Poverty Analysis in Vanuatu:
A Critical Review and Alternative Formulation

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Abstract

This paper examines the most recent analysis of poverty in Vanuatu by the Vanuatu National Statistics Office (VNSO) in 2009 using the Vanuatu 2006 Household Income and Expenditure Survey (HIES). VNSO (2009) comes to the conclusion that the urban incidence of poverty (in Vila and Luganville) is three times higher than rural poverty, a quite implausible result. This paper outlines apparent weaknesses and inconsistencies in the methodology of the VNSO (2009) study, specifically in the construction of the Food Poverty Line (FPL) using a Food Energy Intake (FEI) method, and the multiplier method to obtain the Non-Food Poverty Line (NFPL) and Basic Needs Poverty Line (BNPL) values, which are shown to be largely responsible for the incongruous results for the incidence of poverty and poverty gaps in rural and urban Vanuatu. This paper presents alternative methodologies for the construction of the FPL food baskets, and hence the BNPL values, to be arrived at by consensus amongst local stakeholders in poverty analysis. Given that there has been no social consensus on the appropriate values to use for the BNPL in Vanuatu, this paper presents data in a convenient tabular form so that stakeholders can easily estimate the incidence of poverty in rural and urban Vanuatu using their own choice of values for the FPL and BNPL. The paper explains why the statistics on income distribution given by VNSO (2009) are highly unreliable given the likely serious under-reporting of incomes and expenditures of Chinese and European ethnic minorities.

Key words: Asian Development Bank (ADB), food poverty line, United Nations Development Program (UNDP), World Bank

Introduction

Vanuatu is a set of small islands in the west of the Pacific, with a land mass of just over 12 thousand square kilometers, and a current total population of around 253,000[1], comprising largely Melanesians, but also small proportions of Europeans, Chinese and other Pacific Islanders. The modern economy is largely dominated by the minority people of European and Chinese origin. The largest urban area is the capital, Port Vila

1 Vanuatu National Statistics Office website: http://www.vnso.gov.vu/.

(referred to from now on as Vila) on the island of Efate, while the other major urban town is Luganville on the larger island, Santo. Vanuatu is a low income developing country with a Gross National Income per capita of around US$2,600, but it is rich in land and sea resources. Vanuatu, like other Pacific island countries, faces a strong tendency for rural-urban migration, although it has not developed to the extent it has in other Pacific countries like Fiji, the Solomon Islands and Papua New Guinea. Some 78% of the population lives in rural areas, with some 16% in Port Vila (the capital) and 6% in Luganville.

As with all other Pacific countries, Vanuatu also recognizes that poverty, while not as severe as in other least developed countries in Asia or Africa, is nevertheless becoming an important policy issue, and national development policies also have strong themes for poverty alleviation.

For sound national policy on poverty alleviation, it is critical for government to understand the quantitative dimensions of poverty, by all the disaggregated variables that are of interest to poverty stakeholders in the country. The most common international practice is to obtain such data through a national household income and expenditure survey (HIES[2]).

In 2006, the Vanuatu National Statistics Office carried out such a survey which is now the most authoritative source for any national analysis of poverty in Vanuatu. This survey's data have also been used by a recently published paper on the incidence of poverty in Vanuatu (VNSO 2009).[3] The same HIES data at the household level was also made available to this author by the Acting Government Statistician for the purposes of this analysis.

By first outlining the usual method of quantitative poverty analysis, this study explains the VNSO (2009) methodology and its weaknesses in the Vanuatu context, specifically in relation to the estimation of the food poverty line and the non-food poverty line. The paper then explains some of the survey limitations, which constrain the conclusions that may be made about overall income and expenditure distribution in Vanuatu. The study then suggests an alternative methodology for the analysis of poverty in Vanuatu and gives some broad indicative results. This paper then presents data to enable poverty stakeholders in Vanuatu to estimate the incidence of poverty in Vila, Luganville and rural Vanuautu, using their own values for food poverty line and basic needs poverty line. The paper suggests an initiative for stakeholders in poverty analysis in Vanuatu to devise more appropriate values for the food poverty line, the non-food poverty line and the basic needs poverty line, which can enable more accurate and useful estimates of the incidence of food poverty and basic needs poverty. Lastly, the paper gives warnings on the unreliability of the Gini coefficients presented in VNSO (2009).

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2 Some abbreviations are used in the text, tables, and figures because of the frequency of their occurrence. Please see the Appendix 1 for more details.

3 Report on the estimation of basic needs poverty lines, and the characteristics of poverty in Vanuatu. Vanuatu National Statistics Office, Asian Development Bank and UNDP, Suva Regional Office, 2009. The main author of the report was Kim Robertson, although others from ADB, UNDP and VNSO are also acknowledged in the report.

The Quantitative Analysis of Poverty

Poverty cannot be understood without a thorough understanding of all its multidimensional aspects, such as outlined by TOWNSEND (1993) or SEN (1999). The necessity for this multidimensional approach is reinforced by the international acceptance of the need to measure and track progress on all the Millennium Development Goals, with their dozens of indicators.

However, some simple basic quantitative assessments of poverty have to be the foundation for further qualitative analysis, for a number of reasons: to assist stakeholders to better target their poverty reduction strategies nationally (whether by regions, ethnicity, gender, employment characteristics, etc.) and internationally; to be able to assess how much public resources would be required to eliminate poverty or reduce it to target levels; to evaluate the effectiveness of institutions whose goal it is to help the poor; to monitor the state of poverty over time, so as to assess the degree of success or failure of past policies; and to keep the poor and poverty on the agenda, if poverty is considered a serious enough problem. The basic quantitative results on poverty, however, need to be consistent with the broader indicators of poverty, especially in rural and urban relativities.

To obtain the basic robust quantitative results possible and necessary for future long-term accurate comparisons, the "poor" are usually defined by reference to the basic needs poverty line (BNPL), which is the monetary value of goods and services that a household needs to consume as a minimum, so as to achieve what society accepts as representing a 'minimum decent standard of living' for any chosen country.

The basic needs poverty line methodology and the various alternatives practised throughout the developing world may be read in RAVILLION (1998), WORLD BANK (2003), THORBECKE (2004), UNITED NATIONS STATISTICS DIVISION (2005) and ASIAN DEVELOPMENT BANK (2006). The most recent is HAUGHTON and KHANDKER (2009) also a World Bank publication and extremely relevant to this paper. Most studies acknowledge that small changes in methodology can result in significant changes in the assessment of the incidence of poverty amongst different groups within the country (KAKWANI 2003).

The BNPL may be defined in many different ways, broadly categorised into "relative" poverty lines and "absolute" poverty lines. The relative approach defines the poverty line in relation to some "average" standard of living enjoyed by a society (KAKWANI 2003: 2). But that "average" can also be defined in different ways. One approach simply sets the value of the BNPL as 50% or 60% of the median[4] household income of the country.

Of course, such "relative" poverty standards change over time, depending on the changes in median income, usually the outcome of broad changes affecting the bulk

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4 The median is preferred because it is more stable over time than the 'mean', which can be affected by the extreme values at both the upper and lower ends of the income distribution.

of the people in the middle classes. Such relative standards will therefore not be useful for understanding progress over time. For developed countries, however, this relative standard is preferred to absolute standards, which as used internationally, usually are so low as to make the analysis of poverty in developed countries somewhat meaningless, especially when relative deprivation is the focus.

Absolute standards commonly used at the international level are the US$1 per day[5] or US$2 per day at purchasing power parity (or PPP), although there is considerable debate about its consistency and usefulness within countries, and across countries. Such international standards, which may be useful for Bangladesh or India, would not be considered to be appropriate for the Pacific.

For country-specific poverty analysis especially for low to middle income countries, absolute standards attempt to use the concept of "minimum standards of living" based on two components: the food poverty line (FPL) and the non-food poverty line (NFPL).

The FPL is the value of a basic basket of foods that are typically consumed by the population, with the objective of satisfying the minimum nutritional requirements of a standard household, simplified usually to one criterion: 2,100 calories per person per day.

The NFPL is the value of the essential non-food items (such as education, health, transport, rent etc.) required for the subsistence of the household. The BNPL is then the sum of the two components (FPL + NFPL). The incidence of poverty (or head count ratio) is then estimated as the proportion of the population in households whose income is below this BNPL.

Income or Expenditure as the Criterion?

To determine whether a household is "poor" or "not poor", one may use either incomes of the household or expenditure. Since the Vanuatu HIES results indicate that there has been significant under-reporting of incomes (clarified further below), it is sensible to use household expenditure as the criterion for estimating the incidence of poverty, as is done by the ADB/UNDP study. There are several other good reasons for doing so. It is generally held that in developing countries, it is harder to conceal expenditure than income of the poor from the interviewers. Moreover, actual expenditure is a firmer indication of the realized standard of living than is income.

Nevertheless, there is always the problem that some households may have a high income, but consciously choose to save more. If the resulting expenditure is lower than the poverty standard being used, such a household would be labeled "poor" even though its potential for expenditure and a higher standard of living could be much higher given the higher income.

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5 This was originally given as US$1 per capita per day in 1985 US dollars, then revised to US$1.08 in 1993 prices, and US$1.31 in 2004 prices.

VNSO (2009) also made the decision to exclude expenditures on kava, alcohol and tobacco as these items were under-reported in the HIES. Unfortunately, excluding these expenditures would tend to produces a downward bias in the welfare criterion, and possibly identify some households as "poor" when the HIES data would have indicated that they are not poor.

Adjusting for Household Size

While economic analysis typically focuses on individuals, poverty analysis usually uses the "household" as the unit of analysis. It can be argued that their incomes and total household expenditure is assumed to be collectively and equally enjoyed by all in the household—adults, children and elderly alike. This may clearly not be the case, as there can be very unequal internal distribution of resources, linked to gender, age or the nature of family connection of individuals concerned.[6]

It is also generally accepted that the standard of living of a household depends not just on the expenditure enjoyed, but on the number of persons in the household who need to be supported by that income. So for ranking purposes, the total expenditure of the household is usually standardized by adjusting for household size.[7]

There are different methods of adjusting for household size. The simplest method is to divide the household expenditure by the number of persons in the household, obtaining the usual 'expenditure per capita' measure. This effectively treats each person in the household as requiring equivalent resources. It is, however, thought that children and the elderly do not normally require as many resources as adults of working age. Another approach therefore converts the number of persons in the household to 'adult equivalents' by some formula. Different formulae are possible in discounting children and adults.

The UN approach is to treat each child between the ages 0 and 14 as equivalent to half an adult, and any person over the age of 14 as 1 adult.[8] This paper uses the UN method of calculating adult equivalents because of its widespread use, although it does have a weakness in that it does not allow for economies of scale, the impact of which can be significant. This study uses the UN approach and converts total household expenditure to expenditure pAE, which then reflects that household's implicit "standard of living", and is used to rank households from the "poorest" to the "richest". This has also been the method followed in the ADB/UNDP analysis of poverty in Vanuatu.

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6 It is quite common in the Pacific, for extended family members to be part of the household for long periods of time, often because of better employment opportunities or better health services. Often, too, children are sent to urban families because of the better schools in urban areas.

7 Many poverty studies in the Pacific have wrongly used ranking of households by total income or total expenditure to determine "poor" and "non-poor" households.

8 This was the approach used by GOVERNMENT OF FIJI and UNITED NATIONS DEVELOPMENT PROGRAMME (1997).

VNSO (2009) Values for the Basic Needs Poverty Lines and the Results

It should first of all be noted that should the same values be used for the basic needs poverty line (BNPL) for rural Vanuatu, Vila and Luganville, then the incidence of poverty would be highest for Rural Vanuatu, then for Luganville and then for Vila, in that order—at any BNPL value chosen (Fig. 1). But the ADB/UNDP estimated very different FPL and BNPL values for Vila, Luganville and the other islands which comprise rural Vanuatu (Table 1). Their value for FPL pAE pm for Vila is 1.9 times that for rural Vanuatu, the value for NFPL pAE pm for Vila is a massive 7.8 times the value for rural Vanuatu, and the eventual BNPL pAE pm value for Vila is 3.3 times that for rural Vanuatu (last row of Table 1).
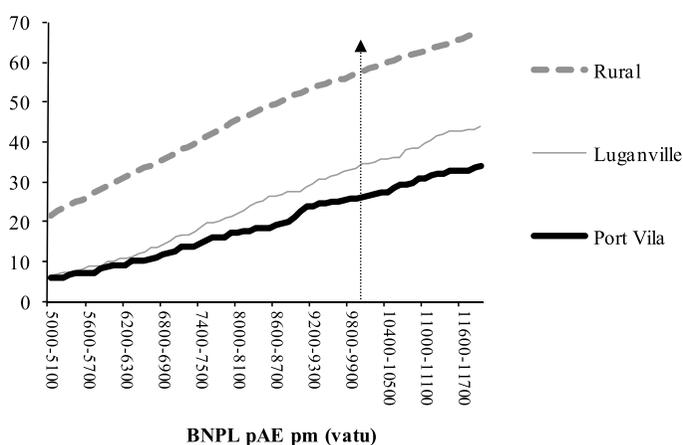
Fig. 1. Head count ratio or the incidence of poverty at the same basic needs poverty line (BNPL) value (%).

Table 1. The ADB/UNDP estimates of values for food poverty lines pAE pm, non-food poverty lines pAE pm and basic needs poverty lines pAE pm.

Area	Food poverty line pAE pm	Non-food poverty line pAE pm	Basic needs poverty line pAE pm
Rural	2589	777	3366
Luganville	3594	2516	6110
Vila	5034	6041	11075
Vanuatu	3064	1651	4715
Vila:Rural ratio	1.9	7.8	3.3

Table 2. ADB/UNDP results for head count ratio or percentage of population below the values for BNPL pAE pm as in Table 1.

Area	Head count ratio or percentage of population below the values for BNPL pAE pm
Rural Vanuatu	11%
Luganville	11%
Vila	33%
Vanuatu	16%

It is not surprising, therefore, that with such relatively high FPL, NFPL and BNPL values for Vila, the head count ratios or the incidence of poverty estimated by the ADB/UNDP study is much higher for Vila than it is for rural Vanuatu. Table 2 indicates that the head count ratio was estimated by ADB/UNDP as about 11% for rural Vanuatu and Luganville, while that for Vila was estimated at 33%. The national estimate of the head count ratio was then seen as 16%.[9]

These results are quite anomalous given that the general understanding of standards of living in Vanuatu are that rural areas are extremely poor compared to urban areas. One indicator is the continued rural-urban migration. The more important reason for concern arises out of the implication for the sharing of poverty alleviation resources between rural and urban areas. While not estimated by the ADB/UNDP report, the poverty gap estimates will also give a disproportionate share of poverty alleviation resources to urban households and less to rural households. This must inevitably worsen the rural-urban migration by making urban areas even more attractive.

It is extremely important for poverty alleviation policies, therefore, that the incidence of poverty estimates and the methodology be examined very critically to ensure that the results are indeed appropriate and may be used for poverty alleviation policies. This paper argues that both the methodology used to estimate the food poverty lines and the non-food poverty lines (and hence the basic needs poverty lines) are inappropriate, leading to incorrect results.

Why the Significant Differences in Food Poverty Line Values?

Why would the food poverty line value for Vila be estimated at almost twice that of rural Vanuatu? While lower rural food prices for domestically produced foods may be part of the explanation, this is unfortunately not enough, since the prices of bought food items (mostly imported) are higher in the rural areas.

The most sensible method of estimating the FPL value is by first drawing up a weekly or two-weekly menu (for urban areas and rural areas separately) for a typical

9 It would seem that the ADB/UNDP study used the weighted BNPL values for rural Vanuatu, Luganville and Vila, to arrive at a "national estimate" for the BNPL. Unfortunately, the resulting head count ratio of 16% is inconsistent with the more correct method of estimating the number of "poor" people in Vanuatu, by aggregating the poor people in Vila, Luganville and Rural Vanuatu, and taking that as a proportion of the total population. This latter value comes to 14%.

household (of say four adult equivalents) comprising a basket of foods that delivers a minimum nutritional content. The menu should be such as not to reflect what would be consumed by the middle classes or the affluent, nor the absolutely poverty stricken: i.e. it should represent what the society considers as comprising a minimum decent diet for the poor.[10] Such a menu would then be costed in local prices and divided by 4 to obtain the food poverty line value per adult equivalent. The ADB/UNDP study did not take this approach for Vanuatu.

The massive differences in FPL values are explained largely by the methodology adopted by the VNSO (2009) study for estimating the FPL values (VNSO 2009: 25-26). While there is discussion in the report about the ideal starting point being a model menu of basic food items, this approach is not taken, although there is a passing reference to another study, with a similar methodology, for the Solomon Islands supposedly finding no difference with the "model menu" approach.[11]

The VNSO (2009) study proceeded as follows in an extremely complicated fashion (quoting directly from the report):

" *The food expenditure from the diaries of households in the lowest three expenditure deciles in each of the regions was analysed; all the food expenditures were then converted into per capita adult equivalent values and per capita adult equivalent daily cost of these diary expenditure items; the reported diary food expenditure values were grossed up to the total recorded food; expenditure from the survey for the bottom three expenditure deciles, by the appropriate; factor to give a notional total food expenditure based on the listed items; each item was priced using the urban CPI for all purchased items adjusted for home produced items, and the observed diary prices/values for items of own production; the implied unit volume consumed of each item in the diary was calculated; the Kcal (energy) value from the South Pacific Food Composition Tables was applied to each of the items to give a total Kcal value for recorded consumption; the daily per capita adult equivalent Kcal consumption values represented by each item was then calculated; the daily cost of each item according to its share in the overall daily food intake was estimated; and finally, the daily cost of each item according to its Kcal value per day per a.e. was estimated.*"

The results are summarised here in Table 3. There is very little difference in the costs per day per adult equivalent between rural Vanuatu (102 vatu), Luganville (125 vatu) and Vila (114 vatu). However, it is the second column of resulting K Cals that brings about the sharp differences: rural Vanuatu food consumption resulted in 2,470 K Cals per adult equivalent, while the Vila food consumption resulted in only 1,431 K Cals. With the ideal or minimum consumption objective being 2,100 K Cals per adult

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10 Of course, there has to be much subjectivity about this. Such concerns can only be decided by 'social consensus' amongst all the stakeholders.

11 A detailed reading of the report on the Solomon Islands finds little justification for this claim.

Table 3. Derivation of food poverty line values.

Area	Cost per day pAE (vatu)	K Cals	Scale factor	FPL per day pAE (vatu)	FPL pAE pm (vatu)
Rural Vanuatu	102	2470	0.85	86	2589
Luganville	125	2193	0.96	120	3594
Port Vila	114	1431	1.47	168	5034

Source: ADB/UNDP report.

equivalent, the ADB/UNDP study then took a really questionable step of scaling down the rural cost by 0.85 to arrive at a FPL per month value of 2,589 vatu; while the Vila cost was scaled upwards by a factor of 1.47 to arrive at a FPL per AE month value of 5,034 vatu.

One needs to ask why the Vila food consumption would result in such low K Cal values while the rural consumption resulted in relatively higher values. From the Tables given in the report, the urban people in Luganville (ADB/UNDP report, p. 28, Table 15) and Vila (ADB/UNDP report, p.29, Table 16) were purchasing relatively more foods which would not normally be considered "basic food items" and which have much lower food value, while the converse was true for rural Vanuatu (ADB/UNDP report, Table 14). This methodology effectively "rewards" bad urban food consumption patterns by increasing their FPL values, while it "penalizes" the rural good consumption patterns by reducing the FPL values. This methodology is the antithesis of the "model menu" method of determining the food poverty line values, contrary to the claim that the two methods produce similar results.

The net result of the ADB/UNDP methodology seems to be that the FPL estimates for Vila and Luganville are significantly biased upwards in comparison to the estimates for rural Vanuatu. This must inevitably push upwards the values of the BNPL and the estimated incidence of poverty for Vila and Luganville, or conversely, push it lower for rural Vanuatu.

The contradiction in the ADB/UNDP methodology may be seen in its statement in paragraph 72 where it states:

" *Table 17 indicates that a household in the lowest three expenditure deciles living in Port Vila would need to" spend" considerably more on food, VT24,163 per month, compared to a similar bottom three decile household in rural areas, VT11,392; 47% the value of Port Vila. This reflects the higher basic FPL in Port Vila (VT168 p.c.a.e. per day) compared with rural areas, VT86 p.c.a.e. per day, as well as the larger household size in Port Vila (4.8 persons a.e) compared to rural areas (4.4 persons a.e), see also Table 1. The amounts required to be "spent" on food include both the purchased items and those non-cash items of consumption of own produce.*"

Yet the VNSO (2009) own data on actual food expenditure shows for the bottom 3 deciles, the monthly household food expenditures were (Table 8 in the ADB/UNDP report):

Rural Vanuatu:	14,701 vatu;
Luganville:	18,450 vatu;
Vila:	18,490 vatu.

These are differences of a mere 25% - not 100% as indicated by the FPL values. The very large differences in the FPL values between rural and urban Vanuatu are therefore extremely inappropriate, and logically lead to over-estimated values for the BNPL for urban Vanuatu, and hence, result in the inappropriately high incidence of poverty results for Vila and Luganville.

A minor point may also be made that when the consumption patterns of the bottom 3 deciles of rural and urban households are used to derive FPL values, the implicit assumption is that they are equivalent in standards of living. This may be true in some societies where the gap between rural and urban households is not large. This would not be true in countries like Vanuatu where the gaps appear to be very large indeed and where the bottom 3 deciles of rural Vanuatu would almost definitely be amongst the poorest of the poor, while the bottom 3 deciles in urban areas may be considered relatively better off. It is then necessary to ask what ought to be more appropriate values for the FPL in urban and rural Vanuatu. This question is addressed towards the end of this paper.

Why Such Large Differences in Non-Food Poverty Line Values

As the VNSO (2009) states, "*the costs of non-food basic needs might include expenditure for housing/shelter, essential transport and communications, school fees and other education related costs, medical expenses and clothing.*" Certainly, housing costs would be lower in rural areas. However, virtually all other costs would be just as high or even higher. VNSO (2009) adopts one of the World Bank approaches and multiplies the FPL values derived earlier, by a "factor" to give the non-food basic needs values. The report states that "*For this analysis and to be consistent with other analyses undertaken for Pacific Island countries the average non-food expenditure for households in the lowest four deciles is taken as the non-food factor*" (p.31). These factors, and the derivation of the basic needs poverty lines are given here in Table 4.

Table 4. Derivation of non-food poverty lines (NFPL) and basic needs poverty lines (BNPL).

Area	FPL pAE	Rate up factor	NFPL pAE	BNPL pAE
Rural	2589	0.30	777	3366
Luganville	3594	0.70	2516	6110
Vila	5034	1.20	6041	11075
Vanuatu total	3064	0.54	1651	4715
Vila:Rural ratio	1.9		7.8	3.3

Source: ADB/UNDP report, Table 18, p.31.

There are a number of questions that may be raised about this whole methodology.

First, the comparison of the bottom four decile ratios of Vila with the bottom four of the rural households assumes implicitly that they have similar standards of living: when they clearly may not. Second, the ADB/UNDP report applies the actual non-food to food ratios derived from the bottom four deciles, to the estimated FPL values whose Vila-Rural ratios are about 2. In reality, the HIES data reveals that the food expenditure per adult equivalent ratio between Vila and Rural households, is a mere 1.1.

It is not surprising therefore that the resulting NFPL values for Vila and rural households results in an incredibly large ratio of 7.8 to 1, giving a grossly inflated value for Vila and a grossly deflated value for rural Vanuatu. This may be contrasted with the actual Vila:rural ratios for non-food per adult equivalent of only around 4.

It may be noted that the low NFPL pAE value of a mere 777 vatu per month is what would be spent by a household just at the margin of the first and second deciles in rural Vanuatu, while the actual average for the bottom 4 deciles is 1,230 vatu (Table 5). Conversely, what is derived for Vila (6,041 vatu) is roughly what is actually spent by households at the bottom of the third decile in Vila, while the actual average for the bottom four deciles is a lower 5,449 vatu.

The relatively high values derived for the non-food poverty lines for Vila and Luganville, or conversely the relatively low figures used for rural households, are not justified even by actual expenditure patterns. What is really a symptom of poverty (i.e. low expenditures on non-food items) is being used by the ADB/UNDP as the standard for poverty. While some reference decile value has to be used, there is a need to ensure that the regional differences do not depart significantly from the actual values that prevail on the ground.

Table 5. Non-food expenditure per adult equivalent (vatu) (for regional deciles of households).

RHHDec	Luganville	Port Vila	Rural	Vila:Rural ratio
RHD1	1604	2231	558	4.0
RHD2	2931	4484	1042	4.3
RHD3	3920	6497	1576	4.1
RHD4	5004	8910	1874	4.8
RHD5	6501	11360	2361	4.8
RHD6	8477	12304	3089	4.0
RHD7	10147	17208	3689	4.7
RHD8	13243	20306	5067	4.0
RHD9	20641	29653	9249	3.2
RHDt	42073	69616	21364	3.3
All	9990	14985	4332	
Lower 4D	*3322*	*5449*	*1230*	

World Bank Warnings against the Food Energy Intake Method

It is interesting that while VNSO (2009) states that they are using World Bank methodology in poverty analysis, a most recent World Bank publication by HAUGHTON and KHANDKER (2009) advises very clearly that "Unfortunately, the food energy intake method is seriously flawed, and should not be used for comparisons across time, or across regions, or between urban and rural areas, unless the alternatives are infeasible."

HAUGHTON and KHANDKER (2009) referred to extremely relevant findings by RAVALLION and BIDANI (1994), who computed headcount poverty measures for Indonesia using the SUSENAS (Indonesia's National Socioeconomic Survey) data for 1990, using both the cost of basic needs and the food energy intake methods. The most striking finding was that "while the cost of basic needs method shows rural poverty to be more than twice as great as urban poverty, the food energy intake method indicates (implausibly) that poverty is higher in urban than in rural areas." The major problem was the differences between rural and urban areas in the composition of food being consumed.

HAUGHTON and KHANDKER noted (2009: 56-59): "Rural households can obtain food more cheaply, both because food is typically less expensive in rural areas and also because they are more willing to consume foodstuffs that are cheaper per calorie (such as cassava rather than rice); urban consumers are more likely to buy higher quality foodstuffs, which raises the cost per calorie." Hence, for a given level of food energy intake, the poverty line in the rural area will be lower than in the urban area. This was not a problem if it only reflected the differences in the cost of living. But if the gap exceeds the differences in the cost of living, then urban poverty can appear to be higher than rural poverty: "a completely implausible result." This was precisely the problem with VNSO (2009) for Vanuatu.[12]

Indirect Indicators of Deciles Affected by Poverty

The basic quantitative analysis of poverty focuses on BNPL values which are used to separate the "poor" from the "not poor". However, there are many indicators of poverty, given there is consensus now that poverty needs to be defined in multidimensional ways, not just as the "inequality of conditions", but as "inequality of opportunities and capabilities" (SEN 1999). Thus TOWNSEND (1993: 36) defined it as "relative deprivation" where a poor person "cannot obtain, at all or sufficiently, the conditions of life-that is, the diets, amenities, standards and services—which allow them to play the roles, participate in the relationships and follow the customary behaviour which is expected of them by virtue of their membership of society" (i.e.

12 Effectively, VNSO (2009) used the food energy intake method while articulating their methodology as a "cost of basic needs" approach.

deprivation not just at work, but also at home, in the neighbourhood, travel and all arenas for the fulfilment of social obligations). Such thinking permeates the policies of international and regional organisations that set the global and national poverty agenda. Thus, one could examine at which deciles there begin to be increases in expenditure on discretionary items, which on a priori grounds are equally valued in urban and rural areas. The items of expenditure examined here are education, health, clothing, alcohol and tobacco, and non-essential items.
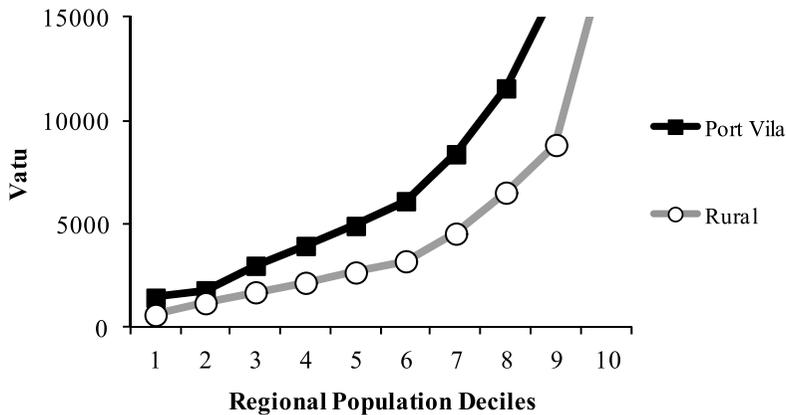
Fig. 2. Non-food expenditure per adult equivalent per month.
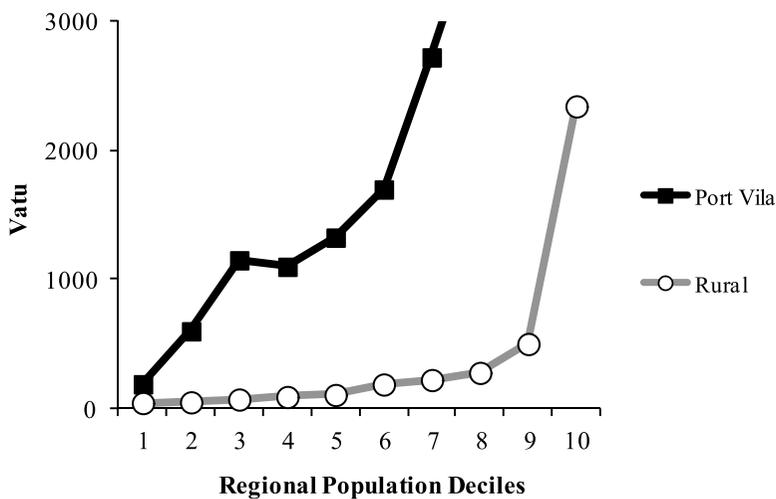
Fig. 3. Expenditure per AE pm on household items.
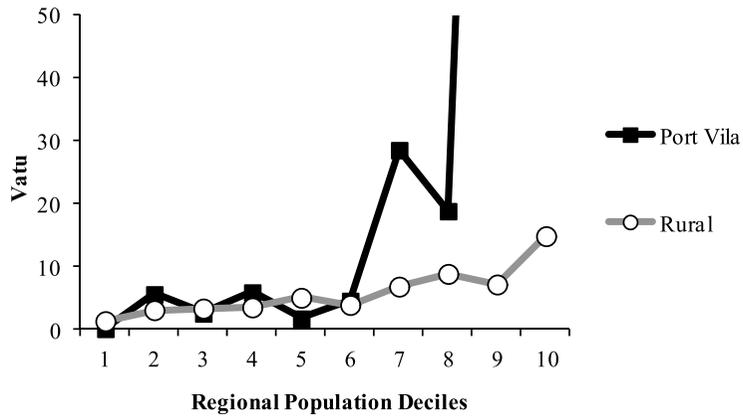
Fig. 4. Medicine expenditure per AE pm.
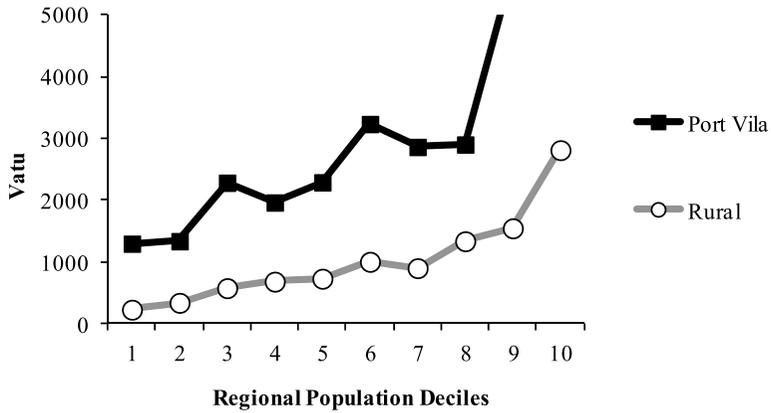
Fig. 5. Education expenditure per 6 to 20 year old (vatu).
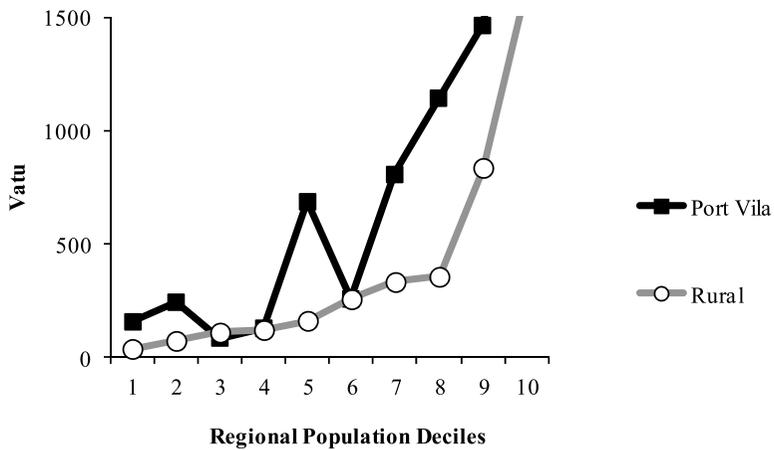
Fig. 6. Expenditure on alcohol and tobacco per AE pm.
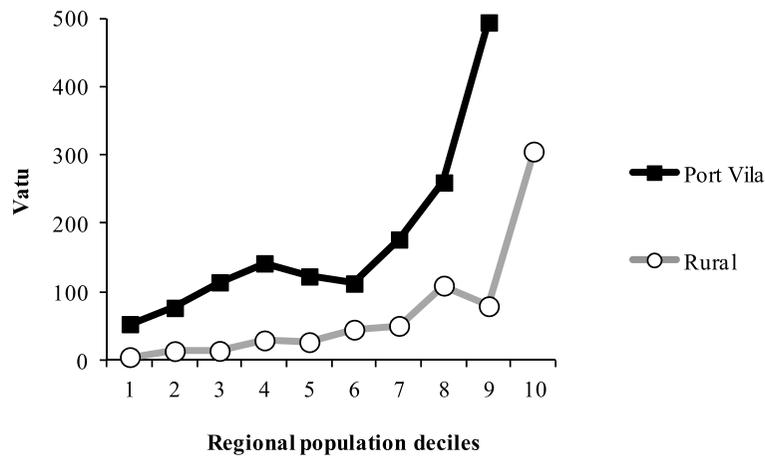
Fig. 7. Expenditure pAE pm on junk food.

Figure 2 gives the non-food expenditure per adult equivalent per month by regional deciles of population.[13] It is evident that in rural Vanuatu, the values are flat right up to the 7th decile, and the large increases begin from the 8th decile onwards. In Vila, the large increases begin right from the first decile, with larger increases taking place after the 7th decile. One can see that the non-food expenditure (which does not include any home or subsistence consumption) at the 8th decile in rural Vanuatu, barely matches that of the 3rd decile in Vila. Figure 3 (expenditure on household items) follows the same patterns as for total non-food expenditure.

Figure 4 indicates that Vila households begin to increase their expenditure on medicine after the 6th decile while that in rural Vanuatu begins to increase after the 8th decile. Figure 5 indicates that while education expenditure per 6 to 20 year old begins to rise steadily from the 1st decile in Vila, the increase in rural areas does not begin till after the 7th decile. Figure 6 gives the graph for alcohol and tobacco products, and Fig. 7 for junk food expenditures. These all indicate that large increases in consumption in Vila occurs some 3 to 4 deciles lower than the levels in rural areas. Similar trends may be seen in expenditures on health, personal care items, and virtually all main non-food expenditure items, suggesting that decile for decile, rural Vanuatu is much poorer in "standards of living" than in Vila.

It is extremely anomalous therefore to have incidence of poverty or head count ratio results, which suggest that poverty in Vila is three times higher than that in rural Vanuatu. All other indicators suggest that rural poverty is far more extreme than urban poverty. The above results might also suggest that it is not correct to take the non-food poverty line values from the same sets of deciles in Vila and rural Vanuatu.

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13 There are deciles of population estimated separately for rural Vanuatu and for Vila. The patterns are very similar for Luganville, which is left out to simplify the graphs.

Might There Be More Appropriate Values for FPL, NFPL and BNPL?

It is suggested here that local poverty stakeholders need to estimate more appropriate values for the food poverty lines (FPL), non-food poverty lines (NFPL) and basic needs poverty lines (BNPL). It is suggested that the food poverty line values be estimated by selecting food baskets that are "appropriate" for households who are not in utter poverty and who are not well-off either. Of course, choosing 'appropriate' food baskets is easier said than done. Ideally, there should be some consensus amongst poverty stakeholders in Vanuatu for what items should comprise such a food basket. Such food baskets must be checked through a proper menu approach designed for rural and urban Vanuatu, and properly costed at local prices. Table 6 here gives a simulation of what a possible FPL basket for rural and urban Vanuatu might look like. This simulation is based on quantities consumed by rural and urban Melanesian Fijians, adapted to the diets of rural and urban Ni-Vanuatu, and using the prices that were used in the ADB/UNDP study. This results in the FPL values given in Table 7 with an rural-urban ratio of around 1.5 as opposed to the ratio of around 2 for the FPL values used by the ADB/UNDP study.

Then there needs to be consensus on what would be appropriate dollar values for the non-food poverty lines, again differentiated between rural and urban Vanuatu. It needs to be kept in mind that while there will be differences due to differences in costs of housing and transport, that used to represent education, health, clothing etc, ought to be of similar magnitudes given that rural people's needs in these areas are as equally intense as urban peoples' needs. The mistake should not be made of using actual low expenditures in rural areas that arise out of lack of cash income, as the standard to judge poverty in rural areas. Just for rough estimation, I use here the values for the NFPL given in Table 7, with the rural NFPL set arbitrarily at just 60% of the urban NFPL.

As usual, the sum of the two (FPL + NFPL) gives the simulated BNPL values. These values, used on rankings by expenditure per adult equivalent per month, give the rural incidence of poverty as 41%, which is somewhat higher than the urban estimate of around 33%.

Vanuatu stakeholders in poverty might wish to use their own model menus to construct more appropriate food poverty line baskets which may be costed using urban and rural prices. They may also reach consensus on what ought to be appropriate non-food poverty line values to be used for rural and urban Vanuatu.

It should be noted that there needs to be consensus amongst all the stakeholders in reaching appropriate values for the basic needs poverty lines, as there are significant implications for policy on allocations of poverty alleviation resources (both in terms of total quantity and distribution between rural and urban areas, and between different island groups), as well as for other policy areas such as minimum wages guidelines to be advised by the government. The experience of Fiji has been that when minimum

Table 6. Simulation using Vanuatu foods and Fijian Urban and Rural menus for 2 weeks for family of four adult equivalents.

	Vila Price/unit	Vila Unit	Vila Qtty Kg	Vila Cost	Rural Price/unit	Rural Unit	Rural Qtty kg	Rural Cost
ROOTCROPS								
Island taro	70	1	2	140	55	1	4	220
Bananas cooking	58	1	2	116	35	1	3	105
Manioc	45	1	2	90	25	1	3	75
Yam	96	1	1	96	60	1	3	180
Kumala	70	1	2	140	35	1	1	35
Laplap	300	1	1	300	100	1	1	100
Water taro	167	1	1	167	65	1	1	65
Breadfruit					50	1	1	50
Menu total			**11**	**1049**			**17**	**830**
CEREALS								
Rice	119	1	6	714	133	1	3	399
Bread	100	1	3	300	250	1	1	250
Noodles	38	0.09	0.27	10	45	0.09	0.09	4.05
Doughnuts	30	0.1	0.3	9	30	0.1	0.3	9
Flour	100	1	2	200	150	1	2	300
Biscuits buns	198	0.25	0.5	99	180	0.25	0.75	135
Menu total			**12.1**	**1332**			**7**	**1097**
Cereals plus root crops total			**23.1**				**24.1**	
MEATS								
Chicken local	600	1	1	600	200	1	1	200
Tinned tuna	110	0.35	0.7	77	180	0.35	0.7	126
Beef	415	1	1	415	200	1	1	200
Reef fish	450	1	1	450	250	1	1	250
Menu total			**3.7**	**1542**			**3.7**	**776**
VEGETABLES								
Island cabbage	58	1	1	58	35	1	1	35
Coconut/copra	28	1	1	28	30	1	1	30
Tomatoes	443	1	1	443	100	1	1	100
Bowl cabbage	300	1	1	300	100	1	1	100
Onions	176	1	1	176	250	1	1	250
Carrots	200	1	1	200		1		
Peanuts	200	1	1	200	200	1	1	200
Chinese cabbage	200	1	1	200	150	1	1	150
Menu total			**8**	**1605**			**8**	**865**
FRUIT								
Pawpaws	68	1	1	68	30	1	1	30
Green coconut	27	1	1	27	25	1	1	25
Bananas	60	1	1	60	60	1	1	60
Menu total			**3**	**155**			**3**	**115**
CONDIMENTS								
Sugar	113	1	1	113	180	1	1	180
Salt	188	1	0.25	47	200	1	0.25	50
Soft drink	172	1	1	172	200	0.35	0.35	70
Menu total				**332**				**300**
OILS/FATS								
Butter/magerine	181	0.25	0.25	45	250	0.25	0.25	63
Cooking oil	267	1	1	267	250	1	1	250
Menu total				**312**				**313**
Cost for 4 AE per week				6328				4296
Cost of FPL for 1 AE per month				6779				4602
Arbitrary NFPL pAE pm				5000				3000
BNPL pAE pm				**11779**				**7602**

Table 7. Simulated values for FPL, NFPL, BNPL and resulting incidence of
poverty for rural and urban Vanuatu using expenditure pAE.

	Rural	Urban
FPL pAE pm (vatu)	4602	6779
NFPL pAE pm (vatu)	3000	5000
BNPL pAE pm (vatu)	7602	11779
Incidence of poverty by expenditure pAE pm (%)	41%	33%

wages guidelines are set, there is usually strong reaction from affected employers that the BNPL values are too high. Government usually then has to justify the values used for the FPL, NFPL, and the BNPL. The ADB/UNDP approach would be a nightmare to explain to poverty stakeholders in Vanuatu. The "model menu" approach is far more understandable and transparent, as any objectors could be asked to suggest what they think a model menu ought to be that costs less in Vanuatu.

Implications for Poverty Alleviation Policies

While the criticisms above may seem like a purely academic exercise, unfortunately, the results have a very strong bearing on policy guidelines for resources allocation for the alleviation of poverty in Vanuatu. VNSO (2009) estimates the incidence of poverty (head count ratio). It also has a Table 20 (p.33) which estimates the poverty gap index (depth of poverty) and squared poverty gap (severity of poverty) as follows:

	Poverty gap index[14]	Squared poverty gap[15]
Vila	10.4	5.1
Luganville	2.9	1.2
Rural	3.8	2.0

Both these indicators would suggest that Vila requires much greater attention for poverty alleviation and resources, than does rural Vanuatu. This is again questionable.

One statistic that poverty analysts must estimate, and was not done by VNSO (2009), is the approximate value of the "poverty gaps" and their distribution around the country. For any household, the "poverty gap" is the difference between their actual household income per adult equivalent and the basic needs poverty line relevant for that household—in other words the dollar value which would be required to raise that

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14 VNSO (2009) (p.33): "The formula calculates the mean distance below the basic needs poverty line as a proportion of the poverty line where the mean is taken over the whole population, counting the non-poor as having zero poverty gap."

15 VNSO (2009) (p.33): "Through the process of squaring the index the SPGI gives greater weight to those at the lowest consumption/income levels and thus better reflects the severity of the poverty gap."

household to reach the BNPL. Some households will be just below the BNPL and require little resources, while others may be well below the BNPL and require larger resources.

When these individual household poverty gaps are added up for each grouping (urban/rural, islands, etc.), the results give an objective guideline to national poverty stakeholders as to the appropriate proportions of sharing of poverty alleviation resources, based purely on "need". Such guidelines, devised by neutral economists or HIES specialists, can go a long way towards reducing the political tensions that inevitably arise over questions of the sharing of development or poverty alleviation resources and projects.

Given the VNSO (2009), what would the poverty gap results suggest for the national sharing of resources? Table 8 gives some estimates using the ADB/UNDP values for the basic needs poverty lines, as well as estimates using the author's simulations. Naturally, the choices of the BNPL values will determine how much poverty alleviation resources will be required in vatu terms. The ADB/UNDP values for the BNPL result in a total resource requirement of about 599 million vatu or roughly 1.2% of Vanuatu's GDP in 2006. The poverty gap estimates using the author's BNPL values, result in a much higher estimate of 2,461 million vatu or 5.1% of GDP, quite understandable given that the author's BNPL values for rural households is much higher than that used by the ADB/UNDP study. The former poverty alleviation target would be considered manageable, while the latter would not. This significant difference in national resource requirements for poverty alleviation (5.1% of GDP as opposed to 1.2% of GDP) emphasises how important it is to ensure that the values selected for poverty lines are sensibly chosen and in line with national conditions.

Table 8. Estimates of poverty gaps and sharing of poverty alleviation resources for Vanuatu (by province).

Province	Using ADB/UNDP study BNPLs		Using author's simulation of BNPLs	
	Poverty gap (m vatu)	*Perc. share*	Poverty gap (m vatu)	*Perc. share*
Luganville	18	*3*	185	*8*
Malampa	16	*3*	273	*11*
Penama	17	*3*	233	*9*
Port Vila	386	*64*	463	*19*
Sanma Rural	7	*1*	201	*8*
Shefa Rural	54	*9*	353	*14*
Tafea	78	*13*	564	*23*
Torba	23	*4*	189	*8*
Vanuatu	599	*100*	2461	*100*
Urban	*404*	*67*	*648*	*26*
Rural	*195*	*33*	*1813*	*74*

Table 9. Incidence of poverty for different values of BNPL pAE pm (by provinces).

BNPL pAE pm*	Torba	Sanma	Malampa	Penama	Shefa	Tafea	Luganville	Port Vila	Vanuatu	Rural
3000-3100	20.0	2.7	4.5	3.5	13.6	16.4	1.8	1.9	7.4	9.0
3100-3200	21.2	4.0	4.6	3.8	14.2	16.8	1.8	1.9	7.9	9.5
3200-3300	22.2	4.4	4.9	3.8	14.5	17.1	1.8	1.9	8.1	9.8
3300-3400	23.2	4.4	5.2	3.9	15.1	18.1	2.1	2.4	8.6	10.3
3400-3500	24.4	4.7	5.5	4.3	15.3	18.9	2.1	2.4	8.9	10.7
3500-3600	26.4	4.7	5.9	4.9	15.6	19.3	2.5	2.4	9.3	11.2
3600-3700	28.0	5.0	6.6	5.6	15.7	20.2	2.5	3.0	9.9	11.8
3700-3800	28.7	5.0	7.7	5.6	17.1	21.0	2.7	3.2	10.5	12.5
3800-3900	29.5	5.7	8.5	6.3	17.4	22.1	2.7	3.2	11.0	13.2
3900-4000	29.9	6.1	9.4	6.7	17.9	22.5	2.7	3.2	11.4	13.7
4000-4100	30.9	6.6	10.1	7.3	18.8	23.0	2.9	3.2	11.9	14.4
4100-4200	31.6	7.1	11.8	7.6	18.8	23.7	2.9	3.2	12.5	15.1
4200-4300	32.4	7.6	12.5	8.2	19.6	24.8	3.2	3.2	13.1	15.8
4300-4400	33.6	8.4	13.6	8.7	20.7	24.9	4.2	3.5	13.8	16.5
4400-4500	35.9	9.6	15.1	9.4	20.9	25.1	4.7	3.7	14.5	17.4
4500-4600	37.2	9.8	15.3	10.4	21.2	26.7	5.0	3.7	15.1	18.1
4600-4700	38.2	10.4	15.7	11.0	21.5	27.0	5.4	4.4	15.6	18.6
4700-4800	39.1	10.4	16.2	11.2	22.0	29.2	5.9	4.7	16.2	19.3
4800-4900	39.9	11.8	17.1	12.2	22.4	30.9	5.9	5.1	17.1	20.4
4900-5000	41.2	13.7	17.5	12.4	23.0	32.2	6.5	5.5	17.9	21.3
5000-5100	41.9	14.0	18.4	12.7	23.0	32.4	6.5	5.8	18.3	21.6
5100-5200	43.3	15.2	18.9	13.8	23.3	33.6	6.8	6.1	19.0	22.6
5200-5300	43.7	15.9	19.6	14.8	24.4	34.5	7.1	6.1	19.7	23.4
5300-5400	44.5	16.4	20.0	16.2	25.5	35.7	7.1	6.9	20.6	24.3
5400-5500	45.8	17.4	20.5	17.1	25.8	36.1	7.6	7.2	21.2	25.0
5500-5600	47.0	18.2	21.0	17.1	25.8	37.4	8.3	7.2	21.6	25.5
5600-5700	47.4	19.6	21.1	17.5	26.6	38.2	8.7	7.2	22.2	26.2
5700-5800	48.6	20.7	22.1	18.7	27.6	39.2	8.9	7.2	23.0	27.3
5800-5900	49.3	21.4	23.3	19.8	28.1	40.3	8.9	8.4	24.0	28.2
5900-6000	50.0	22.1	24.0	20.4	29.4	41.2	9.9	8.6	24.7	29.0
6000-6100	51.3	22.8	24.6	21.3	30.1	41.4	9.9	8.9	25.2	29.7
6100-6200	53.1	23.5	25.3	22.0	30.2	42.0	10.7	8.9	25.8	30.3
6200-6300	53.4	24.4	26.2	23.6	30.9	42.7	10.7	9.2	26.5	31.2
6300-6400	54.4	25.1	27.0	23.8	31.7	43.6	11.3	10.3	27.3	31.9
6400-6500	55.4	25.9	27.5	23.9	33.4	44.9	12.1	10.3	28.0	32.8
6500-6600	55.7	26.6	28.2	24.8	33.5	45.5	12.3	10.3	28.5	33.4
6600-6700	56.3	27.1	28.8	25.0	34.2	45.9	13.5	10.7	29.0	33.9
6700-6800	57.1	28.3	29.4	25.3	35.5	47.8	13.5	10.9	29.9	34.9
6800-6900	57.6	29.1	30.5	26.0	35.8	48.3	14.4	11.6	30.5	35.6
6900-7000	58.3	30.4	30.8	26.6	36.8	48.8	15.1	12.3	31.3	36.3
7000-7100	59.7	32.7	31.5	27.3	37.1	49.4	16.4	12.6	32.1	37.2
7100-7200	60.4	34.9	32.0	28.3	38.4	49.6	16.7	13.8	33.1	38.2
7200-7300	61.2	36.2	32.4	28.9	38.8	50.2	16.7	13.8	33.6	38.8
7300-7400	61.8	37.0	33.0	29.1	39.5	50.6	17.4	13.8	34.0	39.4
7400-7500	63.3	38.2	34.1	29.9	40.5	51.6	18.8	14.5	35.0	40.4
7500-7600	64.2	39.2	34.8	30.8	41.1	52.3	19.6	15.4	35.8	41.2
7600-7700	64.7	40.9	35.5	32.2	41.5	52.3	19.8	16.3	36.6	42.0
7700-7800	65.1	42.2	37.2	33.0	42.1	53.3	20.0	16.3	37.4	43.1
7800-7900	65.3	43.2	38.1	33.3	43.6	53.8	21.1	16.3	38.1	43.8
7900-8000	67.1	44.4	38.9	34.2	44.7	54.6	21.4	17.4	39.1	44.8

* To obtain BNPL values for a standard household of four adult equivalents per month, multiply the first column by 4.

Table 9. Continued.

BNPL pAE pm*	Torba	Sanma	Malampa	Penama	Shefa	Tafea	Luganville	Port Vila	Vanuatu	Rural
8000-8100	67.8	46.2	40.3	35.0	45.1	54.8	22.3	17.4	39.8	45.7
8100-8200	68.9	46.6	40.6	35.8	45.3	54.8	22.9	17.5	40.2	46.1
8200-8300	69.6	47.7	41.1	36.7	46.1	55.5	24.1	17.8	40.9	46.9
8300-8400	69.8	48.5	42.2	38.4	46.8	56.0	24.7	18.3	41.7	47.8
8400-8500	70.8	49.1	42.9	38.9	46.8	57.0	25.3	18.4	42.3	48.4
8500-8600	71.4	50.2	43.3	39.8	47.4	57.7	26.2	18.4	42.9	49.1
8600-8700	72.1	50.7	43.7	39.8	47.7	58.8	26.3	19.3	43.4	49.6
8700-8800	72.5	51.9	44.0	40.8	48.4	60.2	26.7	19.7	44.2	50.5
8800-8900	72.5	53.3	44.6	41.1	49.1	60.9	27.7	20.0	44.8	51.2
8900-9000	72.5	53.8	45.3	41.4	49.3	62.0	27.7	21.3	45.5	51.7
9000-9100	73.1	54.3	45.9	43.0	49.3	62.4	27.7	22.7	46.2	52.4
9100-9200	73.1	55.0	47.2	44.2	50.0	63.1	28.8	23.8	47.1	53.2
9200-9300	74.3	55.7	47.6	45.2	50.0	63.8	29.6	23.8	47.6	53.8
9300-9400	75.0	55.9	48.0	45.3	50.0	64.4	30.5	24.5	48.0	54.1
9400-9500	75.0	56.9	49.4	45.7	50.8	64.5	30.7	24.5	48.6	54.8
9500-9600	76.6	57.3	49.4	46.8	52.0	64.9	31.3	25.0	49.2	55.5
9600-9700	76.6	57.8	50.1	47.0	52.2	65.2	31.8	25.0	49.5	55.8
9700-9800	77.1	57.9	50.2	47.0	52.2	65.6	32.6	25.3	49.7	56.0
9800-9900	77.3	58.4	51.3	47.6	52.4	66.2	32.9	25.6	50.3	56.6
9900-10000	77.7	59.2	52.0	48.5	52.8	66.4	33.5	25.8	50.8	57.2
10000-10100	78.2	60.0	52.6	49.4	53.9	66.4	34.5	26.2	51.4	57.8
10100-10200	78.2	60.9	53.3	50.4	55.1	66.9	34.5	26.7	52.1	58.6
10200-10300	78.7	61.3	53.7	51.0	55.3	66.9	34.8	26.8	52.4	58.9
10300-10400	79.2	62.5	53.9	51.9	55.4	67.3	35.6	27.3	53.0	59.5
10400-10500	79.8	63.3	54.2	52.6	55.6	68.3	35.8	27.4	53.4	60.0
10500-10600	80.0	64.1	54.8	53.6	55.9	68.3	36.0	28.4	54.0	60.6
10600-10700	80.1	64.2	55.2	54.7	56.5	68.7	36.1	29.2	54.5	61.1
10700-10800	80.6	64.5	56.1	55.1	57.1	69.0	38.0	29.4	55.1	61.6
10800-10900	81.0	65.0	56.4	55.9	57.1	69.1	38.3	29.8	55.4	61.9
10900-11000	81.4	65.9	56.4	56.2	57.7	69.5	38.5	30.8	55.9	62.4
11000-11100	81.8	66.9	56.7	56.5	57.7	70.0	39.6	30.8	56.3	62.8
11100-11200	82.5	67.6	57.3	57.8	58.0	70.5	40.3	31.6	57.0	63.4
11200-11300	83.0	68.1	57.8	57.8	58.5	71.0	41.4	32.2	57.5	63.8
11300-11400	83.8	68.8	58.8	58.7	59.0	71.4	41.9	32.2	58.0	64.5
11400-11500	83.9	69.6	58.9	58.9	59.7	71.6	42.7	32.8	58.5	64.9
11500-11600	84.9	70.3	59.1	59.8	60.2	71.9	42.7	32.8	58.9	65.5
11600-11700	85.2	70.7	59.5	59.9	61.2	71.9	42.9	32.8	59.2	65.8
11700-11800	85.4	71.4	59.8	60.9	62.1	73.4	43.2	32.8	59.9	66.7
11800-11900	86.0	71.5	60.2	61.0	62.7	74.0	43.2	33.6	60.3	67.0
11900-12000	86.0	71.9	60.2	61.2	63.3	74.2	43.8	34.0	60.6	67.3

* To obtain BNPL values for a standard household of four adult equivalents per month, multiply the first column by 4.
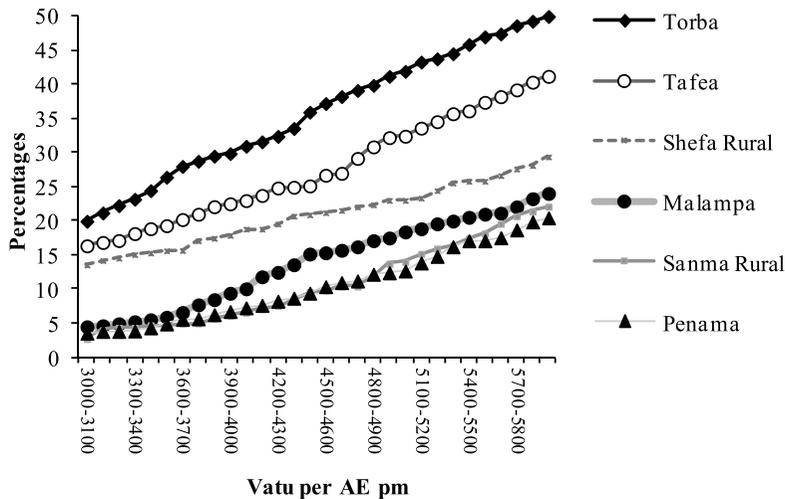
Fig. 8. Incidence of poverty (by provinces) (percentage of population below BNPL).

The more important policy issue here, however, is not the absolute amounts, but the relative amounts—i.e. the sharing percentage guidelines suggested for the urban areas and the rural provinces. These percentages will be fairly stable between the rural provinces, whatever the level of BNPL chosen for the rural households. However, the rural-urban sharing percentage will solidly depend on the relative values of the BNPL for Vila and Luganville, compared to the rural households. Table 8 here indicates that the ADB/UNDP relativities in BNPL lead to the strong policy guideline that urban households (in Vila and Luganville) should receive 67% of all poverty alleviation resources (whatever is allocated by the Vanuatu Government) and that rural households receive only 33% of the resources. If, however, the author's simulated values for BNPL are used, then the guidelines are more than reversed: rural households should receive 74% of all poverty alleviation resources, with only 26% going to urban households. Table 8 indicates that there are very significant differences in the poverty alleviation resource guidelines between the two sets of choices for the BNPL for all the islands. The methodology of poverty analysis is critical in understanding these different results.

Stakeholders' Own Estimates of Incidence of Poverty

This section presents the Vanuatu HIES data in such a form that all stakeholders may be able to derive their own estimates of the incidence of poverty given their own choice of values for the FPL and the BNPL in urban and rural areas, using expenditure per adult equivalent rankings. Table 9 gives the incidence of poverty (or head count ratio) for the full range of values of expenditure per adult equivalent per month. Whatever BNPL pAE pm is selected, the grid gives the incidence of poverty. Figure 8

(which graphs the data in Table 9) indicates that the order of poverty amongst the rural areas in the provinces is pretty much the same, regardless of the value of the BNPL chosen: the most poor are rural households on Torba, followed by Tafea and Shafea Rural. The lowest is Penama.[16]

A Warning on VNSO (2009) Results on Income Distribution

VNSO (2009) gives some Gini coefficients as indicators of "income distribution" in Vanuatu (although their statistics appear to be the distribution of "expenditure" not "income"):

Vanuatu:	0.41
Port Vila:	0.46
Luganville:	0.41
Rural:	0.40

The relativity between rural areas and Vila appear to be correct but the absolute values for Vila is probably under-estimated because the 2006 HIES was not at all able to capture in the HIES sample, enough of Chinese and European households. There is, therefore, likely to be very serious under-reporting of incomes at the upper end both for Chinese and European households.

Overall, the HIES estimated total household income as 31,554 million vatu, which is only 65% of the gross domestic product of 48,426 million vatu estimated for 2006.[17] Average household incomes estimated from the HIES are given in Table 10, which indicates that while average household incomes for Ni-Vanuatu was only 59 thousand vatus per month and 357 thousands for European households, that for Chinese was estimated to be a mere 54 thousand vatus—a completely implausible result given the well-known dominance of the economy by Chinese households.[18] The HIES estimate of the Chinese share of total household income was therefore a mere 0.1%—clearly significantly under-estimated.

Table 10. Average household incomes, expenditures and shares of totals (by ethnicity).

	Ni-Vanuatu	European	Chinese	Others	All
Average household income pm (000 vatu)	59	357	54	145	61
Average household expenditure pm (000 vatu)	52	352	85	128	54
Percentage of saving (%)	12	1	-57	12	11
HIES percentage of total income	96.6	2.3	0	1.1	100
HIES percentage of total expenditure	96.3	2.5	0	1.1	100

16 There is one "crossing over"—the graph for Sanma Rural.
17 Vanuatu National Statistics Office website: http://www.vnso.gov.vu/.
18 An extremely large part of the urban wholesale and retail economy are owned by Chinese.

Table 11. Survey responses and comparisons with 1999 census results (by ethnicity).

	Ni-Vanuatu	European	Chinese	Others	All
Count in sample	3856	11	2	16	3885
Estimated number of households	42931	167	11	203	43312
HIES estimated number of persons	201952	480	17	780	203229
HIES proportions of persons	99.37	0.24	0.01	0.38	100
1999 census proportions of persons	98.52	0.78	0.15	0.55	100
Rate up factor required	0.99	3.28	17.65	1.44	

Table 11 gives an indication of the source of the problems: while there were 11 European households in the HIES sample, there were only 2 Chinese. Given the proportions of persons estimated in the HIES and given the proportions estimated by the 1999 census on population, the numbers for European total incomes and expenditures would need to be, very roughly, scaled upwards by a factor of 3.28. That for Chinese would need to be scaled up by a factor of 18—although such a procedure would still give totally inaccurate results given that the HIES estimate of average Chinese incomes is unrealistically low.

All urban Gini coefficients are therefore likely to be very severely under-estimated and HIES estimates of the rural-urban shares of total household income and expenditure are also likely to be grossly under-estimating the urban shares and over-estimating the rural shares.

Conclusion

This paper has critically examined the VNSO (2009) analysis of the incidence of poverty in Vanuatu. It has shown that the study's results for the incidence of basic needs poverty are inappropriate because of weaknesses in the methodology of estimating food poverty and non-food poverty lines. VNSO (2009) results in inappropriate recommendations for the national sharing of resources for poverty alleviation, with a bias towards urban areas (Vila and Luganville) and bias against rural areas.

This paper shows that more appropriate values for the food poverty lines and non-food poverty lines would give opposite indications: the incidence of poverty is higher in rural areas than in urban areas. Moreover, the share of poverty alleviation resources that should be going to rural areas (74%) is totally reversed from that indicated implicitly by the ADB/UNDP report, a mere 33%. Rural areas (a mere 33%). This has major policy implications for poverty alleviation guidelines in Vanuatu.

It needs not be emphasised enough that were the VNSO (2009) results on poverty relativities to be used to guide the distribution of poverty alleviation resources, a perverse cycle would be set in motion. An already poor rural sector would be deprived

further while standards of living in urban areas would be improved, thereby leading to a strengthening of the rural-urban drift, and further increasing pressures on poverty alleviation resources for the urban areas. More appropriate poverty results for rural and urban Vanuatu would lead to greater effort at poverty alleviation in rural areas, thereby discouraging rural-urban drift.

This study has presented data in an easy to use tabular form, which should allow poverty stakeholders in Vanuatu to estimate values for the incidence of poverty using their own estimated values for the FPL, NFPL and BNPL for Vila, Luganville and Rural Vanuatu. It is suggested that Vanuatu poverty stakeholders initiate an exercise to arrive at a more appropriate definition of food poverty line baskets for Vila, Luganville and Rural Vanuatu and to select more appropriate values for the non-food poverty line (and hence the basic needs poverty line). This paper warns against the uncritical use of income distribution statistics such as Gini coefficients given that the 2006 Vanuatu HIES was not able to adequately capture the Chinese households in the sample, and to a lesser extent, the European households. Such income distribution estimates will need to wait for another more comprehensive HIES.

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Appendix 1. Abbreviations in the text, tables, and figures.

Abbreviation	Meaning
ADB	Asian Development Bank
AE	Adult equivalent (children less than 15 years old = half an adult)
BNPL	Basic needs poverty line
BNPL pAE	Basic needs poverty line per adult equivalent
CPI	Consumer prices index
FPL	Food poverty line
GDP	Gross domestic product
Gini	The Gini coefficient, which is commonly used as a measure of inequality
hh	Household
HIES	Household income and expenditure survey
Incidence of Poverty or Head Count Ratio	Percentage of the population below the BNPL
IMF	International monetary fund
NFPL	Non-food poverty line
OECD	Organisation for economic co-operation and development
pa	per annum
pc	per capita
pAE	per adult equivalent
pm	per month
pw	per week
Poverty Gap	The resources required to bring all poor households up to BNPL
SPC	Secretariat of the Pacific Community
UNDP	United Nations Development Programme
USP	The University of the South Pacific
WB	World Bank