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FCND DISCUSSION PAPER NO. 36

**THE GAPVU CASH TRANSFER PROGRAM IN
MOZAMBIQUE: AN ASSESSMENT**

Gaurav Datt, Ellen Payongayong, James L. Garrett, and Marie Ruel

Food Consumption and Nutrition Division

International Food Policy Research Institute

1200 Seventeenth Street, N.W.

Washington, D.C. 20036-3006 U.S.A.

(202) 862 5600

Fax: (202) 467 4439

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ABSTRACT

The GAPVU cash transfer program is an important safety net for urban Mozambique. The coverage of the program is impressive within the urban sector, reaching about 16 percent of all urban households. Although the mean transfer amount is just over a dollar per capita per month, it still represents about 13 percent of the beneficiaries' per capita consumption. Despite limited enforcement of means testing, nearly two-thirds of the beneficiary population are deemed to be absolutely poor by a modest poverty line. Net of GAPVU transfers, the proportion in poverty would have been above 70 percent. Limited evidence on nutritional and other nonconsumption indicators is suggestive of the GAPVU beneficiary households being more deprived than urban households in general. GAPVU transfer benefits are progressive among the beneficiary households, and are not confined to those near the poverty line.

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Gaurav Datt, Ellen Payongayong, James L. Garrett, Marie Ruel
International Food Policy Research Institute

1. INTRODUCTION

Gabinete de Apoio à População Vulnerável (GAPVU) is the key urban safety net program in Mozambique. The main purpose of the GAPVU¹ cash transfer program is to reduce poverty among destitute urban households in Mozambique. Funded by the Government of Mozambique, the program began in September 1990. It has grown precipitously since its establishment. By the end of 1991, GAPVU had 2,000 beneficiary households. Four years later, in December 1995, the number was more than 80,000. GAPVU currently operates in the 13 principal urban centers of the country (ten provincial capitals, Maputo, and the cities of Nacala and Maxixe).

GAPVU operates under the jurisdiction of the Ministry for Coordination of Social Action and has strong links to the Ministry of Finance. The administration of the program is decentralized to the provincial level, where GAPVU delegations are headed by the provincial directors of the Ministry of Planning and Finance. These delegations send monthly reports to the Central Office of GAPVU (UAP n.d. [a]; GAPVU 1995).

For the period analyzed in this study, namely May-August 1995, GAPVU (with a staff of 92 people) reached approximately 70,000 beneficiary households each month,

¹ Gabinete de Apoio à População Vulnerável literally translates into Office for Assistance to the Vulnerable Population.

about 16 percent of all urban households in Mozambique at both national and provincial levels (UAP, n.d. [a]).²

Previous evaluations of the GAPVU program have been based on informal field visits to four cities (Rogers 1994) and a participatory social appraisal in three cities (Schubert 1995). This study seeks to extend and quantitatively examine some of the conclusions of these reviews through a nationally representative sample survey of GAPVU beneficiaries, which also includes these cities. It is itself expected to be complemented by results from the 1996 national household survey of living standards currently under way. These evaluations have been in response to the Government of Mozambique's interest in evaluating how effective and efficient GAPVU has been in reaching its objectives, and how it might be improved.

Schubert (1995) concluded that GAPVU, despite the relatively small size of the transfer, was very important to the livelihood of the destitute households that received it. He noted that many destitute households, especially the elderly and disabled living alone, need assistance to survive. Informal or traditional safety nets, such as assistance from children, appear to be either nonexistent or unreliable for the majority of households. Formal safety nets, other than GAPVU, provided by the government or by nongovernmental organizations do not appear to reach the poor either (Schubert 1995). In fact, GAPVU seems to be the only fully functioning social program in Mozambique.

² By some estimates, the total number of destitute households in urban areas of Mozambique is about 120,000. If these estimates are credible, it would imply that the program was reaching about 60 percent of target households (UAP, n.d. [a]).

From the point of view of the destitute, then, GAPVU holds out one of their only real hopes. This study concludes that for many, there is no alternative, and the existence and reliability of GAPVU can be a matter of life and death.

Rogers (1994) had earlier reached a similar conclusion, stating that "if urban poverty alleviation is considered an important policy objective, the GAPVU program currently appears to be the only functioning program which addresses this objective." She noted that the relative priority that should be given to rural versus urban poverty alleviation is a judgment call to which an evaluation of a program like GAPVU can add little. To help the destitute in urban areas, however, Rogers noted that the GAPVU program appears to be the most promising current vehicle, especially for the elderly and disabled who cannot work.

This paper presents findings from a household survey conducted among beneficiaries of the GAPVU cash transfer program from May to August 1995. It looks at how the program contributes to household consumption; how the program's cash transfers are distributed among beneficiary households. It presents nutritional and morbidity indicators for children in beneficiary households, and summarizes other characteristics of program beneficiaries from three of the programs's four target groups. A distinguishing feature of this assessment is that by using consumption expenditure as an explicit welfare indicator and the basis of defining absolute poverty, it focuses the assessment directly in the context of the poverty alleviation objective of the program.

A limitation of the study can be noted at the outset. Since the GAPVU household survey was limited to the beneficiaries only, the following analysis, unless stated otherwise, is strictly conditional on a household being a GAPVU beneficiary. Given the paucity of other recent (and comparable) data bearing on household living standards, this seriously limits what we can infer about both the program's targeting performance and its impact. The paper is organized as follows. The next section discusses the program's rationale and eligibility criteria. Section 3 introduces the survey of GAPVU beneficiaries conducted in 1995. Section 4 presents some general characteristics of the beneficiary households, while some features of program implementation are discussed in section 5. Selected nutrition and morbidity indicators for the beneficiaries are presented in section 6. We then proceed to an assessment of the program in terms of the consumption-based welfare indicators. The groundwork for this is laid in section 7, while our key findings on the living standards of the GAPVU beneficiaries and the distribution of GAPVU transfer payments are presented in section 8. A summary of key findings and some concluding observations are offered in the final section.

2. RATIONALE FOR CASH TRANSFERS AND THE ELIGIBILITY CRITERIA

GAPVU targets destitute urban households. These are deemed to be households whose income is so low that the underconsumption of food reaches a level that endangers the health and lives of household members, apparently about 1,300 to 1,400 kilocalories per person per day. The rationale for the cash transfer was that the beneficiary households

could use the money to increase their average calorie intake up to 1,700 kilocalories per person per day (UAP, n.d. [a]). At the time of the survey, the cash transfer for one-member households was fixed at 24,000 meticaïs (Mt.) per month. Benefits are also adjusted to reflect household size, increasing with household size, though less than proportionately.³

The following types of households qualified for assistance under the GAPVU program at the beginning of the survey period (UAP n.d. [b]):

1. households with a child less than 5 years old with nutritional problems associated with risk-factors (clinically diagnosed kwashiorkor, or weight-for-height at or below the third percentile of the reference standards);⁴
2. households with a pregnant woman with nutritional problems associated with risk-factors (clinically diagnosed anemia, or for single-births, monthly average weight gain of 500 grams or less; for twin-births, monthly average weight gain of 900 grams or less);
3. unemployed elderly persons more than 60 years old living alone or in households without any individuals of working age (between 18 and 59);

³ The payment schedule by household size applicable at the time of the survey is shown in Table 12.

⁴ Ginja (1996) notes that in actuality both weight-for-age and weight-for-height criteria are used, with a child being eligible if he or she is at or below the third percentile in either case.

4. physically disabled persons more than 18 years old who suffer from some incapacity for work, who are unemployed, and who live alone or are heads of households without any other persons of working age (between 18 and 59).

A fifth category for female-headed households with five or more children and no other person of working age living in the same household was added in July 1995, although this group had apparently been approved for inclusion in an earlier decree, Decreto-Lei 16/93. Another category of beneficiaries was approved in the same decree and included households with a chronically ill as head of household (UAP, n.d. [b]).

At the time of the GAPVU survey, the program had the first four categories of beneficiaries among its target groups. Table 1 shows the average number of beneficiaries in each group and city during May-August 1995. As Rogers (1994) noted, the four beneficiary groups can be categorized into two main groups: the elderly and the disabled, who are eligible based on livelihood criteria, and women and children, who are eligible based on nutritional and health (growth) criteria.

All participating households must prove that household income is less than Mt. 32,000 per person per month (Mt. 24,000 at the time of the survey) and that they have lived in the respective city for more than one year. They also have to prove that there are no individuals of working age who are absent from the household, working in South Africa or in a country neighboring Mozambique (UAP n.d. [b]; Ginja 1996).

Table 1 Total number of beneficiaries during survey period (average May-August 1995)

Region	City	Malnourished preschooler	Malnourished pregnant women	Elderly	Disabled	All beneficiaries	Percent of total urban beneficiaries (percent)
Maputo	Maputo	701 <i>12.0</i>	63 <i>1.1</i>	4,847 <i>82.8</i>	244 <i>4.2</i>	5,855 <i>100.0</i>	8.5
	Matola	322 <i>5.9</i>	73 <i>1.3</i>	4,848 <i>89.5</i>	171 <i>3.2</i>	5,414 <i>100.0</i>	7.8
Gaza, Inhambane	Inhambane	747 <i>25.4</i>	120 <i>4.1</i>	1,936 <i>65.9</i>	133 <i>4.5</i>	2,936 <i>100.0</i>	4.3
	Xai Xai	634 <i>27.2</i>	290 <i>12.4</i>	1,318 <i>56.5</i>	91 <i>3.9</i>	2,333 <i>100.0</i>	3.4
	Maxixe	476 <i>13.4</i>	194 <i>5.5</i>	2,764 <i>77.9</i>	115 <i>3.2</i>	3,549 <i>100.0</i>	5.1
Tete, Manica, Sofala	Beira	819 <i>24.6</i>	62 <i>1.9</i>	2,146 <i>64.4</i>	307 <i>9.2</i>	3,334 <i>100.0</i>	4.8
	Chimoio	2,495 <i>41.1</i>	565 <i>9.3</i>	2,648 <i>43.6</i>	367 <i>6.0</i>	6,075 <i>100.0</i>	8.8
	Tete	6,223 <i>55.7</i>	1,042 <i>9.3</i>	3,459 <i>31.0</i>	440 <i>3.9</i>	11,164 <i>100.0</i>	16.2
Niassa, Cabo Delgado	Lichinga	2,317 <i>52.2</i>	373 <i>8.4</i>	1,614 <i>36.3</i>	137 <i>3.1</i>	4,441 <i>100.0</i>	6.4
	Pemba	767 <i>26.9</i>	519 <i>18.2</i>	1,443 <i>50.6</i>	124 <i>4.3</i>	2,853 <i>100.0</i>	4.1
Nampula, Zambesia	Nampula	2,711 <i>43.4</i>	304 <i>4.9</i>	2,844 <i>45.5</i>	391 <i>6.3</i>	6,250 <i>100.0</i>	9.1
	Quelimane	916 <i>26.9</i>	769 <i>22.6</i>	1,511 <i>44.4</i>	207 <i>6.1</i>	3,403 <i>100.0</i>	4.9
	Nacala	6,840 <i>60.1</i>	175 <i>1.5</i>	4,163 <i>36.6</i>	200 <i>1.8</i>	11,378 <i>100.0</i>	16.5
Total		25,968 <i>37.6</i>	4,549 <i>6.6</i>	35,541 <i>51.5</i>	2,927 <i>4.2</i>	68,985 <i>100.0</i>	100.0

Note: Figures are provided by UAP and may differ slightly from those published in other government sources.
Figures in italics are percentages of total beneficiaries in the city.

The process of identification of beneficiaries differs for the two main groups of beneficiaries: the elderly and the disabled, and malnourished women and children.⁵ For the elderly and the disabled group, the households are informed of the GAPVU program through group meetings organized by the *quarteirão* (neighborhood) chief or the secretary of the *bairro* (a *bairro* contains several *quarteirões*). Persons who believe they are eligible must apply to the *bairro* secretary. The *bairro* secretary is responsible for screening elderly and disabled applicants, but he may ask the *quarteirão* chief to verify the applicant's eligibility. Residency is supposed to be verified by the Resident Card or by the head of the *quarteirão* where the household lives. Income is verified through employers when household members have salaried employment or, in other cases, by the chief of the *quarteirão*. In addition, the disabled applicants have to get, in addition, a form filled out at a hospital to certify their disability.

The application form with the appropriate certification is sent to the GAPVU office in the city. GAPVU staff are supposed to make visits to every applicant's home to verify the information provided by the *bairro* secretary, before approving the application. The *bairro* secretary receives a payment of Mt. 1,000 for every application approved by the GAPVU office.

The outreach for malnourished pregnant women and children is limited to the neighborhood clinics. Nutritional status of children and pregnant women is verified by nurses in Maternal-Child Health Clinics, which monitor the health of pregnant women and

⁵ The following discussion is largely based on Rogers (1994).

the growth of children under 4 years of age (UAP n.d. [b]). Nurses fill out a referral form that is sent to the GAPVU office, which refers it to the *bairro* secretary, who, in turn, sends it over to the *quarteirão* chief for verification of the residency status. GAPVU staff do *not* routinely perform home visits to these applicants. The nurses and the *bairro* secretary receive a payment of Mt. 1,000 for every applicant recommended by the GAPVU office.

For all categories of beneficiary households except pregnant women, benefits are granted for one year (payable on a monthly basis), after which the eligibility of the household is reevaluated and payments may or may be not renewed. If a child continues to be malnourished, payments continue up to a maximum age of five years. Pregnant women receive benefits from the time they are approved up to six months after the birth of the child.

The GAPVU program has grown rapidly over the years, and there are still signs of excess demand for the program, despite the relative small amount of monthly cash transfer offered. The number of beneficiaries grew more than two-and-a-half times over the two-and-a-half-year period between the end of 1992 and mid-1995, reaching about 70,000 households at the latter date. However, there have been reports of rationing of participants due to spending caps. For instance, Rogers (1994) reported:

In Matola, the program director confirmed that there was a limit on the number of new households which could be approved each month, and that the

limit was implemented by limiting the number of referral forms given to Bairro Secretaries. Field visits confirmed that the Bairro Secretaries turned away applicants once their supply of referral forms was used up.

This was apparently not true of all cities. For instance, GAPVU offices in Beira and Xai-Xai did not report any binding limit on participation in their programs (Rogers 1994).

3. THE GAPVU SURVEY

3.1 DESIGN AND IMPLEMENTATION

The survey on which most of this paper's analysis is based was conducted by the Poverty Alleviation Unit (UAP) of the Ministry of Planning and Finance from May to August 1995, with collaboration of the GAPVU program in its design and implementation. The survey was undertaken in all 13 cities in which GAPVU was operating, and was designed to provide information on GAPVU beneficiaries.⁶

Although the data can indicate how many of the beneficiary households are poor (and, therefore, also how much of the benefits are going to the nonpoor), how the program contributes to the beneficiary household's consumption, and how the benefits are distributed among beneficiaries, it cannot tell how effectively GAPVU is reaching the poor nor can it provide any genuine indicator of impact of the program. To determine how a

⁶ Desai (1995) provides a detailed description of the topics and variables covered by the survey.

GAPVU household fared, say, in terms of income, consumption, or child nutritional status, the study would require a comparison group outside the beneficiary group. Neither can the survey provide an accurate profile of the urban poor in Mozambique. This limits the conclusions that can be drawn for purposes of better targeting of this or other safety net programs.

The survey also has some information on the administration of GAPVU services. Although it may not be possible to identify the causes of problems, the survey information can be used to generate some simple statistics, such as the incidence of GAPVU payment interruptions or the average waiting time per beneficiary, to alert us to potential administrative problems.

The GAPVU survey followed a stratified random sample design. The strata were defined at the level of each city, and beneficiary group. The sample was stratified by three of the four beneficiary groups: malnourished children, pregnant malnourished women, and the elderly. The disabled persons group was excluded because it forms only a small proportion of GAPVU households, and unless this strata were oversampled, the resulting number of households would be too small to make meaningful inferences.⁷ The sample was also stratified by each city because it was felt that living conditions, and program administration, could differ significantly across cities. Conducting the survey in only a few regions might not reveal enough about variation in the program operation (UAP 1995).

⁷ We suspect that the disabled group are underrepresented among GAPVU beneficiaries relative to their presence in the general urban population. But, to our knowledge, no data are available to verify this.

Thus, there were 39 strata corresponding to each of the 13 cities and the three beneficiary groups. A random sample was selected from each strata.

The survey procedure was as follows. The original sample frame was selected in February 1995 from a list of current beneficiaries for each city and beneficiary group; a simple random sample was drawn for each city-group combination. The list of beneficiary households was obtained from GAPVU offices in each city.

However, because of delays in obtaining finances and official approval for survey activities, fieldwork for the survey did not begin until May 1995. Attendant to these delays, there was some unavoidable turnover of households participating in the GAPVU program. A decision was made to continue with the sample drawn from the February list, rather than undertake a fresh listing operation at the time of the survey. This by itself is unlikely to have posed a major problem. The assumption that the February 1995 listing was representative of the beneficiary population during May-August 1995 (the time of the survey) seems reasonable.⁸

Thus, the plan was to choose a sample of 1.34 percent from each city-beneficiary stratum. However, the field operation for the survey ran into serious difficulties in locating many of the sample households, largely because addresses of beneficiary households registered at the GAPVU offices were often incorrect. Because of these problems, the interview strategy was modified to initiating the interviews at the GAPVU

⁸ The fact that the survey was limited to a four-month period may also have implications for the seasonality of the data on consumption. We are unable to address this issue, though seasonality may be less of a concern in the urban setting to which the survey was confined.

payment points, and then completing the food expenditure sections at the beneficiaries' dwellings. This protracted the interview process. After more than two months of data collection, the survey team concluded the fieldwork with information on only 626 of a planned total of 940 households, with varying sampling rates for each group and city (UAP 1995).

3.2 SAMPLING WEIGHTS

The final sample that we used in the analysis for this report differed from the original planned sample for a number of reasons: (1) many of the households in the planned sample were not interviewed, (2) we excluded some households from the sample that clearly were no longer GAPVU beneficiaries, and (3) as part of the data cleaning exercise, we also excluded some households with incomplete or inconsistent data. Our final sample consisted of 515 households. The distribution of this sample across cities and beneficiary groups, and the sampling rates, are shown in Table 2. In constructing the sampling weights, the average beneficiary population during the survey period (May to August 1995) was used as the reference. The sampling weight w_j for a given stratum j was constructed as follows:

$$w_j = \frac{\text{number of households in stratum } j \text{ in the final sample}}{\text{the total number of actual beneficiaries in stratum } j \text{ averaged over the months May–August 1995}}$$

Table 2 Sample number of beneficiaries (n), average total number of beneficiaries during survey period (N) and sampling rates (percent), by city and type of GAPVU household

City	Malnourished Preschoolers			Malnourished pregnant women			Elderly			All beneficiaries		
	n	N	Percent	n	N	Percent	n	N	Percent	n	N	Percent
Maputo												
Maputo	5	701	0.71	.	.	.	36	4,847	0.74	41	5,548	0.74
Matola	4	322	1.24	2	73	2.74	33	4,848	0.68	39	5,243	0.74
Gaza, Inhambane												
Inhambane	6	747	0.80	2	120	1.67	16	1,936	0.83	24	2,803	0.86
Xai Xai	6	634	0.95	2	290	0.69	19	1,318	1.44	27	2,242	1.20
Maxixe	2	476	0.42	3	194	1.55	22	2,764	0.80	27	3,434	0.79
Tete, Manica, Sofala												
Beira	11	819	1.34	.	.	.	16	2,146	0.75	27	2,965	0.91
Chimoio	22	2,495	0.88	5	565	0.88	30	2,648	1.13	57	5,708	1.00
Tete	21	6,223	0.34	7	1,042	0.67	22	3,459	0.64	50	10,724	0.47
Niassa, Cabo Delgado												
Lichinga	23	2,317	0.99	8	373	2.14	15	1,614	0.93	46	4,304	1.07
Pemba	5	767	0.65	2	519	0.39	11	1,443	0.76	18	2,729	0.66
Nampula, Zambesia												
Nampula	23	2,711	0.85	4	304	1.32	28	2,844	0.98	55	5,859	0.94
Quelimane	8	916	0.87	6	769	0.78	15	1,511	0.99	29	3,196	0.91
Nacala	42	6,840	0.61	4	175	2.29	29	4,163	0.70	75	11,178	0.67
Total	178	25,968	0.69	45	4,424	1.02	292	35,541	0.82	515	65,933	0.78

The above procedure assumes that noncoverage in the final sample is random in nature, i.e., the final sample for each stratum still consists of a simple random sample. It should also be noted that the sample sizes for some strata are too small to draw meaningful conclusions for some beneficiary groups at the city-level. Some results below are reported by region, where a region contains cities in contiguous provinces.⁹ All tables incorporate the sampling weights.

4. CHARACTERISTICS OF GAPVU HOUSEHOLDS

The following section gives a brief, general description of GAPVU beneficiary households. Descriptions are given, as appropriate, at the overall level, by target group and by region.

Table 1 shows that about 16 percent of the beneficiaries live in or around Maputo (Maputo, Matola). An equal percentage live in Nacala and Tete. Thus, nearly half the beneficiaries live in three cities. Less than 10 percent of the beneficiaries are from each of the other nine cities. The two most important categories of beneficiaries are the elderly and the malnourished preschoolers: over half the beneficiaries are elderly, and almost 40 percent are households with malnourished preschoolers. Only 7 percent of the beneficiary households are those with pregnant malnourished women.

⁹ Some minimal aggregation across cities was necessary to mitigate the problem with the small number of observations. See section 5 for further discussion. The five regions are defined as follows: Region 1 - Maputo: Maputo, Matola; Region 2 - Gaza, Inhambane: Inhambane, Xai Xai, Maxixe; Region 3 - Tete, Manica, Sofala: Beira, Chimoio, Tete; Region 4 - Niassa, Cabo Delgado: Lichinga, Pemba; Region 5 - Nampula, Zambesia: Nampula, Quelimane, Nacala.

These overall statistics disguise substantial variation in the composition of the beneficiary population in each city. For example, although, overall, 38 percent of beneficiary households qualify because of a malnourished preschooler and 52 percent because of age, in Maxixe, the preschooler households are only 13 percent of beneficiary households, while 78 percent of them are elderly. Similarly, Nacala has only 16 percent of the total GAPVU households, yet it has more than a quarter (26 percent) of all the beneficiary households with malnourished preschoolers. These differences in the composition of beneficiaries are larger than what seems plausibly attributable to differentials in the composition of eligible population. Instead, they are suggestive of uneven implementation of the program across cities, which seems to favor different groups in different cities.

Table 3 provides a demographic profile for beneficiary households. A little under half of the beneficiary households are female-headed. This may be compared with only about one-fifth of the general urban households (in Maputo and provincial capitals) being female-headed. The program thus does seem to implicitly target female-headed households, although this is most marked for the elderly group, about 57 percent of whom are female-headed. The average schooling of the head of household is generally low (1.5 years), the average age of the head of household is 53 years and average

Table 3 Household demographics

	All beneficiary households	Poor ^d beneficiary households	All GAPVU beneficiaries ^a								All households ^b	
			Type of beneficiary			Region ^c					Maputo	Provincial capitals
			Preschooler	Women	Elderly	Maputo	Gaza/ Inhambane	Tete/ Manica/ Sofala	Niassa/ Cabo Delgado	Nampula/ Zambesia		
Percent female-headed	44.7	44.2	30.6	30.9	56.6	59.3	61.6	40.2	32.5	38.3	23.5	19.6
Head, years of schooling	1.5	1.2	2.4	3.3	0.6	1.1	0.9	1.9	2.0	1.5	-	-
Head, age in years	53.3	51.7	37.0	38.4	66.8	65.3	61.0	49.0	49.2	49.2	41.8	40.3
Household size	4.9	5.4	6.5	6.6	3.5	4.3	4.0	4.7	6.1	5.2	6.8	5.8
Number of adults (15-59 years)	1.4	1.5	2.1	2.3	0.7	1.1	1.2	1.4	1.8	1.4	2.8	2.3
Number of school-age (5-15 years)	1.9	2.2	2.6	2.5	1.3	1.6	1.3	1.7	2.3	2.2	2.7	2.3
Number of preschoolers (<5 years)	0.9	1.1	1.6	1.5	0.3	0.5	0.6	1.0	1.4	1.0	1.2	1.1
Number of elderly persons	0.7	0.6	0.1	0.2	1.2	1.1	0.9	0.5	0.6	0.6	0.1	0.1
Number, age indeterminate	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	-	-

^a Based on the GAPVU Survey (1995) of beneficiary households.

^b Based on *Inquerito das Familias, Maputo 1991-92* and *Inquerito das Familias, Capitais Provincias 1991-92*, from Desai (1997).

^c The cities are grouped into five regions: Region 1 (Maputo Province): Maputo, Matola; Region 2 (Gaza, Inhambane Provinces: Inhambane, Xai Xai, Maxixe; Region 3 (Tete, Manica, Sofala Provinces): Beira, Chimoio, Tete; Region 4 (Niassa, Cabo Delgado Provinces): Lichinga, Pemba; Region 5 (Nampula, Zambesia Provinces): Nampula, Quelimane, Nacala.

^d For the definition of poor households, see section 7.

household size is 4.86. On average, GAPVU beneficiary households tend to belong to an older cohort and have a smaller household size relative to the average urban household. But, in both of these respects, the differences reflect the fact that more than half the beneficiary households are from the elderly group whose eligibility criteria include an age threshold of 60 years and the requirement that their household not include any member of working age. The demographic characteristics of poor beneficiary households are, however, very similar to those for GAPVU beneficiaries in general.¹⁰

The profiles of households with malnourished preschoolers or malnourished pregnant women are also fairly similar, although the heads of households with pregnant women tend to have one more year of schooling (3.3 versus 2.4). In both cases, household size is fairly large, with more than 6 individuals in the household. A large proportion of these are children. As expected, the elderly households differ in a number of respects from these two groups. Elderly households tend to be headed by women more often (57 percent versus 31 percent for both of the other groups). The heads of households have less schooling, and the household size is smaller (3.5 individuals versus over 6 for the other two groups).

Interestingly, elderly households do tend to have some school-age children in their households (an average of 1.3) but no preschoolers (0.3). More surprisingly, these households also have an average of 0.7 adults of working age in the household—suggesting some violation of the eligibility criteria.

¹⁰ How the poor households are identified is discussed in section 7 below.

Demographic characteristics also differ by region. For instance, about 60 percent of GAPVU households are headed by women in Maputo-Matola region and the Inhambane-Xai Xai-Maxixe region, while only about 30 percent are women-headed in the cities of Lichinga and Pemba. Similarly, the heads of households in the first two regions also tend to be substantially older than the average. For the most part, these regional differences in demographic characteristics reflect the different composition of beneficiaries (among the three categories of beneficiaries) across regions (see Tables 1 and 2)

Table 4 shows that 9 out of 10 of all beneficiaries own their own house. There is little variation in this proportion across beneficiary groups or regions (near or above 90 percent for each group). The proportion is also no different for the poor beneficiary households. Compared with the urban population in general, the proportion of owner-occupiers is *high* among the beneficiaries, especially in Maputo (about 92 percent among beneficiaries as against 70 percent in general). But ownership of a house is not very informative of living standards in our context. The type of facilities available within the house is more revealing. About 62 percent of all beneficiary households have a toilet or latrine; the proportion for poor beneficiary households is 58 percent. These proportions are well below the percentages for all urban households. But there are also some

Table 4 Housing characteristics (percent with characteristic)

	All GAPVU beneficiaries ^a											
			All households ^b					Region ^c				
			Type of beneficiary			Maputo		Gaza/ Inhambane		Tete/ Manica/ Sofala		Niassa/ Cabo Delgado
	All beneficiary households	Poor ^d beneficiary households	Preschooler	Women	Elderly	Maputo	Inhambane	Sofala	Delgado	Zambesia	Maputo	Provincial capitals
Own house	91.6	91.0	86.7	97.2	94.5	91.5	99.2	89.4	94.2	89.7	69.7	88.1
Have toilet/latrine	61.6	58.1	52.6	76.2	66.3	96.0	87.4	46.1	74.7	42.5	98.6	78.0
Have electricity as source of light	7.5	5.0	10.5	5.6	5.5	14.4	3.4	6.4	5.1	7.4	41.3	21.9
Have good water source (well or better)	79.1	77.7	73.8	68.9	84.2	92.1	88.0	60.9	84.8	83.7	87.3	88.5

^a Based on the GAPVU Survey (1995) of beneficiary households.

^b Based on *Inquerito das Familias, Maputo 1991-92* and *Inquerito das Familias, Capitais Provincias 1991-92*, from Desai (1997).

^c The cities are grouped into five regions: Region 1 (Maputo Province): Maputo, Matola; Region 2 (Gaza, Inhambane Provinces: Inhambane, Xai Xai, Maxixe; Region 3 (Tete, Manica, Sofala Provinces): Beira, Chimoio, Tete; Region 4 (Niassa, Cabo Delgado Provinces): Lichinga, Pemba; Region 5 (Nampula, Zambesia Provinces): Nampula, Quelimane, Nacala.

^d For the definition of poor households, see section 7.

significant intercity differences. The poorer toilet facilities for GAPVU beneficiaries relative to the general urban population seem to be mostly due to the poorer conditions in Tete, Manica, Sofala, and Nampula and Zambesia. GAPVU beneficiaries are also less likely to have good sources of drinking water (piped water, neighborhood or community tap, private or public well) relative to the general urban population. Regionally, the GAPVU beneficiaries in Tete, Manica, and Sofala are the least likely to have access to good drinking water. A more telling indicator is the use of electricity as a source of light. Only 7.5 percent of the GAPVU beneficiary households use electricity as a source of light as against 41 percent of the general population in Maputo and 22 percent in other provincial capitals.

Table 5 indicates ownership of durables, livestock (which can serve as a store of value), and other assets. The figures are not particularly surprising, with most households possessing beds and chairs, although fewer have tables, and fewer still own other items such as stoves/irons. The converse is somewhat more revealing, namely, about 30 percent of the beneficiary households do not own a single bed, 35 percent do not own a single chair, and nearly 50 percent do not own a table. Few households seem to possess goods that would indicate a capacity for self-employment, such as a set of tools. About 4 percent of households have any cattle or goats and sheep, although the figures range from about 12 percent in Gaza and Inhambane to less than 1 percent in Nampula and Zambesia. However, more notably, more than 25 percent of households have coconut or

Table 5 Asset ownership (percent of households who own)

	All GAPVU beneficiaries ^a									
	Type of beneficiary					Region ^b				
	All beneficiary households	Poor ^c beneficiary households	Preschooler	Women	Elderly	Maputo	Gaza/ Inhambane	Tete/ Manica/ Sofala	Niassa/ Cabo Delgado	Nampula/ Zambesia
Beds	70.4	66.4	70.9	71.1	69.9	59.0	74.8	43.3	93.0	86.0
Tables	53.1	51.6	50.3	69.2	52.8	66.5	60.8	62.8	57.7	32.8
Chairs	65.3	66.5	63.4	81.3	64.5	76.2	73.3	76.7	57.2	50.5
Bicycles	8.7	8.8	12.0	26.5	3.5	1.4	1.8	18.1	19.4	4.4
Motorcycle	2.4	3.3	2.6	5.9	1.8	2.8	1.7	4.3	2.1	1.2
Radio/record player	29.2	26.9	35.3	52.8	20.9	26.6	29.3	35.1	26.9	27.1
Stove/iron	33.7	29.6	23.2	45.8	32.3	51.3	32.5	39.6	25.6	23.0
Mills	1.6	1.3	1.1	0.0	2.1	0.0	8.6	0.7	0.0	0.7
Set of tools for work	2.7	2.2	3.3	0.0	2.5	4.4	1.7	0.7	4.8	2.6
Cattle	0.7	0.0	0.0	1.6	1.2	0.0	5.3	0.0	0.0	0.0
Goats and sheep	3.4	4.5	2.1	6.5	4.1	5.8	6.9	4.1	2.1	0.6
Coconut/cashew trees	25.2	21.5	14.7	22.9	33.9	13.4	67.7	4.0	21.1	31.5
Other goods	21.8	19.7	13.7	30.7	21.0	22.3	41.1	11.2	23.1	20.7
Unweighted N ^d	418	222	152	42	224	72	65	84	63	134

^a Based on the GAPVU Survey (1995) of beneficiary households.

^b The cities are grouped into five regions: Region 1 (Maputo Province): Maputo, Matola; Region 2 (Gaza, Inhambane Provinces): Inhambane, Xai Xai, Maxixe; Region 3 (Tete, Manica, Sofala Provinces): Beira, Chimoio, Tete; Region 4 (Niassa, Cabo Delgado Provinces): Lichinga, Pemba; Region 5 (Nampula, Zambesia Provinces): Nampula, Quelimane, Nacala.

^c For the definition of poor households, see section 7.

^d Including only those households who reported ownership of at least one unit of at least one of these assets.

cashew trees that could be used to generate income. This is particularly important for Gaza and Inhambane, where the proportion of these households rises to more than two-thirds. There are also some differences in the level of asset ownership across beneficiary groups. For a number of assets, the position of the category of pregnant women seems to be relatively better.

5. PROGRAM IMPLEMENTATION

Data on some aspects of GAPVU program implementation are presented in Table 6.

The following points are notable.

1. Only 7 percent of the beneficiaries knew the amount of transfer benefit they were entitled to. It may be recalled that once selected as an eligible beneficiary, the payment schedule is a function of household size only. The level of awareness of entitlements was no different for the *poor* beneficiary households. There were some differences across cities and beneficiary groups. Maputo and Gaza-Inhambane regions had the highest levels of awareness (16 and 13 percent of beneficiaries, respectively), while Nampula-Zambesia had the lowest (2 percent). Among the beneficiary groups, the elderly were the most aware of their entitlements (though still only 10 percent), while the preschooler group was the least aware (3 percent). But

Table 6 Characteristics of GAPVU delivery service

Percent of GAPVU beneficiaries who . . .	All beneficiary households	Poor ^b beneficiary households	Region ^a							
			Type of beneficiary			Maputo	Gaza/ Inhambane	Tete/ Manica/ Sofala	Niassa/ Cabo Delgado	Nampula/ Zambesia
			Preschooler	Women	Elderly					
Know their entitled amount	7.0	7.4	2.9	4.2	10.4	16.2	12.5	5.8	3.7	2.1
Walk to GAPVU office	87.6	89.3	90.8	90.4	85.1	73.1	68.6	86.8	100.0	98.4
Have had interruptions in payment	31.4	31.8	35.9	13.1	30.4	23.0	19.1	41.8	20.6	34.9
Average interruption (months)	2.5	2.8	2.8	5.2	2.2	1.4	1.7	2.6	2.3	3.1
percent distribution:										
1 month	45.8	45.8	45.9	18.6	46.9	77.3	56.2	50.7	31.6	31.1
2–3 months	32.1	28.2	30.0	33.3	33.9	16.5	33.5	22.8	56.6	42.1
4–6 months	17.5	20.2	17.6	0.0	18.2	6.3	10.3	22.5	11.9	18.1
7–11 months	4.7	5.8	6.6	48.2	1.0	0.0	0.0	4.0	0.0	8.7
Average waiting time (hours)	7.3	7.5	7.1	6.4	7.6	7.5	7.5	8.1	6.7	6.5
percent distribution:										
1–4 hours	14.9	15.4	17.4	22.8	12.2	8.5	16.5	14.1	23.8	15.3
5–8 hours	62.3	60.8	61.8	71.0	61.6	54.8	62.1	55.1	54.1	76.2
9–12 hours	19.6	20.0	17.8	1.1	23.2	33.2	15.6	24.9	22.1	8.1
13–48 hours	3.2	3.9	3.1	5.1	3.0	3.5	5.9	5.9	0.0	0.4
Number of observations (unweighted)	515	291	178	45	292	80	78	134	64	159
Duration in the program (number of months, from first to last transfer received) ^c	11.2	10.1	8.5	7.4	14.6	8.9	16.0	9.7	7.9	12.7
Number of observations (unweighted)	344	184	145	34	165	50	50	91	36	117

^a The cities are grouped into five regions: Region 1 (Maputo Province): Maputo, Matola; Region 2 (Gaza, Inhambane Provinces): Inhambane, Xai Xai, Maxixe; Region 3 (Tete, Manica, Sofala Provinces): Beira, Chimoio, Tete; Region 4 (Niassa, Cabo Delgado Provinces): Lichinga, Pemba; Region 5 (Nampula, Zambesia Provinces): Nampula, Quelimane, Nacala.

^b For the definition of poor households, see section 7.

^c Calculated only if both the month and year information was available for the date of first and last payments received. The duration was indeterminate in 171 cases.

these differences across beneficiary groups may largely mirror the differential composition of the beneficiaries across cities (for instance, the relatively larger shares of the elderly in Maputo and Gaza-Inhambane regions and the relatively large share of the preschoolers in the Niassa-Cabo Delgado and Nampula-Zambesia regions).

2. About 90 percent of the beneficiaries walked to GAPVU offices to receive their monthly payments. The proportions were very similar for poor beneficiaries and across beneficiary groups; the differences across regions were relatively modest.
3. The beneficiaries did, however, have to wait a long time before receiving their payments. On average, this was over seven hours, with very little variation across beneficiary groups or cities. The lack of regional variation is somewhat surprising, given signs of other differences in program implementation across cities.
4. The program beneficiaries are supposed to receive regular monthly transfers, but about 31 percent of the beneficiaries reported interruptions in their GAPVU payments. The average interruption was for 2.5 months, though for about 45 percent of the beneficiaries, the interruption was for a single month only. There was some variation in the degree of payment interruption by region; Maputo, Gaza-Inhambane, and Niassa-Cabo Delgado performed

better than the other two regions.¹¹ The relatively long interruptions for a large fraction of pregnant women beneficiaries limits the usefulness of GAPVU transfers as income supplements over the course of the pregnancy.

5. We also looked at the average duration a beneficiary had been in the program as measured by the number of months between the first and the last payment received. These are "unfinished" spells (for beneficiaries who have not yet exited from the program) and should be accordingly interpreted. It is also worth recalling that the program was less than 5 years old at the time of the survey, and the size of the program was quite small during the first two years. It turns out that, on average, a GAPVU beneficiary had been a GAPVU beneficiary for about 11 months. This was 7-8 months for beneficiaries from the malnourished preschooler and pregnant women groups, and about 15 months for the elderly group. This is as may be expected, since the elderly are presumed to continue indefinitely on the program if there is no change in their income or household composition eligibility conditions, while for the other two groups, there is a planned upper limit to the duration in the program, namely, 6 months after the birth of the child in the case of pregnant women, and up to 5 years of age for malnourished preschoolers.¹² There are

¹¹ This is consistent with the payment interruption also noted by Rogers (1994) and Schubert (1995).

¹² The participation in the program could, of course, be terminated earlier. There is supposed to be an annual verification of the eligibility conditions for all beneficiaries, although it is not clear how well that is enforced.

also differences across regions, and they do *not* seem to reflect the differences across beneficiary groups. For instance, over 85 percent of the beneficiaries in the Maputo region were from the elderly group, but the average length of program participation was among the lowest in the sample regions (about 9 months as against 16 in Gaza-Inhambane, where the proportion of the elderly among the beneficiaries was about 70 percent).

6. NUTRITION AND MORBIDITY

6.1 PREVALENCE OF MALNUTRITION AMONG CHILDREN FROM THE GAPVU SAMPLE

Tables 7a-7c present the prevalence of malnutrition among preschoolers. Mean Z-scores for height-for-age (HAZ), weight-for-height (WHZ), and weight-for-age (WAZ) are presented along with the prevalences of stunting (percent children < -2 HAZ), wasting (percent < -2 WHZ), and undernutrition (percent < -2 WAZ) by age group. The National Center for Health Statistics (NCHS) reference standards were used to derive Z-scores. The results in this section should, however, be interpreted with some caution on account of potential imprecision in measurement; the height information was recorded to the nearest centimeter in all cases, and the weight information was measured to the nearest

Table 7a Nutritional status of preschool children by age group: Height-for-age Z-scores (HAZ) (stunting)

	Type of beneficiary household					Region ^a				
	All beneficiary households	All poor ^b households	Malnourished preschooler	Malnourished Women	Elderly	Maputo	Gaza/ Inhambane	Tete/ Manica/ Sofala	Niassa/ Cabo Delgado	Nampula/ Zambesia
0 to 6 months										
Z-score (mean)	-0.43	-0.63	-0.69	0.63	-0.24	0.80	0.12	-1.84	0.85	-0.34
Percent below -2.0	22.5	29.7	24.7	00.0	35.1	00.0	00.0	60.8	00.0	14.4
Unweighted N	24	18	16	5	3	1	3	7	6	7
6 to 18 months										
Z-score (mean)	-1.47	-1.49	-1.45	-1.71	-1.16	-2.08	-2.40	-1.00	-2.08	-1.03
Percent below -2.0	39.0	39.0	47.1	26.0	28.4	53.1	46.3	16.7	59.3	37.9
Unweighted N	70	51	39	20	11	9	11	16	10	24
18 to 36 months										
Z-score (mean)	-1.91	-1.90	-1.94	-1.58	-1.84	-2.36	-2.20	-1.70	-1.97	-1.95
Percent below -2.0	49.7	47.7	50.3	25.1	61.2	44.2	62.5	36.4	57.3	57.0
Unweighted N	101	71	79	9	13	4	14	30	17	36
36 to 60 months										
Z-score (mean)	-2.07	-2.30	-2.27	-1.43	-1.70	-1.61	-1.05	-2.16	-2.44	-2.22
Percent below -2.0	53.0	61.3	56.5	27.5	55.3	47.1	12.5	55.1	69.6	55.3
Unweighted N	84	59	55	12	17	9	10	24	17	24
All preschoolers										
Z-score (mean)	-1.73	-1.81	-1.84	-1.39	-1.50	-1.79	-1.75	-1.72	-1.87	-1.66
Percent below -2.0	46.0	48.0	49.4	23.8	49.0	46.9	40.5	40.1	56.3	48.3
Unweighted N	279	199	189	46	44	23	39	82	53	93

^a The cities are grouped into five regions: Region 1 (Maputo Province): Maputo, Matola; Region 2 (Gaza, Inhambane Provinces): Inhambane, Xai Xai, Maxixe; Region 3 (Tete, Manica, Sofala Provinces): Beira, Chimoio, Tete; Region 4 (Niassa, Cabo Delgado Provinces): Lichinga, Pemba; Region 5 (Nampula, Zambesia Provinces): Nampula, Quelimane, Nacala.

^b For the definition of poor households, see section 7.

Note: Height was measured to the nearest centimeter in all cases. Weight was measured to the nearest kilogram in 75 percent of the cases, to the nearest 100 grams in the remaining 25 percent cases. For completeness, the regional statistics are reported for all regions, but they should be interpreted with caution, due to the very small sample size for several age groups.

Table 7b Nutritional status of preschool children by age group: Weight-for-height Z-scores (WHZ) (wasting)

	Type of beneficiary household					Region ^a				
	All beneficiary households	All poor ^b households	Malnourished preschooler	Malnourished Women	Elderly	Maputo	Gaza/ Inhambane	Tete/ Manica/ Sofala	Niassa/ Cabo Delgado	Nampula/ Zambesia
0 to 6 months										
Z-score (mean)	0.09	0.01	-0.05	0.13	0.66	1.00	-0.39	0.58	0.32	-0.13
Percent below -2.0	6.3	8.7	9.3	0.0	0.0	0.0	0.0	0.0	0.0	16.3
Unweighted N	22	16	14	5	3	1	4	5	5	7
6 to 18 months										
Z-score (mean)	0.17	0.24	0.25	-0.05	0.20	-0.89	0.56	1.00	-0.54	0.15
Percent below -2.0	5.5	3.7	4.2	7.9	6.6	0.0	0.0	4.1	11.9	7.8
Unweighted N	71	52	39	21	11	9	10	17	11	24
18 to 36 months										
Z-score (mean)	-0.71	-0.73	-0.72	-0.54	-0.82	-0.94	-0.54	-0.71	-1.12	-0.57
Percent below -2.0	16.5	15.2	15.2	29.7	14.9	0.0	14.9	14.9	31.3	13.0
Unweighted N	102	72	80	9	13	4	13	31	18	36
36 to 60 months										
Z-score (mean)	-0.91	-0.84	-0.96	-0.62	-0.91	-0.29	-0.44	-0.88	-1.29	-1.08
Percent below -2.0	20.8	18.7	17.8	23.5	29.0	0.0	24.6	13.1	39.0	24.2
Unweighted N	87	62	55	13	19	9	10	26	17	25
All preschoolers										
Z-score (mean)	-0.51	-0.47	-0.55	-0.28	-0.51	-0.58	-0.24	-0.39	-0.94	-0.49
Percent below -2.0	14.4	13.0	13.4	15.8	17.7	0.0	11.9	11.7	27.3	15.0
Unweighted N	282	202	188	48	46	23	37	79	51	92

^a The cities are grouped into five regions: Region 1 (Maputo Province): Maputo, Matola; Region 2 (Gaza, Inhambane Provinces): Inhambane, Xai Xai, Maxixe; Region 3 (Tete, Manica, Sofala Provinces): Beira, Chimoio, Tete; Region 4 (Niassa, Cabo Delgado Provinces): Lichinga, Pemba; Region 5 (Nampula, Zambesia Provinces): Nampula, Quelimane, Nacala.

^b For the definition of poor households, see section 7.

Note: Height was measured to the nearest centimeter in all cases. For completeness, the regional statistics are reported for all regions, but they should be interpreted with caution, due to the very small sample size for several age groups.

Table 7c Nutritional status of preschool children by age group: Weight-for-age Z-scores (WAZ) (undernutrition)

	All GAPVU beneficiaries ^a											
	All beneficiary households	All poor ^d households	All households ^b			Region ^c						
			Type of beneficiary household		Elderly	Maputo	Inhambane	Gaza/Manica/Sofala	Tete/Manica/Sofala	Niassa/Cabo Delgado	Nampula/Zambesia	Maputo
Malnourished preschoolers	Malnourished women											
0 to 6 months												
Z-score (mean)	-0.14	-0.33	-0.41	0.71	0.52	1.58	-0.27	-0.25	0.08	-0.32	-	-
Percent below -2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-
Unweighted N	24	18	16	5	3	1	3	7	6	7	-	-
6 to 18 months												
Z-score (mean)	-1.05	-1.06	-1.19	-0.87	-0.83	-2.15	-1.44	-0.46	-1.77	-0.56	-	-
Percent below -2.0	29.5	28.7	30.9	22.7	35.8	53.1	36.7	14.9	63.9	13.1	-	-
Unweighted N	70	51	38	21	11	9	10	16	11	24	-	-
18 to 36 months												
Z-score (mean)	-1.79	-1.81	-1.81	-1.63	-1.73	-2.22	-2.00	-1.69	-2.19	-1.62	-	-
Percent below -2.0	52.7	52.5	54.6	38.4	48.2	100.0	57.9	49.0	63.8	45.4	-	-
Unweighted N	107	76	84	10	13	4	15	32	19	37	-	-
36 to 60 months												
Z-score (mean)	-1.94	-2.05	-2.00	-1.70	-1.88	-1.22	-0.96	-1.96	-2.51	-2.15	-	-
Percent below -2.0	49.9	56.0	56.25	32.2	40.1	23.5	12.4	53.6	77.4	51.1	-	-
Unweighted N	89	63	56	13	20	9	11	27	17	25	-	-
All preschoolers												
Z-score (mean)	-1.53	-1.58	-1.63	-1.12	-1.43	-1.63	-1.45	-1.45	-2.00	-1.39	-0.93	-0.86
Percent below -2.0	42.4	43.6	46.2	26.7	38.5	47.1	36.2	40.9	62.3	35.3	27.7	25.4
Unweighted N	290	208	194	49	47	23	39	82	53	93	-	-

^a Based on the GAPVU Survey (1995) of beneficiary households.

^b Based on *Inquerito das Familias, Maputo 1991-92* and *Inquerito das Familias, Capitais Provincias 1991-92*, from Desai (1997).

^c The cities are grouped into five regions: Region 1 (Maputo Province): Maputo, Matola; Region 2 (Gaza, Inhambane Provinces): Inhambane, Xai Xai, Maxixe; Region 3 (Tete, Manica, Sofala Provinces): Beira, Chimoio, Tete; Region 4 (Niassa, Cabo Delgado Provinces): Lichinga, Pemba; Region 5 (Nampula, Zambesia Provinces): Nampula, Quelimane, Nacala.

^d For the definition of poor households, see section 7.

Note: Weight was recorded to the nearest kilogram in 75 percent of the cases, to the nearest 100 grams in the remaining 25 percent cases.

kilogram in 75 percent of the cases (it was measured to the nearest 100 grams in the remaining 25 percent of cases).

Overall, almost half (46 percent) of the children were stunted, 14 percent were wasted, and 42 percent were underweight. These figures indicate a high prevalence of malnutrition among preschoolers from this sample, particularly of chronic linear growth faltering as reflected in the rate of stunting. The overall rates of wasting were also relatively high, indicating the coexistence of acute, current malnutrition.

As is common in most developing countries, while the children were of relatively good size at birth (mean birth weight = 2.90 kilograms), they started to experience some growth retardation during their first 6 months of life, they showed marked deterioration between 6 and 18 months of age, and they suffered their worst period of growth faltering during their second and third years of life. After 3 years of age, the linear growth of children stopped deteriorating and their acquired growth deficits were maintained—there was no evidence of catch-up growth. On average, the HAZ, WHZ, and WAZ of children between 36-60 months were -2.07, -0.91, and -1.94, respectively, and 53 percent were stunted ($HAZ < -2$), 21 percent were wasted ($WHZ < -2$), and 50 percent were underweight ($WAZ < -2$).

As expected, the group of GAPVU beneficiaries selected on the basis of having a malnourished child had among the highest rates of malnutrition; their malnutrition rates were greater than households with malnourished pregnant women, although differences between them and the elderly group of households were not large (see Tables 7a-7c).

There also do not appear to be any significant differences between the nutritional indicators for poor beneficiary households and those for GAPVU beneficiaries in general; this partly reflects the large (about two-thirds) share of the poor among all GAPVU beneficiaries. It is further notable that despite the requirement that beneficiaries from the "malnourished preschooler" group be selected on the basis of having a malnourished child at baseline (weight-for-height below the 3rd percentile), more than half of the children from this group were not malnourished according to either the weight-for-age or height-for-age criterion, and only 13 percent had low weight-for-height.¹³

There is some evidence that nutritional indicators for children from GAPVU beneficiaries households are worse than those for urban households in general. Table 7c reports the prevalence rates of underweight children for all urban households in Maputo and the provincial capitals, based on surveys done by the DNE. The average prevalence rates for all preschoolers are about 28 percent for Maputo and 25 percent for the provincial capitals. These are approximately half the rates for GAPVU households.

Lower rates of undernutrition ($WAZ < -2$) have also been reported for children in rural areas. Based on the Multiple Indicators Survey (DNE, Ministry of Planning and Finance) 1995, about 27 percent of rural children under 5 years of age were reported to have WAZ scores below -2 (UAP 1996). Similarly, lower rates of stunting and wasting

¹³ The 3rd percentile roughly corresponds to -2 Z-score cutoff point.

(29.5 percent and 6.6 percent, respectively) have been reported for 0-60 months old children in Maputo-Matola, based on the FSD/CFNPP survey.¹⁴

However, in the absence of complete information on the nutritional status of participating children at the time of enrollment into GAPVU and on their level of participation in the program, it is difficult to determine the extent to which the evidence on poorer nutritional indicators for GAPVU households relative to the general urban population represents better targeting. This is further limited by the lack of definitive information on the comparability of different data sources. Similarly, it is difficult to determine whether the fact that many children in malnourished households are not malnourished represents leakage of the intervention to households who were not eligible (did not have a malnourished child at onset) or whether the nutritional status of children did improve as a result of participation in the program.¹⁵

Another factor that would need to be considered in this assessment is maturation, or the fact that children's nutritional status tends to change naturally with age. Thus, in the absence of accurate baseline data and of longitudinal information on a group of nonparticipating children, it is impossible to determine whether targeting was efficient,

¹⁴ Sahn and del Ninno (1994). Also see Desai (1997), who reports stunting and wasting rates of 28.4 percent and 6.3 percent, respectively, using the same source of data.

¹⁵ Recently, using the FSD/CFNPP 1991-92 Survey data for Maputo-Matola, Sahn and Alderman (1997) reported that the marginal effect of transfer income (including remittances) on the height-for-age for children over 24 months of age is slightly higher than for other income. They use this result to estimate that an income transfer equivalent to the current GAPVU transfer to an average family of five in Maputo would improve HAZ scores by 0.25 if the family had income at the mean, by 0.35 points if its income was half the mean, relative to an average HAZ of -1.52 for the Maputo population.

whether there was leakage to noneligible households, or whether the program reduced malnutrition among preschoolers.

6.2 MORBIDITY PATTERNS

Table 8 presents information on the morbidity patterns of sampled children by age group. More than half of the children had been ill in the previous month (63 percent), and, on average, those preschoolers who have been ill, spent 37 percent of the month in illness. Morbidity was slightly higher among the group of beneficiaries with malnourished children compared to the other two groups. Morbidity patterns paralleled the growth faltering process in that greater prevalences of morbidity occurred during the peak period of growth faltering (i.e., between 6 and 36 months of age). Diarrhea is known to be a main determinant of malnutrition among young children, and malnutrition, in turn, predisposes them to infectious diseases. Diarrhea was responsible for up to 38 percent of all illnesses reported among 6-18 months old children (Table 8b). This is the age when children become exposed to often contaminated weaning foods and to unhygienic environmental conditions as they start moving around more freely. Diarrhea was uncommon before the age of 6 months, which is typical among predominantly breast-fed children. Malaria was positively associated with age and contributed to 33 percent of all illnesses among the 36-60 months old group. Whooping cough, on the other hand, was more common among 0-6 months old children (20 percent), whereas it was responsible for only 7 percent of all illnesses among the 36-60 months old group.

Table 8a Morbidity patterns of preschool children by age group

	All GAPVU beneficiaries									
	Type of beneficiary household					Region ^a				
	All beneficiary households	All Poor ^b households	Malnourished preschooler	Malnourished Women	Elderly	Maputo	Gaza/ Inhambane	Tete/ Manica/ Sofala	Niassa/ Cabo Delgado	Nampula/ Zambesia
0 to 6 months										
Percent ill past month	49.0	43.7	45.3	81.4	35.1	00.0	75.1	29.1	27.3	80.2
Percent time ill ^c	28.1	31.9	29.3	26.3	23.3	...	36.8	32.2	41.2	19.4
Unweighted N	28	20	19	6	3	1	4	8	7	8
6 to 18 months										
Percent ill past month	75.7	70.5	83.8	58.1	73.4	65.3	77.8	61.6	88.1	83.6
Percent time ill ^c	39.0	45.5	44.2	37.6	19.2	45.0	32.5	40.5	25.8	44.4
Unweighted N	79	57	43	23	13	9	13	18	13	26
18 to 36 months										
Percent ill past month	72.6	68.6	73.8	76.4	59.0	21.4	82.1	67.0	73.6	81.4
Percent time ill ^c	36.5	34.4	34.7	53.1	37.6	6.7	31.0	32.7	45.3	39.2
Unweighted N	120	86	95	12	13	5	16	36	22	41
36 to 60 months										
Percent ill past month	56.8	54.2	61.1	61.0	41.1	47.6	39.6	59.1	38.2	77.5
Percent time ill ^c	40.7	36.4	46.4	28.4	22.8	41.9	16.2	37.0	67.8	37.6
Unweighted N	103	71	66	13	24	12	13	29	21	28
All preschoolers^d										
Percent ill past month	62.9	60.9	65.5	65.5	50.1	46.8	70.1	56.5	57.6	74.1
Percent time ill ^c	37.4	37.4	38.5	36.1	32.7	40.2	32.1	34.4	43.4	37.9
Unweighted N	444	305	296	68	80	46	49	119	86	144

^a The cities are grouped into five regions: Region 1 (Maputo Province): Maputo, Matola; Region 2 (Gaza, Inhambane Provinces): Inhambane, Xai Xai, Maxixe; Region 3 (Tete, Manica, Sofala Provinces): Beira, Chimoio, Tete; Region 4 (Niassa, Cabo Delgado Provinces): Lichinga, Pemba; Region 5 (Nampula, Zambesia Provinces): Nampula, Quelimane, Nacala.

^b For the definition of poor households, see section 7.

^c Only includes children who had been ill.

^d Includes preschoolers for which age information was given only in number of years completed; therefore they may have been excluded in analyses by age group.

Table 8b Type of illness, by age group

	All beneficiary households	All Poor ^b households	Type of beneficiary household			Region ^a				
			Malnourished preschooler	Malnourished Women	Elderly	Maputo	Gaza/ Inhambane	Tete/ Manica/ Sofala	Niassa/ Cabo Delgado	Nampula Zambesia
0 to 6 months										
Diarrhea	6.7	10.0	8.7	0.0	0.0	...	28.1	0.0	0.0	0.0
Malaria	6.7	10.0	13.5	0.0	0.0	...	0.0	0.0	0.0	19.5
Whooping cough	20.0	30.0	25.0	0.0	0.0	...	0.0	44.2	76.7	0.0
Dysentery	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.0
Other	66.6	50.0	52.8	100.0	100.0	...	71.8	55.8	23.3	80.5
Unweighted N	15	10	10	4	1	0	3	4	2	6
6 to 18 months										
Diarrhea	38.4	40.5	49.3	35.8	12.7	64.0	29.4	11.2	86.5	34.3
Malaria	16.6	13.5	12.0	25.5	25.6	0.0	26.2	25.4	0.0	21.1
Whooping cough	9.3	10.8	5.5	13.2	14.2	18.8	13.3	0.0	4.3	9.5
Dysentery	1.8	0.0	2.3	0.0	0.0	0.0	0.0	0.0	9.2	0.0
Other	33.3	35.1	30.8	25.4	47.6	17.2	31.1	63.3	0.0	35.2
Unweighted N	54	37	35	13	8	6	9	10	9	20
18 to 36 months										
Diarrhea	24.1	20.3	23.1	51.3	10.6	0.0	31.0	22.7	47.1	15.2
Malaria	25.3	13.6	20.1	17.8	50.0	0.0	33.2	23.3	24.8	16.9
Whooping cough	6.9	10.2	9.5	0.0	0.0	0.0	15.2	6.9	8.4	6.3
Dysentery	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	43.7	55.9	47.3	30.9	39.4	100.0	20.6	47.1	19.7	61.6
Unweighted N	87	59	70	9	8	1	13	26	15	32
36 to 60 months										
Diarrhea	7.4	11.1	7.8	14.2	0.0	0.0	21.8	5.3	0.0	10.6
Malaria	33.3	27.8	28.2	63.7	20.8	21.1	25.7	27.0	43.3	33.6
Whooping cough	7.4	5.6	9.0	8.1	13.7	23.1	13.4	13.9	16.3	0.0
Dysentery	1.8	2.8	0.0	5.9	0.0	0.0	0.0	0.0	5.0	0.0
Other	50.0	52.8	55.0	8.1	65.5	55.8	39.1	53.9	35.4	55.7
Unweighted N	54	36	37	9	8	5	5	17	8	19
All preschoolers^c										
Diarrhea	22.1	21.8	24.1	28.2	9.3	23.0	27.3	16.6	41.4	18.3
Malaria	23.2	16.8	18.0	25.8	36.8	28.1	25.1	20.1	20.4	20.8
Whooping cough	8.2	10.1	10.2	5.8	6.2	11.6	12.0	11.7	11.6	5.1
Dysentery	0.7	0.6	0.4	1.1	0.0	0.0	0.0	0.0	2.8	0.0
Other	45.7	50.8	47.3	39.1	47.7	37.2	35.6	51.6	23.7	55.8
Unweighted N	267	179	189	41	37	21	32	69	45	100

^a The cities are grouped into five regions: Region 1 (Maputo Province): Maputo, Matola; Region 2 (Gaza, Inhambane Provinces): Inhambane, Xai Xai, Maxixe; Region 3 (Tete, Manica, Sofala Provinces): Beira, Chimoió, Tete; Region 4 (Niassa, Cabo Delgado Provinces): Lichinga, Pemba; Region 5 (Nampula, Zambesia Provinces): Nampula, Quelimane, Nacala.

^b For the definition of poor households, see section 7.

^c Includes preschoolers for which age information was given only in number of years completed; therefore they may have been excluded in the analyses by age group.

Note: The data did not identify the types of illnesses coded under the "other" category.

There do not appear to be any significant differences in the prevalence or pattern of morbidity between the poor and GAPVU beneficiary households in general.

Overall, preschoolers from this sample had high rates of both chronic and acute malnutrition, and spent, on average, 23 percent of their time ill (counting zero days of sickness for preschoolers reporting not ill). Their morbidity and growth faltering patterns were similar to those of children from around the world who are raised in similarly poor and unhygienic conditions. In most cases, growth faltering during the preschool years is irreversible and has long-term negative consequences on the physical, cognitive, and reproductive performance of adults (Martorell 1993).

7. CONSUMPTION, LEVELS OF LIVING, AND POVERTY: MEASUREMENT

As mentioned in section 1, a distinguishing feature of this study is its attempt to locate the assessment of the GAPVU program in the context of alleviating absolute poverty by directly looking at the living standards of the beneficiary households in terms of their consumption expenditure. We first describe how the measures of household consumption were constructed from the survey data.

7.1 CONSTRUCTION OF THE FOOD CONSUMPTION VARIABLE

There are two potential sources of information on food expenditures: (1) 24-hour recall of all food consumed by the household (irrespective of the source) and

(2) information on food purchased over the previous three months, received as a gift, or consumed from own production (auto-consumption) during the preceding month.

In principle, one could use either of these sources to derive measures of food expenditure. However, there is a potential problem: there are very few cases where information on (2) is available when information on (1) is missing. Of the total 4,331 household-item-source¹⁶ cases, there are only 14 cases where a purchase/gift/auto-consumption is recorded when the item is reported as having not been consumed over the previous 24 hours. This makes us suspect that whenever the question on the 24-hour food consumption drew a blank for a household and item, further questions on purchase/gift/auto-consumption were almost never asked. Thus, the data from source (2) are unlikely to yield additional information on items that are not frequently consumed by households. Nor are they likely to provide a reliable alternative measure of food consumption expenditure. Our estimates of food consumption expenditure are thus based on source (1), i.e., on the 24-hour recall data. Further details on the construction of the food expenditure variable can be found in Annex 1.

7.2 CONSTRUCTION OF TOTAL CONSUMPTION VARIABLE

While the survey did ask about households' current possession of consumer durables, there are no questions on either the "age" or the value of these durables. We are

¹⁶ The term "source" here refers to four potential sources of information on food consumption: 24-hour intake, purchases, gifts, or auto-consumption.

thus unable to include the value of the flow of services from such durable goods in the value of total consumption expenditure. Similarly, while we do have information on the characteristics of housing in the survey, there is no information on rental rates. We are thus also unable to include rents—actual or imputed—in our measure of aggregate consumption expenditure.

The average food share in total expenditure is around 79 percent, which is relatively high. This reflects, in part, our less inclusive measure of aggregate consumption. It is also consistent with the presumption that GAPVU beneficiary households are poorer than the average urban household. But there may also be some potential underestimation of nonfood expenditures by the survey. This last possibility also has some implications for the construction of the poverty line. In particular, it strengthens the case for basing the estimation of the nonfood component of the poverty line on data from the GAPVU survey itself, so that the allowance for basic nonfood expenditure relative to the food poverty line is commensurate with how food and nonfood consumption are measured by the survey.¹⁷

7.3 THE POVERTY LINE AND POVERTY MEASURES

We explored the possibility of using the poverty line in Sahn and Del Ninno (1994) as our reference poverty line. This poverty line is determined by the level of per capita consumption expenditure at which the threshold of 2,500 kilocalories per adult equivalent

¹⁷ See Lanjouw and Lanjouw (1996) for a discussion of the implications of alternative (more or less comprehensive) definitions of consumption for the measurement of poverty.

was typically satisfied for households in Maputo. It corresponds to a per capita expenditure of Mt. 34,200 per person per month at October 1991 - April 1992 Maputo prices. Using the Maputo CPI, this is updated to May-July 1995 prices at about Mt. 142,150 per person per month. However, we found this poverty line to be inordinately high relative to the observed expenditure levels of our sample of beneficiaries. It was almost 75 percent above the mean per capita expenditure for the GAPVU beneficiaries. Of course, this partly reflects what is expected a priori: GAPVU beneficiaries would be expected to have lower levels of living relative to the general population.

But there may be other potential reasons why the Sahn-Del Ninno poverty threshold is so "high," including, presumably, differences in how consumption expenditures have been measured across the two surveys. For instance, the GAPVU survey identified 27 food items as against 42 identified in the FSD/CFNPP survey. We have already noted above (section 7.2) how potential underestimation of nonfood consumption further strengthens the case for basing the poverty line calculations—in particular, the derivation of the nonfood component of the poverty line relative to the food component—on data from the survey itself. We thus decided not to use the Sahn-Del Ninno poverty line, but construct our own poverty lines directly from the GAPVU survey data.

Our approach to the construction of poverty lines and the cost-of-living indices is as follows. In constructing poverty lines, we follow what has been termed the cost of basic needs approach (Ravallion 1994). By this approach, the total poverty line (z) is the sum of

a food (z^F) and a nonfood poverty line (z^N). The food poverty line for a region is the cost of a reference food bundle valued at region-specific prices.

The reference food bundle is obtained in the following steps:

1. Using the entire sample, we first construct the mean quantities¹⁸ of all food items consumed (\bar{q}_j) in standardized units of grams per person.
2. Applying calorie conversion factors, k_j ,¹⁹ we obtain the mean calorie intake

$$\bar{c} = \sum_j k_j \bar{q}_j.$$

3. Using the normative threshold of 2,100 calories per person per day,²⁰ the reference food bundle is then determined as

$$q_j^* = \bar{q}_j (2100/\bar{c}).$$

The reference food bundle is reported in Annex 2. To construct food poverty lines, we, of course, need city-specific prices of the items included in the reference bundle.

However, given the small size of our sample, we found that for many city-item

¹⁸ Weighted appropriately by the inverse sampling rates *times* household size to take into account the stratified sample design and variation in household size.

¹⁹ From FAO/USDHEW (1968) supplemented with other sources.

²⁰ This roughly corresponds to the norm of 2,500 calories per adult equivalent, using the average household composition for our sample and the equivalence scales as in Kennedy and Cogill (1987).

combinations, we had no prices available. We thus resorted to aggregation over cities in adjacent provinces, resulting in the following five regional aggregates:

Province	City
Region 1: Maputo	Maputo, Matola
Region 2: Gaza, Inhambane	Inhambane, Xai Xai, Maxixe
Region 3: Tete, Manica, Sofala	Beira, Chimoio, Tete
Region 4: Niassa, Cabo Delgado	Lichinga, Pemba
Region 5: Nampula, Zambesia	Nampula, Quelimane, Nacala

We then use median prices for each food item j and region r , to derive the region-specific food poverty lines as

$$z_r^F = \sum_j p_{jr} q_j^* .$$

The cost of basic nonfood consumption is determined by defining the basic nonfood expenditure as the amount of nonfood spending by the typical household whose total expenditure is just equal to the food poverty line. Thus, if x and x^F refer to total and food expenditure, respectively, then z^N is defined as

$$z^N = E [(x - x^F) | x = z^F] .$$

And the total poverty line (z) is the sum of z^F and z^N .

We estimate z^N nonparametrically, using a kernel with triangular weights (Härdle 1990). The food and total poverty lines for the five regions are shown in Table 9. This table also reports the mean per capita expenditure for the five regions at Maputo prices.

Table 9 Food and total poverty lines by region

Region (City)	Food poverty line (z^F)		Total poverty line (z)	
	Mt. per person per month	As percent of Maputo line	Mt. per person per month	As percent of Maputo line
1 Maputo (Maputo, Matola)	76,263	100.0	89,192	100.0
2 Gaza, Inhambane (Inhambane, Xai Xai, Maxixe)	58,327	76.5	72,815	81.6
3 Tete, Manica, Sofala (Beira, Chimoio, Tete)	51,173	67.1	65,297	73.2
4 Niassa, Cabo Delgado (Lichinga, Pemba)	51,055	66.9	59,617	66.8
5 Nampula, Zambesia (Nampula, Quelimane, Nacala)	48,810	64.0	59,406	66.6

Note that the ratios of poverty lines for any two regions can be interpreted as the spatial cost-of-living differential between those regions. For the following analysis, we thus express all household expenditures at May-August 1995 Maputo prices, multiplying each household's nominal expenditure by the ratio of the total poverty line for Maputo to the total poverty line for the region to which that household belongs.²¹

In the following analysis, we will use three poverty measures:

1. The *head-count index* (H), given by the percentage of the population who lives in households with a consumption per capita less than the poverty line.

The index measures the *incidence* of poverty.

²¹ Inflation during the survey period was of the order of 5.8 percent (by Maputo CPI) over the four-month period of May-August 1995. Although the annual inflation implied by this rate is not low, we did not consider it so high as to warrant cost of living adjustments specific to the date of interview over the survey period.

2. The *poverty gap index* (PG), defined by the mean distance below the poverty line expressed as a proportion of that line, where the mean is formed over the entire population, counting the nonpoor as having zero poverty gap. This reflects the *depth* of poverty, as well as its incidence.
3. The *squared poverty gap index* (SPG), introduced by Foster, Greer, and Thorbecke (1984), and defined as the mean of the squared proportionate poverty gaps. Unlike the poverty gap index, this measure reflects the severity of poverty, in that it will be sensitive to distribution among the poor.²²

All three poverty measures are members of the Foster-Greer-Thorbecke (FGT) class. The FGT measure of individual poverty is

$$p_{\alpha,i} = [\max((1 - x_i/z), 0)]^\alpha \quad \alpha \geq 0,$$

in which x_i is consumption expenditure of the i 'th person in a population of size n , and where z denotes the poverty line, and α is a nonnegative parameter. Aggregate poverty is simply the mean of this measure across all persons, giving

²² A transfer of income from a poor person to a poorer person (for example) will not alter either the head-count index or the poverty gap index, but it will decrease the squared poverty gap index. Furthermore (and unlike the Sen (1976) or Kakwani (1980), distribution-sensitive measures of poverty), the squared poverty gap index satisfies the "subgroup consistency" property, namely that if poverty increases in any subgroup (say the urban sector), and it does not decrease elsewhere, then aggregate poverty must also increase (Foster and Shorrocks 1991).

$$P_{\alpha} = \sum_{i=1}^n p_{\alpha,i} / n .$$

The head-count index is obtained when $\alpha=0$, the poverty gap index is obtained when $\alpha=1$, and the squared poverty gap index has $\alpha=2$.

8. CONSUMPTION, LEVELS OF LIVING, AND POVERTY: FINDINGS

8.1 AVERAGE LIVING STANDARDS AND GAPVU BENEFITS

The average consumption expenditure of GAPVU beneficiaries was Mt. 81,434 per person per month at May-August 1995 Maputo prices (see Table 10). This is 91 percent of our reference poverty line. The average consumption expenditure, net of GAPVU transfer benefits, was Mt. 71,089 per person per month, or about 80 percent of the reference poverty line. The average amount of GAPVU transfer benefits received was Mt. 10,353 (or just over a dollar²³) per person per month. Conditional on being a beneficiary, GAPVU receipts thus contributed significantly to the total consumption of the beneficiaries, forming 13 percent of their mean gross consumption expenditure.

²³ More precisely, \$1.14, using the average exchange rate of Mt. 9,045 per US\$1 for May-August 1995 (IMF 1996).

Table 10 Mean consumption expenditure and transfer receipts from GAPVU

	<u>Group 1</u> Malnourished preschoolers	<u>Group 2</u> Malnourished women	<u>Group 3</u> Elderly	All beneficiaries
Consumption expenditure including GAPVU receipts (Mt./person/month) ^a	72,768	82,600	92,828	81,434
Consumption expenditure net of GAPVU receipts (Mt./person/month) ^a	62,406	73,438	82,235	71,089
GAPVU receipts (Mt./person/month) ^a	10,362	9,168	10,615	10,353
Share of GAPVU receipts as percent of gross consumption expenditure	14.24	11.10	11.44	12.71
Share of GAPVU receipts as percent of net consumption expenditure	16.60	12.48	12.91	14.56

^a At May-August 1995 Maputo prices.

GAPVU receipts comprised about 15 percent of the mean net (or pre-transfer) consumption expenditure.²⁴

Across the three beneficiary groups, the malnourished preschooler group has the lowest average standard of living in terms of the average pre-transfer per capita consumption expenditure, while the elderly group has the highest average consumption expenditure. This is consistent with the relatively poorer nutritional status of children from the preschooler group noted above (section 6). There is not much variation across

²⁴ These benefits are of course much smaller in comparison with transfer schemes in other countries. For instance, average benefits under the South African social pension scheme are considerably larger, accounting for about 59 percent of the average pensioner household's income (Case and Deaton 1996).

the three beneficiary groups in the contribution of GAPVU receipts to the group's mean (gross) consumption expenditure; the share ranges between 11–14 percent. Thus, the ranking of the three groups' average levels of living is preserved in terms of their posttransfer consumption expenditure.

8.2 ARE GAPVU BENEFICIARIES POOR?

Mean consumption can be a potentially misleading welfare indicator. From a targeting perspective, we are especially interested in the distribution around the mean. In particular, we would like to address the following question: what proportion of the GAPVU beneficiaries are deemed poor, and how poor are they? Table 10 gives the poverty measures for the GAPVU beneficiaries based on their per capita consumption expenditure, both inclusive and net of their receipts from GAPVU. The results indicate that 65 percent of the current GAPVU beneficiary population lives in absolute poverty. In the absence of GAPVU transfer benefits (assuming complete displacement of consumption expenditure), the proportion of the beneficiary population in poverty would have been about 71 percent.

The direct impact of the transfers on other poverty measures is more substantial. The poverty gap index without GAPVU transfers would have been higher by 27 percent, and the squared poverty gap index would have been higher by 44 percent.

The estimates of the extent of poverty in terms of pre- and posttransfer consumption per capita also vary by the poverty line. This is illustrated in Figure 1,

Figure 1 Cumulative distribution functions with and without GAPVU transfers

which plots the cumulative distribution functions of the consumption, gross, and net of GAPVU transfers. Thus, for instance, with the Sahn-Del Ninno poverty line, about 9/10ths of the beneficiary population would have been poor in terms of the consumption, excluding transfers.

8.3 LEAKAGE OF GAPVU TRANSFER BENEFITS TO THE NONPOOR

The head-count index based on the pre-transfer consumption expenditure gives one measure of the extent of the leakage of program benefits to the nonpoor. Thus, by our reference poverty line, about 29 percent of the GAPVU beneficiaries would have been deemed nonpoor. Is this a high proportion? The answer depends, in part, on the

incidence of poverty for the general population. If this incidence were also around 70 percent (using the same poverty line), then the GAPVU screening process does no better than a purely random selection from the general population. A lower incidence of general poverty would, on the other hand, suggest a more favorable screening performance. However, in the absence of data relating to the nonbeneficiary population, we are unable to comment further on the program's screening performance.

Across the three beneficiary groups, the malnourished preschoolers group had the highest incidence of pre-transfer poverty at 79 percent, and by implication, the best screening performance. The elderly group had the worst screening performance (with the lowest pre-transfer head-count index of 62 percent).

The "errors" in the screening of beneficiaries also remained apparently unmitigated by a higher mean transfer for the poor among the beneficiaries. The average GAPVU receipts for poor and nonpoor beneficiaries were Mt. 10,054 and Mt. 11,074 per person per month (at May-August 1995 Maputo prices), respectively.

A more direct measure of the errors in targeting is provided by the share of total transfer benefits accruing to the nonpoor. For all beneficiaries, this share is estimated at 31 percent of total GAPVU transfers. Parallel to the variation in the screening performance, the leakage of benefits to the nonpoor also varied across the three beneficiary groups. The shares of the nonpoor in total transfers received by the malnourished preschooler, the malnourished pregnant women, and the elderly groups were 23 percent, 37 percent, and 42 percent, respectively.

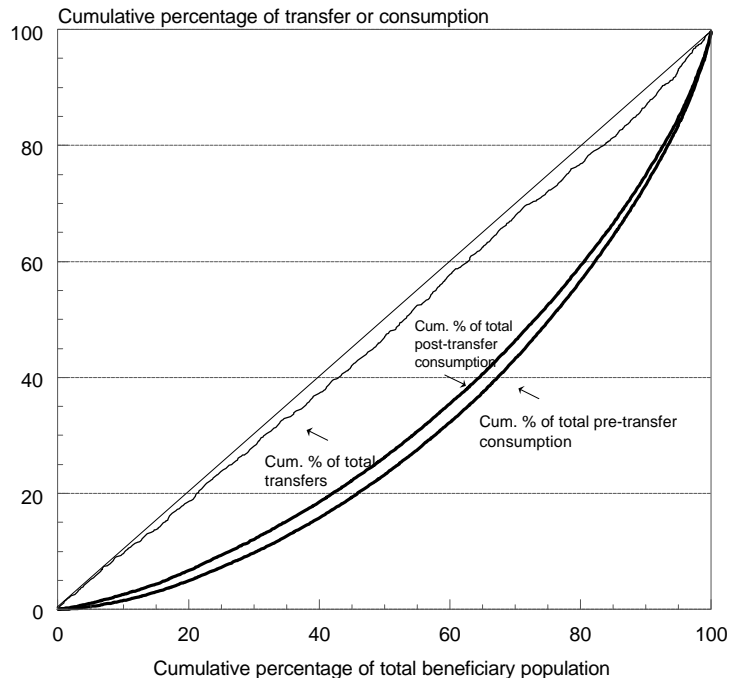
To get a sense of how sensitive these results are to the choice of the poverty line,²⁵ we also experimented with two alternative poverty lines, 20 percent lower and 20 percent higher than our reference poverty lines. The incidence of poverty among the beneficiary population ranged between 62 and 81 percent for these two poverty lines. Similarly, the share of GAPVU transfers accruing to the nonpoor was 23 percent for the higher poverty line and 40 percent for the lower poverty line.

8.4 ARE GAPVU BENEFITS PROGRESSIVE AMONG THE BENEFICIARIES?

We also examined if, conditional on being a beneficiary, GAPVU benefits were progressive. The answer to this question is shown in Figure 2 and Table 11. Figure 2 shows the concentration curve for GAPVU receipts; it shows the share of GAPVU receipts received by the bottom p percent of the beneficiary population when ranked by their per capita consumption expenditure net of GAPVU receipts. The figure also plots the Lorenz curve of net per capita consumption expenditure and the concentration curve for posttransfer consumption expenditure. The concentration curve for GAPVU receipts lies entirely below the 45° line indicating that GAPVU receipts are less progressive than a uniform per capita allocation of the same budget among the beneficiaries. Note that a

²⁵ Equivalently, this also give us an idea of the sensitivity to errors in measuring mean consumption.

Figure 2 Concentration curves for GAPVU transfers and posttransfer consumption, and Lorenz curve for pretransfer consumption



uniform per capita allocation itself is progressive by definition. The concentration curve for GAPVU receipts, however, also lies entirely above the Lorenz curve of pre-transfer consumption expenditure, which shows that the GAPVU transfers are, nevertheless, progressive.

This is also confirmed by the data in Table 12, which shows the distribution of GAPVU benefits by deciles (formed by ranking households by their pre-transfer per capita consumption expenditure). It is notable that the absolute transfer benefit is quite flat across the deciles, which, given the highly skewed distribution of pre-transfer

Table 11 Poverty measures, gross and net of GAPVU receipts

Poverty measure	Group 1	Group 2	Group 3	All beneficiaries
	Malnourished preschoolers	Malnourished women	Elderly	
Population share (percent)	52.2	9.0	38.8	100.0
Based on per capita consumption expenditure, including GAPVU receipts:				
Head-count index	72.27	56.99	56.96	64.96
Poverty gap index	30.91	22.65	25.44	28.05
Squared poverty gap index	16.70	12.10	14.64	15.49
Based on per capita consumption expenditure net of GAPVU receipts:				
Head-count index	78.60	63.56	61.59	70.65
Poverty gap index	39.47	28.96	31.86	35.58
Squared poverty gap index	24.30	17.18	20.63	22.24
Share of the nonpoor (using net consumption) in total GAPVU receipts (percent)	22.76	37.13	41.59	31.39

Note: All poverty measures are expressed in percentages. Using a final sample of 512 households, the poverty measures have been derived by using appropriate weights incorporating variations in household size and different sampling rates across strata.

Table 12 Distribution of GAPVU receipts by deciles of beneficiaries, ranked by net per capita consumption expenditure

Decile of beneficiary population ^a	Gross per capita consumption expenditure (Mt./month)	Net per capita consumption expenditure (Mt./month)	Per capita GAPVU transfer receipts (Mt./month)	Share of GAPVU receipts of gross per capita consumption expenditure (percent)
1	20,649	10,748	9,993	48.40
2	33,381	24,017	9,364	28.05
3	43,711	33,942	9,769	22.35
4	51,929	42,463	9,466	18.23
5	63,052	53,004	10,048	15.94
6	75,181	64,040	11,141	14.82
7	88,045	77,617	10,428	11.84
8	104,526	95,259	9,267	8.87
9	127,848	117,459	10,390	8.13
10	202,959	189,336	13,623	6.71
All	81,434	71,089	10,353	12.71

^a Ranked by per capita consumption expenditure net of GAPVU transfers.

consumption expenditure among the beneficiaries, clearly translates into a significantly progressive allocation.

8.5 MEANS CRITERION FOR IDENTIFYING BENEFICIARIES

In addition to the specific criteria for each beneficiary group, the GAPVU screening process also involved a means criterion common to all groups, which required that a beneficiary household's per capita income was no greater than Mt. 24,000 per month at the time of the survey.²⁶ We find this income threshold to be very low relative to the typical pre-transfer expenditure levels observed for our sample of beneficiaries. For instance, the income threshold was only about one-third of the mean pre-transfer per capita expenditure for all beneficiaries of Mt. 71,089 per month at May-August 1995 Maputo prices. And this income threshold is only about 27 percent of the reference poverty line of Mt. 89,192 per capita per month. It is questionable whether such a low threshold would even ensure survival.

In practice, however, it appears that such means testing has been largely ignored. Only about 15 percent of the beneficiary population had pre-transfer per capita expenditures below Mt. 24,000 per month, and only about 8 percent of the beneficiary population was below this threshold in terms of their posttransfer per capita expenditures (see Figure 1). The means test is, of course, defined in terms of income rather than

²⁶ As noted above in section 2, this amount has since been updated to Mt. 32,000 per capita per month.

consumption expenditure. However, it is clear that if the means test had been strictly applied, the vast majority of the beneficiaries at the time of the survey would have failed to qualify for GAPVU assistance.

8.6 ACTUAL AND STIPULATED BENEFITS

We also looked at how, on average, the GAPVU transfers received by households compared with what they were supposed to receive as per the stipulated payment schedule, and how these, in turn, compared with the average transfer payments reported in the GAPVU budget documents. As noted in section 2, once identified as a beneficiary household, the payment to the household is supposed to be determined only by its household size. The first column of Table 13 shows the stipulated GAPVU payment schedule by household size.

The table also shows the amount (both unadjusted and adjusted for spatial differentials in the cost of living), by household size, that the beneficiaries reported as having received. Except for single-member households, we find that the average transfer reportedly received by beneficiary households was less than the amount they should have received, conditional on their household size. From the survey, the actual average transfer received by GAPVU beneficiaries as a whole was Mt. 37,041 per month per household (or Mt. 7,611 per capita), at prices current to the survey period and unadjusted for any spatial cost of living differentials. For the observed household size distribution, on average, they should have received Mt. 57,016 per household (or Mt. 11,715 per

Table 13 GAPVU payment schedule: Stipulated and actual

Household Size	Stipulated total	Stipulated transfer	Actual transfer	Actual transfer
	transfer per household	per capita	received per capita	received per capita at Maputo prices
	(Mt./month)	(Mt./person/month)	(Mt./person/month)	(Mt./person/month)
1	24,000	24,000	24,664	30,625
2	38,000	19,000	14,276	18,434
3	48,000	16,000	10,273	13,993
4	54,000	13,500	9,189	12,888
5	60,000	12,000	8,095	11,269
6	66,000	11,000	7,359	10,385
7	72,000	10,286	6,283	8,368
8	78,000	9,750	6,213	8,576
9	84,000	9,333	5,087	6,997
10	90,000	9,000	4,120	5,853
Above 10	111,534	8,208	3,314	4,417
Average transfer for all household sizes	57,016	11,715	7,611	10,353

capita). Thus, the average actual transfer was about two-thirds of the stipulated payment. The average payment from the GAPVU budget records (Mt. 40,862 per household) also fell short of the stipulated payment, being about 72 percent of the latter. These results are consistent with the very limited awareness of their entitlements among the beneficiaries and the interruptions in GAPVU payments that were reported by a number of households (see section 5); they are also indicative of some underpayment to the beneficiaries.

9. CONCLUSION

The GAPVU cash transfer program is an important safety net for urban Mozambique. Despite its recent origin, the coverage of the program within the urban

sector is impressive, reaching about 16 percent of all urban households. The program is particularly important for female-headed households; almost every second beneficiary household is headed by a woman. Hard evidence on the performance of the program has, however, been quite limited. While this study, too, has been limited by the paucity of data on nonbeneficiaries with whom the program beneficiaries may be compared, it has pointed to several notable characteristics of the GAPVU beneficiary population, and several aspects of the implementation of the program and its targeting performance.

The two largest groups of GAPVU beneficiary households are those with the elderly and households with malnourished children. The composition of beneficiaries, however, varies considerably by city, which is suggestive of uneven regional implementation of the program, reflecting, in part, uneven administrative capacity across regions.

The average standard of living of the GAPVU beneficiary population, as measured by its per capita consumption, is low, being only 9/10ths of a modest poverty line calibrated to a norm of 2,100 calories per capita per day. The mean transfer amount is just over US\$1 per capita per month. This is a small amount, but it still represents a significant 13 percent of the beneficiary households per capita monthly expenditure. The proportion is much higher for the relatively poorer beneficiaries, being about a third for the bottom three deciles of the beneficiary population.

Our estimates suggest that about 65 percent of the beneficiary population are in absolute poverty, using the aforementioned poverty line. Conversely, about 35 percent of

the beneficiaries are deemed nonpoor by this poverty line. In terms of the total transfers disbursed, we estimate that about 30 percent of the GAPVU transfers "leak" to the nonpoor. While this may not be considered a high leakage in absolute terms, we are unable to judge its relative importance for lack of information on the levels of living among the nonbeneficiary population. Our analysis also suggests that the means testing of the beneficiaries' income has largely been ignored in practice; 85 percent of the beneficiaries had pre-transfer consumption levels above the required (income) threshold of Mt. 24,000 per person per month. This may point to substantial latent costs of enforcing means testing, but it also leads one to question the wisdom of setting an income threshold that is so low (about one-fourth of our reference poverty line) as to be patently unenforceable.

There are also signs of somewhat lax enforcement of some of the other eligibility conditions. For instance, there were, on average, 0.7 adult members of working age in the elderly beneficiary households, while they are supposed to be none. Similarly, the majority of the children from the malnourished preschooler group of beneficiary households were not malnourished according to either weight-for-height, weight-for-age, or height-for-age criterion, although this need to be interpreted carefully insofar as the beneficiary children's nutritional status improved due to program transfers.

Thus, it may seem somewhat surprising that in spite of these "leakages," the program does manage to reach the poor. As already mentioned, most (about 70 percent) of the beneficiaries were absolutely poor in terms of their per capita consumption levels.

Nutritional indicators for preschool children from *all* beneficiary households are suggestive of high rates of both chronic and acute malnutrition. High rates of morbidity are also reported for these children. There is also some (nonconsumption based) evidence that GAPVU beneficiary households are more deprived than urban households, in general. This is reflected, for instance, in the poorer nutritional indicators for the beneficiary households, their poorer housing conditions, more limited access to better sources of drinking water, and their sparing use of electricity as a source of light, relative to the general urban population. Thus, even without the strict enforcement of the eligibility conditions, a certain amount of targeting (of the urban deprived groups) is effectively achieved by the program. The relatively small amount of the transfer benefit could have contributed to this outcome. Similarly, the revealed willingness of an average beneficiary to wait upwards of 7 hours to receive their monthly payments from "Finanças" is also consistent with better targeting.

Our results also indicate that GAPVU transfers do appear to have contributed to the reduction of poverty among the beneficiaries: with consumption expenditures net of GAPVU transfers, the proportion in poverty would have about 71 percent instead of the 65 percent with the transfers included. Our results for the other poverty measures indicate that the GAPVU transfer benefits are not confined mainly to those near the poverty line, but also reach deeper below the poverty threshold. The direct transfer effects on measures of the depth and severity of poverty are even larger than those on the head-count index.

Among the beneficiaries, we find that the malnourished preschoolers' group had the highest levels of poverty in terms of their pre-transfer consumption expenditure, and hence, screening performance of the program is best for this group.

Finally, we reiterate two points in relation to the assessment of GAPVU. First, any future assessment would be enormously enriched by the availability of comparable data on the beneficiaries and nonbeneficiaries of the program. Second, and on a different level, one has to reckon with the most obvious feature of the GAPVU program: it is limited to the urban sector. While this study has suggested that the program is clearly beneficial to an important section of the urban poor, the lack of coverage of the rural sector, which accounts for about 85 percent of the Mozambican population, by a comparable anti-poverty program is, by itself, a potentially serious limitation of an overall strategy to alleviate poverty at the national level. This is not an indictment of the GAPVU program, for it is not clear that GAPVU in its present form can or ought to be readily extended to the rural sector, but the inclusion of the rural sector in future programs to alleviate poverty would clearly be an important priority.

ANNEX 1

Construction of the Food Expenditure Variable

Food expenditure for a household is based on the 24-hour recall data on quantities of food items consumed and the prices of those items. The quantity and price data were obtained in response to the following two questions in the GAPVU questionnaire:

1. In the past 24 hours, how much did your household consume of. . .?
[Quantity, Unit of measure]
2. What was the price of. . . in the past week in your neighborhood? [Unit price, Unit of measure]

In evaluating food expenditures, we ran into the problem that, for many households and food items, the units for the quantity data did not match the units for the price data, or in some other cases, the price information was missing. In some instances, a second measure of price could be derived from the three-month purchase information (the unit values based in the amount spent and the quantity bought). If we denote the past-week neighborhood price as "price-1" and the price derived from the three-month purchase information as "price-2," our general procedure to derive a "best" price estimate could be described as follows (the alternatives are ranked in order of preference):

1. household's own reported price-1, if available for the same units as the 24-hour quantity data,

2. household's own reported price-2, if available for the same units as the 24-hour quantity data,
3. median price-1 for households in the same region, for the same units as the 24-hour quantity data,
4. median price-2 for households in the same region, for the same units as the 24-hour quantity data,
5. median price-1 or price-2 for all households in the sample, for the same units as the 24-hour quantity data.

The other problem we ran into was that while it is plausible to assume that the price data (both price-1 and price-2) referred to raw (uncooked) units of the food item, the quantity data did not distinguish whether a particular food item was cooked or not. This problem is potentially significant for consumption of cereals, which are an important source of calories. We made the following assumptions:

1. If the reported units for the quantity and price-1 data for a food item matched, then it was assumed that either the item was sold in the market in the same quantity units or the interviewer had already established an equivalent price, and no adjustment was made to the quantity data.
2. If the quantity of a cereal (including grain and cassava) intake was reported in bowls, while the price-1 was not reported in bowls, then it was assumed that

the quantity referred to a cooked item, which was then converted into equivalent raw units; if both the quantity and price-1 were reported in bowls, we assumed that the price was "right" and no adjustment was made to the reported quantity.

3. All noncereal food quantities were assumed to be in raw units even if these were reported in bowls, while the corresponding price-1 was not reported in per-bowl units. Given the small share of such cases in the overall budget, this is unlikely to lead to serious overestimation of expenditures and calories.

ANNEX 2

The Reference Food Bundle

The following is the food reference bundle used in the construction of the food poverty line. The bundle is scaled-up (by 15.4 percent) to the threshold of 2,100 calories per capita. The reference bundle was computed, based on the average consumption pattern of 496 sample households (with a per capita calorie consumption between 350 and 6,000 calories).

Item	Calories per capita (scaled-up to the 2,100-kilocalorie threshold)
Yellow maize flour	178.25
White maize grain	400.30
White maize flour	432.86
Rice	165.22
Bread	78.83
Cassava	92.09
Fish and seafood	81.28
Peanuts, cashews	102.47
Dried beans	195.07
Tomatoes	2.85
Onions	0.60
Coconut	20.08
Tea/Coffee	0.10
Sugar	45.90
Oil	30.73
Other food/snacks	45.76
Total	2,100.00

Note that the calories for other food/snacks were computed as follows:

1. If the unit of consumption for "other food/snacks" was reported in bowls and the household reported no consumption of any other staple food item, we assumed that the "other food" is a staple. The unit of consumption was

standardized into grams to which an average calorie conversion rate for staples was applied, based on the average staple consumption pattern of other sample households.

2. In other cases where only the expenses were recorded for other food/snacks, the expenses were converted into calories, by using an overall average calories/MT figure for all other food items combined by the sample households.

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