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Income Poverty and Inequality in Namibia

by

Gert Van Rooy, Benjamin Roberts, Christa Schier, Jannie Swartz
and Sebastian Levine * *

Abstract: In this paper a national income poverty line for Namibia is derived based on estimated expenditures required to sustain a minimum calorific intake (food poverty line) as well as other basic necessities such as clothing and shelter (non-food poverty line). Estimates are based on actual consumption patterns of the poorest as recorded by the Namibia Household Income and Expenditure Survey conducted in 1993/94. This method is preferred over the previously applied food-share method. The overall poverty line is estimated at N\$107 per capita per month in 1993/94 prices or approximately N\$212 per capita per month in 2003 prices. According to this definition 53% of households and 65% of individuals in Namibia live below the income poverty line at the time of the survey. The analysis confirms tremendous inequalities in the way income and poverty is distributed. The poorest 20% of the population receives 2.5% of total expenditure, while the top 20% receives 71%. The standard measure of inequality, the Gini-coefficient, is estimated to be 0.697, which is probably the highest in the world. The methods and analysis presented in the paper should serve as a bench-mark for the analysis of the ongoing 2003/04 income and expenditure survey in particular and as a key tool for designing, implementing and monitoring policies that can effectively combat income poverty and inequality in Namibia in line with Vision 2030 and the Millennium Development Goals.

* Gert Van Rooy is Head of the Social Sciences Division of the Multidisciplinary Research and Consultancy Centre, University of Namibia; Benjamin Roberts is Chief Researcher at the Human Sciences Research Council, South Africa; Christa Schier is a Consultant at the Multidisciplinary Research and Consultancy Centre, University of Namibia; Jannie Swartz is Assistant Census Manager at Central Bureau of Statistics in the National Planning Commission Secretariat, and; Sebastian Levine is Senior Economist at United Nations Development Programme. Views expressed in this paper are those of the authors not the institutions they work for.

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Correspondence: Gert Van Rooy, Private Bag 13301, Windhoek, Namibia. Email: gvanrooy@unam.na

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Introduction

Poverty reduction and human development have been at the centre of the national agenda in Namibia since Independence in 1990. Economic growth, employment creation and reduction of poverty and income inequality remain central objectives of the National Development Plans, and the long-term Vision 2030 sees Namibia move from a developing, lower middle income country to a developed, high income country by 2030. Moreover, within the context of the Millennium Declaration agreed at the Millennium Summit in New York in 2000, which was co-chaired by Namibian President, Sam Nujoma, all UN member states including Namibia committed themselves to meeting the Millennium Development Goals (MDGs).¹ The first among the 8 MDGs is to eradicate extreme poverty and hunger with the specific target of cutting in half between 1990 and 2015, the proportion of people whose income is less than one US dollar a day. The suggested indicators to monitor MDG1 include incidence of poverty, poverty gap ratio and share of the poorest quintile in national consumption. However, as stipulated by United Nations (2003) for monitoring country poverty trends, indicators based on national poverty lines should be used, where available. The basic purpose of this paper is to develop a methodology for making this type of information available and to present a preliminary analysis of income poverty in Namibia.

The paper begins by outlining the methodology used to derive an income poverty line based on estimated expenditures required to sustain a minimum calorific intake (food poverty line) as well as other basic necessities such as clothing and shelter (non-food poverty line). Estimates are based on actual consumption patterns of the poorest as recorded by the Namibia Household Income and Expenditure Survey conducted in 1993/94 and published by the Central Bureau of Statistics in National Planning Commission (1996). Having done this, indicators on the incidence, depth and severity of poverty in the country are calculated. Finally, a series of conclusions and recommendations are drawn, which are of relevance in further strengthening the poverty monitoring system in general and for analysing income poverty data, including in the update of poverty data through the ongoing 2003/04 Namibia Household Income and Expenditure Survey.

A Poverty Line for Namibia

In order to develop realistic policies for poverty alleviation in a given context, it is essential to understand the nature of poverty in that specific setting. A common component in almost all approaches to poverty analysis is the setting of a national poverty line, which separates the 'poor' from the 'non-poor'. The specification of a national poverty line serves a number of purposes. Of direct relevance to the previously mentioned national and international processes, it can be used to *monitor changes in poverty* through time and to make comparisons across groups or geographic regions. It can also facilitate the development of a *poverty profile* that describes the characteristics of those in poverty. For some countries, the national poverty line has been applied

¹ The 8 MDGs are: 1. Eradicate extreme poverty and hunger. 2. Achieve universal primary education. 3. Promote gender equality and empower women. 4. Reduce child mortality. 5. Improve maternal health. 6. Combat HIV/AIDS, malaria and tuberculosis. 7. Ensure environmental sustainability. 8. Develop a global partnership for development.

as a way of *defining entitlements*, such as being a benchmark for determining whether individuals are eligible for state transfers or other state provided benefits. A poverty line can also assist in making poverty a *focus of public debate*, by increasing discussion on the circumstances of the poor and how they are changing with time.

Poverty lines are generally speaking either *relative* or *absolute* in nature. The *relative* poverty line is determined from a percentage cut-off point in the welfare distribution. Relative poverty may be defined as a lack of resources with which to attain the type of diet or life-style that is socially acceptable and is thus linked to equality in distribution of income or wealth. Examples include the expenditure level below which 40% of the population is located or a cut-off point equal to half the median income for the population. Although this approach to setting the poverty line has appeal because of its simplicity, it is limited by the fact that it is not very useful for monitoring poverty over time and is effectively rather arbitrary.² The *absolute* poverty line is defined in terms of simple physical needs and is explicitly linked to a specific welfare level. In other words this poverty line uses a scientifically determined minimum required for human survival and the absolute component is the inability to attain a minimum standard of living reflected by a quantifiable and absolute indicator of poverty. Doing so allows for comparisons over time or across groups. Most countries that have official national poverty lines define these in an absolute sense, interpreting them as a fixed standard of living. For these reasons the discussion of the construction of poverty lines in this paper concentrates on an absolute interpretation.

In an attempt to contribute to discussion on appropriate poverty measures for Namibia and to deepen poverty analysis in order to meet the reporting needs of the National Development Plans, Vision 2030 and the MDGs, a decision was made to construct a poverty line using the Namibian Household Income and Expenditure Survey (NHIES 1993-94) data, with its rich consumption data that was derived using consumption diaries. The diaries recorded household expenditure over a period of a month through a full one-year cycle (to capture seasonality effects), placing Namibia amongst a select few countries in Sub-Saharan Africa possessing such detailed expenditure data. The basic steps that were followed in order to arrive at the poverty line are summarised below.

The first step in specifying an expenditure-based food poverty line is to examine the actual food consumption patterns of a particular segment of the population.³ This segment includes households in the second to fifth deciles (the bottom decile of the distribution being discarded to avoid possible data errors) of the 1993/94 NHIES. Thereafter, the mean total household (cash) expenditure for each of the 174 food and beverage items was calculated and ranked.⁴ Having done this, the top 30 *purchased* items were selected for inclusion in the basket of goods to be used for calculating the poverty line. The items included in this basket are shown in Table 1. Focusing exclusively on the

² While all poverty measures contain some element of arbitrariness, this one could perhaps be considered more arbitrary than most.

³ The principal reason why expenditure is chosen over income as our preferred unit of measurement is that empirical analysis using household survey data from numerous countries has generally shown that it tends to be more reliably and accurately reported.

⁴ When a population is divided into ten equal groups, each group is commonly referred to as a *decile*. The bottom decile refers to the poorest 10% of the population, while the second to fifth deciles refers the poorest 20-40% of the population (excluding the bottom or poorest decile). A quick and commonly applied rule of thumb in poverty analysis is that the poorest 40% of the population can be considered poor. It is on this basis that it was decided to focus on this segment of the Namibian population.

consumption of households in the lower deciles of the expenditure distribution ensures that expensive, luxury food items are not heavily represented in the basket. Moreover, by basing the composition of the basket on existing consumption patterns, the combination of food and beverage items included in the basket is consistent with local tastes and preferences.

Table 1: Forty–Five Items Comprising the Basket of Food and Beverage Items

Thirty Food and Beverage Items from Purchases	Fifteen in-kind Food Items (Own Produce)
1. Maize meal/grain	1. Mahangu meal/grain
2. Sugar	2. Maize meal/grain
3. Beef	3. Fresh milk
4. Bread	4. Beef
5. Cooking oil	5. Spinach/Ombindi
6. Local home-brewed/Tombo	6. Local home-brewed/Tombo
7. Beer/Ales/Ciders	7. Goat meat
8. Fresh fish	8. Beans
9. Water/Mineral water/Soft drinks	9. Dried vegetables
10. Bread/Cake flour	10. Pumpkins and Squashes
11. Mahangu meal/grain	11. Beer/Ales/Ciders
12. Sweets	12. Sugar
13. Tea	13. Chicken
14. Bottled/Tinned fish	14. Fresh fish
15. Chicken	15. Magau/Omaheau/Oshikundu/Samp
16. Rice	
17. Coffee	
18. Fresh milk	
19. Potatoes	
20. Salt	
21. Goat meat	
22. Take-away food	
23. Powdered soup	
24. Cooking Fats	
25. Cakes	
26. Apples	
27. Clotted/Cultured milk	
28. Frozen fish	
29. Onion	
30. Kapenta/centangu (dried fish)	

Note: The purchased and in-kind items listed above are ranked, in descending order of priority, by the product of the number of households consuming them and the average amount spent per item.

In addition to the 30 items that were *purchased* by the household, a bundle of commonly consumed *own produce* food items was also included. The own produce items were ranked according to percentage of households consuming them and the average amount spent per item. The top fifteen items selected for inclusion in the basket are also shown in Table 1. One slight complication in doing this was the fact that the NHIES 1993/94 questionnaires lumped own production items together with the consumption of items received by bartering, free of charge (such as gifts) and payment in-kind under the broad heading of ‘in-kind expenditure’. This means that certain items that ended up

in the basket under own produce may actually not have done so if a strict distinction was made between the different forms of in-kind expenditure. This is something which future rounds of the NHIES need to address.

Having selected the basket of items, the *average monthly expenditure per person* for each of the 45 items was calculated. This calculation should ideally accommodate geographically-determined price differentials. Unfortunately, the NHIES did not collect community-level price data. This means that we cannot factor in locality-specific price differences in determining our poverty line. As an alternative, price data collected as an input into the production of the interim consumer price index could be relied upon in trying to determine such differentials, especially if information is urban and rural prices are gathered. In Namibia, this option is constrained by the fact that the ICPI data is exclusively urban-based, though the National Consumer Price Index (NCPI) series that is currently being prepared will address this shortcoming by capturing rural and urban prices.

In order to accommodate rural-urban price differentials in the estimation of the Namibian poverty line, use was made of price data captured from three regions (Omusati, Khomas and Hardap) as part of a 1993 study on household subsistence levels conducted by the Multidisciplinary Research and Consultancy Centre (MRCC) at the University of Namibia. A ratio of rural to urban prices was calculated for the ten items included in the survey that coincide with the basket of 45 items selected from the NHIES (table 2). Using the derived average ratio of 1.2722, the cost per gram for urban prices were inflated to arrive at the cost per gram for the 45 items in rural areas.⁵

During the period of the project, the team was only able to acquire, from the Central Bureau of Statistics (CBS), item-level CPI values extending between September 1994 and January 2003. The NHIES survey was conducted between November 1993 and October 1994, which means that we have only two months of item-specific price data that coincides with the survey reference period (September and October 1994). To overcome this shortcoming, prices for each of the missing ten months were calculated by applying the monthly CPI values for the *Food and Beverage and Tobacco* groups. An example of the calculations performed is in Annex A.

Having calculated the October 1993 to September 1994 values for each of the items, average item prices were calculated for the 12-month period. These values were subsequently converted into the average cost per gram (or ml) for each of the items over the survey period by dividing the price by the unit. It should be noted that there were ten items in the NHIES basket that are not part of the ICPI basket.⁶ As such, the prices of these items were collected in November 2003 and January 2004 and deflated to 1994 prices using the ICPI consolidated item-level price data. The cost per gram for each of the 45 items was then determined.

⁵ The ratio of 1.2722 means that on average the prices of the ten items is 27.22% higher in for individuals and households living in rural areas than for those living in urban areas.

⁶ These items are as follows: clotted/cultured milk (Omahere); cooking fats (e.g. Holsum), kapenta/centangu (dried fish), mahangu meal/grain, salt, beans, dried vegetables, magau, spinach/ombindi, and local home-brew/tombo.

Table 2: Price Data for Select Food and Beverage Items and Rural/urban Price Differential (1992)

	Rural (Omusati) N\$	Urban (Khomas and Hardap) N\$	Ratio of rural:urban
Maize	5.60	3.99	1.41
Bread	2.01	2.10	0.96
maize flour	5.70	5.36	1.06
Sugar	2.83	2.89	0.98
Margarine	1.16	1.19	0.97
Salt	0.63	0.65	0.97
Tea	6.34	5.06	1.25
Coffee	1.65	1.08	1.53
beef	22.50	8.65	2.60
Chicken	8.40	8.48	0.99
<i>Candle</i>	<i>5.01</i>	<i>6.21</i>	<i>0.81</i>
<i>Matches</i>	<i>1.35</i>	<i>1.30</i>	<i>1.04</i>
<i>soap powder</i>	<i>4.38</i>	<i>3.98</i>	<i>1.10</i>
<i>Paraffin</i>	<i>2.44</i>	<i>1.66</i>	<i>1.47</i>
Average ratio for the 10 common items:			1.27

Source: MRCC 1993 Household Subsistence Level Survey

Note: items in italics are not included in the basket of 45 items selected in Table 1.

Having done this, the next step taken was to convert the average item expenditures per capita into *average number of grams per item per capita*. The conversion is undertaken by dividing the average item expenditure per capita for the second to fifth deciles by cost per gram for each of the items, yielding monthly number of grams per item per capita.

$$\text{Grams per month} = \frac{\text{exp}}{1} \div \frac{\text{cost}}{\text{gram}}$$

Now that the average number of grams consumed per capita on each of the forty-five items in the basket every month has been calculated, what remains is to convert this into a calorific value. In order to achieve this, the calorie content per gram of each of the 45 items needed to be acquired. This was done through two principal sources, namely NutriBase (www.nutribase.com), a nutrient database, and the South African Medical Research Centre's health information website.⁷ The product of average number of grams consumed per capita and the calorie content per gram of item gives the average number of calories obtained from each source (per capita per month). Dividing this by 12 converts this in a daily calorific value.

The weighted average of the daily item calorific values for both urban and rural households⁸ shows an average per capita calorie consumption of 696 kcal, of which 454 kcal comes from the thirty purchased items and 242 kcal from the fifteen own produced goods. For the purposes of the Namibian poverty line, a calorie minimum is being set at 2200 kcal, which is consistent with international standards. Since it cost N\$24 per

⁷ See <http://www.sahealthinfo.org/foodcomp/gen/search>

⁸ This takes cognizance of the distribution of rural and urban households in the 2nd to 5th deciles (86.2% are rural and 13.8% are urban).

month to purchase the 696 kcal per capita per day in 1993/94 prices, it would have cost N\$24 multiplied by (2200/656) or N\$77 for a household to purchase 2200 kcal per capita per day in 1993/94 prices. This constitutes the *food* poverty line. Households with a per capita expenditure of less than N\$77 in 1993/94 prices would therefore be considered food poor, since they would not have sufficient resources to ensure that each household member received the minimum daily caloric intake.

Even though having sufficient resources within the household to meet food requirements is critical in terms of determining the threshold below which households are classified as poor, there is a strong argument that states that this alone is not adequate to define the poverty line. Households that can afford to meet the food requirements of all its members but who lack the resources to purchase clothing and shelter, for example, are likely to be considered deprived in a very basic sense. Recognising this, non-food expenditure has been included in the derivation of the Namibian poverty line.

As with the food expenditure component, the approach adopted grounds the non-food component of the poverty line in observed consumption behaviour. The median non-food expenditure per capita was calculated for households with per capita *total* expenditure in a small interval (plus or minus one percent) around the food poverty line. Successively larger intervals were selected, a total of five times so that the largest interval is $\pm 5\%$ (Annex B), and a simple average is taken of the five observations of median non-food expenditure per capita around the food poverty line. This above process is undertaken due to the strong possibility that none or very few of the households in the survey sample are likely to have per capita total expenditure exactly equal to the food poverty line. The amount derived from the process is then added to the food poverty line to yield the final poverty line.

In the case of the 1993/94 NHIES, the average of the five median values of non-food expenditure per capita came to N\$30. Therefore, the final poverty line is N\$77 (food poverty line) plus N\$30, making the overall poverty line N\$107 per capita per month in 1993/94 prices. This is approximately equal to N\$212 per capita per month in December 2003 prices.⁹

Poverty Indices based on Specified Poverty Line

Using the newly constructed poverty line of N\$107, Tables 3 and 4 provide measures on the incidence, depth and severity of poverty for households and the population in Namibia in 1993/94 using the NHIES data. They also provide similar estimates using a poverty line based on a US\$1 per day equivalent, which very closely approximates the national poverty line.

⁹ To arrive at this estimate of the current value of the poverty line, the 1993/94 value of N\$107 was inflated using the Interim Consumer Price Index (ICPI) series. Unfortunately, the earliest ICPI value for all items that we could acquire from the Central Bureau of Statistics was for April 1995, implying that the December 2003 equivalent slightly underestimates the current value of the poverty line.

Table 3: Poverty Measures disaggregated by region (1993/94) (Households)

	N	PL=N\$107 per capita expenditure per month (1993/94 prices)			
		Incidence	Depth	Severity	Pov Share
Caprivi	16884	72.97	0.38	0.24	9.53
Erongo	16611	29.08	0.11	0.05	3.74
Hardap	12521	34.09	0.17	0.11	3.30
Karas	11545	32.07	0.16	0.09	2.86
Khomas	34101	16.82	0.07	0.04	4.44
Kunene	10398	63.15	0.31	0.19	5.08
Ohangwena	25574	82.65	0.46	0.30	16.35
Kavango	20394	62.56	0.28	0.16	9.87
Omaheke	9157	51.99	0.23	0.13	3.68
Omusati	21822	70.47	0.34	0.20	11.89
Oshana	24198	68.77	0.33	0.19	12.87
Oshikoto	18795	69.92	0.36	0.22	10.16
Otjozondjupa	22827	35.28	0.17	0.11	6.23
Namibia	244827	52.81	0.26	0.16	100.00
Urban	82864	23.52	0.10	0.05	15.08
Rural	161962	67.79	0.34	0.21	84.92

Note: According to the World Bank's World Development Indicators series, the purchasing power parity conversion factor for Namibia was 1.4 in 1994. This means that in 1994, 1.4 times the Namibian dollar equivalent of US\$1 was required to buy the same amount of goods and services in Namibia as a US dollar would buy in the United States. Therefore, US\$1 daily per capita expenditure (in 1994 PPP) is equivalent to N\$3.55 multiplied by a factor of 1.4 or N\$5.02. This translates into an amount of N\$153 per month (multiply 5.02 by 365/12).

Source: NHIES 1993-94 data

Table 4: Poverty Measures disaggregated by region (1993/94) (Individuals)

	N	PL=N\$107 per capita expenditure per month (1993/94 prices)			
		Incidence	Depth	Severity	Pov Share
Caprivi	91434	78.79	0.44	0.29	8.00
Erongo	74395	38.35	0.16	0.08	3.17
Hardap	54206	45.39	0.24	0.16	2.73
Karas	54114	44.95	0.23	0.14	2.70
Khomas	161754	23.50	0.10	0.06	4.22
Kunene	59029	76.91	0.41	0.27	5.04
Ohangwena	190858	85.83	0.50	0.34	18.19
Kavango	125033	70.93	0.33	0.19	9.85
Omaheke	47101	68.63	0.33	0.19	3.59
Omusati	153030	75.79	0.39	0.24	12.88
Oshana	161491	75.79	0.39	0.24	13.59
Oshikoto	116134	77.36	0.43	0.28	9.98
Otjozondjupa	100438	54.36	0.28	0.18	6.06
Namibia	1389017	64.83	0.34	0.21	100.00
Urban	401325	33.94	0.15	0.08	15.13
Rural	987691	77.38	0.42	0.27	84.87

Source: NHIES 1993-94 data

The *incidence* of poverty, also known as the poverty headcount, simply refers to the percentage of individuals or households with expenditure per person below the poverty line. Tables 3 and 4 indicate that 53% of households and 65% of the population were under the poverty line in 1993/94, with substantial variation between the thirteen regions. The *depth* of poverty or poverty gap provides a sense of how far below the poverty line (the proportionate shortfall) the poor actually are. Values for this indicator range between zero and one, with zero indicating that no-one is poor and a value of one signifying that all the incomes/expenditures of the poor are zero. The depth of poverty in Namibia in 1993/94 was 0.34 for individuals and 0.26 for households. This can be interpreted to mean that on average the expenditures of poor households fall 26% below the poverty line and 34% below the poverty line for poor individuals. This figure can be used to determine what it would cost the Government to eliminate poverty by means of perfectly targeted transfers.¹⁰ For example, based on the poverty gap of 0.34, it would have taken N\$50.27 million per month or N\$606.23 million per year in 1993/94 prices to for all the poor individuals to escape poverty. Converting this into a December 2003 equivalent, the cost of raising all poor individuals above the poverty line would be N\$1.196 billion.

The underlying critical policy assumption is that perfect targeting of the poor is possible. While such an assumption is clearly unrealistic it does provide some indication as to the scope of the income poverty problem. N\$1.2 billion is about 10% of total Government expenditure. It should be stressed that these calculations are indicative at best and instructive at most as they remain based on data more than 10 years old. However, with methods established, explored and agreed in this paper should support an update of the analysis using data from the new survey to be released in 2005.

The *severity* of poverty or squared poverty gap takes inequality among the poor into account by weighting the poverty gaps of the poor. It is acknowledged as being difficult to interpret, but in basic terms the poorer the household or individual the greater is their weighting (the poverty gap measure applies an equal weighting to everyone below the poverty line). Therefore, a transfer from a poor to an even poorer individual would reduce the severity index, whereas a transfer from a very poor to a less poor individual would increase the index. The *poverty share* refers to the distribution of the poor between different social or geographical groupings. For example, in the tables above, the poverty share is reported by region and by location. It indicates that 10% of poor households and 8% of poor individuals in Namibia reside in Caprivi. Similarly, 85% of poor households and 85% of poor individuals in the country are located in rural areas.

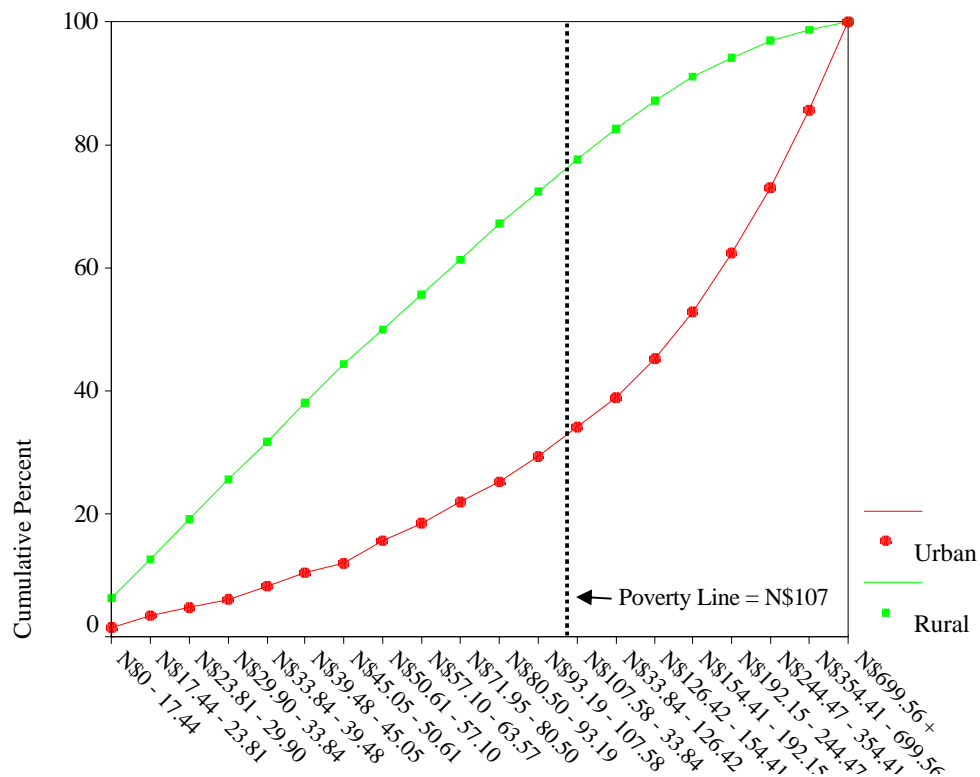
At this stage, it is important to discuss the issue of how sensitive our poverty measure results are to the actual poverty line chosen, especially given the element of arbitrariness inherent in the specification of any such cut-off point.¹¹ If a poverty line that is either lower or higher than the one we estimated were to

¹⁰ Obviously the real cost of eliminating poverty would need to factor in the cost of administering a means-tested grant system as well as potential leakage.

¹¹ This form of methodological enquiry is often referred to in the literature as stochastic dominance or more simply poverty dominance.

be selected, what effect would this have on the ranking according to the headcount ratio of the distributions we are interested in (e.g. rural versus urban poverty or the poverty incidence in the different regions). If the rural headcount ratio remains higher than the urban headcount ratio for all possible choices of the poverty line¹², then we can safely say that the poverty ranking is robust. This is clear the case with the figure below, which shows that for all values of expenditure per capita, or irrespective of where the poverty line is set, individuals residing in rural areas will always and unambiguously be poorer than Namibians living in urban areas.

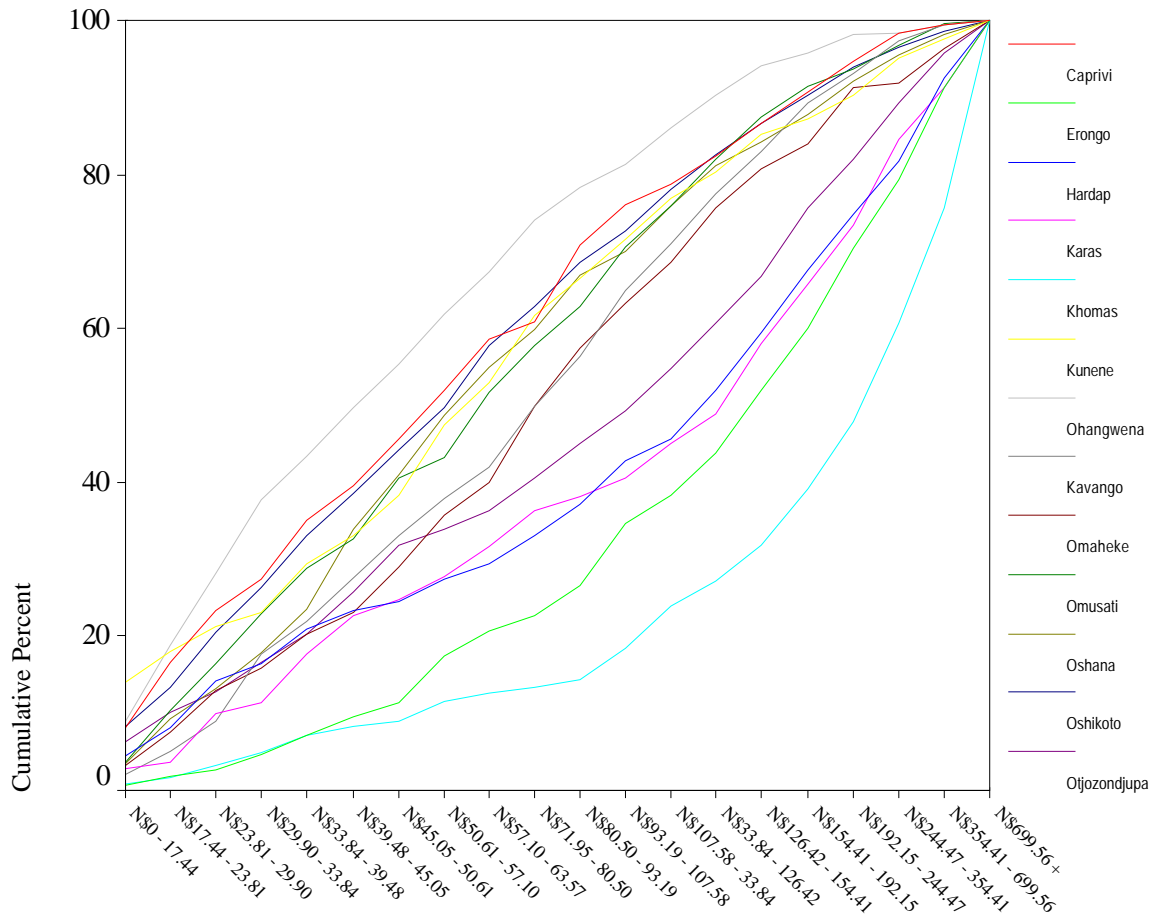
Fig.1: Distribution Functions of individual expenditure per person by location, Namibia 1993/94



In contrast to the relative ease in interpreting the situation of the rural-urban distributions in Namibia, there may be instances where the picture becomes less clear. For example, examining the poverty incidence by region reveals that a number of the distribution functions cross within feasible choices of the poverty line. While it is clear that Ohangwena remains the poorest region and Khomas and Erongo the least poor regions for virtually all possible values of the poverty line, for the other regions it is difficult to make an unambiguous ranking. As such, the ranking of the poverty headcount or incidence by region will vary substantively depending on where the poverty line is set.

¹² In technical language, this situation is often termed first-order stochastic dominance.

Fig. 2: Distribution Functions of individual expenditure per person by region, Namibia 1993/94



The commonly applied definition of income poverty in Namibia relies on the food share method, which defines households as *poor* if food consumption makes up 60% or more of total household consumption and as *severely poor* in cases where food consumption is 80% or more. According to this definition a total of 38% of households in Namibia are poor and 9% are severely poor (National Planning Commission, 1996). In Table 5, the food share method is applied to the NHIES 1993/94 data.

In Table 6, the thirteen regions in Namibia are ranked from poorest to wealthiest using the two different poverty measurement approaches (expenditure based poverty line and food share method). What is immediately apparent is the relative disjuncture between the poverty ranking between the two methods, especially at the poorer end of the distribution. This may suggest that the measures are capturing different dimensions of poverty. The limitations of the food-ratio measure may also play a contributing role. Some studies have shown that Engel's (1895) observation that the food ratio is inversely related to household income (i.e. as income increases, the share spent on food decreases) may not always hold true for the poorest households in developing countries.¹³ In Namibia, while there is a significant and moderate inverse correlation between total household expenditure and the food-ratio,¹⁴ the food-ratio method

¹³ Glwwe, P. and J. van der Gaag (1990) Identifying the Poor in Developing Countries: Do Different Definitions Matter? World Development , 18(6), pp.803-814.

¹⁴ The correlation coefficient is -0.379 (p<0.01)

only 'correctly' identifies 47.5% of those that were designated poor using the absolute poverty measure (results not shown). Further investigation is therefore required to determine the nature of this divergence.

Table 5: Food Share (Percentage of HH expenditure spent on food)

	80-100%	60-100%	N
Caprivi	5.8	46.1	16882
Erongo	6.7	26.0	16612
Hardap	4.7	29.0	12521
Karas	3.7	30.0	11545
Khomas	1.1	8.5	34101
Kunene	11.3	40.6	10397
Ohangwena	9.4	41.5	25574
Kavango	18.6	69.4	20394
Omaheke	23.6	52.8	9157
Omusati	8.3	39.6	21821
Oshana	4.7	40.6	24198
Oshikoto	8.6	37.8	18796
Otjozondjupa	10.8	40.7	22827
Namibia	8.2	37.1	244825
Urban	2.5	15.9	82864
Rural	11.1	47.9	161963

Source: NHIES 1993-94

Table 6: Regions ranked from Poorest to Wealthiest

	Expenditure Pov- erty Line	Food share method (>60%)
Caprivi	2	3
Erongo	12	12
Hardap	10	11
Karas	11	10
Khomas	13	13
Kunene	6	6
Ohangwena	1	4
Kavango	7	1
Omaheke	8	2
Omusati	5	8
Oshana	4	7
Oshikoto	3	9
Otjozondjupa	9	5

Inter-temporal Poverty Analysis

One of the objectives of the poverty analysis conducted was to assist in exploring the dynamics of poverty over time using both the 1993/94 NHIES and 1999 Level of Living Conditions Survey data. Concerns about the ability to directly compare the two datasets in order to draw conclusions about poverty trends in the country during the 1990s is complicated by number of overarching factors. Firstly, the fieldwork of the NHIES survey was designed to spread out over 12 months, whereas the LLS was conducted over a month (26 April 1999 to

the end of May 1999). Therefore, while the NHIES is able to accommodate seasonality effects, the LLS effectively does not. The danger then in analysing the two datasets is that the resultant poverty trends may be biased upwards or downwards depending on the time of survey of the LLS. For example, if May were a month where households tended generally to spend more than average, then it may seem like the incidence of poverty has declined over the 1994-1999 interval. Conversely, if May was a month where households typically spent less than average, the incidence of poverty may be seen to increase between 1994-1999.

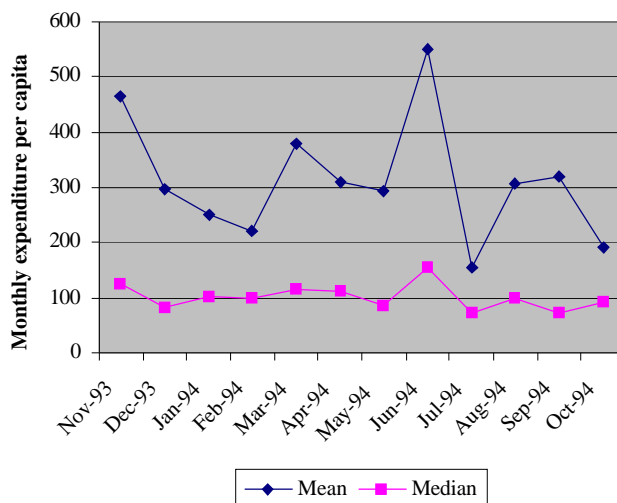
Table 7 and Figure 3 indicate the mean and median per capita monthly expenditure for each month of the NHIES. It indicates that May is a month whereby households spend marginally less than the annual values (95% of the mean and 87% of the median). Thus it appears to be a lot less exceptional than months such as November or June for instance (where mean expenditures are 1.51 and 1.79 times the annual average respectively), or July of October (where mean expenditures are 51% and 62% of the annual average respectively).

Table 7: Mean and Median Expenditure Per Capita for each Month of the NHIES

SMONTH	Mean	Median	SD	N
Nov 93	465.40	126.59	852.44	18637
Dec 93	295.66	83.26	586.44	14893
Jan 94	251.51	101.85	381.20	21760
Feb 94	220.38	98.23	507.79	22456
Mar 94	378.40	115.11	785.76	19768
Apr 94	309.52	112.53	650.67	23683
May 94	293.01	85.60	620.08	22511
Jun 94	550.69	154.16	1895.33	18616
Jul 94	155.39	74.06	280.16	20244
Aug 94	306.68	100.43	571.29	18956
Sep 94	319.81	73.87	845.80	22355
Oct 94	190.74	90.92	728.95	20946
Total	307.41	98.85	815.80	244827

Source: NHIES 1993-94

Figure 3: Mean and Median Expenditure for each month of the NHIES



Secondly, there is an apparent lack of consistency between average expenditure in the NHIES and national accounts data, the latter being higher than the survey data. This raises concerns about the possibility that the NHIES overestimates poverty, which could also bias the results of inter-temporal poverty analysis, or that the national accounts possibly underestimates the informal sector contribution. Thirdly, the lingering after-effects of the pervasive drought conditions experienced in Namibia in 1992 may have exerted downward pressure on expenditure patterns in 1993/94. In the absence of additional detailed income and expenditure data, which should be available when results from the 2003/04 NHIES are published in 2005, it is difficult to make any conclusions about whether NHIES year is atypical or not. If one assumes that expenditures in 1993/94 are generally lower than average due to the drought, then the likelihood is that there may have been an observable improvement afterwards. This could result in a more sizeable change in poverty incidence if one compares 1993/94 to 1999 relative to a comparison of a more typical expenditure year and 1999.

Fourthly, the 1999 LLS data was not initially weighted and the pre-existing report produced by the NPC and UNAM consists of un-weighted tabulations. This means that unlike the NHIES data, the LLS could not be considered truly regionally or nationally representative. The fact that the data was only previously available (and analysed) in its un-weighted form meant that inter-temporal poverty analysis was not possible. Nonetheless, a salient development during the last ten days has been the creation of weighted data files for the 1999 LLS and the resulting dataset placed onto CD.

With the weighted 1999 data now available, it was hoped that a careful analysis of the April-May 1994 and April May 1999 data might yield some indication of the dynamics in the incidence, depth and severity of poverty over the intervening period. It was however recognised that such analysis would be obviously constrained by the markedly different survey design of, and divergent methodologies adopted for, the two surveys, and any results would need to be heavily qualified.

However, upon closer inspection of the two surveys, it was discovered that divergent definitions of household membership had been adopted. The LLS defines membership on the basis of presence in the household on a particular reference night in accordance with censuses. Conversely, the NHIES includes persons present in the household during the last week and additionally includes those that have been away during that period but intend to return shortly. Since these definitional discrepancies have a notable impact on household size and structure, it has to be concluded that the comparison of the 1993/94 NHIES and 1999 LLS is not tenable.

An alternative approach to comparing the NHIES with the LLS is discussed and presented under the section on poverty reduction scenarios. This method makes use of national accounts data to project the NHIES household data to produce a dataset for 2001.

Inequality Indicators

The ability to make substantial progress in reducing poverty throughout sub-Saharan Africa is complicated by a highly skewed income distribution in a number of countries. High inequality hinders economic growth, and may even negate the positive impacts that growth could have on poverty reduction. Therefore, as the distribution of income worsens, the impact that a 1% increase in growth will have on poverty levels (i.e. the poverty elasticity of growth) diminishes. In consequence, countries with high inequality normally require considerably higher growth rates to reduce poverty unless explicitly redistributive policy measures are introduced to redress the skewed distribution.

Reducing income inequality has become a central goal of development policy in Namibia. The First National Development Plan (NDP1, 1995) placed the eradication of inequalities as a top social welfare priority. The Second National Development Plan (NDP2) also devotes significant attention to the high level of income inequality in the country, focusing in particular on the legacy of apartheid, the dual nature of the economy, unemployment, differential access to educational attainment, as well as gender-based and locational (urban versus rural and inter-regional) inequities. In addition, it makes a resolute commitment to reducing inequality, as measured by the Gini-coefficient, during the NDP2 reference period.

One of the most common indicators of inequality is the *share of poorest quintile in national consumption*, which is essentially the income that accrues to the poorest fifth of the population. Table 8 provides income distribution measures for both households and the population based on monthly expenditure per person. It shows that the bottom 20% (or quartile) of *households* receive only 1.85% of total expenditure per capita, whereas the top 20% is receiving 74.79% of total expenditure. Similarly, the poorest 20% of the *population* receives 2.45% of total expenditure, while the top 20% 70.95 percent. This very starkly portrays the highly skewed or unequal nature of the distribution of wealth in Namibia.

Table 8: Share of National Consumption (per capita) by Household and Population Deciles

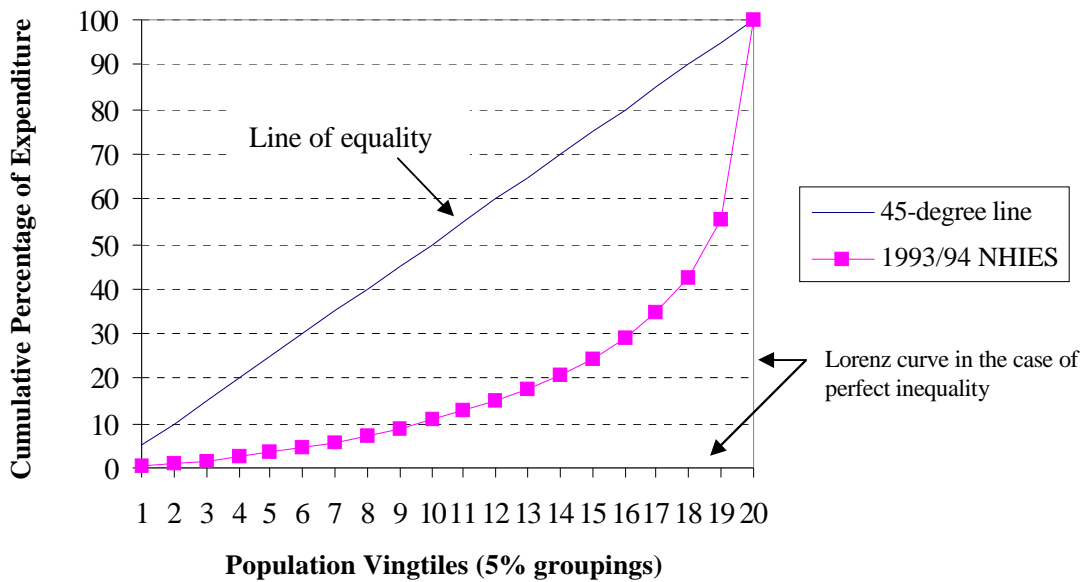
Decile	Households		Population	
	Expenditure share	Cum Exp. Share (%)	Expenditure share	Cum Exp. Share (%)
Decile 1 (poorest 10 percent)	0.67	0.67	0.88	0.88
Decile 2	1.17	1.85	1.56	2.45
Decile 3	1.62	3.47	2.11	4.56
Decile 4	2.14	5.60	2.69	7.25
Decile 5	2.79	8.39	3.42	10.67
Decile 6	3.74	12.13	4.35	15.02
Decile 7	5.26	17.39	5.75	20.77
Decile 8	7.82	25.21	8.28	29.05
Decile 9	14.42	39.63	13.57	42.62
Decile 10 (top 10 percent)	60.37	100.00	57.38	100.00
Share of poorest 20% (quintile) in national consumption	1.85	1.85	2.45	2.45
Gini Coefficient	0.67		0.63	

Source: NHIES 1993/94

The expenditure distribution can also be graphically depicted by constructing what is known as a Lorenz curve. This is done by firstly ordering the population from lowest income to highest income. In countries with very unequal income distribution, the poorest fifth, second poorest fifth, etc. On the horizontal axis, the cumulative percentage of the population is plotted, for example the poorest fifth, second poorest fifth, etc. On the vertical axis, the cumulative percentage of expenditure received by each cumulative percentage of the population is plotted. Figures 4 and 5 provide the Lorenz curves for the population and households respectively. If the distribution were *perfectly equal*, each percentage group of the population would receive the same percentage of total expenditure. For example, the poorest 10% of the population would receive 10% of total expenditure, the poorest 20% would receive 20% of total expenditure, and so on. As such, the Lorenz curve would be equal to the horizontal 45-degree line, which can therefore be thought of as the line of equality. If, on the other hand, the distribution were *perfectly unequal*, such that one person receives all the income with everyone else getting nothing, then the Lorenz curve would lie along the bottom and vertical axes. Given these considerations, the closer the Lorenz curve gets to the 45-degree line, the more equal is the distribution of wealth. In the case of Namibia, the high level of inequality is reflected in the shape of the Lorenz curves are much closer to the vertical and horizontal axes as opposed to the line of equality.

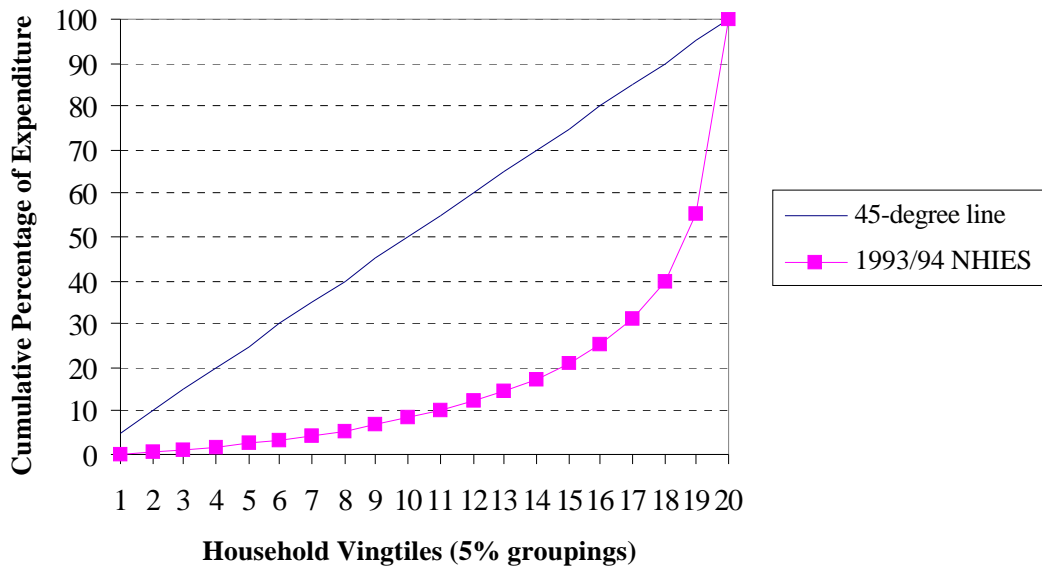
Another measure that has received much attention in Namibia is the Gini-coefficient, which is one of the most widely used indicators of inequality internationally. The measure can best be understood by looking at the Lorenz curve, and is the ratio of the area between the curve (the shaded area in Figure 6) and the 45-degree line to the total area below the 45-degree line. The values of the Gini range between 0, where everybody has the same income (perfect equality), and 1, where one person has all the income (perfect inequality). The Gini-coefficient that is derived using the distribution of expenditure per person is 0.697 for households and 0.661 for the population. Of the 125 countries for which data was available in UNDP (2003) no country reported as high a gini-coefficient, which suggests that when it comes to the distribution of income Namibia is the most unequal society in the world.

Fig.4: Lorenz Curve: Share of National Consumption (per capita) by Population Vingtiles

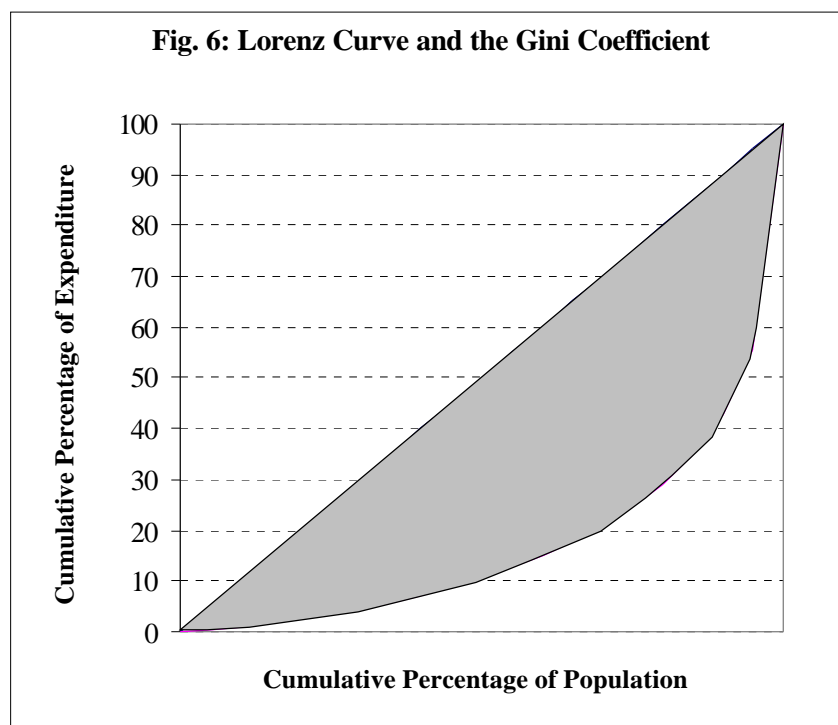


Source: NHIES 1993/94

Fig. 5: Lorenz Curve: Share of National Consumption (per capita) by Household Vingtiles



Source: NHIES 1993/94



Conclusion

This paper has derived a national income poverty line for Namibia and is based on estimated expenditures required to sustain a minimum calorific intake (food poverty line) as well as other basic necessities such as clothing and shelter (non-food poverty line). Estimates are based on actual consumption patterns of the poorest as recorded by the Namibia Household Income and Expenditure Survey conducted in 1993/94. As argued this method is preferred over the food-share method, which has been previously applied in Namibia. Under this definition households were defined as *poor* if food consumption makes up 60% or more of total household consumption and as *severely poor* in cases where food consumption is 80% or more. According to this definition a total of 38% of households in Namibia are poor and 9% are severely poor.

Under the new method the overall poverty line is estimated at N\$107 per capita per month in 1993/94 prices or approximately N\$212 per capita per month in 2003 prices. According to this definition 53% of households and 65% of individuals in Namibia live below the income poverty line at the time of the survey. The analysis confirms tremendous inequalities in the way income and poverty is distributed. The poorest 20% of the population receives 2.5% of total expenditure, while the top 20% receives 71%. The standard measure of inequality, the Gini-coefficient, is estimated to be 0.697, which is the highest in the world among countries for which data is available.

It should be stressed that the calculations presented in this paper are indicative at best and instructive at most as they remain based on data more than 10 years old. However, with methods established, explored and agreed in this paper should support an update of the analysis using data from the new survey to be released in 2005. Such an analysis will be essential for further analysis on the linkages between economic growth and pov-

erty reduction, the costs of expanding social safety nets and for developing policies that can effectively combat income poverty in line with Vision 2030 and the Millennium Development Goals.

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Annex A: Example - Estimating November 1993-September 1994 Item Prices

	Unit	Estimate Aug-94	Actual Sep-94
Food CPI Values	..	120.21 (actual value from ICPI series)	125.02
Beverage CPI Values	..	124.13 (actual value from ICPI series)	124.14
Mealie meal	5kg	$= [(Aug94Food\ CPI) \div (Sep94\ Food\ CPI)] \times Price\ mealie\ meal\ Sep94$ $= [(120.21) \div (125.02)] \times 9.22$ $= 0.961 \times 9.22$ $= \mathbf{8.86}$	9.22
Cooking oil	750ml	$= [(Aug94Food\ CPI) \div (Sep94\ Food\ CPI)] \times Price\ cooking\ oil\ Sep94$ $= [(120.21) \div (125.02)] \times 5.06$ $= 0.961 \times 5.06$ $= \mathbf{4.86}$	5.06
Aerated cool drinks	340ml	$= [(Aug94\ BevTob\ CPI) \div (Sep94\ BevTob\ CPI)] \times Price\ cool\ drink\ Sep94$ $= [(124.13) \div (124.14)] \times 1.47$ $= 0.999 \times 1.47$ $= \mathbf{1.47}$	1.47

Annex B: Calculating Median Non-Food Expenditure Values

Computing the median non-food expenditure values (1994 prices)

Percentage of Food Poverty Line	CALCULATING THE FIVE INTERVALS	
	Lower limit	Upper limit
1%	$76.77 - (0.01 \times 76.77) = 76.00$	$76.77 + (0.01 \times 76.77) = 77.54$
2%	$76.77 - (0.02 \times 76.77) = 75.23$	$76.77 + (0.01 \times 76.77) = 78.31$
3%	$76.77 - (0.03 \times 76.77) = 74.47$	$76.77 + (0.01 \times 76.77) = 79.07$
4%	$76.77 - (0.04 \times 76.77) = 73.70$	$76.77 + (0.01 \times 76.77) = 79.84$
5%	$76.77 - (0.05 \times 76.77) = 73.70$	$76.77 + (0.01 \times 76.77) = 80.61$

Computing the median non-food expenditure values (1994 prices)

Percentage of Food Poverty Line	Corresponding total expenditure per capita intervals	Median non-food expenditure Per capita
1%	N\$76.00– N\$77.54	25.81
2%	N\$75.23– N\$78.31	30.25
3%	N\$74.47– N\$79.07	31.49
4%	N\$73.70– N\$79.84	31.01
5%	N\$73.70– N\$80.61	31.49
Mean (N\$):		30.01