rates, projections for agriculture and non-agriculture

	Base year	**Scheme 1-sector migration**		**Scheme 2-zero migration**		**Scheme 3-zero migration/pessimistic growth**	
	2002	2007	2015	2007	2015	2007	2015
Agriculture	58	40	29	45	40	48	48
Non-agriculture	44	40	37	33	20	36	26
All	54	40	31	42	34	45	42

GDP growth rates for agriculture (including fisheries) for 2003, 2004, 2005 and 2006 are estimated/projected at 8.0%, 8.0%, 6.6% and 6.7% respectively and 3.2% thereafter; for the non-agricultural sectors the GDP growth rates are 6.4%, 8.5%, 6.6% and 8.6% respectively and 5.7% from 2007 onwards.

Note that this projection uses a constant elasticity of poverty reduction to growth, and does not account for (a) the experience that the lower poverty falls, the harder it is to reduce poverty through growth for a number of reasons, including (b) the well-known trend of inequality to rise with faster growth. As a result, it should be considered an upper bound on possible poverty reduction from growth.

Scheme 1: uses GDP growth rates shown above. Uses different population growth rates for agriculture and non-agriculture, taking into account sector migration. We use 0.8 % population growth in agriculture, which is close to the actual trend observed from the surveys. To obtain the same total population in 2015 as obtained by using the population growth projections from INE: www.ine.gov.mz > população> projecções (INE projected population in 2015 is 24,517,582; we arrive at a number which is 22,500 lower), the non-agricultural sector grows by 5,1 % every year.

Scheme 2: uses GDP growth rates as shown. Uses the same population growth rate in both sectors (zero migration), i.e. what is necessary to arrive at the same total population obtained by scheme 1 but taking into account declining population growth. We use a population growth of 2.41 % until 2007 and 2.18 % from 2008 to 2015.

Scheme 3: uses GDP growth rates shown above minus 1 % in both sectors in each year. Same population growth in both sectors, 2.41 initially and 2.18 for later years.

We divided households into two groups according to sector of employment of the head of the household: agriculture and non-agriculture. We assume that consumption of the household per capita grows at the same rate as GDP in the sector of employment of the head of household[17] and that growth is distribution neutral. This implies a constant elasticity of poverty to growth, and thus our results should be considered upper bound ones, with the likely outcome somewhat lower.

Based on Bank projections, we assume that the non-agricultural sector (68 % of GDP and 29 % of the population in 2002/3) grows at 5.7 % per annum from 2007 to 2015[18], and the agricultural sector grows at 3.2 % per annum after 2007. A key variable will be how fast households are able to move from the slower growing agricultural sector to the faster growing non-agricultural sectors. We offer two scenarios:

- Scenario 1 uses a 0.8 percent annual population growth rate in agriculture households, which is very close to the trend in the IAF surveys, i.e. 0.83 percent, and a 3 percent population growth rate in non-agriculture. These growth rates imply that people migrate rapidly from agriculture to non-agricultural employment.
- Scenario 2 is calculated with the same population growth in both sectors and the same 2015 population as scenario 1 (to obtain this number we use a population growth of 2.4 percent until 2007 and 2.2 percent thereafter).
- Scenario 3 is calculated with the same population growth rates as in scenario 2 but using GDP growth rates which are 1 percent lower in each year in both sectors.

If growth can be sustained and inequality would remain at more or less the same level, it should be possible for Mozambique to reach the Millennium Development Goal for poverty reduction by the year 2015. If people move out of agriculture at the same rate as they have been doing between both survey years or at a higher pace, total poverty and agricultural poverty specifically will decrease faster compared to the zero migration scheme. This is in part because labor productivity will increase rapidly in agriculture. Note that all scenarios hold inequality constant. As this is unlikely, they probably overstate poverty reduction.

Conclusions

Poverty declined, measured by both monetary and non-monetary measures. Progress in reducing monetary poverty was substantial, as reflected in the headcount as well as measures of depth and severity, but it showed regionally unevenness. The most progress was recorded in the Center, which in 1996 had been the poorest region, with less progress in the North, bringing the numbers in the region closer to the national average, and in the Southern urban areas. The lack of progress in the South was in part related to

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[17] We are grateful to Maria Teresa Benito-Spinetto for the GDP growth rate projections.

[18] GDP growth rates for 2004, 2005 and 2006 for the non-agricultural sector are estimated/projected to be 8.5%, 6.6 % and 8.6 % respectively; GDP growth rates for the agricultural sector (including fisheries) are 8.0 %, 6.6% and 6.7% respectively.

the recalculation of the poverty line for the 2002/3 data to reflect changes in relative prices, which led to a higher poverty rate in southern urban areas than if the poverty line food basket had stayed fixed. However, if the basket had not changed, the reduction in poverty in rural areas would have been less than with the new basket. Overall, regional inequality fell slightly over the period.

Non-monetary measures also show improvement, tracking national poverty numbers - ownership of durables jumped, the share of food in total expenditures fell for all quintiles, and many households living below the poverty line were able to improve their houses. Access to a safe water source and a latrine or other sanitation facility improved. Although more respondents reported being ill in the last 30 days, more poor sick also reported seeking help from medical facilities, indicating that access to health care has improved. Enrollments are up as well in all quintiles, although the poorest still lag. With respect to distance to services (health and education) a gap exists between the top quintile and the other quintiles, except for distance to primary schools, which appears to be equal in all quintiles. A severe gap remains between rural and urban areas with respect to access to services. So there is scope to improve access to services for the lower quintiles and the rural areas.

One key reason for the good poverty performance is that inequality did not change much, so aggregate growth in consumption reached poor households. Overall, household consumption per adult equivalent grew by 4.6% per annum per adult equivalent, a very healthy rate. Thus the modest increase in inequality only reduced the national poverty performance by 8%. Decomposing the poverty changes in more depth, we see that the increase in inequality in the urban south did contribute to the increase in poverty recorded there, as it distributed the (small) aggregate consumption growth changes away from the poor. In all regions, the strong growth in consumption registered by agricultural households drives most of the poverty performance. However, the shift of households out of agriculture as the main source of income into other sectors also helps. Given that more than 90 percent of total inequality is found within rather than between groups such as rural-urban and provinces, mean values quoted above may be misleading as they hide significant variation. It is likely that some households remained behind during this period of strong growth.

The poor in Mozambique are mostly rural, with larger households and more dependents. They are slightly more likely to report that an adult member of the household is disabled. Age of head declines by quintile. Overall, more heads are reporting that they are divorced and/or are female in the 2002/3 data, but this feature does not seem to correlate with monetary welfare. Education of head does rise monotonically with consumption per capita, but even more noteworthy is the sharp rise in education of heads in all quintiles. This mostly shows up in more heads reporting some primary education, and not in more heads reporting, for example, more secondary education. Only in the top quintile are more heads reporting secondary education. In terms of sector of activity, many heads of poor households have diversified into trading and other private services.

Using multivariate techniques, we see that the most important determinant of household consumption per capita is education of head. This is more important in urban than rural areas, but even in rural areas, education has a high positive marginal effect on consumption. Controlling for education, working in transport, trade, or health increases household consumption on the margin by about 30%. In urban areas, working in education decreases consumption relative to nearly all other sectors, suggesting that there may be a problem with teacher salaries in urban areas.

Household demographic characteristics did not have as strong an effect on consumption per adult equivalent, and for the most part the estimated negative effects of children and disabled adults were similar in rural and urban areas. Noteworthy are the following differences: (a) adult men appear to be more of a disadvantage to the household in rural than urban areas, while adult women are a small disadvantage in both areas; (b) in urban areas (but not rural), widowhood has a strong negative effect (for both male and female headed households) while in rural areas being married has positive effects for female headed households.

Mozambicans' livelihood strategy is to have a portfolio of household activities. Most households have at least two earners with agriculture as a primary or secondary activity, and with agriculture usually done by women (90% work in agriculture), and often by men as well. In rural areas, subsistence agriculture provides about half of total income, with the rest coming primarily from sales of agricultural products and employment income. In urban areas, the majority of household income comes from employment, followed by self employment. The fastest growing sectors of employment were trade and private services, as labor moved out of agriculture and into these areas. As a result, the absolute size of the agricultural labor force fell, and labor productivity increased. This probably contributed to the strong poverty reduction performance in rural areas. Men are over 3 times as likely as women to be in wage employment, and 1.5 times as likely to be in self employment. Only 16% of the total labor force receives a wage, either as a casual worker or a salaried employee. Most women work in either subsistence agriculture for home consumption, or in a family business.

Our analysis of the determinants of wages showed that controlling for education and sector of occupation, the few women in wage employment earn on average 28% less than their male counterparts. Further analysis shows that at higher levels of education, women are actually rewarded better than men, but men and women are rewarded differently by sector – men earn more in agriculture, mining and transport. Married men also earn a premium, while married women do not. It is not clear to what extent these differences reflect discrimination or unobservable differences in job content (e.g. mining), hours worked, or quality of effort.

Our projections suggest that if Mozambique is able to sustain strong economic growth over the next 10 years, the poverty reduction MDG can be met. Labor intensive growth in the non-agricultural sector, which allows labor to continue to shift out of agriculture, reduces poverty more. We have been able to identify as key the following variables affected by government policy: (a) expansion of access to education (along with

improvements in quality), (b) a balanced growth performance – agriculture and non-agriculture; (c) growth of income earning opportunities for poor households in the non-agricultural sector, allowing households to continue to diversify their sources of income outside of agriculture, and (d) improvements in agriculture productivity. We have not been able to link Mozambique's progress in access to health and rural water supply *directly* to poverty reduction in our multivariate analysis, as we did not have adequate data. These links are well established in the literature so we assume that progress in these areas will also be key.

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