

Measuring Poverty in the Pacific

Matthew Morris

Abstract

Measuring poverty in the Pacific is important to keep poor people on the policy agenda, to design effective policies and programs and to carry out rigorous evaluation so that we know what works and why. There are various definitions of poverty, ranging from a narrow focus on adequate calorie consumption through to broader concepts of capabilities. This paper takes a practical look at how to measure one conventional indicator of poverty: income (or consumption) poverty. In doing so, the paper highlights both the limitations of household datasets in the Pacific as well as opportunities to make better use of data for poverty analysis. Good progress is being made in improving the quality of household surveys, so the challenge now is to analyse these more fully to inform policies, program design and evaluation.

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Measuring poverty in the Pacific: how and why

1. Introduction

AusAID's most recent assessment of poverty in the region, 'Tracking Development and Governance in the Pacific 2009', found that rising poverty is evident, with one-third of people living below national poverty lines.

"Poverty is a significant and growing problem for many countries in the Pacific, with approximately 2.7 million people, or around one-third of the region's population, not having the income or access to subsistence production to meet their basic human needs.

Of the eight Millennium Development Goals (MDGs), progress towards MDG 1—eradicating extreme poverty and hunger—has been the slowest and is of most concern in the region. Monitoring and understanding poverty in the Pacific is hampered by poor quality and out-of-date data. Despite this, there are indications that the numbers of people living in poverty have risen, even before the onset of the global recession. Only Vanuatu appears to have made progress in reducing poverty." (AusAID 2009)

AusAID's report is not the only macro assessment of poverty in the Pacific (Abbott and Pollard 2004; AusAID 2008). This paper builds on this analysis to examine how basic needs poverty is measured in the Pacific and to explore some of the limitations of the data and opportunities for further analysis.² The paper is structured as follows. Section 1 considers the basic definitions of poverty and section 2 recaps why it is important to measure poverty. Sections 3 and 4 consider measures of poverty, and poverty in the Pacific. Sections 5 and 6 then examine the underlying data from household surveys and how to fill the data gaps. Section 7 concludes the paper.

² A core reference for this paper is the World Bank's *Handbook on Poverty and Inequality* (Haughton and Khandker, 2009).

2. What is poverty?

A broad definition of poverty is that it is a ‘pronounced deprivation in well-being’ (World Bank 2000). Immediately, this raises two questions: what is well-being and what is the cut-off point for ‘pronounced deprivation’?

There are three approaches to thinking about well-being. The first is to consider this in terms of command over commodities. In this approach, the emphasis is on the resources available to households or individuals to meet their needs. The second approach is to limit this to consumption of specific goods (food, shelter, health, etc.). The third, and broadest, approach is to define well-being as the capability to function in society (Sen 1987), which could include a range of dimensions such as income, education, health and insecurity.

In discussing poverty in the Pacific each of these conceptions of well-being are covered in various reports. For example, it is sometimes argued, using a narrow definition, that there is no poverty in the Pacific because people have adequate food from subsistence. Others, such as the ADB’s report ‘Hardship and Poverty in the Pacific’ (Abbott and Pollard 2004), consider poverty a major problem in the Pacific by taking a broader definition encompassing ‘poverty of opportunity’, which includes access to basic services such as education and health. The PNG Rural Development Handbook also looks at various dimensions of deprivation, including access to basic services, incomes and the quality of land (Hanson et al. 2001).

The approach taken in this paper is to focus on households’ command over commodities — in other words, an income measure of poverty. There are several reasons for this. First, definitions of poverty in the Pacific are contested and it is beyond the scope of this paper to resolve that debate (Abbot et al 2008). Secondly, Australia and the Pacific Island countries have signed up to the Millennium Development Goals and this includes an indicator on income poverty, so there is a good basis for assessing this in the Pacific³. Thirdly, AusAID has recently produced two reports on the progress of some broad indicators of

³ Target 1a is to halve, between 1990 and 2015, the proportion of people whose income is less than \$1, in purchasing power parity (PPP) terms, a day.

poverty, and the UNDP also have a 2008 paper on poverty in the Pacific, so there's no need to duplicate this (AusAID 2008 and 2009, Abbott 2008). These papers have identified measuring income poverty in the Pacific as problematic, so it is an issue that could usefully be elaborated upon.

This paper adopts the same measure of poverty as the 'Tracking Development and Governance in the Pacific 2009' report, that of the basic needs poverty line. The basic needs poverty line (BNPL) represents the level of income required to meet a minimum standard of living in a country. People falling below their national BNPL have insufficient cash income or access to subsistence production to meet minimum dietary needs and to cover basic expenses related to housing, health care, education, clothing, transport and customary and community obligations. Comparing the incidence of basic needs poverty between countries requires careful interpretation because of differing perceptions between countries of what defines 'basic needs'.

Unsurprisingly, there is disagreement among development experts on the cut-off for pronounced deprivations. Again, this paper simplifies the approach by focusing on two conventionally accepted methods. The first is to calculate the national poverty line based on the income required to meet a household's 'basic needs' of food, shelter, etc. (Haughton and Khandker 2009, pp. 49-54). The second is to calculate an international poverty line, based on an average of national poverty lines and converted back in to local currencies using purchasing power parity (PPP) exchange rates (Haughton and Khandker 2009, p. 45).

Both of these approaches have their own strengths and weaknesses. National poverty lines are easier to calculate and provide a good measure of poverty in a given country. International poverty lines are more difficult to calculate because they require price data to estimate PPP exchange rates, but arguably they give a better measure of how poverty compares across countries. It is also the measure used in the MDGs. This paper identifies both measures of poverty for countries wherever possible.

3. Why measure poverty?

If all of this sounds complicated, then it begs the question: why measure poverty? There are at least four good reasons for measuring poverty (Haughton and Khandker 2009, pp. 3-4). In the context of the Pacific these are:

To keep poor people on the agenda. Policy-makers tend to focus on what can be measured. If there are no measures of poverty, then poor people will be 'statistically invisible'. Papua New Guinea is a good example of a country that doesn't maintain an up-to-date estimate of the number of people living in poverty. As a result, the extent of extreme poverty in Papua New Guinea is not widely known in Australia or even in Papua New Guinea itself (Copus-Campbell & Hayward-Jones 2009). It is therefore unsurprising that poor people don't receive more prominent attention in donor and development strategies. This also partly reflects a high level of denial of poverty in the Pacific based on outdated notions of 'subsistence affluence' (see box).

Subsistence Affluence

The term 'subsistence affluence' has been used to describe how subsistence agriculture and strong family networks contribute to the alleviation of extreme poverty (Bayliss-Smith & Feacham 1977; Lam 1982). Even at the time, the evidence base for subsistence affluence was narrow at best, raising questions about its external validity.

Despite this, subsistence affluence has been a surprisingly durable explanation of a lack of poverty in the Pacific (UNESCAP 2004), but it also sits uncomfortably with evidence on the high numbers of households below national poverty lines, appalling results in social indicators in some parts of the region, and some of the social changes taking place in extended family networks (Lightfoot & Ryan 2001).

Thirty years after the original research, it would be prudent to treat subsistence affluence as a hypothesis rather than a fact or general rule. As discussed above, it is important to understand the broad determinants of poverty, and subsistence

affluence *may* be an explanation for some people in some contexts. Rigorous analysis can be helped by regular household surveys that include questions about determinants (including the number of hours worked, remittances from family members, etc.) and that are supplemented by more detailed studies.

Targeting aid and interventions. If donors, including AusAID, are interested in increasing the poverty focus of their aid programs, then it is necessary to assess the distribution of poverty and factor that into country allocations⁴. Within countries poverty is often, or should be, a policy objective and measuring poverty enables policy-makers to target domestic programs at the most disadvantaged groups.

Monitoring and evaluating projects and policy interventions. There are wide ranges of project and policy interventions in the Pacific that aim to reduce poverty. However, unless we have a measure of poverty, there is no way to evaluate the impact of these programs on this objective.

Evaluating the effectiveness of institutions. Similarly, a range of organisations claim to be implementing programs aimed at reducing poverty. The objective of the Australian aid program is to 'assist developing countries *reduce poverty* and achieve sustainable development, in line with Australia's national interest'. Similarly, the World Bank's mission is 'to *fight poverty* with passion and professionalism for lasting results and to help people help themselves and their environment by providing resources, sharing knowledge, building capacity and forging partnerships in the public and private sectors'. The Asian Development Bank's mission is to 'help its developing member countries *reduce poverty* and improve living conditions and quality of life'. Similarly countries themselves have poverty reduction as an objective in national development plans. For example, a priority in Fiji's 'Roadmap for Democracy and Sustainable Socio-economic Development 2009-2014' is '*reducing poverty* to a negligible level'. PNG's Development Strategic Plan proposes to 'improve the delivery of basic services in rural areas and in *areas of poverty*'. Unless we have some measure of poverty,

⁴ Of course there are other factors that influence the allocation of aid, but if poverty is one, then we should at least attempt to measure it.

then it is impossible to evaluate the contribution institutions are making to overall poverty reduction.

4. How to measure poverty?

The basic building blocks of measuring poverty are an indicator of welfare (income or consumption per person), a minimum acceptable standard (poverty line) and survey data (to aggregate a summary statistic). In practice most countries measure poverty at a household level rather than per person because it is easier to design good surveys for doing this, and a range of surveys can be used. Living standard surveys are widely used in developing countries and household income and expenditure surveys are used throughout the Pacific.

Poor people are those whose expenditure or income falls below a poverty line. This paper focuses on two poverty lines: national (basic needs expenditure) poverty lines and the World Bank's \$1.25 a day poverty line.

The basic needs line is calculated by specifying the consumption bundle considered necessary for basic consumption needs and then costing this. Each country in the

Pacific has a slightly different way of calculating this line, and these are discussed further below.

The World Bank's \$1.25 a day poverty line is an average of national poverty lines from a range of developing countries that are converted into US dollars using PPP exchange rates. In practice, \$1.25 a day poverty is not calculated for some Pacific Island countries due to a lack of PPP data.

5. Measures of poverty in the Pacific

The foregoing discussion was an extended introduction into poverty data in the Pacific. This section now turns to various measures of poverty, starting with the numbers reported by AusAID in the report 'Tracking Development and Governance in the Pacific'. The key numbers for the incidence of poverty in various Pacific Island countries are summarised in the table below.

Table 1: Incidence of poverty in various Pacific island countries

	% of population below basic needs poverty line (BNPL)			
	1990		Latest year	
Melanesia				
Fiji	25.5	(1996)	34.3	(2003) p
PNG	24.0	(1996)	39.6	(2002)
Solomon Islands			22.7	(2006) p
Vanuatu	26.0	(1998)	15.9	(2006) p
Polynesia				
Cook Islands			28.4	(2006) p
Niue			13.0	(2004)
Samoa	15.0	(1997)	20.3	(2002)
Tonga			22.3	(2002)
Tuvalu	24.4	(1994)	21.2	(2006) p
Micronesia				
FSM	27.9	(1998)	29.9	(2005)
Kiribati			50.0	(1996)
Marshall Islands			20.0	(1999)
Nauru				
Palau			24.9	(2006) p
Timor-Leste	41.5	(1996)	49.9	(2007) a

Note: p = provisional

Source: AusAID 2009

Several points are worth noting on the data in this table. First, AusAID uses a basic needs measure of poverty, rather than the \$1.25 a day measure. This reflects the lack of PPP data for the region, which is needed to estimate the \$1.25 a day measure. Secondly, following from the first point, the estimates of basic needs poverty are not comparable across Pacific Island countries.⁵ Thirdly, most countries in the region do not have a 1990 baseline for basic needs poverty, and

⁵ PNG is the only country that also has an estimate of \$1.25 a day for poverty.

all but one of the 1990 baselines in the table are actually based on surveys conducted between 1996 and 1998. Fourthly, the latest PNG estimate was not based on a new household survey, but an extrapolation of the 1996 survey using national accounts data. It is also not a basic needs measure of poverty, but is based on a \$1 a day poverty line. The basic needs measure of poverty in 2003 was 54% (World Bank 2004).

6. Household surveys in the Pacific

Household income and expenditure surveys (HIESs) provide information on people's living conditions and income/expenditure patterns. Data from HIESs are used for rebasing a country's consumer price index, in the preparation of national accounts and to analyse poverty and hardship in communities. The Secretariat of the Pacific Commission (SPC) helps Pacific Island countries to conduct these surveys and maintains a database of reports of surveys carried out during the last decade. The list of HIES surveys below is from the SPC website.⁶

- French Polynesia 2000/01
- Marshall Islands 2002, Niue 2002, Samoa 2002, Tonga 2001/02
- Fiji 2002/03
- American Samoa 2005 (not yet available on line), Cook Islands 2005/2006, Federated States of Micronesia 2005, Northern Mariana Islands 2005, Tuvalu 2005
- Kiribati 2006, Nauru 2006, Palau 2006, Solomon Islands 2005/06, Vanuatu 2006 (full report not yet available on line), Wallis and Futuna 2005/06
- New Caledonia 2008, Papua New Guinea 2008 (not available on line), Samoa 2008 (not available on line)
- Fiji 2008/09 (to be finalised), Tonga 2009
- Tuvalu 2010 (In progress - available end 2010)

⁶ In 2008, the SPC produced a useful summary of current and planned statistical surveys for 'Tracking Governance and Development in the Pacific'. (See table A2 on page 34 in AusAID 2008). An update of this table and list of available HIES surveys would be a valuable resource for researchers and policy-makers.

These reports provide a rich source of data on poverty and hardship in the Pacific that can be used to inform policy and program design and help evaluate policies and institutions. In-depth analysis of the kind necessary to assess basic needs poverty lines has only been conducted sporadically throughout the Pacific, often with the assistance of the UNDP. This paper discusses three of these surveys: Fiji 2008/09; Samoa 2008; and Tonga 2009.

6.1. Fiji

The preliminary report of the HIES survey from the Fiji Islands Bureau of Statistics (Narsey et al. 2010), examines the changes in household incomes and poverty that have taken place between 2002-03 and 2008-09. According to the preliminary findings of the Fiji Islands HIES, economic conditions in 2008-09 appear to be worse than in 2005-06, as a result of the GFC and political instability, but probably still better than 2002-03. Between 2002-03 and 2008-09, recorded total household incomes, adjusted for inflation, increased in aggregate by 28%. This was characterised by a decline of income by 11% in rural areas and an increase of income by 59% in urban areas. Average household income in aggregate increased in real terms by 12% between the two periods, again characterised by an increase of 26% in urban areas and decline of 14% in rural households.

The rural population also appears to have declined by 2% during the period while urban population has increased by 16%. This has been coupled with a continuation of the long-term decline in average household size, falling in rural areas by 5.5% and urban areas by 4.3%. This has resulted in an overall decline of household size from 4.9 to 4.7 members.

The incidence of poverty within Fiji, measured by the percentage of population below the basic needs poverty line, was 35% in 2002-03 and 31% in 2008-09. The incidence of poverty in urban areas declined from 28% to 19%, while it increased in rural areas from 40% to 43% between the two periods. The value of the poverty gap rose by 26% from \$120 million to \$152 million, but fell as a percentage of GDP from 3.5% to 3.1%.

Income distribution also widened over this period. The population Gini coefficient deteriorated from 0.416 to 0.439, while household Gini deteriorated from 0.341 to 0.359. A large factor in the uneven distribution of incomes at the national level is the gap between urban and rural households; within each area the distributions are far more even.

The indigenous Fijian share of recorded total household income grew from 51% to 53%, while that of Indo-Fijians declined from 43% to 36%. For all ethnic groups, however, income per adult equivalent declined in rural areas and increased in urban areas between the two periods. The incidence of poverty has declined for both major ethnic groups at roughly the same rate, from 35% to 31%. The 'others' ethnic group saw a slight increase in poverty.

All of these indicators show the continuing trend of a decline in wellbeing in the rural regions of Fiji, for most divisions and for all ethnic groups. In order to slow the rural-urban drift that is occurring, it is vital that ongoing development strategies for Fiji and public sector infrastructure investment programs focus on rural development.

6.2. Samoa

The analysis of the 2008 HIES uses expenditure data to estimate the incidence of poverty and the Head Count Index (HCI) by comparing food and basic needs poverty lines to recorded levels of expenditure (GoS, 2010).

These then provide the basis for estimating the relative poverty and hardship experienced by the poorest households in the country. Because basic needs costs differ from rural to urban households, regions of Samoa had to be assessed individually, resulting in separate calculations for the weekly per capita non-food expenditure.

Table 2: Weekly per capita poverty lines

SAT per capita per week	Food Poverty Line	Estimated Non-Food Expenditure	Basic Needs Poverty Line	Weekly cost per HH in L3D
	A	B	C = A+B	D
National average	31.56	22.03	53.59	493.02
Apia Urban Area	31.56	28.39	59.95	533.97
North-West Upolu	31.56	26.24	57.80	559.23
Rest of Upolu	31.56	17.90	49.46	466.76
Savai'i	31.56	19.27	50.83	459.96

Source: GoS 2010

The analysis shows that the level of serious or extreme poverty, as measured by the proportion of households and population falling below the food poverty line, is very low; only about 3% of households and 5% of the population. The level of basic needs poverty, however, is significantly higher as households struggle to meet the demand for cash to cover the costs of essential non-food basic needs. The average incidence of basic poverty, as measured by the HCI, was estimated at 20.1%, accounting for 26.9% of the population. This poverty level does not mean hunger or destitution in the traditional sense, rather that many households are struggling to meet their essential basic living expenses on a daily or a weekly basis.

From the analysis of basic poverty, north-west Upolu and Apia urban areas recorded incidences of basic needs poverty of 19.4% and 17.2% for households and 26.8% and 24.4% of the population respectively. The rural areas of Rest of Upolu and Savai'i were estimated to have higher levels of basic needs poverty, some 20.5% and 21.9% of households and 26.6% and 28.8% of population respectively.

The increase in basic poverty that has occurred since the 2002 survey has been concentrated in the rural areas. In Rest of Upolu, the proportion of population falling below the BNPL is estimated to have risen from 15.1% to 26.6% and on Savai'i from 16.1% to 28.8%. These significant increases are largely due to the

fall in employment at Yazaki, the car-wiring-harness manufacturer that was once the largest private sector employer in the country and, the increasing demands for cash to meet non-food needs as society becomes increasingly monetised. These levels are also expected to worsen into 2009 as a major tuna cannery based in neighbouring American Samoa also closes its operations, which will directly impact jobs and remittance payments to families.

Samoa's generally high status in Human Development Indicators and its relatively good progress towards achieving the MDGs means that there are few stand out characteristics of poor households, beyond the distinction between urban and rural poverty. This has resulted in a rural-urban drift, especially among young men, that is leading to higher levels of urban unemployment and growing numbers living in overcrowded and sometimes poor quality housing conditions.

Both the depth and severity of poverty, measured by the Poverty Gap Index and the Squared Poverty Gap Index respectively, have also risen slightly over the period between 2002 and 2008, but not at an alarming rate. Income distribution and inequality has also risen, with the Gini coefficient in 2008 estimated at 0.47 and 0.43 in 2002. These results are all consistent in indicating that economic growth in recent years has not been particularly pro-poor.

6.3. Tonga

The HIES of 2009 in Tonga is the first to have been conducted since 2000-01. Despite high levels of vulnerability and limited economic growth, Tonga has been successful in achieving good levels of human development, as indicated in the UNDP 2008 Human Development Report (GoT 2010). The incidence of poverty, however, has increased over the past decade according to the 2009 HIES, with 16.4% of the country's households (totalling 22.5% of the population) living below the BNPL. This is compared with 12.2% of households in 2001. Again, this is not absolute poverty, but rather an analysis of those living in hardship daily and having to sacrifice or make trade-offs for purchases of basic needs.

Table 3: Poverty incidence in Tonga by region, 2001 and 2009

% of HH/Population with expenditure below BNPL line	Households		Population	
	2001	2009	2001	2009
National average	12.2	16.4	16.2	22.5
Nuku'alofa	13.7	14.7	18.0	21.4
Rest of Tongatapu	14.4	17.5	18.8	23.5
Other Islands	9.0	17.0	11.8	22.9

The outer islands of Tonga experienced the sharpest increase in poverty, with the numbers of people living below the BNPL having almost doubled between 2001 and 2009. While the rate of increase may have been most severe in the outer islands, the rest of Tongatapu still contains almost half of the total amount of people living in hardship in the country. This highlights the fact that while there has been a sharp increase in poverty in the outer islands, the bulk of those living below the BNPL live on the main island of Tongatapu, outside of the country's capital city.

It is likely that this is a result of households in outer islands experiencing growing isolation as a result of higher costs over the past decade (notably transportation costs and rising fuel prices) and less frequent transportation services, reducing their ability to engage in income generating opportunities, such as the sale of agricultural surplus.

In addition to the increase in poverty in Tonga over the past decade, the HIES shows that the depth and severity of poverty has also increased. The poverty gap index showed a national increase from 4.4 to 6.3 between 2001 and 2009, while the squared poverty gap index showed a national increase from 1.9 to 2.5. The household Gini coefficient also slightly increased over this period, from 0.23 to 0.24, indicating a slight increase in the inequality and distribution of incomes.

While these figures are comparatively low compared to other states in the Pacific, the Government of Tonga's Social Protections Issues Paper (2010) argues that there should be more focus on the high level of vulnerability to poverty

within Tonga. This is because a significant portion of the population lives just above the BNPL and even a small event or external shock can readily push many households below the poverty threshold.

7. Filling the gaps

7.1. Modelling poverty when there isn't a recent household survey

The track record of conducting household surveys in the Pacific has been uneven, however there is a clear trend of improvement in many countries. But how can researchers and policy analysts calculate levels of poverty in countries where recent surveys are not available? In these cases, the best that can be done is to model levels of poverty by combining the most recent household survey with more up-to-date data on economic activity (e.g. disaggregated GDP) and perhaps other proxy indicators (e.g. houses with concrete floors from Census data).

Papua New Guinea is a good example of where gaps have had to be filled from missing surveys. While a household survey is currently being finalised in PNG, the last completed survey was in 1996. In order to estimate the level of poverty in 2004, the World Bank poverty assessment used a modelling approach. Understanding the method used in this exercise can help policy-makers to interpret results including the accuracy of the estimates.

In order to model the patterns and trends in poverty, the World Bank research team used data on the rate and sectoral pattern of output and employment growth since 1996 and combined this with information on the sectoral profile from the 1996 household survey (World Bank 2004, p.3, p.6). Based on this, they estimated that the proportion of the population living below a basic needs poverty line had increased from 37.5% in 1996 to 54% in 2003. They also estimated a similar trend for the international \$1 a day poverty line — an increase from 24% to 39.6% over the same period.

The World Bank's assessment of poverty in PNG in 2003 is arguably conservative. First, the Bank assessment already had some conservative

assumptions. The model linked formal wages to growth in the mineral sector. This would have overstated the impact of mineral growth on the poverty numbers for this wage sector (10% of population), however the indirect effects of mining revenues on government spending and growth would have offset this. Overall the researcher concluded that their estimate was conservative (World Bank 2004, p. 6). Secondly, the Pacific tracking report, cited above, uses a more conservative estimate of the level of poverty in PNG. It reports the lower estimate of \$1 per day poverty and compares this to BNPLs for other countries.

The rise in poverty rates simply reflects this negative growth. Between 1996 and 2005, PNG had negative per capita GDP growth in all years except 1999. However there are at least three caveats: i) to the extent PNG has had more positive growth since (esp. in the non-mining sector), there may have been a fall in poverty since then; ii) the national accounts data on which these projections are based are also not without their own set of problems, and much improvement is still needed to be able to use them with a greater degree of confidence for projection exercises; and iii) projections out of a 15-year old survey are suspect on account of distributional changes within sectors (amongst other factors) which are almost impossible to capture, hence the importance of a new survey for PNG.

The PNG government is currently completing the household survey for 2008-09. The sample frame for this survey mainly focuses on urban areas (to collect data to re-weight the CPI) rather than rural areas where poverty has traditionally been highest. The implication may be that it could be difficult to get disaggregation of inequality, say to the district level, limiting the usefulness of the survey for the design and evaluation of projects and policy interventions.

7.2. Obtaining highly disaggregated geographical data

The discussion so far has focused on the calculation of headline measures of poverty in Pacific Island countries. While this is useful for MDG tracking exercises, it is of limited use for domestic targeting and evaluating projects, policy interventions or institutions. This is where researchers and policy analysts need to be able to draw on the full richness of household survey data

and augment it with information from other surveys, including the national censuses. This section looks at two approaches for drilling deeper into the poverty numbers and discusses their applications in the Pacific context.

Geography and location are powerful determinants of poverty, so it is important to focus on spatial patterns of incomes, both between and within countries (World Bank 2010). As discussed above, household survey reports often contain disaggregated results on poverty at sub-national levels and by different demographic groups. Policy-makers will sometimes want more detailed breakdowns in order to design and evaluate projects and policy interventions. It is possible to model poverty estimates by augmenting household surveys with more detailed data from censuses (World Bank 2010, p. 4).

Data from highly disaggregated geographical units can be displayed on a 'poverty map' so that spatial patterns in inequality can be visualised. This is a useful way to open up dialogue on poverty; help researchers resolve issues on the local definition and determinants of poverty; explore new options for poverty reduction programs and strengthen accountability (World Bank 2010, pp. 5-15).

An example of one kind of poverty mapping is the PNG Rural Development Handbook. While the methodology is different to that employed by the World Bank — it doesn't use the national poverty line as a measure of income poverty and examines other dimensions of deprivations — it does provide some valuable insights into where the most disadvantaged people live in PNG. It highlights the relationship between access to transport infrastructure, income-earning opportunities and access to services, and therefore is a powerful tool for tailoring projects and policy interventions to local needs.

More recently, Fiji has started to put together a poverty map with support from the World Bank. As noted above, Fiji has arguably the best poverty and census statistics in the Pacific, which makes it a good choice for more sophisticated analyses. The analysis will combine data from the 2008-09 HIES with data from the 2010 Census to model incomes in areas not covered by the HIES. This project is ongoing and once the report is published, possibly later this year, then it could

be a good case study for discussing similar approaches with other Pacific Island countries, especially PNG.

7.3. Sourcing detailed snapshots of local poverty

So far this paper has focused on the measurement of poverty headcounts, without considering the determinants of poverty or people's experience of living in poverty. While knowing who is likely to be poor and where they live is useful, policy-makers also need to understand why they are poor.

A recent survey of 262 families in the Yelia LLG in the Obura Wonenara district of PNG provides detail to supplement larger surveys on which much of the research to date has rested. The survey found that:

- These are very disadvantaged communities with small numbers of families earning reasonable incomes, mainly from coffee, but with the majority earning very little. The number of households reporting income from remittances is low, despite the demographic breakdown indicating the absence of many men of working age.
- Agriculture provides the majority of income, but it is vulnerable to natural disasters and there is little preparedness for these amongst communities.
- These communities are food insecure and have limited variety in their diets; they have limited consumption of meat, vegetable proteins and essential fats important for maintaining appropriate levels of nutrition.
- Infant and child mortality levels, at 191 deaths per 1000 live births, are higher than the most recent national figure of 75 deaths per 1000 live births.

As the report's authors conclude: 'given the heterogeneous nature of development across PNG, with large degrees of variation within provinces and even within some districts — this level of survey information is important for policy formulation.'

8. Conclusions

There will always be disagreement over the definitions of poverty in the Pacific, with some favouring narrow indicators such as hunger and others broader multidimensional determinations such as 'access to opportunity'. There will also always be political sensitivity about the use of the term poverty in the region.

However, this should not detract from the importance of identifying the most financially disadvantaged households and further analysing their experience of living below a basic needs poverty line. (This paper has noted the international \$1.25 a day poverty line, but this is not systematically calculated for all countries in the region, and is arguably less relevant for domestic policy-making).

Quality household income and expenditure surveys are essential for measurement of income poverty and sound progress is being made throughout the Pacific in bringing such surveys up to date. This is a valuable resource for researchers and policy analysts to better understand patterns of poverty in the Pacific and within individual countries (as illustrated by the Fiji, Samoa and Tonga HIESs).

While poverty data have improved for the Pacific, the improvement is not uniform — PNG is a stark illustration of that. A related point is the access of survey data to secondary users. The table below (AusAID 2008) summarises various household surveys conducted or planned in the Pacific.

This also suggests that analysts should be making better use of other data. First, there is a relative underutilization of Demographic and Health Survey (DHS) data for development policy analysis. Secondly, there is a need for harmonization of different household survey operations within a country: in effect, the harmonization of HIES and DHS within the well-thought-out framework of a regular household survey program, which also needs to have assured funding. Thirdly, given the small size of many of the countries involved, it may be worth looking into whether censuses could do more of the work that surveys encompass in larger countries.

Table 4: Summary of censuses and household surveys in the Pacific, 2008

	2004	2005	2006	2007	2008	2009	2010	2011	2012
Melanesia									
PNG			DHS		<i>HIES</i>		<i>CEN</i>		
Fiji			<i>CEN</i>		<i>HIES</i>	<i>DHS</i>			
Solomon Islands		HIES	DHS			<i>CEN</i>			
Vanuatu			HIES			<i>CEN</i>		DHS	
Polynesia									
Cook Islands	HIES		<i>CEN</i>					<i>CEN</i>	
Niue			<i>CEN</i>			<i>HIES</i>		<i>CEN</i>	
Samoa			<i>CEN</i>		<i>HIES</i>	<i>DHS</i>		<i>CEN</i>	
Tokelau			<i>CEN</i>					<i>CEN</i>	
Tonga			<i>CEN</i>		<i>HIES</i>		DHS		
Tuvalu	HIES			DHS					<i>CEN</i>
Micronesia									
FSM		HIES					<i>CEN</i>	<i>DHS</i>	
Kiribati		<i>CEN</i>	HIES			<i>DHS</i>	<i>CEN</i>		
Marshall Islands	HIES			DHS		<i>CEN</i>			
Nauru			HIES	DHS					<i>CEN</i>
Palau		<i>CEN</i>	HIES				<i>CEN</i>		

Source: SPC

Notes: CEN = census, HIES = household income and expenditure survey, DHS = demographic health survey. Surveys in italics are planned.

It is also possible to go beyond the HIES data to fill in analytical gaps. Timely estimates of the incidence of income poverty are possible by extrapolating from HIES using national accounts and census data (e.g. the PNG 2004 poverty assessment). Detailed disaggregation of income poverty is possible by modelling poverty using HIES and census data (e.g. Fiji's poverty mapping). On top of this, more detailed poverty surveys can provide insights into the experience of poverty for the most disadvantaged groups (e.g. the Yelia study).

This paper has shown that there is considerable data on income poverty in the Pacific that can be used as the basis for public policy, and that even where there are gaps, there are options for addressing these through a range of techniques. If donors and countries are serious about the MDGs, then it is imperative that these knowledge gaps on income poverty are addressed — not just to keep poor people on the policy agenda, but to ensure that programs are better targeted at disadvantaged groups and that policies and institutions are evaluated on their success at reducing poverty.

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