LIVING STANDARDS AND THE DETERMINANTS OF POVERTY AND INCOME DISTRIBUTION IN MAPUTO, MOZAMBIQUE

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David E. Sahn Carlo del Ninno The Cornell Food and Nutrition Policy Program (CFNPP) was created in 1988 within the Division of Nutritional Sciences, College of Human Ecology, Cornell University, to undertake research, training, and technical assistance in food and nutrition policy with emphasis on developing countries.

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1. INTRODUCTION

The purpose of this report is to provide a description of living standards and income inequality in Maputo, as well as an understanding of the determinants of poverty. On the basis of the household data available (see the next section for a brief discussion of the data), we can identify the distinguishing characteristics of the poor, providing policymakers with information they can use for the design and implementation of efforts to alleviate poverty.

Methodologically, a great deal of attention has been directed in the development literature towards identifying the poor. In practice, the process of setting a poverty line is a rather subjective exercise, but is also plaqued For example, a poverty line sorts people into by conceptual problems.¹ different groups based on which side of the threshold they fall. This leads to households with incomes close to the poverty line, though on different sides, being in different groups despite the similarity in their levels of welfare. Such draw backs, coupled with the practical problems inherent in deriving a poverty line, leads some to argue against undertaking such an exercise. Nonetheless, the overriding benefit of a poverty line is that it provides policy makers with requisite information, and in particular, a level below which they can attach a large weight to marginal improvements in incomes. In addition, we can use the distinction between the poor and non-poor as a basis for further analytical work to distinguish characteristics and behaviors which serve as the basis for targeting assistance to those in greatest need. Furthermore, if done appropriately, a poverty line can be updated to provide a time series on the evolution of poverty, or comparisons of poverty across regions.

Thus, despite the problems in theory and practice, there are compelling policy reasons for identifying a group of households whose income is below a threshold required to reach basic needs.² The approach employed in this paper is, therefore, to begin in Section 3 presenting descriptive statistics on the entire sample, and examining characteristics and indicators of living standards for the population as a whole, as well as stratified by per capita expenditure quintiles. Subsequent to this, we begin an analysis of poverty and the distribution of income in Maputo. The approach employed, briefly discussed in Section 4, is to empirically estimate a level of income (i.e., consumption

¹ For a complete discussion of these concerns see a recent paper by Ravillion and Bidani (1992).

In fact a previous effort to set a poverty line and measure the poor in Maputo is being used by policy makers and donors despite and weaknesses in the methodology (Schubert 1992).

expenditure)³ required to achieve basic needs, the latter defined in terms of food energy requirements. While there are numerous other possibilities for anchoring the poverty line, the food adequacy standard is perhaps the most widely used.⁴

Once we have distinguished the poor from the rest of the population, Section 5 explores various summary poverty measures that are thereafter the basis for decomposing poverty to serve as the basis for profiling the poor. In particular, the set of decomposable poverty measures allows us to determine how poverty varies across sub-groups in the population. This information is extremely useful for exploring possibilities for targeting interventions to the poor, as well as for gaining insight into how differences between households relate to the probability of their being poor.

As a complementary exercise, we also explore the level of income inequality of the population in Section 6. Our emphasis, however, is once again on decomposing inequality into its components. We are especially interested in issues of the degree to which inequality is explained by the differences between types and characteristics of households, as well as the extent of within group inequality.

In Section 7 we then present a model of poverty determination, using a maximum likelihood probit estimator. This is followed by the concluding section which summarizes the results, with an emphasis on the implications for policy.

³ For the remainder of this paper we will use incomes synonymously with "consumption expenditures". This is done since consumption expenditures are the best measure of permanent income available survey data.

⁴

See Greer and Thorbecke (1986) for a discussion of this approach.

2. THE HOUSEHOLD SURVEY DATA

The data employed in the paper are from the integrated household survey of 1816 households conducted by the Food Security Department of the Ministry of Commerce and the Cornell University Food and Nutrition Policy Program over a 7 month period, October 1991 to April 1992. The multipurpose survey was designed to collect detailed information on household structure, education, child nutrition and feeding practices, housing characteristics, as well as household expenditures, incomes, labor market activities, and morbidity during the past 30 days.

The sample was a self-weighted random sample of households in greater Maputo (including Maputo City, Matola and Inhaca), derived from a complete enumeration of households, that in the first stage of sampling, served as the basis for randomly selecting clusters of the city and outlining regions to survey. Each of these clusters were then re-enumerated, and the sample size within the cluster was adjusted for any deviation from those found in the original enumeration. A random sample of households was then selected from each of the clusters in the second stage of the sampling procedures.

3. DESCRIPTIVE STATISTICS OF LIVING STANDARDS IN MAPUTO

DEMOGRAPHICS

There are two remarkable features of the population in Maputo. First, while for children less than 15 years of age there are approximately equal numbers of boys and girls, this picture changes dramatically in the upper age cohorts. In particular, we find that there is a gradual decline in the share of men in the population. Among the age cohort of persons over 45 years of age, only 43.2 percent are men, as compared to 56.8 percent women (Table 1). This pattern is contrary to that found in most of sub-Saharan Africa where migration of males in search of employment generally results in urban population with more men than women. the deviation from the norm in Maputo is a reflection of the violence that both takes a disproportionate toll on men's lives, and results in women and their children migrating to the city in search of safety, with or without a male household head.

Second, concerning the distribution of the population by age, more than one-quarter of the population is less than seven, and more than one-half is 15 or younger. The stress this implies in terms of the demands on the system of social services, as well as for the creation of employment opportunities, is tremendous.

Figure 1 provides some information of the size distribution of households. The graph indicates that single persons comprise 6.3 percent of households. Six is the mode of the distribution, with 54.6 percent of households having between two and six persons. In turn, 13.4 percent have 10 or more people.

EDUCATION

Examining educational achievement is problematic and prone to an underreporting bias since most of the population in Maputo are below 16 years of age, and most have not completed their schooling. This problem is also relevant to assessing the extent of higher education among persons in the age category of 16 to 21, since many are still enrolled.

To amplify this Table 2 shows that among the children 7 to 15 years, 89.2 percent have been or are attending school, a figure that differs little between boys and girls. Among the age cohort of 16 to 21 year olds, however, this figure rises to 94.6 percent, suggesting that the share of those in attendance among the younger cohort is biased downward, a result of the fact that many children in Maputo do not enter school until after their seventh birthday. But of equal importance, of the 89.2 percent ever enrolled, 78.4 percent are still in school; only 10.8 percent of the children 7 to 15 were enrolled previously, and have ended their education. Even for the cohort of 16 to 21 year olds, 30.7 percent are still enrolled, once again reinforcing the downward bias that will be

Table 1 -	_	Distribution	of	Population,	by	Gender	and Age	Group

	Share of	Population b	y Gender	Share of Population by Age Group
Age Group	Male	Female	Total	Total Population
			Percentage	
0-7	50.1	49.9	100.0	25.9
8-15	49.9	50.1	100.0	25.2
16-21	46.8	53.2	100.0	12.0
22-45	45.8	54.2	100.0	27.2
>45	43.2	56.8	100.0	9.7
<u>A11</u>	44.9	55.2	100.0	100.0

Source: Computed from the FSD/CFNPP Survey Data.

Figure 1 — Household Sizes (Frequency Distribution)



Source: Computed from the FSD/CFNPP Survey Data

						Age Ca	tegories	ın Years						
		7-15			16-21			22-45		Over 45			ALL	
Enrollment Status	Male	Female	AII	Male	Female	AII	Male	Female	ALL	Male Female	ALL	Male I	emale	VII
							Percentag	e						
Never attended school	10.2	11.4	10.8	4.3	6.5	5.4	4.4	24.3	15.2	15.8 69.7	46.4	7.8	23.7	16.2
Attended and enrolled	78.6	81.5	78.4	35.4	26.6	30.7	7.4	3.9	5.5	1.0 0.3	0.6	36.9	31.0	33.8
Attended and not enrolled	11.2	10.7	10.8	60.3	66.9	63.9	88.2	71.8	79.3	83.2 30.0	53.0	55.3	45.3	50.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0 100.0 1	0.00	100.0	100.0 1	00.00
Source: Computed from the	FSD/CFNF	P Survey	Data.											

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introduced in examining schooling in the higher grades for this cohort. It is also noteworthy that among 16 to 21 year olds, males are much more likely to remain enrolled than females, at 35.4 percent and 26.6 percent respectively.

Table 3 shows the educational achievement of the population by age cohort. for children greater than 15 years of age. Information on younger children is not presented because, as discussed above, they have not yet completed their schooling. For persons 16 to 21 years only 5.5 percent have not attended school; results indicate that 61.4 percent of the children in this age cohort have attended some secondary or higher level of schooling. Due to the fact that most of the children in secondary school are still enrolled, little more can be gleaned regarding the probability of completing secondary school or higher Among the age cohort 22 to 45, only 15.2 percent never attended education. school, though this is the case for nearly one-half of the persons older than 45 years of age. Correspondingly, the share of the population that has gone beyond primary school gets progressively lower with older age cohorts, so that of those 22 to 45, only 40.1 percent have at least had some secondary education, and of those over 45 years of age, less that 10 percent have attended secondary or some higher level of schooling. The indications are that few persons in the older two age cohorts completed secondary school or attended University. For example among the population 22 to 45, only 4.2 percent attended the last two years of secondary school or an intermediate level of technical school, and only 1 percent went to University.

In terms of level of schooling by gender, the results indicate no bias for children 7 to 15 years of age, as the distribution of levels of schooling is identical for boys and girls (not shown in the table). A small gender bias exists for the 16 to 21 age cohort. For example, 6.5 percent of the girls did not attend school, versus 4.3 percent for boys. Similarly, for boys, 64.4 percent attended at least secondary school; for girls, the comparable number was 58.7 percent. For the age cohort 22 to 45, the gender bias is more pronounced. While only 4.4 percent of the men had no schooling, nearly one-quarter of the males attended at least some secondary school, while this was the case for only 29.3 percent of the women. A similar disparity applies to those above 45 years of age, though for both males and females the probability of having attended school is markedly lower than it is for younger age cohorts. While this bias among adults is of concern, the fact that it has been corrected among younger persons is a source of encouragement.

A final point regarding education is that among individuals over 7 years of age, 85.9 percent speak Portuguese. This applies to 94.7 percent of the persons between 15 and 21 years of age, declining thereafter among older age groups. By gender, men are more likely to speak Portuguese. Regarding the relationship between the ability to speak Portuguese and school attendance, the data suggest that these two variable are strongly correlated, suggesting that the inability to speak Portuguese is an excellent proxy for illiteracy.

Gender
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ā
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Table 3

					Age	Categorie	s in Years					
		16-21			22-45			Over 45			אוו	
Last Class Completed	Male	Female	ALL	Male	Female	ALL	Male	Female	VII	Male	Female	VII
						Percent	age					
No school	4.3	6.5	5.4	4.4	54.4	15.2	15.8	69.7	79.44	6.5	29.5	19.0
Some primary	3.8	7.2	5.6	5.8	11.9	9.1	14.2	10.5	12.1	6.9	10.5	8.9
Primary 3-4	27.5	27.7	27.6	35.5	34.3	34.9	52.2	16.3	31.8	36.6	29.0	32.5
Secondary 5-6	38.2	40.3	39.3	27.0	17.9	22.1	10.5	2.5	6.0	26.7	20.1	23.1
Secondary 7-9	22.3	15.9	18.9	19.0	8.8	13.5	4.8	0.7	2.5	17.1	8-8	12.6
Secondary 10-11	3.4	2.2	2.8	6.5	2.2	4.2	2.4	0.2	1.1	5.0	1.8	3.2
University	0.5	0.3	0.4	1.8	0.4	1.0	0.0	0.2	0.1	1.1	0.3	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Computed from the FSD/CFNPP Survey Data.

EMPLOYMENT

The labor force participation rate in Maputo is 76.4 percent for men, and 59.4 percent for women. Among persons 16 to 21, the participation rate is much lower, being only 36.5 percent for men and 28.1 percent for women (Table 4). This increases markedly to over 90 percent for men between 22 and 45 years of age, and to over 70 percent for women. The participation rate falls only slightly for women over 45 years of age.

Unemployment rates are also low, being only 6.8 percent for men 22 to 45, and falling to 1.7 percent for those 46 to 65 (Table 5). For women, they are even lower. In considering these figures, considerable caution is warranted, as to a great extent the results are driven by the definition of participation and unemployment. To amplify, the fact that a person is a participant in some income earning activity is not to be confused with having gainful, full-time employment. In fact, as will be discussed below, there is extensive low wage underemployment, especially among those engaged in informal sector activities and own-account agriculture on the household's machamba and garden.

In order to arrive at an estimate of those underemployed, we define any person working less than 15 days per months as falling in this category. This definition will underestimate underemployment, since it is quite possible that a person works only a few hours per day, even if it is for a large number of days. Since we don't have hours information, we will be forced to live with this compromise. Results indicate that the underemployment rate is only 4.9 percent for men, and 10.0 percent for women (Table 5). Examining the share of those working who are underemployed, the rates are naturally higher. For example, 19.1 percent of all women working outside of the home devoted less than 15 days a month to income-generating activities. No clear association with age exists for either unemployment or underemployment.

Among those not working the reasons for nonparticipation differ dramatically by gender. For women, the reason cited among 58.0 percent of the respondents is that they are engaged in household work (Table 6). Another 17.3 percent indicate that they are students, and 14.2 percent say that they are not working because they are unable to find a job (i.e., the unemployed). For men, in contrast, the reason for not working given by nearly half the respondents is the inability to find a job. Being a student follows closely behind as the most frequent response, comprising 40 percent of the sample.

By age group, one finds that being a student is the most important reason for not working among both genders between 16 and 21 years of age, with a sharp drop-off among the older age cohorts. Similarly, among those 46 to 65, the most important reason given for not working is retirement, old age and disability, with this response being given by 75 percent of the males, and half of the women. In the 22 to 45 age cohort, the response of being engaged in household work predominates for women, and that of being unemployed for men.

We distinguish between 4 major categories of workers: wage and salary workers engaged outside of agriculture; wage workers in agriculture; workers

Table 4 — Farticipation Ra	te, by dent	ier and Aye (aroup	
_		Age Groups	in Years	
	16-21	22-45	46-65	A11
Men				
Working	222	1,219	347	1,788
Total population	609	1,353	378	2,340
Participation rate (%)	36.5	90.1	91.8	76.4
Women				
Working	194	1,131	307	1,632
Total population	691	1,599	459	2,749
Participation rate (%)	28.1	70.7	66.9	59.4

Table 4 — Participation Rate, by Gender and Age Group

Source: Computed from the FSD/CFNPP Survey Data.

and Age Group				
_		Age Group	s in Years	
	16-21	22-45	46-65	A11
Men				
Work force (no.)	388	1,308	353	2,049
Working (no.)	222	1,219	347	1,788
Unemployed (no.)	166	89	6	261
Unemployment rate (%) ¹	42.8	6.8	1.7	12.7
Underemployed (no.)	14	64	14	92
Underemployment rate (%) ²	3.6	4.9	4.0	4.9
Women				
Work force (no.)	292	1,191	307	1,790
Working (no.)	194	1,131	307	1,632
Unemployed (no.)	98	60	0	158
Unemployment rate (%) ¹	33.6	5.0	0	8.8
Underemployed (no.)	37	112	30	179
Underemployment rate (%) ²	12.7	9.4	9.8	10.0

Table 5 — Unemployment and Underemployment Rates, by Gender and Age Group

Source: Computed from the FSD/CFNPP Survey Data.

¹ Defined as job searchers/(job searchers + working population) ² Defined as underemployed/(job searchers + working population)

1					Age Categor	ies in Yea	rs					
I		16-21			22-45			Dver 45			١١٨	
	Male	Female	L I N	Male	Fennale	11A	Male	Female	LLA	Male	Female	LIA
Sick	0.3	0.4	0.3	3.0	2.1	2.3	3.2	2.0	2.2	1.1	1.3	1.3
Housework	3.1	41.6	24.8	2.2	79.1	62.0	3.2	46.0	38.8	2.9	58.0	39.7
Student	50.9	35.6	42.3	18.7	3.0	6.5	0.0	1.3	1.1	40.2	17.3	24.9
Too Young	2.8	2.2	2.5	1.5	1.7	1.7	0.0	0.7	0.6	2.4	1.8	2.0
Retirement, Old Age, Disability	0.0	0.4	0.2	8.2	1.3	2.8	74.2	50.0	54.1	6.2	7.5	7.1
Unable to Find Job	42.9	19.7	29.9	66.4	12.8	24.8	19.4	0.0	3.3	47.3	14.2	25.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Source: Computed fro	m the FSD/(CFNPP Survey	Data.									

Table 6 - Reasons for Not Working, by Age and Gender

-13-

engaged in agriculture on their own machambas and gardens; and other nonwage workers. Table 7 shows that the primary occupation of half the income earners in Maputo falls in the category of nonagricultural wage work, with just over 1 percent working in agriculture for a wage. Of those engaged in the wage sector, more than half are public sectors employees. In fact, one-quarter of all employment in Maputo is with the state.

Thirty-seven percent of all workers are self-employed in nonwage occupations, with 13.9 percent engaged primarily in working on their own-account in agriculture. Gender differences also are noteworthy. Men are disproportionately represented as wage workers (72.8 percent of all male workers), with only 21.9 percent primarily engaged in a self-employed enterprise, and only 3.9 percent in agriculture. In contrast, women's primary occupations are much more likely to be either in a self-employed enterprise or working in agriculture. Similarly, among men, is 39.1 percent work for the state, while only slightly more than one-tenth of working women are on the public payroll.

One also finds some interesting differences in terms of the distribution of primary occupations by age groups. In particular, 34.4 percent and 38.3 percent of persons under 16 and over 65, respectively, are primarily working on their own machambas and gardens or raising livestock, in contrast to only 8.8 percent of those between 22 and 45 years of age. Similarly, 52.3 percent of the males under 16 who are working are engaged in self-employment, in contrast to just 18.9 percent of males 22 to 45 years of age. Conversely, underage and elderly workers are considerably less likely to be engaged in wage earning activities than other age cohorts. While the fact that children and the elderly have different employment characteristics is not surprising, the most important fact is that these two groups comprise 5.7 percent of all workers, too many to be ignored.

In Table 8 we next examine how the gender and occupation of the household head relates to their income level. Perhaps the most interesting finding is that households where the head is engaged primarily in working on the machamba have a disproportionate share of persons in the lowest expenditure quintile. This applies to both male and female headed households. It is also noteworthy that among the female headed households where the primary occupation of the head is in the public sector, 38.3 percent are in the upper expenditure quintile, while this is the case for only 18.9 percent of the male heads. Thus, among female headed households, if the head is in the public sector, the status of the household tends to be much higher, while this is not the case among the male headed households. Among the self-employed, one also finds a contrast between the distribution across expenditure quintiles, by gender. In particular, among male headed households engaged in self-employment, 26.7 percent are in the upper expenditure quintile. This is the case for only 12.5 percent of the females.

The primary occupation, determined on the basis of the days worked in a given activity, is a useful tool with which to categorize workers. Such an approach, however, does not take into account the fact that 22.0 percent of individuals engaged in two or more income earning activities. Of this 22 percent, 54.8 percent are engaged in the informal sector and the wage sector, and

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- Distribution
Table

						Age Group	in Years									
	5	Inder 16	~		16-21	22-4	5		46-65			Over 65		Т	otal	
	Male	Female	ALL	Male	Female All	Male Fema	le All	Male	Female	ALL	Male	Female	ALL	MaleFem	ale A	=
Own field	30.56	42.86	36.30	4.95	20.62 12.26	1.15 13.	97 7.32	4.03	41.69	21.71	35.14	42.86	39.24	3.90 21	.36 1	2.25
Agriculture Wage	2.78	00°0	1.48	1.35	1.03 1.20	0.41 1.	68 1.02	0.29	2.93	1.53	2.70	9.52	6.33	0.63 1	.96	1.27
Wage	18.06	6.35	12.59	61.26	20.62 42.31	79.82 26.	53 54.17	76.66	12.05	46.33	37.84	7.14	21.52	73.91 22	.11 4	9.15
Self-employed	48.61	50.79	49.63	32.43	57.73 44.23	18.62 57.	82 37.49	19.02	43.32	30.43	24.32	40.48	32.91	21.56 54	.58 3	7.34
Total	100.00	100.00	100.00	100.00	100.00100.00	100.00 100.	00100.00	100.00	100.00	100.00	100.00	100.00	100.00 1	00.00100	.00 10	0.00
Row %	3.80	3.63	3.71	11.70	11.17 11.45	64.26 65.	11 64.67	18.29	17.67	18.00	1.95	2.42	2.171	00.00100	.00 10	0.00
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Computed from the FSD/CFNPP Survey Data. :e:

	-	2	£	4	5	ALL	2
			Percent				1
Sector/Gender							
Own Field							
Male	28.24	17.65	24.71	17.65	11.76	100	85
Female	27.76	20.24	24.24	17.88	9.88	100	425
ALL	27.84	19.80	24.31	17.84	10.20	100	510
Agricultural Wage							
Male	50.00	16.67	11.11	16.67	5.56	100	18
Female	39.47	26.32	18.42	7.09	7.89	100	38
ALL	42.86	23.21	16.07	10.71	7.14	100	56
Public Wage							
Male	19.56	22.19	20.94	18.45	18.86	100	721
Female	11.22	11.22	11.73	27.55	38.27	100	196
AII	17.78	19.85	18.97	20.39	23.01	100	917
Private Wage							
Male	20.61	22.06	22.22	16.10	19.00	100	621
Female	26.32	16.37	14.04	22.81	20.47	100	171
AII	21.84	20.83	20.45	17.55	19.32	100	792
Self Employed							
Male	16.83	22.09	14.11	20.30	26.73	100	404
Female	24.37	23.83	21.44	17.85	12.51	100	919
AII	22.07	23.28	19.20	18.59	16.86	100	1323
אוו							
Male	20.00	20.00	20.00	20.00	20.00	100	1849
Female	20.00	20.00	20.00	20.00	20.00	100	1749
AIL	20.00	20.00	20.00	20.00	20.00	100	3598

30.2 percent are engaged as informal sector workers along with own-account agriculture (Table 9). The remainder are engaged in other combinations of 2 or more activities.

It is also worth noting that in many households, there is more than one income earner. In Table 10, we see that households with more than two earners tend to be disproportionately represented among those in the lower expenditure quintile. Conversely, only 13.22 percent of those multiple income earner households are in the upper 20 percent of the income distribution. In contrast, 24.58 percent of one income earner households are in the upper quintile. But as seen in Table 10, there is a clear relationship between the sector of participation and the distribution of households across expenditure quintiles.

Among two income earner households, the most noteworthy finding is that when both are wage workers, only 21.74 percent of the households fall in the bottom 40 percent of the income distribution. In contrast, those households where there is a worker engaged in the wage sector and another working on the machamba tend to be disproportionately concentrated in the lower end of the income distribution. Presumably, these are households where either the wage worker is at the bottom of the pay scale, and/or that are large in size, encouraging a second earner to generate additional food and supplemental income in-kind through working in own-account agriculture.

Finally, in Table 11, we examine the daily wages of those engaged in the wage sector by education and gender. The results clearly show the rapid increase in remuneration as education increases. This applies to men and women, and to those in the public and private sectors. Wage differentials between genders must be interpreted with caution, as other factors ranging from the specific job classification to the experience of the worker are not controlled for. Likewise, it is difficult to make comparisons between public and private sector wages. But regardless, the large rewards to education, presumably in part a reflection of greater productivity, are a tentative indication of a well functioning wage labor sector.

NUTRITIONAL STATUS

In Maputo, 29.5 percent of the children are stunted, and 6.6 percent are wasted. Examining these data in Maputo in comparison with other urban capitals, and therefore limiting the sample to children 0 to 5 years of age, suggests that the level of stunting is higher than in Abidjan, Accra, Conakry and Harare (Table 12). Wasting, however, is significantly lower than in Conakry and Abidjan, and comparable to Accra, although, as expected, much higher than Harare. It is also noteworthy that there is a lower prevalence of stunting among females in Conakry and Abidjan than in Maputo. Across per capita expenditure quintiles, the level of wasting falls, from 34.8 percent of young children in the lowest to 19.9 percent of those in the highest expenditure quintile (Table 13). Wasting is highest for those in the lowest expenditure quintile, but no trend exists otherwise. When disaggregated by gender, no difference is found for wasting, but males are more likely to be stunted than females.

Table 9 — Share of Persons Engaged in More Tha	n One Occupation
	Percentage
Percentage engaged in more than 1 activity of which:	22.0
informal sector and wage employment	54.8
informal sector and own acct. agriculture	30.2
wage employment and own acct. agriculture	7.0
other combinations of 2 or more activities	8.1

Source: Computed from the FSD/CFNPP Survey Data.

		Per Cap	oita Expenditure	Quintile			
Household Type/Sector	1	2	£	4	5	l l V	z
I				Percent			
One Earner							
Own Field	13.64	15.91	25.00	22.73	22.73	100.00	44
Agricultural Wage	43.75	25.00	12.50	6.25	12.50	100.00	16
Wage	17.15	18.45	16.18	20.06	28.16	100.00	309
Self-employed	20.17	16.74	18.03	24.03	21.03	100.00	233
All	18.77	17.77	17.44	21.43	24.58	100.00	602
Two Earners							
Both Wage	8.70	13.04	15.22	26.09	36.96	100.00	276
Both Self-employed	19.19	23.23	19.19	17.17	21.21	100.00	198
Own Field and Wage	25.30	24.10	21.69	20.48	8.43	100.00	166
Own Field and Self-employed	21.62	18.92	21.62	18.92	18.92	100.00	74
Wage and Self-employed	19.29	20.77	24.04	18.99	16.91	100.00	674
Other Combinations	16.16	33.33	33.33	8.33	8.33	100.00	48
A11	17.97	20.33	21.59	19.92	20.19	100.00	1436
More than 2 earners							

- Sector of Primary Employment for Single and Multiple Earner Households, by Expenditure Quintile. Table 10

Source: Computed from the FSD/CFNPP Survey Data.

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						Age Group	in Years					
		Ma	les			Female	ŝ			V	II	
	Mean	Median	ສ	N	Mean	Median	ନ୍ତ	z	Mean	Median	ß	Z
	Meti	icais per m	onth		Meti	icais per m	onth		Meti	cais per m	Month	
Public Sector												
0 to 2 Years	1824	1467	1436	48	1417	1477	236	8	1766	1467	1338	56
3 to 6 Years	2455	1900	2508	421	2710	1567	5801	86	2499	1833	3299	507
7 to 9 Years	3773	3200	2452	126	3192	2550	2137	54	3599	3000	2372	180
Technical(Base)	5210	4143	3834	17	3776	3383	2148	6	4836	3767	3486	23
10 to 11 Years	7899	5733	7978	27	6441	3800	6930	18	7316	4333	7529	45
Technical(Intermediate)	8063	6417	5983	32	9383	8667	5496	8	8327	6817	5845	40
University	8480	5833	6669	19	14678	10533	12925	ы	9325	6750	7914	22
Private Sector												
0 to 2 Years	2212	1567	1679	49	1327	1167	743	17	1984	1500	1539	66
3 to 6 Years	2221	1667	2233	421	1645	1333	1073	91	2119	1667	2086	512
7 to 9 Years	3599	2550	3114	68	4030	2056	4650	22	3705	2500	3526	90
Technical (Base)	9380	5708	9476	12	9250	9250	5775	2	9361	5792	8863	14
10 to 11 Years	12785	10000	9586	11	10367	9267	7808	3	12267	9633	2005	14
Technical(Intermediate)	10404	5417	9735	8	32667	32667		۲	12878	5833	11747	6
University	19667	19667	18385	2					19667	19667	18385	2

Table 11 — Daily Wages in Wage Employment, by Sector, Gender, and Level of Education.

Source: Computed from the FSD/CFNPP Survey Data.

	Ma	e	Fem	ale	IA	_
	Stunted	Wasted	Stunted	Wasted	Stunted	Wasted
			Perce	ntage		
Nbidjan (1986) ¹	13.0	8.0	10.0	0.0	11.4	9.4
Accra (1988) ²	20.7	6.7	23.9	6.2	22.0	6.5
conakry (1990) ³	18.2	16.2	11.0	11.9	17.2	11.4
larare (1988) ⁴	I	I	Ι	Ι	14.3	1.5
1aputo (1991/92) ⁵	32.7	6.7	26.1	6.5	29.5	6.6

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Table 13 —	Percentage of C	hildren 0-60 Mon	ths Old Who Are	Stunted and W	asted, by Expen	diture Group
Per capita	Ma	les	Fema	les	Al	-
expenditure quintile	Stunted [*]	Wasted ^b	Stunted	Wasted	Stunted	Wasted
1	35.4	10.3	34.2	7.8	34.8	0.6
2	40.0	6.0	22.6	7.0	31.6	6.5
ę	33.3	3.92	28.2	4.9	30.7	4.4
4	23.0	5.04	18.1	4.8	20.9	4.9
5	23.6	6.7	15.3	6.9	19.9	6.8
LLA	32.7	6.7	26.1	6.5	29.5	6.6
			-			

Data.
Survey
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Source:

^a Height-for-age ≤ -2 z-score. ^b Weight-for-height ≤ -2 z-score.

Disaggregating the nutritional status data by age groups, one finds that the percent stunted and wasted is lowest among children during their fist six months of life (Table 14). There is a large increase in the share of children stunted in the second age category of 6 to 12 month olds, with the level of stunting moderating thereafter, until the oldest age cohort. This peak among 6 to 12 month olds applies to both boys and girls. While this is the period when most children are weaned, a fact that may contribute to the high level of malnutrition, it is somewhat surprising that a similar peak is not observed for wasting, a measure of acute nutritional stress often associated with weaning.

FEEDING PRACTICES

In this section we present preliminary results on feeding practices for children under 36 months of age. The most important finding is that breastfeeding remains widely practiced in Maputo (Figure 2). All children in the sample under the age of three months were being breastfed. Breastfeeding continued for 97 percent of the children between 3 and 6 months, and 95 percent of the children between 6 and 12 months. Even among the cohort between 15 and 18 months, more than three-quarters are still being breastfed. After 18 months, however, the percent of children being breastfed declines rapidly, as most children are weaned. By the time a child is two years of age, less than 30 percent of them are being breastfed.

This picture of breastfeeding behavior is reinforced by asking mothers of children between the ages of 24 and 36 months about the duration of breastfeeding. The average response was 18.6 months, a figure that understates the average duration of breastfeeding given that 6 percent stated that they were still breastfeeding.

In addition to the information on the probability of a child being breastfed, it is also interesting to explore the frequency of feeding. As shown in Figure 3, the frequency throughout the age groups is quite steady, with no trend across the first two years of life. In terms of the introduction of other liquids, water was given to 63.2 percent of the babies of the age cohort 0 to 3 months. By one year, all children were being given water. In contrast, fresh milk was given to only 2 children in our entire sample. Feeding of powdered milk was also a rare event. Specifically, less than 10 percent of the children up to three years of age were fed powdered milk, and the probability did not differ by age group. Juice, likewise, was rarely given to infants and young children: only 6.5 percent of the children less than three years of age received juice (Table 15).

We also inquired into the age at which solid or semi-solid foods, including various maize and rice based weaning preparations, were introduced. Only 3.4 percent of the children less than three months had tried other weaning foods, a figure that jumped quickly to one-third of the children between 3 and 6 months (Figure 4). By the age cohort of 9 to 12 months, 95 percent of the children had been introduced to weaning foods.

		Ma	les			Feme	les			V		
Age Groups (Months)	Percent Stunted	Mean HAZ ^b	Percent Vasted [®]	Mean NH2 ^d	Percent Stunted	Mean KAZ	Percent Wasted	Mean NHZ	Percent Stunted	Mean HAZ	Percent Vasted	Mean VHZ
< 7 (n=182)	8.5	-0.14	3.7	0.71	11.0	-0.07	5.0	0.77	9.9	-0.10	4.4	0.74
7 - 12 (n=176)	24.4	-1.28	2.4	0.22	21.3	-0.73	8.5	0.10	22.7	-0.98	5.7	0.16
13 - 24 (n=316)	41.8	-1.70	8.8	-0.02	37.7	-1.54	2.7	0.19	39.9	-1.62	6.0	0.07
25 - 36 (n=325)	36.4	-1.53	6.3	-0.32	28.9	-1.17	8.7	-0.20	32.9	-1.36	7.4	-0.27
37 - 48 (n=346)	31.9	-1.56	7.1	-0.30	26.8	-1.38	6.7	-0.27	29.5	-1.47	6.9	-0.28
49 - 60 (n=298)	36.6	-1.83	6.9	-0.35	24.2	-1.44	7.2	-0.40	30.2	-1.63	7.1	-0.37
61 - 72 (n=329)	46.9	-1.99	8.8	-0.12	39.6	-1.84	6.6	-0.19	42.9	-1.91	7.6	-0.15
All (n=1972)	34.8	-1.54	6.8	-0.11	28.5	-1.27	6.5	-0.06	31.6	-1.41	6.6	-0-08

Table 14 - Percentage of Children 0-72 Months who are Stunted and Wasted, by Gender and Age Group

Source: Computed from the FSD/CFNPP Survey Data.

Height-for-age ≤ -2 z-score. HAZ is height-for-age. Weight-for-height ≤ -2 z-score. WHZ is weight-for-height. • - - - - -





Source: Computed from the FSD/CFNPP Survey Data

Figure 3 — Breastfeeding Frequency, by Age





Age Cohort (Months)	Juice		Milk [*]	
	Percentage Receiving	Mean Times Per Day	Percentage Receiving	Mean Times Per Day
0-6	1.24	1.50	8.07	2.15
6-12	7.38	1.18	14.09	2.48
12-24	5.82	1.69	9.45	2.04
24-36	10.04	1.60	7.63	1.79

Table 15 — Percentage of Children Receiving Juice and Milk and Mean Frequency Per Day, by Age

Source: Computed from the FSD/CFNPP Survey Data.

^a Includes powdered milk, cow's milk, and goat's milk.

Figure 4 — Percent Receiving Solid Foods, by Age





Note: "Solid foods" includes rice, maize, gruel, or any other solid or semisolid food.

HEALTH

Of all households in Maputo, 80.5 percent reported having used health centers during the last 12 months. This figure was relatively stable across all districts, with the lowest share of 71.6 percent being in District 6. Experience in other countries suggests that the time to reach a health center is an important cost incurred by households in terms of health care; we therefore explored this issue. The results suggest that the mean required travel time is 26.6 minutes, a figure that, based on standard statistical tests, differed significantly between those who visited clinics, and those who did not.

Concerning actual disease prevalence, 4.5 percent of the population had diarrhea during the 15 days prior to administration of the survey. However, as shown in Figure 5, the incidence is sharply higher for babies in their first year of life, and reaches a peak during their vulnerable weaning period. In fact, 30.3 percent of all children 12 to 18 months of age had diarrhea, a period that corresponds to the end of breastfeeding for most children. This high incidence of diarrhea gradually falls off, to where only 1.5 percent of the children 7 to 15 years had an episode during the previous 15 days. Thereafter, there was an increase in diarrhea incidence, among older persons in the population.

In terms of the use of health care services in response to diarrhea, we find that 56.6 percent of the population sought some treatment, with the figure being slightly higher for men that women. Among those seeking health care, the most popular place of treatment was the hospital, with the health centers being a close second. Nonetheless, 17.7 percent sought private medical care, either from a private physician, a traditional health care practitioner, the dumbanengue, or the pharmacy. While the distribution of who was consulted first did not differ for men and women, there were differences by age group (Table 16). In particular, children three years and under were more likely to receive some care, with a full one-third going to the hospital. This hospital visitation rate is twice that of any other group.

In terms of other diseases, 11.4 percent of the entire population reported being ill or injured during the previous 15 days. This incidence was highest for children three years or less, and for adults over 55 years of age, being in both cases around 18 percent. In contrast, the healthiest segment of the population was children 8 to 15 years, with only 7.2 percent of them reporting any other disease. Once again, notable differences in the probability of being ill were found by gender; women were more likely to suffer from intestinal problems and headaches, while men were more likely to have skin problems and have incurred an injury. In terms of the distribution of diseases by age groups, fevers were the most common problem for children up to three years of age, while for adults, headaches and intestinal problems were most commonly reported. Overall, 5.6 percent of the population reported having an episode of malaria during the previous 15 days, though it is quite likely that some of those who reported having fevers were suffering from malaria.

In Table 17, we show the costs of treatment . No consistent pattern by gender emerges, though the cost of hospital visits was markedly higher than other






Table 16 - First Instituti	on Consulted	for Diarrhea				
		Ag	e Groups in Ye	ears		
Institution	0 to 3	4 to 7	8 to 15	16 to 55	56 and Up	A11
			Perc	entage		
Nobody	38.46	45.28	47.62	47.20	48.15	43.38
Private doctor, traditional healer, and other	8.17	11.32	16.67	11.80	25.93	11.41
Health center	17.31	28.30	16.67	16.15	11.11	17.72
Hospital	33.65	7.55	14.29	14.91	7.41	21.59
Pharmacy	2.40	7.55	4.76	9.94	7.41	5.91
Total	100.00	100.00	100.00	100.00	100.00	100.00

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	Med	ian Cost for	Consultation a	nd Drugs Per Ep	isode of Illr	less
		Diarrhea		Othe	er Disease/In	jury
Institution Consulted	Male	Female	All	Male	Female	LIA
			Meti	cais		
Nobody	0	0	0	0	0	0
Traditional healer/private doctor/other	100	100	100	1,000	600	750
Health Center	400	500	420	587	600	600
Hospital	400	350	375	1,350	1,450	1,400
Pharmacy	950	1,100	1,000	600	955	712.5
Source: Computed from the FSC)/CFNPP Surv	ey Data.				

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alternatives. Furthermore, of individuals first consulting a hospital, those with other diseases incur costs far higher than those with diarrhea. This likely reflects the fact that many of the diseases for which treatment is sought are more severe and in need of more attention than diarrhea.

Besides the incidence of disease, there were other indicators that suggest an effectively run health delivery system. One indication of this is found in the responses to our inquiries regarding whether the child had the standard health card used by the Ministry of Health for tracking child weight and height, vaccinations, and so forth. Results indicated that 88.8 percent of children had health cards, although, when asked to produce the card, only 71.8 percent were able to do so. This statistic is still extremely impressive in comparison to similar inquiries elsewhere.

Among those children who had cards, we can examine a variety of issues, recognizing that we face a possible sample censoring problem. Specifically, children without cards may be different, across the dimensions we are interested in examining, than children with cards. Addressing this problem, however, requires resorting to complex econometric techniques, beyond the scope of this paper. Keeping this problem in mind, we nonetheless found that 91.7 percent of children under 72 months were born in hospitals. Of the 71.8 percent of the children with cards, only 75 percent had recorded information on birth weight. Of these, only 8.5 percent were low birth weight, i.e., under 2.5 kg.. Thirty-one percent of the children had weights at birth between 2.5 and 3.0 kgs, with 59.9 percent weighing more than 3.0 kg at birth (Figure 6). It is also noteworthy that no difference in birth weights was found between those born in hospitals, and those not.

Virtually all children with cards had begun their vaccination program. Furthermore, of those children that had started the prescribed vaccination program, well over 95 percent had completed the series by 24 months of age. Indeed, this picture of the completeness of the vaccination program for cardholders is impressive. It was not possible, however, to collect reliable information on vaccinations from those children for whom we were not able to observe the card directly.

Among the children who had cards, regular participation in the health care system, and growth monitoring in specific, was typical. While multivariate techniques are required to determine the factors that determine the regularity of weighings, some descriptive statistics serve to partly illustrate the success of growth monitoring in Maputo. In particular, for the sample of children with cards, we found that among children less than four months of age, only 17.9 percent had not been weighed, based on a review of their health card (Table 18.). Most of these children were likely newborns who were not yet scheduled to attend For children four to six months of age, 51.8 percent had been the clinic. weighed one to three times, and 47.0 percent 4 to 6 times. Examining the weighing frequency across various age groups, in general, presents an impressive picture of a high level of participation that continues through the pre-school age years.

Figure 6 — Birthweights (Frequency Distribution)



Source: Computed from the FSD/CFNPP Survey Data

Table 18 — Distribution of Number of Measurements at Health Center Sinc	е
Birth, by Age Category of Child	

		Num	bers of Mea	asurements	; 		-
Age Category (Months)	0	1 to 3	4 to 6	5 to 8	9 to 12	> 12	A 11
		Р	ercentage l	Distributi	on		-
< 4	17.9	80.0	2.1	0	0	0	100
4 - 6	0.0	51.8	47.0	1.2	0	0	100
7 - 12	0.0	18.0	56.5	23.0	2.5	0	100
13 - 24	0.0	8.6	31.3	38.2	15.3	6.7	100
25 - 36	0.0	6.8	18.8	28.8	24.8	20.8	100
37 - 48	0.4	5.2	19.5	20.3	22.1	32.5	100
> 48	0.0	3.4	15.2	25.8	23.0	32.6	100

Another indication of this high level of participation is seen in examining the period of time since one was last measured (Table 19). Among children less than four months, more than two-thirds were measured last month. As expected, the most recent weighing becomes longer ago in the older cohorts. Nonetheless, it is still quite impressive that, for example, among children 13 to 24 months, two thirds had been weighed at the clinic during the previous 3 months.

CONSUMPTION

In this section we briefly examine the pattern of consumption. We do so by per capita expenditure deciles. Table 20 presents budget shares for different commodity groups. Among the interesting results is that the starchy staples with the highest budget share is rice, being 7.8 overall, with bread being the second most important commodity. The average budget shares allocated to white maize flour and white maize grain combined are approximately one-half that of yellow maize products. This, however, does not imply that half as much white maize is consumed as yellow maize, since the price per kilogram of the white maize is higher. Adding the budget shares for white maize products to those of yellow maize yields a budget share of 9.2 percent, which is slightly greater than the shares of rice and bread.

Examining these data by per capita expenditure quintiles yields a number of important findings. First, the shares of yellow maize products, both individually and in combination, fall rapidly across the expenditure quintiles. For example, for households in the bottom quintile of the expenditure distribution, yellow maize products comprise 13.7 percent of the household budget. In contrast, yellow maize products comprise only 1.2 percent of the total expenditures for those in the highest quintile. The rate of decline in budget shares in roughly proportional for all yellow maize commodities.

The pattern of changes in budget shares for white maize products differs from yellow maize. In both cases, the budget share increases between the first and second quintile, indicating that for the poor, white maize products are luxury goods. Across the other quintiles the budget shares fall, although more precipitously for grain than flour, suggesting that the latter may have a higher income elasticity.

Rice and bread budget shares across expenditure quintiles move in an almost identical way. Like white maize products, they both display characteristics of luxury goods in the lower expenditure quintiles. However, unlike white maize, their budget shares are relatively stable until the fifth quintile, where they finally fall (in keeping with Engel's law).

The budget shares tell a number of other interesting stories. For example, the data suggests there are a large number of luxury goods, including the fish and seafood group with its high budget share, and meat products and pasta. Similarly, the importance of wood and charcoal among the nonfood expenditures of the poor, in contrast to petroleum/diesel and gasoline expenditures of the rich, conform to our expectations of differences in the type of fuel consumed between

Table 19 — Distribution of Period of Time Since Last Measured at Health Center, by Age Category

			Months			
Age Category (Months)	Last Month	1 to 3	4 to 6	7 to 12	>12	A11
< 4	67.4	32.6	0.0	0.0	0.0	100
4 - 6	61.4	34.9	1.2	0.0	2.4	100
7 - 12	38.5	52.8	4.4	3.1	1.2	100
13 - 24	18.7	47.0	16.8	12.7	4.8	100
25 - 36	8.0	33.2	20.0	20.0	18.8	100
37 - 48	9.5	19.9	10.8	26.4	33.3	100
> 48	5.1	11.8	10.7	16.9	55.6	100

		Per Capit:	a Expenditure Quintile	6		
Commodity Group	F	2	3	4	2	Overal l
Yellow maize grain	4.08	2.00	1.66	0.82	0.35	1.78
Yellow maize flour	6.00	4.03	2.74	1.35	0.55	2.93
Yellow maize flour with bran	3.80	1.54	0.98	0.73	0.34	1.47
White maize grain	2.20	2.26	2.08	1.11	0.53	1.64
White maize flour	1.20	1.85	1.87	1.75	0.81	1.49
Rice	6.70	9.58	8.53	8.80	5.57	7.89
oil	2.08	2.16	2.28	2.27	1.96	2.15
Sugar	4.57	3.76	3.46	2.85	1.72	3.27
Vegetables, fruits	13.02	11.05	10.57	9.10	6.66	10.08
Wheat, pasta, millet	0.34	0.54	0.65	0.78	9.00	0.64
Bread - market and work	7.03	9.38	9.26	7.94	6.15	7.95
Roots and tubers	1.59	1.79	1.85	2.31	1.92	1.89
Meat and dairy products	1.68	2.97	4.40	6.21	9.33	4.92
Fish and seafood	3.73	4.68	4.65	5.65	5.64	4.87
Beans, cashews, peanuts	5.15	5.07	5.27	4.72	2.80	4.60
Other foods	2.37	3.59	4.53	6.03	9.19	5.14
Soaps and cosmetics	2.72	2.47	2.16	1.89	1.31	2.11
Cigarettes, tobacco	1.03	1.54	1.27	1.57	2.60	1.60
Charcoal, wood, kerosene	12.06	8.41	7.69	6.48	3.78	7.69
Gas	0.10	1.40	0.20	0.52	0.66	0.32
Education	0.54	0.44	0.43	0.36	0.47	0.45
Medical	0.50	0.54	0.53	0.52	0.46	0.50
Utilities	1.17	1.55	1.74	2.15	2.51	1.82
Clothing, fabric, shoes	3.25	3.89	3.94	4.26	5.15	4.10
Durables	3.25	4.18	5.55	6.92	11.75	6.33
Other nonfood	9.70	10.63	11.71	12.93	16.92	12.37
Total	100.00	100.00	100.00	100.00	100.00	100.00
Food share	70.00	72.10	70.10	70.00	61.50	68.90

Table 20 — Budget Shares, by Per Capita Expenditure Quintiles

the different income groups. The subsidies on health care and education kept down expenses for these social services across all income groups, an issue that certainly is worthy of further attention.

But without doubt, the most interesting story in the budget share data is the fact that while there is little decline in the food share across the expenditure quintiles, there is a dramatic change in the composition of food and nonfood expenditure. The high value that households place on diversity, quality and convenience in the diet is manifest, and will be explored in more detail in future reports.

Next in Figure 7, we present information on calorie consumption by expenditure decile. As expected this increases, from a low of 1,283 calories per capita in the bottom decile, to 3,570 calories per capita in the upper decile. When we calculate consumption according to adult equivalent units, a similar increase is noted from 1,762 calories in the lowest quintile to 4,643 in the highest decile (Figure 8). The rate of increase across expenditure deciles is smaller for the adult equivalent measure than the per capita measure. This is because larger households, with more children, tend to be disproportionately concentrated in the lower expenditure quintiles.

In Table 21, the distribution of average shares of calorie consumption by expenditure quintiles and major commodity groups is presented. Results highlight the importance of yellow maize products as a source of calories for the households in the lowest expenditure quintile. Specifically, they make up 39 percent of their calories. In combination with rice and white maize, the poor receive 60 percent of their calories from these starchy staples. As incomes rise, the share of calories from yellow maize products falls dramatically, with a doubling of the importance of rice between the first and fourth quintiles, only to moderate slightly for those households at the top of the income distribution. The big increase in calorie shares across income groups, however, is for bread and wheat products (e.g., pasta), going from 6.9 percent to nearly 20 percent, as well as for meat, fish and dairy, whose contribution to calorie intake rises more than four fold across the income distribution.

HOUSING CHARACTERISTICS AND SANITARY FACILITIES

In Maputo, 76.1 percent of the households reported owning their homes. Most homes were individual cement houses (33.0 percent), with 29.2 percent of the homes being cane dwellings and 11.4 percent apartments (Table 22). Only 5.8 percent of apartment dwellers owned their own home, as contrasted with 81.6 percent of those who lived in a cement house, and 92.3 percent of those living in a house constructed from cane (Table 23). In examining housing types by district, one finds that 61.7 percent of homes in District 1 were apartments, markedly higher than elsewhere. Likewise, District 1 had a low proportion of homes constructed with cane, only 12.9 percent. In District 2, 22.9 percent of houses were made of cane, which in turn contrasts with the highest share of 40.4 percent in District 4.













Table 21 — Distribution of Shares of Calorie Consumption, by Quintiles

		Per C	apita Expendi	iture Quinti	les	
Commodity Group	1	2	S	4	5	LIA
Yellow Maize Grain	16.67	10.06	9.18	5.47	3.17	8.89
Yellow Maize Flour	17.29	13.03	10.15	6.36	3.70	10.08
Yellow Maize Flour with bran	9.56	5.35	3.37	2.92	1.68	4.56
White Maize Grain	6.83	8.31	7.99	5.44	3.84	6.48
White Maize Flour	2.20	3.94	3.93	4.33	2.81	3.45
Rice	11.52	17.85	18.00	22.50	20.72	18.14
Oil	3.17	3.74	4.46	5.55	7.63	42-
Sugar	6.86	6.71	7.09	7.40	6.68	6.95
Fruits & Vegetables	7.56	6.75	7.31	7.13	6.61	7.07
Bread, Wheat, Etc.	6.86	11.29	13.48	14.89	19.96	13.32
Roots, Tubers, Pulses	7.08	8.24	9.56	10.50	10.15	9.11
Meat, Fish, Dairy	1.70	2.29	2.99	4.36	7.53	3.78
Other Foods & Bev.	0.60	0.74	0.97	1.15	2.16	1.13
Eat Out	1.98	1.65	1.35	1.86	3.09	1.99
School Meals	0.09	0.06	0.17	0.12	0.26	0.14
LIA	358	362	363	363	363	1809

					District			-	
Construction Type	1	2	3	4	5	6	7	ø	AII
					Percentage				
Cement house	15.7	26.2	38.6	33.2	41.2	31.8	39.6	37.5	33.0
Cane - permanent	12.9	22.9	29.7	40.4	30.8	35.1	37.4	27.9	29.2
Apartment	61.7	15.7	4.2	0.7	2.4	0.0	0.0	0.4	11.4
Other	9.7	35.2	27.5	25.7	25.6	33.1	23.0	34.2	26.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Course from the FS	D/CENDD SHEV	ev Nata							

by District
Type,
Contruction
Housing
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Table 22

Survey Data. **UFNFF** THE FSU/ EO F Computed Source:

Construction Type	Owned	Not Owned	Total
_		Percentage	
Cement house	81.6	18.4	100.0
Cane – permanent	92.3	7.7	100.0
Apartment	5.8	94.2	100.0
Other	82.8	17.2	100.0
A11	76.1	23.9	100.0

Table 23 — Housing Construction Type, by Ownership

The results also suggest that only 28.3 percent of households had electricity (Table 24). When we examine this by type of housing we find that while 95.2 percent of apartments had electricity, this was the case for only 43.3 percent of cement houses. Virtually no cane or temporary houses had electricity. The survey also shows a great disparity in the shares of households with electricity by district (Table 25). In District 1, four-fifths of the households had electricity, as compared with one-third or less of the households in the other districts.

Drinking water in Maputo was most often from external faucets, comprising 43.8 percent of households (Table 26). Faucets inside the home were enjoyed by only 15.8 percent of households, while 18.0 relied on public faucets. Wells comprised the water source for 23.3 percent of the households, with bottled water and other water sources being of negligible importance. As expected, the 70.2 percent of the households with internal faucets was markedly higher in District 1 than the other Districts, where few houses are so equipped. In District 6, wells were the most important source of water, a finding that contrasts with the other parts of the city.

A key concern about the water source being outside the household is not only one of water quality, but of the time taken to get to the water source, especially for women whose time budgets are generally most stressed in African economies. We find that for households relying on water from external faucets, just over one-fifth spent 0-2 minutes to reach the faucet, and three-fifths spent 3 to 5 minutes (Table 27). Similar numbers apply to those getting water from a well. What is of interest is that 35.9 of the household's who got their water from a public faucet traveled 10 or more minutes, a percentage that was higher than for those households who relied on wells for their water.

Concerning sanitary facilities, only 18.8 percent of the households had toilets, though 80.41 percent had latrines (Table 28). A negligible share of households had neither. Virtually all households with internal drinking water also had toilets. However, 6.8 percent of the households with external plumbing also had toilets, so that overall, given the large share of the households with external faucets, they comprised 15.8 percent of those with toilets. It was also the case with 98.6 percent of apartments. Also in keeping with the data presented above on the characteristics of districts, toilets were found in 80 percent of the households in District 1, although, over one-quarter of households in District 2 also had toilets.

SUMMARY

The descriptive statistics of this section portray Maputo as a city where despite the stress of years of war, the population is being served by comprehensive system of social services. In fact, a cursory examination of indicators such as schooling, access and use of maternal and child health clinics, immunizations, access to water supplies and sanitary facilities, and so

Table 24—Share ofConstruction Type	Houses with Electricity, by
Construction Type	Share With Electricity
	Percentage

Construction Type	Share With Electricity
	Percentage
Cement house	43.3
Cane – permanent	0.6
Apartment	95.2
Other	20.9
A11	28.3

District	Share With Electricity
	Percentage
1	79.4
2	33.8
3	28.2
4	12.9
5	19.7
6	6.7
7	13.0
8	21.2
A11	28.3

Table 25 — Share of Houses with Electricity, by District

·					District				
Water Source	-	2	3	4	5	6	7	8	ALL
				Ā	ercentage				
Interior faucet	70.2	19.0	7.3	0.7	4.2	1.4	1.4	14.6	15.8
Exterior faucet	11.7	65.7	55.6	38.2	41.2	25.7	53.2	60.4	43.8
Public faucet	0.0	13.8	33.2	23.9	13.2	17.6	29.5	16.2	18.0
Well	18.2	0.0	3.9	37.1	41.5	55.4	15.8	8.8	22.3
Other	0.0	1.4	0.0	0.0	0.0	0.0	0"0	0.0	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Source: Computed from	the FSD/CI	:NPP Survey	Data.						

District	
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Water,	
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Table 27 —	Travel	Time to	Water So	urce	
		Т	ravel Ti	me	
Water Source	0-2	3–5	6-9	10+	Total
			Minutes		
Internal faucet	100.0	0.0	0.0	0.0	100.0
External faucet	21.2	60.4	3.0	15.4	100.0
Public faucet	4.0	54.9	5.2	35.9	100.0
Well	21.5	47.0	3.8	27.7	100.0
Other	0.0	66.7	0.0	33.3	100.0
A11	30.6	47.0	3.1	19.3	100.0

					District				
Sanitary Facility	-	2	S	4	2	و	7	80	אוו
					Percentage				
Toilet	80.2	26.2	7.7	2.1	6.9	2.7	0.7	15.0	18.8
Latrine	15.5	73.8	92.3	97.9	92.7	96.6	99.3	84.6	80.4
Other	4.4	0.0	0.0	0.0	0.4	0.7	0.0	0.4	0.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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Induion ÿ SOL forth, suggests that the residents of Maputo are better off than the residents of many other African capital cities. Indeed, by all appearances, the government and donors deserve credit for keeping up with the provision of social services.

At the same time, it is apparent that some of the inhabitants of Maputo are not able to meet all needs judged by many to be essential. In particular, when households are sorted by per capita expenditure deciles, the bottom four deciles have mean per capita calorie consumption beneath 2000 calories per day; the bottom three have mean per adult equivalent consumption of less than 2500 calories per day. In the remainder of this paper, we carry out a systematic study of the poor. We begin by estimating a poverty line that will identify them, and thereafter examine the factors that contribute to households being among the poor.

4. DEFINING THE POOR

We estimate a poverty line based on the required consumption expenditures to meet a recommended level of food energy consumption for the household. This involves identifying an appropriate normative standard, a problematic task since dietary requirements vary across individuals, by level of activity, health status, previous nutritional status, climate and genetic composition.⁵ There is nothing we can do practically to capture these differences. What we can address, however, is that the sex and age composition differs in households. Therefore, in order to normalize for these differences, we divide total household calorie consumption by the number of adult equivalents to arrive at the per adult equivalent consumption.⁶ Thereafter, we define 2,500 Kcal per day per adult equivalent unit as the basic needs requirement. Households falling below this level are not achieving the food adequacy standard. In addition, we derive a second income level to distinguish the ultra-poor, which corresponds to 80% of the basic requirement, or 2,000 Kcal per adult equivalent unit.

Given these normative standards, and the data on household consumption, the next task is to estimate two income (i.e., consumption expenditure) levels, which we will designate the poverty and ultra-poverty lines, below which the typical household will not be able to purchase enough food to meet the basic intake requirement of 2,500 and 2,000 Kcal per day per adult equivalent.⁷ There are two basic options for estimating these poverty lines. The first, and more simple, is to estimate the direct relationship between calorie consumption and consumption expenditure to arrive at the poverty line. The major advantage to this approach is its simplicity, both in terms of estimation, and in terms of enabling one to depict the procedure in two dimensional space. The second approach to estimating the poverty line, which is considerably more demanding both in terms of data and econometrics, is to estimate a complete system of

⁶ We use adult-equivalent values derived from dietary recommendations for calorie intake as discussed in Trairatvorakul, 1984.

⁵ Another potential problem is that the relationship between income and calorie consumption will change with tastes, relative prices, activity levels, access to subsidies, and so forth. This however, is not of major concern in this exercise based on the analysis of a cross-sectional survey. However, any comparisons with future surveys, or in other regions, would require delineating a new income level to define the poverty line.

In doing so, we normalized consumption expenditures in per capita terms as well as in adult equivalent terms and found that it did not make a difference in the number of poor. We report the former for a practical reason: policy makers and project managers concerned with targeting find it relatively easy to calculate a per capita income, while it is much more demanding for such practitioners to calculate a per adult equivalent income.

demand to predict the expenditure level that corresponds to the consumption bundle that would ensure achievement of the calorie requirement. This latter approach has several advantages. Most important, the poverty line will reflect actual behavioral choices for a given set of parameters. In addition, it is possible to address salient policy questions, such as how changes in prices of commodities will affect the level of poverty.

In practice, we employed both procedures. In the former case we simply estimated a log-log quadratic function, where we regressed calories per adult equivalent on expenditures per capita. In the latter case, we estimated an Almost Ideal Demand System (AIDS) using three stage least squares, enabling us to endogenize expenditures, with symmetry and homogeneity restrictions imposed. Furthermore, selectivity bias related to the consumption/non-consumption decision was addressed through the method suggested by Heien and Wessel (1990).⁶ Both procedures yielded a nearly identical poverty line, with the former value of Meticais 31,904 per capita per month being only 1.5 percent lower than the latter value of Meticais 32,400. The estimates of the ultra-poverty line were similarly close.

⁸ For further discussion of the demand system, see Dorosh, del Ninno and Sahn (1993).

5. POVERTY MEASURES

Armed with the information on household incomes, and an income determined poverty line, we next aggregate this information into standard poverty measures. In particular, following Foster, Greer and Thorbecke (1984) we present data on three measures. First, we estimate the simple head-count index,

$$P_{a} = q/n$$

where q is the number of households or individuals below the poverty line Z, and n is the number of households or individuals in the population.

To capture the issue of the severity of poverty, we first estimate a poverty gap index. The poverty gap index, P_1 , is defined as follows:

$$P_1 = \frac{1}{n} * \sum_{i=1}^{q} \left(\frac{\mathbf{Z} - Y_i}{\mathbf{Z}} \right)$$

where Y_{i} is the income of persons or household i, Z is the poverty line, n is the total number of individuals or households, and q is the number of individuals below the poverty line. It is also possible to capture in a single index number a measure that is sensitive to the number of poor, and the severity of poor, often referred to as the P_2 measure. The measure, which is a weighted sum of poverty gaps, with weights being defined as the squared proportionate poverty gaps, is given by:

$$P_{2} = \frac{1}{n} * \sum_{i=1}^{q} (\frac{\mathbf{Z} - Y_{i}}{\mathbf{Z}})^{2}$$

The results indicate that 33.08 percent of the households in Maputo are poor, or 39.84 percent of the individuals in the population (Table 1). The fact that more persons than households fall below the poverty line is simply a reflection of poorer households having more members than better-off households, an issue that we will return to in the next section. Using a cut-off point of 2,000 calories per adult equivalent, we derive a poverty line for the ultra-poor of Meticais 20,158 per capita. This implies that 10.1 percent of the households in Maputo are ultra-poor, and 12.7 percent of the population live in households that fall below the ultra poverty threshold. The poverty gap index is 9.33 percent for households, and 11.53 percent for individuals. The interpretation of this index is that on average, the income gap of the poor is about 10 percent of the poverty line itself. From this figure we can derive that the aggregate poverty gap in Maputo represents 7.0 percent of the consumption of all goods and services, aggregated across all non-poor households. The implication of this figure is clear: the share of aggregate consumption expenditure of residents in Maputo to raise all the poor above the poverty line is relatively large, even if perfect targeting could be achieved. Thus, alleviation of poverty solely through redistribution of wealth will be difficult, once again displaying the importance of external assistance in the short-term, and growth in the medium-term. The results of the P_2 measures are shown in the third column of Table 29. This parameter takes on a value of 3.82 for poor households, and 4.74 for individuals. Although more difficult to interpret than the first two columns, it has the advantage of ordering the distributions, which is not possible for the simple head count or depth measures shown in the first two columns. It will be especially useful for making future comparisons with surveys conducted at other points in time and in other regions.

The aggregate poverty numbers, while informative, can be further decomposed to form a poverty profile. We perform the decomposition among a number of dimensions to determine how poverty differs among groups in the population. In performing the decompositions, all the results are presented for households. This is because one of our objectives is to provide policy-makers with a picture of the relative welfare of different groups, to assist in efforts to target interventions and services. Since the household is most often the unit of intervention, we decompose by households, instead of individuals.

Initially we explore whether there is a difference in poverty of male and female headed households. In the case of the latter, we distinguish between female headed households with and without an absent spouse sending remittances, in-kind or in-cash. The results in Table 30 indicate that all indexes are virtually the same, dispelling any notion that headship is an appropriate welfare indicator. Next we decompose by household size and find dramatic results. In particular, there is an extremely large increase in all three poverty measures as household size increases." For example, among single person households, only 8.77 percent are classified as poor. Among those households with 16 or more persons, 60.00 percent are poor. The poverty gap also increases, being only 3.46 percent for single person households, increasing to 23.11 percent for the largest households. It is therefore clear that targeting based on household size would be an excellent criteria under one important condition: that the community did not become aware of the use of this criteria. If they did, without doubt households would grow in size, very quickly, throughout Maputo.

In exploring the relationship between housing characteristics and poverty, we find that only 3.86 percent of the households domiciled in buildings and apartments are below the poverty line. While this low figure would indicate that living in a building or apartment is a good reason to be excluded from any type of transfer program, the fact is that only 11.42 percent of the households fall in this group. Among the remainder of the households, the 32.95 percent living in individual cement houses have a lower head count measure than the other categories. But at 27.30 percent, this head count index is still too high to use as an exclusion criteria for targeting transfers. Approximately 40 percent of the households in wood and zinc, and cane houses are poor, and 51.0 percent of the households in provisional structures are below the poverty line. The depth

⁹ Large economies of scale would reduce the magnitude of the household size affects.

of poverty among this latter group of households is also greatest, at 15.88. We also find that 41.61 percent of the households without electricity are poor, in contrast to 12.28 percent of the households with electricity. In terms of source of drinking water, having an interior faucet is a good proxy for not being poor. Those relying on wells and public faucets have the highest probabilities of being poor, the actual figures being 43.22 and 41.41 percent, respectively. Similarly, the type of sanitary facility serves as another blunt instrument to initially identify the poor. Those households with an outside latrine or other type of facility have a 38.69 percent probability of being poor, compared to 7.72 percent for those with inside toilets. The problem with using this screening tool, however, is that 81.18 percent of the households have outside latrines. Thus, like having electricity and an interior toilet, the exclusion criteria only comprises a small share of the population, making it necessary to search for complementary means of distinguishing the poor from non-poor.

Our decomposition of poverty levels by occupation indicated that there was no difference in the probability of being poor for households where the head was employed in different sectors. While at first glance surprising, this result is attributable to the fact that households have multiple income earners, and that individuals have multiple jobs. Poverty levels differ markedly according to the level of schooling of the household head. The head count number falls from around 45 percent for the illiterate and those with only one or two years of education, to 12.38 percent for households where the head has 7 to 9 years of schooling. The importance of human capital investments is manifest by the steady decline in poverty by schooling categories.

Next the poverty measures were decomposed by district. At the one extreme, only 12.80 percent of persons in District 1 were among the poor, and their poverty gap index was only 3.34. In contrast, District 6 had the highest head count of poor, being 45.95 percent. Taking into account both the head count and depth of poverty indexes, poverty is worse in District 4, 6, 7 and 8. However, with the exception of District 1, the problem is serious in all the other districts.

Two final decompositions of households are employed. First is to determine whether there is any difference between households who have ration cards that entitle them to subsidized food, and those without cards. The results indicate that the degree of poverty is not related to the probability of having a card. Second, we decompose the poverty measures in terms of whether a household consumes different types of maize products. One sees that for yellow maize grain and yellow maize bran, consumers have a much higher level of poverty than nonconsumers. A sizeable difference also occurs for yellow maize flour, although, the difference in the poverty gap and P_2 measures are not as great. In contrast, the poverty measures for white maize grain consumers and non-consumers are the same, while for white maize flour, non-consumers have a higher level of poverty. These results indicate that interventions to reduce the price of yellow maize grain and yellow maize flour with bran will self-target reasonably well, an issue discussed in detail elsewhere (Dorosh, del Ninno and Sahn 1993).

	Poverty Measure					
	Head Count Index	Poverty Gap Index	F-G-T-P ₂	N		
		Percent				
Poor						
Households	33.08	9.33	3.82	1,814		
Individuals	39.84	11.53	4.74	10.915		
Ultra-Poor						
Households	10.03	2.38	0.88	1,814		
Individuals	12.70	3.00	1.05	10,915		

 Table 29
 Poverty measures for Maputo

	1	Poverty Measure			
- Groupings	Head Count Index	Poverty Gap Index	F-G-T P2	N	Percent of Households
		Percent			
Sex of					
Household Head					
Male	33.05	9.00	3.52	1279	70.5
Female with	77 / 2	10 44	/ 78	350	11 3
Female without	33.72	10.44	4.70	350	11.5
spouse	32.26	9.48	3.99	186	10.2
Household Size					
1	8.77	3.46	1.91	114	6.3
2-4	20.85	5.09	2.01	542	29.8
5-7	35.58	9.62	3.80	638	35.1
8-10	43.98	13.84	5.86	357	19.7
11-15	55.71	15.15	5.96	140	7.7
16+	60.00	23.11	10.69	25	1.4
Type of Housing					
Individual	27.30	6.69	2.39	597	32.95
Cement					
Building/Apt	3.86	.82	.24	207	11.42
Wood and Zinc	40.14	3.08	3.28	147	8.11
Care Permanent	39.81	12.17	5.31	530	29.25
Provisional	51.00	15.88	6.81	200	11.04
Other	42.75	13.31	5.74	131	7.23
Electricity					
Yes	12.28	2.85	1.02	513	28.31
No	41.61	11.86	4.90	1299	71.69
Source of Drinking Water					
Interior faucet	6 29	1.00	24	286	15,81
Exterior faucet	34.05	9.03	3.54	793	43.84
Public faucet	41.41	12.99	5.61	326	18.02
Well	43.22	12.82	5.41	404	22.33
Sanitary					
Facility					
Inside Toilette	7.72	1.47	.48	298	16.45
Outside Toilette	16.28	5.35	2.75	43	2.37
Outside					
Latrine/other	38.68	11.02	4.51	1471	81.18
Occupation					
Informal/Self Employment	32.20	9.00	3.69	500	28.49
Private Wage	33.61	9.78	4.05	479	27.29
Public Wage	33.65	9.22	3.62	627	35.73
Agriculture	34.23	9.41	3.85	149	8.49

Table 30 — Disaggregation of Poverty Measures by Various Groups of Households

	Poverty Measure				
Groupings	Head Count Index	Poverty Gap Index	F-G-T P2	N	Percent of Households
		Percent			
Schooling					
None	66 36	14 07	6 28	300	17 02
Grades 1-2	45.00	14.07	6.00	180	0.01
Grades 3-4	38.20	10.66	4 27	713	30.26
Grades 5-6	25 70	6.24	2 25	318	17 51
Grades 7-9	12 38	2 13	50	210	11 56
Grades 10-11	1 41	16	0	71	3 01
University	1.41	.10	Ŭ	15	2.71
oniversity				15	.05
District					
1	12.80	3.34	1.36	250	13.77
2	30.00	7.56	2.92	210	11.56
3	33.86	9.19	3.60	260	14.32
4	39.43	12.34	5.15	279	15.36
5	35.17	9.08	3.69	290	15.97
6	45.95	11.77	4.18	148	8,15
7	37.41	11.03	4.82	139	7.65
8	35.42	11.53	5.16	240	13.22
Ration Card					
Yes	32.28	8.86	3.49	1174	64.75
No	34.43	10.13	4.37	639	35.25
Yellow Maize Grain					
Yes	45.59	13.28	5.37	623	34.31
No	27.49	7.25	3.00	1193	65.69
Yellow Maize Flour without Bran					
Yes	40.50	11.05	4.31	800	55.95
No	27.17	7.96	3.42	1016	44.05
Yellow Maize Flour with Bran					
Yes	48.06	14.34	6.28	335	18.45
No	29.64	8.19	3.25	1481	81.55
White Maize Grain					
Yes	32 21	8 07	2 03	587	20 41
No	33.39	9.84	4.18	1282	70.59
White Maize Flour					
Yes	23.17	5.39	1.81	584	32.32
No	37.75	11.20	4.77	1229	67.68

Table 30 — Disaggregation of Poverty Measures by Various Groups of Households (continued)

While the decomposition of poverty indicators by household characteristics is informative, it may also be the case that individual characteristics, particularly of children, could be employed in identifying the poor. Before presenting the decompositions, it is noteworthy that 46.38 of the children in Maputo live in poor households (Table 31). This figure is considerably higher than the share of poor households, reflecting that larger households, and particularly those with more children, are more likely to fall below the poverty line.

In terms of individual characteristics, we find that there is a relatively small difference in the share of children who are poor, according to whether they For example, while 54.38 percent of the stunted, or are stunted or wasted. chronically malnourished children are residing in poor households, this applies to 43.08 percent of the children in non-poor households. This indicates that measures of malnutrition are not effective means of distinguishing the poor, at least when defined in money metric terms. We also explored whether having a health card, and therefore participating in the public health system is associated with poverty. In fact, it appears that the approximately 10 percent of the children without health cards have a higher probability of being from poor families than those with cards. In decomposing the poverty indicators according to birth weight, it is observed that the 9.13 percent of the low birth weight children (those who weighed less than 2.5 kg at birth) do not have a higher probability of being from poor households than the 88.7 percent of the children who were not low birth weight.

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In terms of individual characteristics, we find that there is a relatively small difference in the share of children who are poor, according to whether they are stunted or wasted. For example, while 54.38 percent of the stunted, or chronically malnourished children are residing in poor households, this applies to 43.08 percent of the children in non-poor households. This indicates that measures of malnutrition are not effective means of distinguishing the poor, at least when defined in money metric terms. We also explored whether having a health card, and therefore participating in the public health system is associated with poverty. In fact, it appears that the approximately 10 percent of the children without health cards have a higher probability of being from poor families than those with cards. In decomposing the poverty indicators according to birth weight, it is observed that the 9.13 percent of the low birth weight children (those who weighed less than 2.5 kg at birth) do not have a higher probability of being from poor households than the 88.7 percent of the children who were not low birth weight.

	Poverty Measures				
Groupings	Head Count Index	Poverty Gap Index	F-G-T P2	N	Percent of Children
		Percent			
Health Card					
Yes:Seen	46.21	13.85	5.82	126.6	77.05
Yes:Not Seen	41.36	11.28	4.68	2.20	13.39
No	54.78	18.43	8.39	157	9.56
Stunting					
Yes	54.38	16.47	7.04	480	29.21
No	43.08	12.90	5.45	1163	70.79
Wasting					
Yes	56.60	18.12	7.69	106	6.45
No	45.67	13.66	5.79	1537	93.55
Low Birth Weight					
Yes	44.00	12.71	5.15	150	9.13
No	46.62	14.07	5.99	1493	90.87
All Children	46.38	13.94	5.91	1643	100

Table 31 — Disaggregation of Poverty Measures, by Characteristics of Children

6. INCOME INEQUALITY

In this section of the paper we explore the degree of income inequality in Maputo. In addition, we decompose the observed inequality to show its determinants. To begin, however, we present the most basic indicator of income distribution: the shares of per capita expenditures by per capita expenditure deciles (Table 32). The bottom 10 percent of the households command only 2.5 percent of the total value of household expenditures. In contrast, the households in the highest expenditure decile control nearly 34.7 percent of the total value of household expenditures. However, the fact that the percent of the total population in the lowest expenditure groups is much higher than in the upper expenditure groups, owing to the fact that household sizes are larger for the poor, indicates that the income distribution by individuals is more skewed than would be suggested by these household expenditure figures.

Next we present data on four inequality measures: the Gini coefficient, which is not decomposable and will be used only for the sake of comparisons with other countries; the Theil entropy measure (Theil T); the alternative Theil measure (Theil L); and the log variance. Their formulas are reported in Appendix A. The results indicate that inequality in Maputo is quite high, in fact very close to that observed in Abidjan (Table 33). For all measures, inequality is greater than in Conakry and Accra, although lower than for the two major cities in Cameroon.

More interesting than simply reporting the high level of inequality is to decompose it into different groups and categories. We are interested in within group decomposition, which measures the dispersion inside that group, and between group measures, which describes the dispersion across groups. The latter is of special interest because when difference between groups is large, say over 10 percent, it is suggestive of specific groups to target through intervention programs as a means of improving the distribution of income.

The results in Table 34 indicate that while the inequality among male headed households is greater than female headed households, the between group variation accounts for only around one percent of the income inequality observed. Similarly, whether or not the head of households was a migrant does not contribute to income inequality in Maputo. In contrast, however, the schooling of the head of the household is of great importance in explaining the income inequality. The figures suggest that if one equalized schooling, it would reduce inequality by nearly 20 percent.

We also examined whether the age of the household head, and the sector of employment contribute to income inequality in Maputo. In the case of the former, there was once again only a trivial contribution. As for the occupation categories, we distinguish between the four groups discussed above: (1) the informal and non-wage sector; (2) the private wage sector; (3) the state sector; and (4) those primarily engaged in own-account agriculture. The results suggest

Table 32 — Distribution of Household Per Capita Expenditures, by Per Capita Expenditure Deciles

Per Capita Expenditure Decile	% of Households	% of Total Expenditures
1	10	2.5
2	10	3.7
3	10	4.5
4	10	5.4
5	10	6.3
6	10	7.5
7	10	9.0
8	10	11.0
9	10	15.4
10	10	34.7
Source: Computed from tl	he FSD/CFNPP Surve	y Data.

	Gi	ini	The	il T	The	il L	Log Va	riance
	Households	Individuals	Households	Individuals	Households	Individuals	Households	Individuals
Maputo	0.4159	0.3983	0.3252	0.3037	0.2866	0.2614	0.5038	0.4504
Conakry (1990) [*]	0.3953	I	0.2925	I	0.2553	I	0.4409	ı
Abidjan (1985) ^b	0.4109	I	0.3108	I	0.2809	I	0.5035	I
Yaounde (1983)°	0*4900	ł	0.5530	ı	n/a	ı	0.6340	I
Douala (1983) ^c	0.4420	I	0.3720	ı	n/a	I	0.5310	I
Accra (1987) ^d	n/a	ı	0.1687	1	0.1523	ı	0.2788	ı

Table 33 - Per Capita Expenditure Inequality Measures for Selected African Cities

Sources:

del Ninno (1994). b Glewwe (1988). c Lynch (1991). d Glewwe (unpublished).

Table 34 — Per capita expenditure inequality measure decomposed

Groupings	Percent of household	Theil T	Theil L	Log Variance
Gender of household head Male headed Female headed	70.5 29.5	0.3358 0.2814	0.2998 0.2434	0.5248 0.4425
Between group contribution Percent		0.0035 1.06	0.0035 1.24	0.0036 0.7059
Migration status of head Migrant Nonmigrant	17.5 82.5	0.3129 0.3226	0.2895 0.2799	0.5215 0.4887
Between group contribution Percent		0.0050 1.53	0.0048 1.66	0.0084 1.67
Schooling of head Illiterate Grades 1-2 Grades 3-4 Grades 5-6 Grades 7-9 Grades 10-11 University	17.0 9.9 39.3 17.5 11.5 3.9 0.8	0.2347 0.2041 0.3163 0.1731 0.3022 0.2709 0.0684	0.2138 0.1977 0.2723 0.1648 0.2761 0.2665 0.0760	0.4073 0.3793 0.4657 0.3155 0.4941 0.5020 0.1672
Between group contribution Percent		0.0608 18.69	0.0520 18.13	0.0808 16.03
Age of head 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 + 60	0.8 4.9 12.3 21.1 15.9 12.3 9.2 8.9 5.3 9.3	0.2525 0.2285 0.2562 0.3072 0.4143 0.3470 0.2691 0.3606 0.1908 0.3715	0.2083 0.2121 0.2465 0.2776 0.3524 0.3068 0.2384 0.2897 0.1957 0.3264	0.3272 0.3977 0.4712 0.4967 0.5749 0.5416 0.4218 0.4696 0.3892 0.5895
Between Group Contribution Percent		0.0017 0.51	0.0017 0.59	0.0013 0.25
Groupings	Percent of household	Theil T	Theil L	Log Variance
-----------------------------	----------------------	---------	---------	-----------------
Occupation category of head				
Informal/Self-Emp	28.5	0.3565	0.3171	0.5547
Private Wage	27.3	0.3302	0.2932	0.5141
Public Wage	35.7	0.3077	0.2699	0.4723
Agriculture	8,5	0.2785	0.2370	0.4255
Between Group Contribution		0.0038	0.0039	0.0052
Percent		1.17	1.35	1.04
District				
1	13.7	0.3324	0.3356	0.6703
2	11.6	0.3011	0.2577	0.4443
3	14.3	0.2499	0.2288	0.4146
4	15.4	0.2306	0.2154	0.4047
5	16.0	0.2090	0.2048	0.3980
6	8.2	0.1543	0.1449	0.2690
7	7.7	0.2332	0.2159	0.4188
8	13.2	0.2934	0.2567	0.4515
Between group contribution		0.0574	0.0500	0.0617
Percent		17.66	17.43	12.24

Table 34 — Per capita expenditure inequality measure decomposed (continued)

Source: Computed from the FSD/CFNPP Survey Data.

that the inequality within the first group is highest, descending across groups, being lowest for those engaged primarily on their own machambas. Reinforcing the findings on the poverty measures, the percentage of between group contribution to inequality is negligible. This findings contrasts with the large within group inequality.

Finally, we examine whether the income inequality differs within districts, as well as the role of geographical location in contributing to overall income inequality. The differences between districts makes a substantial contribution to income inequality in Maputo, explaining around 17.5 percent of the inequality according to the two Theil measures. The results also indicate that the degree of income inequality within districts is quite high, although it varies markedly from one district to the next, being extremely high in District 1, while being lowest in District 6. It is noteworthy that these were found to be the districts with the fewest, and most poor, respectively. This overall high level of inequality within most districts, however, suggests there is only limited scope for geographical targeting, at least at the district level.

7. DETERMINANTS OF POVERTY

In this section of the paper we present a model of the determinants of poverty. In particular, we estimate a logistic regression model to determine the factors that distinguish the poor from the non-poor. This model is specified as follows:

$$Ln\left(\frac{P(Y=1)}{1-P(Y=1)}\right) \equiv Z \text{ where } Z = \alpha + \beta X$$

where the outcome is equal to one (Y=1) if the household per capita expenditure is above the poverty line and zero (Y=0) otherwise. The vector of explanatory variables, x, includes characteristics of the household head and other family members, and household consumption and location variables. Assuming that all the standard assumptions hold, the model has been estimated with the maximum likelihood estimator.

The results of the model are reported in Table 35. To help with the interpretation, the odds ratios and the impact on the predicted prevalence (i.e., probability) of being not poor are reported along with the coefficients and the sample means relative to each of the explanatory variables.¹⁰ By calculating the odds ratios, we can examine how the probability of being poor changes with changes in an exogenous variable, where an odds ratio of 1 implies no change relative to the base case. So, for example, if the household head has completed third or fourth grade, the odds of the household not being poor would be 59 percent higher than a household where the head has no education. Or likewise, using the impact value, the predicted prevalence of being non-poor for those households where the head attended grades seven through nine would be 39 points higher (on a scale of 100) than if the head had no schooling.

Using any of the possible interpretations it is evident that education of the household head is an important determinant of whether or not a household is poor, and the increase in probability of not being among the poor rises with more education.

Another positive and significant parameter in the model is the variable for the gender of the household head. The odds of women headed households being nonpoor are 34 percent higher than male headed households, controlling for other individual and household characteristics. In contrast to the paramount importance of education and gender of the head, the age of the household head has no effect on the probability of being poor.

¹⁰ For a discussion of the odds ratio, its calculation and interpretation, see Aldrich and Forrest (1990), and Hosmer and Lemeshow (1989)

	C	C	
-	Ο	Э	-

	Dependent Variable: 0 = poor; 1 = non-poor					
			Odds	Impact on		
Independent Variables	Coefficient	t-statistic	Ratio	Probability	Mean Value	
Characteristic of Head						
Age	<-0.01	-0.19	1.00	-0.02	40.21	
Grades 1-2	0.18	0.79	1.20	4.33	0.10	
Grades 3-4	0.47	2.47	1.59	10.79	0.40	
Grades 5-6	1.09	4.57	2.97	22.43	0.18	
Grades 7-9	1.52	5.04	4.58	28.33	0.12	
Grades >9	3.57	3.43	35.37	39.92	0.05	
Born Gaza	0.02	0.10	1.02	0.50	0.33	
Born Inhambane	0.26	1.05	1.30	5.10	0.22	
Born Maputo State	0.25	0.93	1.28	4.87	0.14	
Born Maputo City	0.39	1.55	1.48	7.40	0.21	
Female	0.29	1.85	1.34	5.42	0.29	
Schooling of other Members						
# Malon Gradon 1-2	0 42	1 24	1 54	0 10	0.02	
# Males Grades 3-1	0.43	2 16	1.04	6 51	0.03	
# Males Grades 5-4	0.34	2.10	1.41	0.51	0.20	
# Males Grades 7-9	0.44	2.50	1.55	8.46	0.24	
# Males Grades >9	1 76	2.40	5 70	22 20	0.14	
# Females Grades 1-2	0.18	1 03	1 20	3 46	0.04	
# Females Grades 3-4	0.10	2 25	1 33	5.40	0.13	
# Females Grades 5-6	0.25	A 21	1.33	10.80	0.40	
# Females Grades 7-9	1 13	4.21	3 10	21 53	0.32	
# Females Grades >9	0.91	1.27	2.49	17.35	0.03	
Household Consumption						
# Children 0-6	-0.42	-7.93	0.66	-7.93	1.33	
# Children 7-14	-0.25	-5.65	0.78	-4.72	1.60	
# Persons 15-65	-0.35	-3.75	0.70	-6.74	2.98	
# Elderly >65	-0.42	-2.29	0.66	-7.90	0.11	
Tools and Equipment	<0.01	0,46	1.00	<0.01	1.38x10*	
District 2	-0.50	-1.72	0.61	8 12	0.12	
District 3	-0.42	-1.53	0.65	-6.75	0.15	
District 4	-0.70	-2.57	0.50	-12 08	0.15	
District 5	-0.66	-2.39	0.52	-11 21	0.16	
District 6	-0.99	-3.30	0.37	-18 35	0.08	
District 7	-0.65	-2.11	0.52	-11 04	0.08	
District 8	-0.57	-2.05	0.56	-9.51	0.13	
Nonzero OBS		1,168				
Zero UBS	561					
Long-Square (33)		410.5				
LOU LIKEIINOOD		-884.3	4			

Table 35 - Maximum Likelihood Estimates of Logit Model of Poverty

Source: Computed from the FSD/CFNPP Survey Data.

Note: The impact on the probability has been calculated differently for continuous and dicotomus variables. For continuous variables the impact on the probability is P(Y=1)*(1-P(Y=1))*B, where P(Y=1) is evaluated at the mean values. For dicotomus variables impact has been calculated as P(Y=1|X=0)-P(Y=1|X=1) where all the other variables are at the mean values.

At mean values: Z=1.07, P=74.46 and the odds are 2.92.

In terms of the location of birth of the household head, we construct four dummy variables, with people being born in the other provinces (Cabo Delgado, Manica, Nampula, Niassa, Sofula, Tete and Zambezia and outside Mozambique) being the base group. The odds of being poor among households where the head was born in Maputo City is almost 50 percent lower than the base group, once again controlling for other household and individual characteristics.

Another important characteristic of the household in determining the probability of being poor is the number of children and elderly. Each additional child under 14 years of age increases the probability of being among the poor by 8 points, although the effect is smaller for children 7 to 14 years of age than 0 to 6 years of age. An additional elderly person in the household similarly increases the probability of being among the non-poor by 8 points. In contrast, the effect on poverty of additional working age persons (15 to 65 years of age) in the household is dependent upon their educational status and gender. In particular a person of working age with no schooling will have a neutral effect if that person is a woman, while a man, even with no schooling, raises the probability of the household being among the non-poor. Each additional male with up to 9 years of schooling reduces the probability of being among the poor, but by approximately the same amount as the uneducated male. An additional male with greater than 9 years of schooling, however, will dramatically reduce the probability that the household is poor. For females, a different pattern is observed. Most noteworthy is that each increment in education for an additional female household member lowers the probability of being poor. In fact. the positive effect of a female with 7 to 9 years of education on the welfare of the household is greater than a similarly schooled male, though the opposite is the case for women and men with more than 9 years of schooling.

Finally, we find that the district in which one lives is important. Relative to District 1, (the central part of the city where government offices and cement structures predominate) if one lives in any other part of greater Maputo, it raises the likelihood of being among the poor. This is particularly so in District 6, where the probability of being among the non-poor is 63 percent lower than if the household were in District 1.

8. CONCLUSIONS

In this paper we have explored the demographics, education, health, nutrition, employment, consumption and housing of the people and households of Maputo. Subsequent to this, we have analyzed the level, characteristics and causes of poverty and income inequality there. While our findings suggest that around one-third of Maputo's households are poor, the share of the population that is ultra-poor is only around 10 percent. It is quite clear that a combination of government policy and extraordinary donor support has maintained a comprehensive system of social services, and kept poverty at relatively moderate levels.

We have yet to address the quality of social services, and how this quality translates into the quality of human resources. Facts such as that feeding practices appear to be sound, that the percentage of the population suffering from acute malnutrition is low, and that the incidence of diarrhea is not extraordinarily high in comparison with other African capitals gives some indication that there are tangible benefits to the investments being made in social services and infrastructure. A more complete accounting of these issues, however, awaits to be done.

Despite successes in keeping up with health and educational services and related infrastructure, the information on the demographic structure of the population can be considered nothing short of alarming, in terms of the implications for the future. With half the population below 15 years of age, and one-quarter below 7 years of age, the massive investments required to educate and provide basic health care for this population are staggering. But of even greater concern is the issue of how these children are to be absorbed into the labor market in the years ahead.

The preliminary descriptive statistics on the Maputo labor markets indicate considerable dynamism. This is particularly so for the informal sector and agriculture which provide sources of income for a large share of Maputo's households. This has contributed to little open unemployment or underemployment, though the remuneration to workers is often low. This is also an issue that will be the focus of further research. Nonetheless, our preliminary assessment indicates that the vast majority of households are coping through a combination of multiple occupations per worker, multiple workers per household, state subsidies, and the system of mutual assistance relationships and private transfers.

At the same time, the essential role of the state in providing wage employment is manifest in the high share of wage employment that is in the public sector. An obvious challenge that faces policy makers is to promote further growth in private enterprises, both in the formal and non-formal sector. Wage and employment policies, as well as related issues such as policies to promote investment and labor-intensive manufacturing represent an area in need of further attention. Given the already bloated wage bill and number of public sector workers, coupled with the need to shift reliance away from the state to the private sector as the generator of employment, the scope for the state to assume any further role in directly providing employment opportunities is limited.

In defining who the poor are, the most relevant attributes are the size of the household, and the education of the head. Our decomposition of poverty measures, which could aid in the search for a simple screening criteria for targeted subsidies and transfers, shows that policy makers may rely on some blunt instruments, such as living in an apartment house and having inside plumbing, to exclude a small share of households because of their low probability of being poor. However, the use of such criteria alone for targeting transfers would have a large error of inclusion. In searching for more discriminating criteria, we also tried decomposing poverty measures by the education of the head. The results show the level of schooling to be a reasonably good instrument In fact, our analysis of the causes of income for identifying the poor. inequality indicates that the between group contribution to inequality of educational differences is over 18 percent, according to Theil measures. The importance of education of both the household head, and other members in determining poverty, was also reinforced in the bivariate logit model. As expected, children, particularly those of pre-school age, and the elderly place a burden on household budgets, at least in the short term. However, the potential deleterious consequences of the high dependency ratios is mitigated by greater schooling among persons who are potential labor force participants. Thus, the results of the poverty profile show that the combination of household size, composition, and education of the members are the most important determinants of poverty. Family spacing and investing in children are clearly the two key elements of a long-term poverty reduction strategy.

Our other efforts to decompose poverty and inequality indicate few good short-term possibilities for identifying the poor. For example, other criteria which were expected to be useful, such as the gender and occupation of the household head, and the health and nutritional status of children, were not discriminating in delineating between poor and non-poor families. In fact, the between group contribution of gender to inequality is only around one percent. Similarly, the use of geographical targeting would not be very satisfactory. The between-region contribution to inequality is relatively high, and indeed, one of the districts has a much lower prevalence of poverty. However, the withindistrict inequality is also generally high, limiting the scope for targeting on such a basis.

The results of this paper also cast doubt on the criteria presently being used in Maputo for targeting the government's income transfers program (GAPVU). Specifically, the present policy of targeting income transfer based on gender of head, nutritional status, and occupation will not effectively discriminate between the poor and non-poor. The lack of clearly definable observable conditions that identify the poor thus represents a challenge to the effective operation of income transfer schemes. As discussed elsewhere (Dorosh, del Ninno and Sahn, 1993), however, there does appear to be a solution to this dilemma, at least in the short-term: subsidizing the price of the inferior good, yellow maize. In sum, this poverty profile has failed to arrive at other simple distinguishing characteristics of the poor, but it has reinforced the critical role of investing in human capital in reducing income inequality and raising incomes.

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APPENDIX A

INEQUALITY MEASURES

The Gini coefficient is derived from the following mathematical formula:

$$Gini(G) \frac{1}{2NY} \sum_{i_1 i_2} |Y_{i_1} - Y_{i_2}|$$

where N = number of persons (or households)

Y = income of individual i.

The Theil (t), Theil (L), and Log Variance (LV) measures are defined as follows:

$$Theil(T) = \sum_{j=1}^{N} Y \frac{j}{Y} ln\left(\frac{Y_{j}N}{Y}\right) = \int_{j}^{\Sigma} \left(\frac{Y_{j}}{Y}\right) T_{j} + \int_{j}^{\Sigma} \left(\frac{Y_{j}}{Y}\right) ln\left(\frac{Y_{j}/Y}{N_{j}/N}\right)$$

$$Theil(L) = \sum_{j=1}^{N} \frac{1}{N} ln\left(\frac{Y}{Y_{j}}N\right) = \int_{j}^{\Sigma} \left(\frac{N_{j}}{N}\right) L_{j} + \frac{\sum_{j} N_{j}}{N} ln\left(\frac{N_{j}/N}{Y_{j}/Y}\right)$$

$$LogVariance(LV) = \sum_{j=1}^{N} (\ln(Y_j) - \overline{\ln Y})^2 = \sum_{j=1}^{N} \left(\frac{N_j}{N}\right) LV_j + \sum_{j=1}^{N} \frac{N_j}{N} (\overline{\ln Y_j} - \overline{\ln Y})^2$$

where Y = total income of the population, Y_i = income of individual i, Y_j = total income of group j, N_j = number of people in group j, N = total population, ln Y = mean of ln (Y_i) over the entire population, and ln Y_j = mean of ln (Y_i) over the population in group j.

The terms to the right of the equality sign express the decomposition of the inequality measures in within and between components.