

# Combined methods in poverty analysis: Experiences from Namibia

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## ABSTRACT

*We explore differences in the findings on poverty in Namibia from a series participatory poverty assessments and a household survey on household income and expenditure. We find that the main conclusions from these research processes appear plausible even if they point to diverging paths of poverty. These results are attributed to methodological challenges and especially to different perceptions about the determinants of poverty that each approach conveys. Using a Q-Squared approach we illustrate that when definitions of poverty based on the perceptions raised in the qualitative assessments are used on the quantitative data then the results tend to converge. One particularly interesting finding is that those identified as poor using the official poverty measure, established explicitly to capture deprivation in consumption expenditure, have higher average levels of consumption expenditure than a combined Q-Squared measure based exclusively on non-monetary criteria. We generally find that while there might have been a real improvement in consumption-based measures of poverty over time, given the emphasis on issues related to assets, access to and quality of delivery of basic services, and issues related to vulnerabilities (especially food insecurity and the AIDS epidemic) in the participatory poverty assessments, it is not surprising that the qualitative data point to deteriorating living conditions.*

**Keywords:** Namibia; mixed methods; participatory poverty assessment; household surveys

## INTRODUCTION

In this paper we review the results from two recent research projects that were initiated to investigate the levels, causes and trends in poverty and inequality in Namibia as a basis for setting priorities in a medium term development strategy and for designing interventions to reduce poverty. The two bodies of research, one based on a quantitative household survey and the other on a series of qualitative participatory assessments, have yielded results that have been interpreted as incompatible and contradictory both mutually and with respect to other recent findings. There are growing concerns that the process of national development planning is becoming less evidence-based instead of more because of a

lack of reliable information. We do not share this view. On the contrary, we find that the emergence of research on poverty based on a range of methodologies and applications can serve as a basis for the young nation to develop home-grown measures and definitions of what constitutes welfare and deprivation, and with time guide public policy more effectively. To facilitate such an outcome we see a need for reconciling non-rival differences between public and official perceptions and definitions of poverty.

Our analysis shows that much more is gained by combining research approaches, different as they may be, than pitting them against each other and we illustrate how this can be achieved notably by comparing the official poverty measure with meas-

ures based on qualitative information. We also discuss methodological limitations and draw lessons for future research. The paper is organised as follows. Following this introduction, we present an overview of the methodologies and results from the qualitative and quantitative research processes. Then in two separate sections we explore a series of data and methodological interpretations that enable us to us draw some preliminary and compatible conclusions about the levels and trends of poverty in Namibia. We go on to summarise a number of challenges to the Q-Squared research agenda before finally concluding. A full investigation of the multiple dimensions of poverty in Namibia is beyond the scope of a short paper of this nature and since only parts of the quantitative and qualitative data has been released our analysis should be considered preliminary and illustrative.

**MICRO-STUDIES AND MIXED MESSAGES**

The reduction of poverty and inequality through economic growth and employment generation has been at the top of the national policy agenda in Namibia since Independence in 1990 (GRN 1995; GRN 2001). In the course of formulating plans to

actively combat poverty, its definition has been broadened to go beyond just monetary measures and include concerns related to capabilities, vulnerability and exclusion (GRN 1998; GRN 2005). In preparation for the third National Development Plan (NDP), which is to set priorities for national development policies and guide public expenditure programmes over a five year-period beginning 2009, the National Planning Commission, which coordinates Plan preparation and implementation, launched a new round of the income and expenditure survey as well as a series of participatory poverty assessments. The aim was for these processes to converge in a series of regional poverty profiles, which would in turn determine community-based development strategies under the NDP and thus enable a decentralised and ‘bottom-up’ approach to the national planning process. The two poverty research projects shared a high level of complexity and ambition but could hardly be more different in terms of approach and methodology. Table 1 summarises some key features of the research methodologies. In this section we further describe the two research processes and highlight key results and methodological issues.

**TABLE 1: OVERVIEW OF METHODOLOGIES**

	<b>2003/2004 Namibia Household Income and Expenditure Survey</b>	<b>Participatory Poverty Assessments (pilot phase)</b>
<b>Coverage</b>	Nationwide	3 pilots in Ohangwena (Oh), Omusati (Om) and Caprivi (Ca) regions; expanded later to all 13 regions
<b>Sampling</b>	Two-stage probability sample based on national master	Two-stage purposive sample
<b>Number of respondents</b>	9801 households	Community members from selected villages and locations
<b>Timing of field work</b>	Pilot (Aug-Sep 2002); Main (Sep 2003-Aug 2004); Post Enumeration (Oct 2004)	Oh (Oct-Nov 2003); Om (Oct-Nov 2004); Ca (Oct-Nov 2004)
<b>Survey instruments</b>	Structured questionnaire and Daily Record Book	PRA techniques: village resource mapping, transect walks; poverty trees; poverty trend diagrams; well-being ranking; scheduling diagrams; Venn diagrams; service score cards; semi-structured discussions
<b>Release of results</b>	Preliminary (Mar 2006) Full (Feb 2007)	Oh (June 2004); Om (2006); Ca (2006)
<b>Frequency</b>	Previous survey in 1993/1994; next round scheduled for 2008/2009	Not determined
<b>Executing agency</b>	Central Bureau of Statistics, National Planning Commission	Department for Development Policy, National Planning Commission

Sources: CBS 2006, GRN 2004, 2006a, 2006b.

## Namibia Household Income and Expenditure Survey (NHIES)

The NHIES 2003/2004 was a nationwide representative household budget survey using a standardised questionnaire (Form 1) to collect basic information about the household and the people living in it. Moreover, through diaries (Form 2) households recorded all consumption, expenditures and receipts, item by item and including incomes, gifts and own-production. The survey largely followed the methodology of a similar survey ten years prior but with some important exceptions as we shall explore below.

To convert consumption expenditure into a measure of poverty the Central Bureau of Statistics has relied on a food-ratio method since the first NHIES. This method is loosely based on 'Engel's Law', which establishes that poor households devote a greater share of their total budget to food compared to better-off households. The official definition thus classifies households as *poor* if they spend 60% or more of their total expenditure on food and *severely poor* if they spend 80% or more (GRN 1996). On this basis the NHIES found that the share of 'poor' households was 27.9% in 2003/2004 down from 37.8% recorded in the survey from 1993/1994. The share of 'severely poor' households had more than halved from 8.7% in 1993/1994 to 3.9% in 2003/2004. These results suggested that not only had Namibia made significant progress in reducing income poverty, progress had been so fast as to place the country among a few in sub-Saharan Africa that were on target to meet the Millennium Development Goal of cutting poverty in half by 2015. Moreover, the results suggested that the main poverty targets of the second NDP had been attained almost to the decimal point!<sup>1</sup> While statistical surveys and research on poverty rarely dominate public discourse the NHIES results triggered some debate in the national media, where concerns ranged from the measured to sweeping dismissals of the validity of the entire survey and a call for the national statistics office to withdraw the survey report. One comment read: *'Namibia's households are not better off today than 10 years ago (...)* To tell

*us 'severe poverty' exists only among 3.9 percent of the population is so beyond reality! In which country has this survey actually been undertaken?'*<sup>2</sup>

## Methodological challenges

In addressing the reliability of the survey findings there are two overarching methodological issues that warrant further discussion. Firstly, a major drawback of setting a poverty line using the food-ratio method is that the relationship between the food-share and consumption will generally differ across households for reasons unrelated to poverty, rather reflecting differences in relative prices, tastes and availability. Also, the income elasticity of demand for food can be close to unity for the poorest households where food needs are greatest (Ravallion 1992). At best the food-share method can be useful as a supplementary measure if there are concerns over the quality of the survey data or the price deflator (Ravallion 1992; Ravallion & Huppi 1991). A separate problem relates to how to determine the cut-off point in the expenditure distribution and it is symptomatic that the 60% and 80% thresholds seems have been established as part of external short-term technical assistance to the Central Bureau of Statistics without wider national consultation or documentation for the process. The Bureau itself refers to the method as 'crude' and later we provide more evidence for why it so inadequately conforms to popular experiences.

The second overarching concern regarding the survey-based poverty estimates relates to changes in survey methodology that may affect the computation of household expenditure. While efforts were made not to depart unnecessarily from the methodology used in the previous survey some changes did occur. For instance, in 2003/2004 the sample comprised more than twice as many households compared and modern technology such as digital scanning was used. However, a greater concern relates to the deliberate efforts that were made to improve data collection, especially when it came to reported consumption and income, and while the diary method (Form 2) for collecting household expenditure was unchanged, a larger number of

<sup>1</sup> The targets had been to reduce the share of poor and severely poor from the levels in 1993/1994 by 10 and 5 percentage points, respectively by the end of the plan period in 2005.

<sup>2</sup> Letter to the editor, *The Namibian*, 4 April 2006.

infrequent non-food expenditure items were included (in Form 1) in 2003/2004. It is therefore inevitable that total expenditure and notably the non-food part were underestimated in 1993/1994 relative to the most recent survey. While not contradicting the main conclusions of the survey, namely that poverty had decreased significantly, users of the survey data were thus cautioned to treat observed changes over time between the two surveys *'as more indicative of direction rather than as precise estimates'* (GRN 2006a: 24).

### Separating food and non-food expenditure

In the case that non-food expenditure is under-reported in the earlier survey using any poverty measure that is based partially on the non-food components will invariably exaggerate the fall in poverty over time. In an endeavour to isolate the effects of methodological changes resulting in the questionnaire bias we analyse food expenditure and non-food expenditure separately. For the purposes of this analysis, we use the limited version of the NHIES data set for 2003/2004 that has been 'anonymised' and released by the Central Bureau of Statistics.<sup>3</sup> We disaggregate the change in expenditure by deciles and compute growth ratios and include the results for the three PPA pilot regions,

to which we shall return below. Findings are presented in Table 2 and suggest that while mean monthly *total* expenditures for all Namibian households have increased by a factor of 3.5 over the period, mean monthly *food* expenditure has risen more slowly by a factor of 2.7. Moreover, growth in food expenditure is lower than for total expenditure in all three regions although with some differences.

The results also show that for both categories of expenditure, growth has been highest among the lowest consumption expenditure deciles. Total monthly consumption expenditure among the poorest 10% of households increased by a factor of 4.5 and by a factor of 3.7 for the wealthiest 10%. Food expenditure grew by a factor of 4.4 for the poorest 10% of households compared to a factor of 2.5 for the wealthiest 10%. Considering that the annual rate of food price inflation has averaged around 8% between the surveys, the real value of food expenditure by the highest decile has grown slightly in real terms, but nearly doubled for the lowest decile.

Improvement in the consumption expenditures of the poorest, and the resulting reduction in inequality, appears to be largely attributable to an increased uptake of pensions for the elderly, veterans and the disabled, and other social grants such as those for orphans and vulnerable children, and the

TABLE 2: EXPENDITURE RATIOS

Deciles	Monthly total expenditure				Monthly food expenditure			
	Caprivi	Ohang-wena	Oma-heke	Namibia	Caprivi	Ohang-wena	Oma-heke	Namibia
1	6.5	5.8	3.3	4.5	6.9	10.0	3.1	4.4
2	5.5	5.5	3.2	4.3	5.4	6.7	3.1	3.9
3	5.3	5.2	3.5	4.1	5.2	5.2	3.0	3.5
4	5.4	4.5	3.5	3.9	5.1	4.7	2.8	3.3
5	5.2	4.5	3.6	3.8	5.0	4.2	3.3	3.1
6	5.3	4.3	3.9	3.8	4.2	3.8	3.2	2.9
7	5.3	4.2	4.1	3.6	4.1	3.6	3.4	2.8
8	4.6	4.4	4.3	3.7	3.8	3.3	3.1	2.6
9	4.2	4.3	3.9	3.7	3.6	2.8	3.0	2.5

Sources: NHIES 1993/1994 and 2003/2004 and authors' calculations.

<sup>3</sup> In the analysis, we adjust for composition and size of households by applying the adult equivalence scale used by the statistics office (0-5 years: 0.5; 6-15 years: 0.75; over 16 years: 1.0 for both men and women, CBS 1996a; CBS 2006a) and an economies of scale parameter of 0.9.

positive effects of remitted incomes such as those from civil servants in urban centres to rural communities. The ratio of average annual expenditure between 1993/1994 and 2003/2004 in households where the main source of income is cash remittances and grants for instance is 3.3 (i.e. income is 3.3 times higher) compared to a ratio of 2.5 in households where the main source of income is from salaries and wages. The latter households obviously still have much higher expenditure in absolute terms and lower levels of poverty.

Higher relative growth in the consumption expenditure of the poorest groups translates into a falling inequality as measured by the Gini-coefficient, which takes a value of 1 when all expenditure is incurred by one household (perfect inequality) and a value of 0 when all households have similar expenditure levels (perfect equality). The Gini-coefficient is calculated as twice the area below the Lorenz curve and the 45 degree line. Figure 1 shows how falling inequality in both distribution of total and food expenditure results in inward shifts in the

Lorenz curves and a corresponding fall in the value of the Gini-coefficient. In spite of these improvements a Gini-coefficient of above 0.60 qualifies Namibia as one of the most unequal societies in the world (CBS 2006).

### Quant-quant contradictions?

Two additional concerns have been expressed with regards to the NHIES and the poverty trends compared to other quantitative data sources. Firstly, the findings of NHIES seem to contradict the 2004 Labour Force Survey (LFS), which found that levels of formal employment had fallen since 1997 and that unemployment was increasing. Surely when unemployment rises so must poverty goes the reasoning. However, by virtue of the survey instruments one should not expect a simple inverse relationship between reported levels of unemployment as measured in the LFS and household welfare as measured in the NHIES. Notably, the LFS typically struggles to capture informal sector employment and whereas the NHIES includes of all

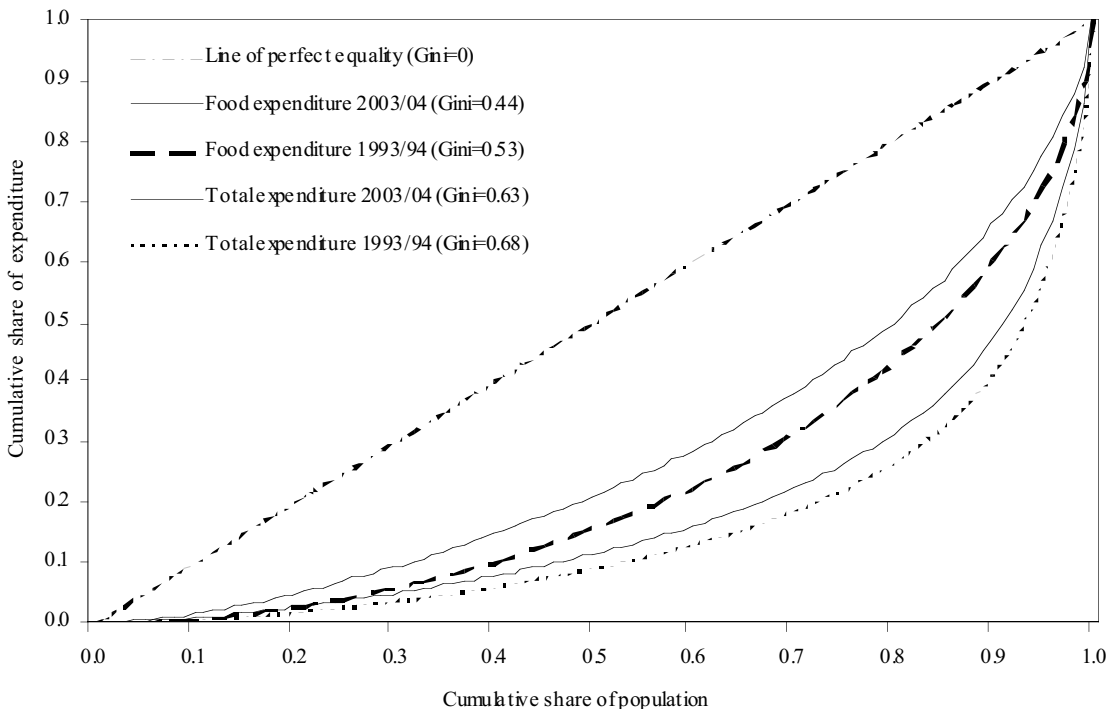


FIGURE 1: LORENZ DIAGRAM

Sources: NHIES 1993/1994 and 2003/2004 and authors' calculations.

sources of income equivalents, including incomes from informal activities, own-produce, cash transfers and gifts, which are critical especially for poor households. Therefore, even if an increase in employment levels is likely to contribute positively to household incomes many other factors determine household consumption. Even greater confusion can arise when the levels of unemployment between the two types of surveys are compared, as the NHIES includes fetching fire wood and water for home consumption in its definition of economic activities, unlike the LFS, which also uses a different age cut-off point. As a result, levels of recorded unemployment are much lower – especially in the poorer and rural households – in the NHIES. Finally, comparison between the surveys is complicated by the fact that while the LFS is conducted over a one month period, the NHIES covers a full 12 month cycle. The second source that has been used to cast doubts over the NHIES is the national accounts data and the mismatch in estimates of total consumption. While this is not the place to deal with this issue in an comprehensive manner, as Deaton and Kozel (2005) explain in there are a host of reasons why one should not automatically trust National Accounts over survey data, including the fact that the former is often based on scaled up ratios from dated survey information, which is also the case in Namibia.

In sum, while we have noted a series of concerns with regards to the NHIES results, particularly in its choice of poverty measure and the less-than-ideal change in Form 1, we also find evidence for cautiously arguing that the well-being of households, using a narrow definition related to food consumption expenditure, has improved and that such a finding need not contradict other data sources.

### Participatory poverty assessments

The second research process undertaken in preparation of the third Nation Development Plan was a series of participatory poverty assessments piloted in 2003 and 2004 in the three northern regions of Ohangwena, Omaheke and Caprivi. Initially the PPA process was designed with two functions in mind following Norton et al. (2001): (1) *Information function* to enrich the knowledge and understanding of the multiple dimensions of the poverty phenomenon; (2) *Process function*, to bring new

stakeholders into the policy process and create new relationships of cooperation.

Sampling was done to compare and contrast relatively well-off locations with those that are relatively poor through a two-stage purposive process. First, constituencies were prioritised based on a series of welfare indicators including survival, illiteracy, access to water and number of orphans. Secondly, one Primary Sampling Unit (PSU) from each constituency was selected based on variations in accessibility, availability of social services and agro-ecological zones. The unit of study for the PPA research was the village where research teams applied a range of participatory rural appraisal techniques (see Table 1), which are a family of methods that enable rural people to share, enhance, and analyze their knowledge of life and conditions, to plan and to act (Chambers 1994). The PPA findings are comprehensive and contained in a series of regional poverty profiles that provide profound insights into the lives of the poor in Namibia. For our purposes we focus on a narrow but critical selection of findings related to the definitions of poverty and associated levels and trends.

### Definitions of poverty

In terms of perceptions and dimensions of poverty five broad categories of poor appear roughly equivalent across the regions. These are *extremely/very poor*, *poor*, *moderately poor*, *better off*, and *rich*. Characteristic of the ‘extremely or very poor’ is that they lack employment and livestock, they have access to small fields, but they lack farm implements. They depend on begging, harvesting of wild foods and piecework for other households in exchange for food or a nominal fee. They also experience almost perennial food shortages, low educational attainment and poor health. In urban areas, they lack formal shelter and access to basic municipal services. The ‘(slightly less) poor’ are equally deprived in terms of livestock ownership and formal employment. They possess no agricultural equipment but are physically capable of working for others in exchange for access to oxen for ploughing. Their cash income is insufficient to adequately cover school fees or healthcare and they rely on social networks in times of need. ‘Moderately poor’ households tend to have a few livestock, a reasonable harvest due to timely ploughing, a low paying but regular source of employment, and

access to government pensions. In communal farming areas, they are able to live off their own produce and labour. They are thus more food secure and are in a better position to cover health and schooling expenses. The ‘better off’ is one of two groups classified as non-poor. They have land, a sizable livestock herd, farm implements, nets and canoes to fish (in the case of Caprivi) and they hire farm labour and tractors. They survive through a combination of crop cultivation, livestock rearing and some formal employment. Their families tend to be more educated and healthier. The ‘rich’ are differentiated by their ownership of businesses, full-time employment e.g. in the public service, large numbers of livestock and larger fields. They live in good houses, have bank savings, own one or more vehicles, and are able to lend money.

Based on these definitions PPA teams tallied households that fell in the various categories. In Table 3 we summarise these figures aggregated into two groups, poor and non-poor, for analytical convenience, in the three regions and Namibia along with data on poverty incidence according to other definitions which we shall return to later. For now it should be observed that according to the PPAs the share of households that live in poverty in the

selected communities range from 78% in Omaheke and Ohangwena to 85% in Caprivi (Definition A). This is stark contrast to the levels of poverty incidence found using the 60% food-share poverty measure in the NHIES, which are lower by half to two-thirds (Definition B). However, an even greater difference arises using the 80% food-share (Definition C) according to which the share of severely poor in Caprivi and Omaheke is 6% and 11%, respectively and a rather astounding 0% (actually 0.2%) in Ohangwena a region often singled out as the most deprived and under-developed in the country (United Nations 2005). No wonder then that the PPA research and popular perceptions in general, leave a much different impression of the state of poverty in Namibia than the NHIES. The remainder of this paper is devoted to exploring this gap in perceptions and eventually discussing ways of closing it.

### Poverty dynamics

In discerning trends in well-being and livelihoods over predefined periods since the time of Independence, there emerges substantial regional and thematic variation from the PPAs. In Omaheke, there was a general view that various dimensions of pover-

**TABLE 3: POVERTY INCIDENCE USING MIXED METHODS**

Definition of poverty	Caprivi		Ohangwena		Omaheke		Namibia	
	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor
	– percent of households –							
(A) Pilot PPAs	85	15	78	22	78	22		
(B) 60% food-share	42	58	23	77	37	63	27*	78
(C) 80% food-share	6	94	0	100	11	89	3*	97
(D) Q2(1)	90	10	97	3	88	12	80	20
(E) Q2(2)	44	56	69	31	39	61	37	63
(F) Food expenditure less food poverty line	40	60	63	37	41	59	46	54

Notes: Poverty definition (A) is from the wealth rankings reported in the three pilot PPAs (GRN 2004, 2006a, 2006b), which are reported for the three regions but not for Namibia as a whole; (B) is from the official definition where ‘poor’ households are defined as those with food expenditure as a share of total expenditure of 60% or higher; (C) is the official definition where ‘severely poor’ households are as those with food expenditure as a share of total expenditure of 80% or higher; the two next poverty definitions uses a selection of the poverty determinants from the PPA and its corresponding variable in the NHIES (see footnote 7) and tabulates the NHIES against whether the a household is deprived in any of these dimensions (D) or all of them (E); finally, (F) uses a food poverty line of N\$ 166, adjusting the 2200 kcal food poverty line from Van Rooy et al (2006) of N\$ 77 to 2004 prices, and reports against actual household food expenditure.

\*Percentages differ slightly from those reported in the text as these refer to the official reports that were discussed in public, and the ones presented in the table above are computed based on the released data set, which had undergone further cleaning.

Sources: Authors’ calculations based on NHIES 1993/1994 and 2003/2004 and GRN (2004, 2006a, 2006b).

ty and living conditions were worse in 2004 relative to pre-Independence Namibia. In Ohangwena it is found that there has been an expansion in the numbers of very poor people particularly amongst those who depend on subsistence farming due to persisting droughts. In relation to food security, perceptions especially in Ohangwena were broadly negative: communities referred to declining soil quality and insufficient land for crop cultivation due to overpopulation and overexploitation of natural resources, though it was noted that drought relief helped somewhat during climatic shocks. In Omaheke, the reduction in income due to the casualisation and retrenchment of farm workers, coupled with declining food rations from employers and food price inflation, steadily declining rainfall and poor environmental management were considered salient determinants underlying the declining trend. In contrast, Caprivi seems to exhibit a more positive trend, with good rains in 2004 translating into an equally good harvest, to the extent that households were able to accommodate their own food needs as well as having a surplus available for sale.

In sum the results emanating from the 3 pilot regions pointed to poor communities under enormous stress, with levels of poverty much higher than what the NHIES suggested. Communities place particular emphasis on deprivation in a range of dimensions: adequate nutrition and health, education, housing standards, ownership of assets, access to income generating opportunities and proper water/sanitation facilities. While deprivation in any one of these dimensions may be considered a key determinant of poverty status, a particular severe form of poverty is when deprivation occurs in one or more dimensions at the same time. Next we provide illustrations of how to reconcile the differences in the levels of poverty between public perceptions and the official definition.

## **WORKING WITH CONTRADICTIONS AND COMPLEMENTARITIES IN POVERTY ANALYSIS**

A number of studies from have demonstrated that it is by no means uncommon for data on poverty and wellbeing, particularly those generated through qualitative and quantitative methods, to point in opposite directions (Jodha 1988, 1999; Moore et al.

1998; McGee 2004; Kozel & Parker 2003; Wodon 2007). There is also an increasing acknowledgment of the complementarities between subjective and objective poverty analysis (Lokshin et al. 2006). Fundamental to this view is a belief that subjective poverty measurements are able to more fully capture the multiple dimensions of poverty and identify groups of particularly poor people that may be missed using conventional money-metric poverty measures (Devereux et al. 2007). In an attempt to reconcile the seemingly discrepant messages about poverty dynamics in the country based on the different data sources, this section begins to provide a few potential explanations. These are intended to be illustrative rather than exhaustive.

### **Labour, land and livestock**

The PPA pilot exercises suggest that the stock of productive assets that households and individuals have managed to accumulate is fundamental to determining their poverty status and social mobility, especially in the face of adverse shocks. The limited variables in the official release version of the NHIES do constrain the extent to which the PPA information can be used to confirm, enrich or refute the quantitative poverty analysis. However, some preliminary quantitative observations can be made that draw on the PPA findings and go beyond household income and consumption to examine the role of financial, physical, natural, social and human assets in understanding poverty. The particular strengths of such an asset based approach versus an income or consumption based approach are encapsulated by Barrett et al. (2006:169) as follows: '*...flow measures tend to be more subject to considerable measurement error than stock variables, even in well-run surveys, because they can only rarely be directly observed and verified. Moreover, productive assets are durable inputs used to generate income... Understanding the dynamics of assets is thus fundamental to understanding persistent poverty and longer-term socio-economic dynamics.*'

The data suggest that a sizable shift has occurred in respect of the ownership and access to fields for cultivating crops in Namibia in the period between the 1993/1994 and 2003/2004 household surveys. In the earlier survey round, approximately half of the respondent households indicated that they owned land for crop farming purposes (51%), while a further 13% claimed they did not own but had



access to such land. A decade later, ownership had dropped dramatically to 25% of households. Equally, those who have access but do not own fields for cultivation had increased to 29%, while those without access altogether rose from 36 to 45% over the period. This trend starkly contradicts the objectives of the national land reform programme, which seeks to expand ownership and access to farm land. Disaggregating the ownership of this natural asset by expenditure quintiles shows that the effect is evident across the distribution. In percentage point terms, the change is most acute for the poorest quintiles where ownership has dropped from more than two-thirds to three-quarters of households down to approximately a third. As at the national level, most have managed to retain access to crop land, though the share without access does exhibit a worrying upward trend. The difficulty is trying to ascribe these patterns to any particular factor or set of determinants. The PPAs refer to overpopulation, overgrazing and declining soil fertility as salient developments over the decade.

By comparison, ownership to grazing land has remained more stable at the national level over the survey round interval. In 1993/1994, only 8% of households owned grazing land and by 2003/2004 this had decreased slightly to 5%. Households tend to have access to grazing land without owning it. In the earlier round, 56% cited access to grazing land, while this figure stood at 52% in the latest round. The share without any form of access had increased from approximately a third to just over two-fifths of households over the period. Again there is some evidence to support sub-group differences, with the poorest being worse affected than those who are materially better off. Approximately 15% of households in the poorest quintile lost ownership and access to grazing land. The PPAs are again an important reference for understanding this dynamic.

In Omaheke, a region where livestock rearing for subsistence and commercial purposes is more common than crop farming, intensive use of natural resources such as grazing land was mentioned as a cause of poverty. Poor grazing conditions was further associated with arid conditions, termite damage, and a proliferation of unpalatable grass species.<sup>4</sup>

Also, the Labour Force Surveys of 1997 and 2004 point to a decline in employment in communal and commercial agriculture from an estimated 147,000 to 103,000 labourers (MOLSW 2001, 2006). The Omaheke PPA notes that farm workers may, at the discretion of the owner, enjoy indirect use of farm resources such as allowing some cattle to graze. In such contexts, farm worker retrenchments may also indirectly have affected access to this critical asset.

In Ohangwena, insufficient grazing land was commonly referred to, which may again be associated with demographic change and environmental degradation. Grazing areas are said to have disappeared due to a confluence of increased settlement, land clearing and cropping, while soil fertility has diminished in the absence of animal manure to provide much needed nutrients (GRN 2004a: 136). With population growth, former pasture land is being used for cultivation purposes and increasingly small plots are being fenced off. Trees and shrubs have been extensively exploited for building and fencing purposes, while some grass species previously reserved for grazing purposes are currently used as roofing materials. This scarcity of pastures in Ohangwena, especially in the more densely populated western parts of the region, has resulted in many farmers allowing their cattle to use bush surround settlements as a substitute, sending cattle away to cattle posts outside the area, and even resorted to grazing cattle across the border in Angola.

The situation does not improve when one looks at physical assets in the form of livestock holdings. The five main types of livestock that the data permits us to examine in both survey rounds are cattle, goats, sheep, pigs and poultry. Nationally, there has been a small reduction in the share of households owning cattle, goats and sheep, though a more noteworthy downturn in chicken ownership. In all instances, these losses have been more acutely felt at the poorest end of the expenditure distribution, with the largest percentage point declines amongst the poorest quintile being reported for chickens (17%), cattle (13%) and goats (11%). Unfortunately, the available datasets does not permit detailed analysis of changes in different types of livestock for those who have managed to maintain ownership or access.

<sup>4</sup> 'The grass has gone visiting' was a refrain used by one community to describe this situation.

The significance of these dynamics with regard to land and livestock assets in the country, and for the poor especially, lies in the fact that they provide an illustration of apparent depletion of certain crucial assets (through loss or sales) amongst the poor in contrast to the reduction in income poverty according to conventional poverty measures. The qualitative material was significant in that it provided evidence for the relationship between low levels of assets and poverty but also some suggestions as to the underlying reasons why these assets may be eroding.

### **The 'Social Wage': access to public goods and services**

One important dimension that should be emphasised in relation to Namibia's poverty debate is the contributory role of the 'social wage' to poverty reduction. The social wage is essentially 'a measure of how much better off individuals are with the provision of publicly funded welfare services than they would be without these 'in kind' benefits' (Sefton 2002: 1). A sizeable share of government spending is devoted to social grants, such as the old age pension, in addition to improved public services for all, including health care, education, electricity, water, sanitation and housing. The value of such services can be conceived as an income in-kind, or a social wage, representing a substantial supplement to the cash income of individuals or households, especially for those towards the lower end of the income distribution. Although most conventional measures of poverty and inequality ignore the value of benefits in kind, their inclusion is potentially very significant in monitoring the impact of government policies on the poorest households. The social wage is therefore of great policy relevance given Government's commitment to reducing poverty and inequality.

The NHIES rounds included questions to assess the status of access to basic services, such as electricity, drinking water and sanitation. Given that services such as these were historically provided along ethnic lines and biased towards urban centres and commercial farms, the surveys offer the opportunity to examine the effect of post-Independence delivery efforts. This section will not address changes in access to educational and health facili-

ties, as the questions included in the two rounds varied in their measure of proximity.<sup>5</sup> With regard to electricity, progress has been made over the decade with 36% of households using electricity at least for basic lighting purposes in 2003/2004 compared with 27% in 1993/1994. While improvements were reported in each of the expenditure quintiles, levels of access in the wealthiest quintile are eleven times higher than in the poorest (85% versus 8% respectively).

Making direct comparisons in relation to households' main source of drinking water is complicated by the use of different coded options in the two survey instruments. However, some categories are comparable to the extent to which we gain a meaningful impression of change over the interval. The results point again to lingering disparities, with the percentage of households in the wealthiest quintile with a piped water in their dwelling in 2003/2004 standing at 25 times that for the poorest quintile (80% versus 3%). However, access to clean and safe water has improved, especially in rural areas where new boreholes have been provided, old boreholes have been rehabilitated and pipelines developed (GRN 2004b). Corresponding to this is a decreasing reliance on more insecure sources of drinking water, such as flowing water (rivers, canals or lakes), wells, and dams, pools and stagnant water.

Poor access to sanitation remains a considerable challenge in Namibia. In 1993/1994, just 35% of households in Namibia had a flush toilet and 8% a pit latrine, while 56% were not possessing basic sanitation and using the bush. Ten years later, the share of households with a flush toilet had only increased to 37%, access to latrines had remained static, while those using the bush stood at 53%. The gradient of access to sanitation varies significantly by expenditure quintile. An estimated 83% of households in the poorest quintile had no form of basic sanitation in 2003/2004, whereas 87% of households in the wealthiest quintile had flush toilets. In 2003/2004, Ohangwena and Caprivi were the regions with the lowest levels of access, with 90% and 85% of households respectively having no basic sanitation. The disparities between urban and rural areas remain equally stark, with 79% of rural households having no toilet compared to 16% of urban households.

<sup>5</sup> The earlier survey used walking time while the recent survey relied on physical distance in kilometres.

Therefore, despite some improvements in delivery and access over the period, the poor continue to have meagre endowments of infrastructure and basic services. This form of living environment deprivation constitutes another key aspect of what it means to be poor in Namibia, and poses a real threat to the health and welfare of families. It also relates to the remoteness that many poor communities mentioned during the PPAs as a cause of poverty. The absence of an impressive increase in social services amongst the poorest is therefore likely to condition views of changing living standards and poverty as reflected by respondents in the PPAs and explains at least some of what the conventional poverty measures are missing in the quantitative assessment.

### Persisting Vulnerabilities

While the survey data point to robust improvements in consumption levels for many Namibian households, subjective welfare assessments captured through the PPA processes may be being influenced by persistent if not increasing vulnerability to shocks. Environmental and natural factors, such as droughts, floods, fires, livestock disease and pest infestations, are relatively common occurrences in Namibia that collectively serve to deplete asset stocks. As already discussed, such shocks were frequently cited as factors associated with vulnerability to poverty in the PPAs. HIV/AIDS related health shocks also feature prominently in the qualitative studies. This is unsurprising given that approximately a quarter of adult Namibians aged 15–49 are infected (UNAIDS 2006), and the indelible and compounding impacts the pandemic is having on the country's poverty situation. Studies have shown that households affected by HIV/AIDS related illness and mortality are likely to have experienced, *inter alia*, reduced labour availability, declining agricultural productivity and yields, asset erosion, the loss of agricultural knowledge and skills, and increased numbers of dependents (FAO 2003). The PPAs reflect this concern about the detrimental effect of HIV/AIDS on livelihoods and the vulnerabilities it poses for households and communities.

The NHIES questionnaires unfortunately do not collect information on household shocks and the impact these have, or on the various strategies employed to insure against risks. The instruments are also ill equipped to capture both the household-level patterns and effects of morbidity and mortality. These survey characteristics impeded the ability to quantitatively examine the vulnerability of households to idiosyncratic and covariate shocks that is articulated in the qualitative poverty studies. In the absence of good data for analysis, discussions on the extent to which household vulnerability to shocks in Namibia is changing relative to progress in absolute standards of living are likely to remain rather speculative.

This section has outlined three tentative explanations in response to the apparent contradictions between the substantial poverty reduction observed using objective measures based on household survey data and the perceptions of households that suggest a worsening poverty situation. Further empirical testing is required and other potential explanations need to be considered. Nonetheless, by taking a closer look at the definitions, determinants and dynamics of poverty using both qualitative and quantitative information sources, it has been illustrated that significant complementarities possibly underlie the seemingly divergent results. The PPA data reveal substantive heterogeneity amongst the poor both within and between regions, though almost all locally held definitions of poverty and vulnerability are unified in their emphasis on access to land, livestock and labour endowments.<sup>6</sup> The implication of this is that in a setting where climatic, health and other shocks occur with increasing regularity, it becomes increasingly difficult to discern trends in poverty when examining this phenomenon through the lens of income deprivation using conventional quantitative, money metric approaches. The possibility exists for the quantitative sources to overlook some of the factors underlying poverty. By contrast, applying a mixed approach to poverty assessments opens up possibilities for gaining a deeper understanding of poverty in Namibia and how it has been changing since the early 1990s.

<sup>6</sup> This is relatively typical of arid and semi-arid lands in Africa, where such stocks of assets remain important indicators of wealth (Barrett et al. 2006; Little et al. 2006).

## INTEGRATING METHODOLOGIES: AN ILLUSTRATION

Carvalho and White (1997) identifies three main ways of combining qualitative and quantitative methods: (i) integrating methodologies, (ii) *'examining, explaining, confirming, refuting, and/or enriching information from one approach with that from the other;*' (1997: 16) and (iii) merging the findings into one set of policy recommendations. While the previous section were intended to illustrate the two latter approaches in this section we provide a practical example of how the methods used in the NHIES and the PPAs can be integrated to begin explaining why poverty levels that were proposed by the two research processes were so different.

The method of integration begins by selecting a series of key poverty determinants that emanated from the qualitative material and using these as the welfare foundation for a redefined poverty measure. For purposes of this analysis we experimented with a range of variables in four dimensions related to: 1) dwelling standard, 2) asset ownership, 3) educational attainment and 4) sanitation facilities, which were identified in the PPAs when communities were uncovering perceptions and dimensions of poverty and which have distinct matching variables in the NHIES.<sup>7</sup> One dimension that we are not able to reflect directly relates to nutrition and health status, a key concern in the PPAs, which could be added when the nutrition data from the survey becomes available. In terms of the asset variable we are also constrained when it comes to land and livestock as the NHIES did not quantify ownership in terms of ha or units. The omission of these variables from the analysis are problematic given the traditional importance of land accessibility issues and just the more reason why the analysis should be regarded as illustrative of approach.

The second step is to create a categorical welfare variable in the quantitative data set that combines these features to reflect poverty status. To reflect sensitivity and range we develop two Q-Squared measures of poverty. The first Q2 measure (Definition D) is broader and is derived from households

that are deprived in *any* of the four poverty dimensions. The second measure (Definition E) is stricter and is derived from households that are deprived in *all* of the dimensions. For both measures we choose two possible categories, poor and non-poor, for simplicity and to facilitate comparison with other measures, but the same approach can be used to a range of welfare categories.<sup>8</sup> Finally, we compare the poverty measures against a series of background variables as a basis for discussing their ability to capture other aspects of poverty raised in the PPAs.

The first series of results from analysis are presented in Table 3. Under the broad definition, Q2(1), between 88–97% of households are poor in the three regions. This is more than double the incidence of poor households using the 60% food-share in Caprivi and Omaheke and almost four times as high in Ohangwena. Differences are even greater when compared with the 80% food-share measure, which yielded very low levels of poverty incidence. However, when compared to the PPA measure there is greater correspondence especially in Caprivi and Omaheke. Unsurprisingly, the incidence of poverty is lower in all three regions under the strict version of the measure, Q2(2), which is based on deprivation in all dimensions, but it is still much higher than the 60% food-share measure in Ohangwena and equal to that measure in Omaheke and Caprivi.

Next we make a closer comparison between the 60% food-share measure and the strict Q2 measure and cross tabulate these against a range of variables that can further reflect the ability of the poverty measures to reflect the perceptions of poverty that emanated from the PPAs. These results are described in Table 4. Average deprivation in households identified as poor using either of the two measures is stronger than for the sample as a whole bar a few exceptions. However, there are important differences between the two measures and the results generally suggest that the Q2 measure is better at reflecting the perceptions of poverty raised in the PPAs. However, it is also interesting that those identified as poor using the Q2 measure generally have lower levels of both average food and total

<sup>7</sup> The variables are: Household does not own a telephone; dwelling is either traditional or improvised; highest level of educational attainment by head of household is either primary education or no formal education; the toilet facility of the household is either bush or bucket or pit (not improved).

<sup>8</sup> For instance, Howe and Mackay (2007) in a study of the chronic poor in Rwanda.

**TABLE 4: CHARACTERISTICS OF THE POOR (IN % UNLESS INDICATED)**

	Namibia			Caprivi			Ohangwena			Omaheke		
	60% food-share	Q2(2)	Total	60% food-share	Q2(2)	Total	60% food-share	Q2(2)	Total	60% food-share	Q2(2)	Total
Per adult equivalent monthly expenditure (N\$)	382.0	328.3	1083.0	416.7	363.4	610.0	304.5	299.7	446.9	469.2	460.7	1114.9
Monthly per adult equivalent food expenditure (N\$)	271.4	187.1	259.7	301.7	218.4	263.8	204.0	150.3	176.9	346.5	270.7	327.6
Food expenditure as share of total expenditure	70	58	43	71	61	53	66	52	48	74	62	50
Salary/wages is main source of income	20	16	46	16	15	33	4	6	15	52	40	52
Subsistence farming is main source of income	51	54	29	25	24	18	63	66	58	18	23	20
Pension is main source of income	12	15	9	17	22	13	26	23	19	6	9	6
Piped water inside household	3	1	29	0	0	13	1	0	3	8	2	25
Household head is widow/widower	20	22	13	23	31	19	24	24	20	6	6	7
Orphan in household	44	43	29	32	42	37	77	55	51	15	19	14
Roof of house is made from thatch	52	59	30	20	23	13	92	93	84	2	2	1
Head of household has no formal education	41	49	24	37	52	24	56	56	42	61	68	40
Head of household as primary education	39	51	31	26	48	22	31	44	34	27	32	25
Male-headed household	56	54	59	48	47	50	47	46	47	81	78	72
Female headed household	44	46	40	52	53	50	53	54	53	19	22	27
Dwelling is traditional	75	82	44	97	99	82	98	99	91	22	32	16
Main toilet facility is bush	86	94	53	99	99	85	92	98	90	86	98	63

Notes: For specification of the two poverty definitions see note to Table 3.

Sources: Authors' calculations based on NHIES 2003/2004 and GRN (2004, 2006a, 2006b).

expenditure than households that were defined as poor using the food-share method. This is particularly striking since the official measure was established explicitly as consumption based measure of deprivation and since the Q2 measure based exclusively on non-monetary criteria. This finding holds uniformly across all the three regions. The Q2 measure is also generally better at capturing deprivation in housing conditions. For instance, among all those identified as poor using the food-share meas-

ure 75% live in a traditional dwelling compared to 82% for those identified as poor using the Q2 measure. This is clearly a reflection that traditional dwelling was one of two housing criteria in the Q2 measure but that only serves to strengthen the basis for that measure given the importance of housing standards in the PPAs. The same goes for level of education and sanitary facilities where the quant measure better capture deprivation nationally and across the three regions.

Two basic conclusions emerge from this limited analysis. Firstly, the integration of approaches makes it possible to reconcile the very different findings on poverty levels between the two types of research especially in Caprivi and Omhake. Secondly, neither of the combined measures comes close to those of the PPAs or the food-share in Ohangwena. It should be particularly worrisome to policy makers that there is such a mismatch between the official poverty measure – using the 60% and especially 80% food-share – and people's perceptions in one of the country's most populous regions. One possible explanation is the inability of those measures to adequately account for food insecurity in one of the regions hardest hit by the 2002 drought as was raised repeatedly during the PPAs. A simple test corroborates this. Using the inflation-adjusted value of a food basket based on a minimum nutritional intake of 2200 kcal established in an earlier study we estimate that 63% of households in Ohangwena had levels of food consumption expenditure that were below the food poverty line (Definition F on Table 4). This is almost three times higher than the 60% food-share measure but close to the strict combined measure. This finding is also supported by the most recent Demographic Health Survey, which found Ohangwena to be the worst performing region on a range of nutritional indicators, including wasting and stunting of children (MOHSS 2003).

## CHALLENGES AND OPPORTUNITIES FOR Q-SQUARED ANALYSIS

Q-Squared analysis is still its infancy in Namibia and it is therefore encouraging that the first national Poverty Monitoring Strategy, which was prepared concurrently with the NHIES and PPA process, recognizes the importance of combined analysis (GRN 2005). Above we have illustrated the potential for combined methods in establishing the welfare foundations necessary for developing nationally owned definitions for monitoring poverty. In this section we build on this political commitment and use the recent experiences in combining qualitative and quantitative approaches in Namibia to highlight a series of issues that can facilitate the application of Q-Squared approaches in the future.

### Improved timing and planning

The NHIES and the PPAs were executed by two separate departments within the National Planning

Commission and while each was initiated independently of the other once it became clear that the timing of the field work for the household survey and the pilot phase of the first three participatory poverty assessments would coincide there was an acknowledgement of the benefits that could accrue if the research agendas were to converge in a series of Regional Poverty Profiles that would consolidate the findings from the research and be the subject of community and regional-level consultations and ultimately serve as the basis for the regional and national development plans. Based on these experiences organisers of the next round of NHIES, scheduled for 2008/2009 should consider, should consider how participatory and qualitative research can complement this process for instance by selecting overlapping PSUs, field testing of questionnaires and exploring in need further investigation such as intra-household inequality, the impact of HIV/AIDS especially on children and the role of pearl millet (*mahangu*) in household production and nutrition.

### Overcoming the qual–quant divide

In the preparation of the PPAs, fieldworkers found that engaging the Central Bureau of Statistics was made difficult because of the strong quantitative traditions prevailing there. Discussions that the authors have had with national statisticians confirm a continued scepticism concerning the real value that qualitative research can bring, especially due to its lack of statistical and mathematical basis. There is also a widespread perception that qualitative studies are too easily manipulated to conform to whatever results the researcher is looking for. In fact, there are suggestions that, once in the field, some of the more quantitatively-oriented statisticians began to appreciate the PPA process as a way of explaining and interpreting poverty trends. However, we also have the distinct impression that greater understanding of the quantitative tools on the part of those organising the PPAs could have facilitated a more systematic and effective approach to the combined analysis. As a result we have also failed to establish whether there indeed was an overlap between PPA sites and PSUs in the NHIES, which could have facilitated another avenue for integrating approaches as suggested by Kanbur (2003). Ideally practitioners of the quantitative and qualitative

methods should collaborate from the design stages and not only come together after field work is done and reports need to be written.

### Storing and accessing data

One practical challenge that poverty researchers face are related to how qualitative and quantitative data is stored and accessed. An unfortunate tradition has been established in Namibia where data sets are not made available to researchers for analysis. As a result, data from official surveys such as NHIES and LFS are seldom analysed and interrogated beyond the simple tabulations presented in printed reports. Often the protection of respondent anonymity is offered as explanation for not releasing datasets, but this should be fairly easily overcome (e.g. through confidentiality agreements, anonymised datasets, licensing of users or 'sterile chambers'). Moreover, access to data is further complicated by problems of data storage and documentation. As a result, some older datasets have now become unrecoverable. This is also going to be a challenge for the PPAs where no system was established in advance to capture and organise the data or to facilitate analysis across PPA sites. Overcoming technical issues to facilitate storage, access and analysis is essential to ensuring that existing and future research can be interrogated using combined research methods.

### CONCLUSION

We have explored discernible differences in the levels and trends in poverty from series of qualitative and participatory poverty assessments and a quantitative survey on household income and expenditure. Our analysis has shown that both research processes are adversely affected by important methodological issues but that seen separately their main conclusions appear plausible even if they point to diverging paths of poverty. Contradictions are attributed to differences in the applied methodologies and to different perceptions about the determinants of poverty that each convey. In the qualitative research communities emphasise multiple dimensions in their definition of poverty whereas the official definition set by central planners is based on deprivation in the single dimension of consumption expenditure. Poverty levels measured using the latter narrow definition is expectedly lower. Using a Q-Squared approach we illustrate how when definitions of poverty based on the percep-

tions raised in the qualitative assessments are used on the quantitative data then the results converge but at a much higher level than what the official data suggests. One particularly interesting finding is that those identified as poor using the official measure, established explicitly to capture deprivation in consumption expenditure, have higher average levels of consumption expenditure than the combined Q-Squared measure based exclusively on non-monetary criteria. This is further evidence of the inadequacy of that measure and we also show its weakness in identifying the poorest of the poor. Furthermore, we find that while there might have been a real improvement in consumption-based measures of poverty over time, given the emphasis on issues related to assets, access to and quality of delivery of basic services, and issues related to vulnerabilities (especially food insecurity and the AIDS epidemic) in the participatory poverty assessments, it is not surprising that the qualitative data point to deteriorating living conditions. For purposes of strengthening the national poverty monitoring system, including establishing a new poverty line and updating targets for the Millennium Development Goals, and for designing interventions under the next medium term for national development it is recommended that the differences between popular and official perceptions of poverty are reconciled. This should be pursued by viewing different definitions and methodologies as complementary and non-rival, through greater dialogue between users and producers of poverty research and the use of combined analysis.

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