

# Demystifying Poverty Measurement in Vietnam

*Gabriel Demombynes*  
*Linh Hoang Vu*



**WORLD BANK GROUP**

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# Abstract

This paper provides an overview of poverty measurement issues in Vietnam for the non-specialist. Vietnam has two main approaches to measuring poverty. An income-based approach is used by the Ministry of Labor, Invalids, and Social Affairs to generate a classification used for determining anti-poverty program eligibility as well as poverty monitoring over the short term. A separate consumption-based approach has been used by the General Statistics Office and the World Bank (GSO-WB), principally to examine poverty changes over the

longer run. These national poverty lines are distinct from the \$1.25-a-day and \$2-a-day international poverty lines. Vietnam's GSO-WB national poverty line is similar in purchasing power parity terms to that of other countries with similar levels of development. Simple projections of poverty rates through 2020 imply that the GSO-WB poverty rate will fall from a 2012 level of 17.2 percent to below 10 percent by 2020, and that over a third of ethnic minorities will still be poor despite large poverty reduction gains.

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Gabriel Demombynes  
World Bank

Linh Hoang Vu  
World Bank

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Poverty measurement in Vietnam has been complicated by the proliferation of approaches, which can confuse even the specialist. This note explains how poverty is measured in Vietnam. It begins with a brief overview of general practices for measuring poverty. The second section explains the distinction between international and national poverty lines. The third section describes the various national poverty figures used in Vietnam. A fourth section reviews issues around the poverty measurement system and presents a rough projection of future poverty reduction.

## **1 General Practices in Poverty Measurement**

Measuring poverty involves three steps: 1) the choice of a welfare indicator, 2) definition and calculation of a minimum acceptable level of that indicator (the poverty line), and 3) the definition and calculation of poverty measures using that poverty line.<sup>1</sup>

The welfare indicator is typically either income or consumption.<sup>2</sup> Consumption consists of cash expenditure plus the estimated value of “own consumption”—consumption of goods that the household itself produces, such as rice grown and eaten by the household. Standard practice favors the use of consumption over income in developing countries for four reasons: 1) it is a better measure of actual standard of living, 2) given consumption smoothing over time, it is a better measure of long-term wellbeing, 3) it is less likely to be misreported than income in developing countries, 4) it is a better measure for households with substantial own consumption. Income has the advantage, however, that it is less costly to measure than consumption, which requires a detailed and time-consuming survey.<sup>3</sup>

While income is used in most developed countries and many Latin America countries for poverty measurement, consumption is used in most developing countries. Figure 1 shows the number of countries by region that use consumption vs. income for their national poverty lines among a sample of 68 countries for which information is available. Three quarters use consumption.

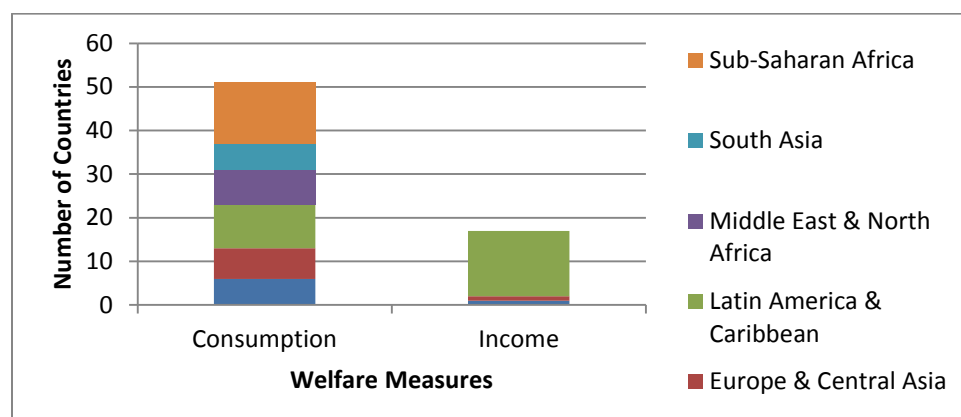
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<sup>1</sup> There is no single standard reference to measuring poverty. Haughton and Khandker (2009) is a useful introduction to the issues, and Ravallion (1998) provides a basic guide.

<sup>2</sup> This note does not consider the broader topic of welfare measurement using non-monetary dimensions of welfare and subjective measures.

<sup>3</sup> Another secondary advantage to income measure for poverty measurement is that it is possible to decompose poverty by source of income, which cannot be done with consumption.

**Figure 1: Consumption vs. Income for National Poverty Lines by Region**



Source: Yoshida, Katayama and Singh (2013)

Income or consumption is measured using household survey data. The construction of the single aggregate figure is a very substantial task in itself, particularly for consumption.<sup>4</sup> The task involves three steps: 1) adding up subcomponents to construct a nominal aggregate; 2) construction of price indices to adjust for differences in prices faced by households across space and over time; and 3) adjustment of the price-adjusted aggregate for differences in household composition.<sup>5</sup> The resulting aggregate, and thus the poverty figures, is sensitive to the various choices in each of these three steps.

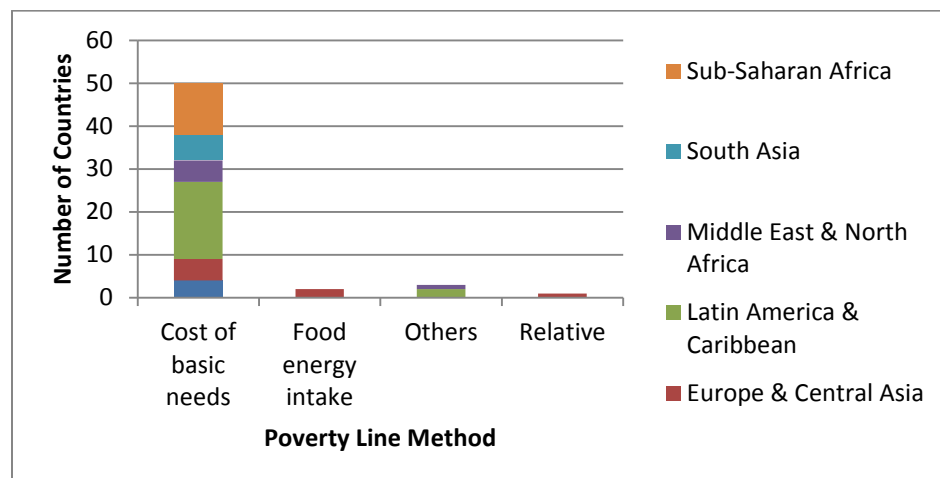
The poverty line is the amount of income/consumption needed to achieve a minimum acceptable welfare level. There are many possible approaches to determining a poverty line. Standard practice used in most developing countries to calculate national poverty lines involves the “cost of basic needs” approach to determining the poverty line. This starts with minimum calorie requirements deemed sufficient for good health. Using survey data, the costs of meeting this food energy requirement is calculated, using a diet of typical households near the poverty line. The cost for this food basket is considered the “food poverty line.” A non-food component is calculated, typically using the observed non-food percentage of consumption of households near the poverty line. Finally, the overall poverty line is obtained by adding the food poverty line and the non-food component.

Other possible approaches to establishing a poverty line include the food energy intake method and relative methods (which define the line relative to, e.g. median income). Figure 2 indicates different methods of establishing the poverty lines among 56 countries for which the relevant information is available. The cost-of-basic-needs approach is used by 89 percent of the countries.

<sup>4</sup> Deaton and Zaidi (2002) is the standard guide to the complex process of consumption aggregates.

<sup>5</sup> The most common adjustment for household composition—and that used in Vietnam—is to simply divide total household consumption/income by the number of members of the household to produce per capita measures. In some other countries, more complex measures are used that take into account household economies of scale and different caloric needs by age and other characteristics.

**Figure 2: Poverty Line Methodology by Region**



Source: Yoshida, Katayama and Singh (2013)

By far the most common poverty measure is the *poverty headcount*, which is simply the fraction of the population that is poor, i.e. with income/consumption below the poverty line. Another informative measure is the *poverty gap*, which is greater for lower welfare levels of the poor. Less commonly used is the *squared poverty gap* which is more sensitive to the welfare of the poorest of the poor. The poverty headcount, poverty gap, and squared poverty gap are all members of the set of poverty measures introduced by Foster, Greer and Thorbecke (1984) and can be referred to respectively as FGT(0), FGT(1), and FGT(2).

## 2 International vs. National Poverty Lines

For the purpose of comparing across countries, the World Bank has established *international* poverty lines. The lines currently in use for global poverty measurement are US\$1.25-a-day and U.S.\$2-a-day at 2005 purchasing power parity (PPP) prices. The \$1.25-a-day line was established based on the mean of the national poverty lines in the poorest 15 countries, and the \$2-a-day line is based on the approximate median poverty line for all developing countries (Chen and Ravallion 2012).

The international poverty lines are not intended for poverty analysis within specific country contexts. The general recommendation of the World Bank is to use the *national* poverty line for country-specific work in each developing country (Ravallion 2010). Likewise, the UN recommends that countries use national poverty lines whenever possible to track country progress for the Millennium Development Goals (United Nations 2001).

The \$1.25-a-day line has been used for the purposes of monitoring global progress on the World Bank's goal of eliminating extreme poverty. Specifically, the goal has been articulated as reducing the percentage of people living with less than \$1.25 a day (in 2005 PPP) to no more than 3 percent globally by 2030. While the \$1.25-a-day line is used for global monitoring, guidance within the World Bank has indicated that discussions around ending extreme poverty in

particular country contexts should use primarily the national poverty lines relevant to the countries rather than the \$1.25-a-day line.

### **3 Poverty Measurement in Vietnam**

There are two parallel approaches to poverty measurement in Vietnam using *national* poverty lines. The first approach, developed and led by the Ministry of Labor, Invalids, and Social Affairs (MOLISA), is based on income and is used primarily for targeting social programs. The second was developed by the General Statistical Office and the World Bank, is based on consumption and is used chiefly for monitoring poverty over time.

Table 1 presents a summary of the many different national and international poverty lines that have been used in Vietnam, along with the most recent headcount poverty estimate. Table 2 provides a comprehensive set of poverty estimates for 1993-2013 calculated using the various methods. Figure 1 shows the trends over time using the most commonly cited poverty methods. The details of the methods behind these different approaches are described in subsequent sections.

**Table 1: Summary of Poverty Lines and Poverty Headcounts Using Various Poverty Lines**

Poverty Line	National poverty headcount, most recent year	Most recent year	Poverty line, VND per month, most recent year	Poverty Line, 2005 PPP\$ per day, most recent year	Responsible party	Welfare measure	Data source
International Poverty Lines							
\$1.25-a-day	2.4%	2012	474,204	\$1.25	WB	Consumption	VHLSS
\$2.00-a-day	12.5%	2012	758,726	\$2.00	WB	Consumption	VHLSS
Principal National Poverty Lines							
GSO-WB poverty	17.2%	2012	871,308	\$2.30	GSO, WB	Consumption	VHLSS
MOLISA poverty (GSO calculation)	11.1%	2012	rural: 400,000	rural: \$1.33	GSO	Income	VHLSS
			urban: 500,000	urban: \$1.66			
MOLISA poverty (MOLISA calculation)	7.8%	2013	rural: 400,000	rural: \$1.33	MOLISA	Income	NCP + local monitoring <sup>2</sup>
			urban: 500,000	urban: \$1.66			
Other National Poverty Lines							
GSO-WB extreme poverty	5.6%	2012	580,872	\$1.53	GSO, WB	Consumption	VHLSS
GSO-WB poverty (pre-2010)	14.5%	2008	279,843	\$1.23	GSO, WB	Consumption	VHLSS
MOLISA near-poor*	6.3%	2013	rural: 520,000	rural: \$1.73	MOLISA	Income	NCP + local monitoring <sup>2</sup>
			urban: 650,000	urban: \$2.16			

Notes: Conversion of GSO-WB poverty lines into PPP terms was done using the January CPI of the corresponding year.

Conversion of MOLISA poverty lines into PPP terms was done using the annual average CPI for 2010, the year they were announced.

\*The MOLISA "near-poor" are those with incomes above the poverty line but below the near-poor line.

WB= World Bank, GSO = General Statistics Office, MOLISA = Ministry of Labour, Invalids and Social Affairs

VHLSS= Vietnam Household Living Standard Survey, NCP = National Census of Poverty



**Table 2: Poverty Rates Over Time Using Various Poverty Lines and Concepts**

	National Poverty Lines					International Poverty Lines					
	MOLISA line, calculation	MOLISA line, GSO calculation	GSO-WB poverty line			GSO-WB extreme line*	\$1.25/day 2005 PPP line	\$2.00/day 2005 PPP line	Total National Population		
	Headcount	Headcount	Headcount	Squared Poverty Gap	Poverty	Headcount	Poverty	Headcount	Poverty		
Year	%	%	%	%	%	%	%	%	%		
1993	26.0		58.1	18.5	7.9	24.9	63.8	23.6	85.7	43.6	69,644,500
1994	23.0										70,824,500
1995	20.3										71,995,500
1996	19.6										73,156,700
1997	18.0										74,306,900
1998	16.0		37.4	9.5	3.6	15.0	49.4	14.9	78.1	34.0	75,456,300
1999	13.0										76,596,700
2000	10.0										77,630,900
2001	13.9										78,621,000
2002	11.4		28.9	7.0	2.4	10.9	40.1	11.2	68.7	28.0	79,538,700
2003	8.8										80,468,400
2004	6.8	18.1	19.5	4.7	1.7	7.4	31.4	8.4	60.4	22.9	81,437,700
2005	21.7										82,393,500
2006	18.0	15.5	15.9	3.8	1.4	6.6	21.4	5.3	48.1	16.3	83,313,000
2007	14.8										84,221,100
2008	12.1	13.4	14.5	3.5	1.2	6.1	16.8	3.7	43.3	13.5	85,122,300
2009	11.3										86,025,000
2010	14.2	14.2	20.7	5.9	2.4	8.0	3.9	0.8	16.8	4.2	86,932,500
2011	11.8	12.6									87,840,000
2012	9.6	11.1	17.2	4.5	1.7	5.6	2.4	0.6	12.5	2.9	88,772,900
2013	7.8	9.8									89,708,900

Note: Double lines indicate the year (2010) of several survey and methodology revisions. Dotted lines indicate years when MOLISA poverty lines were revised.

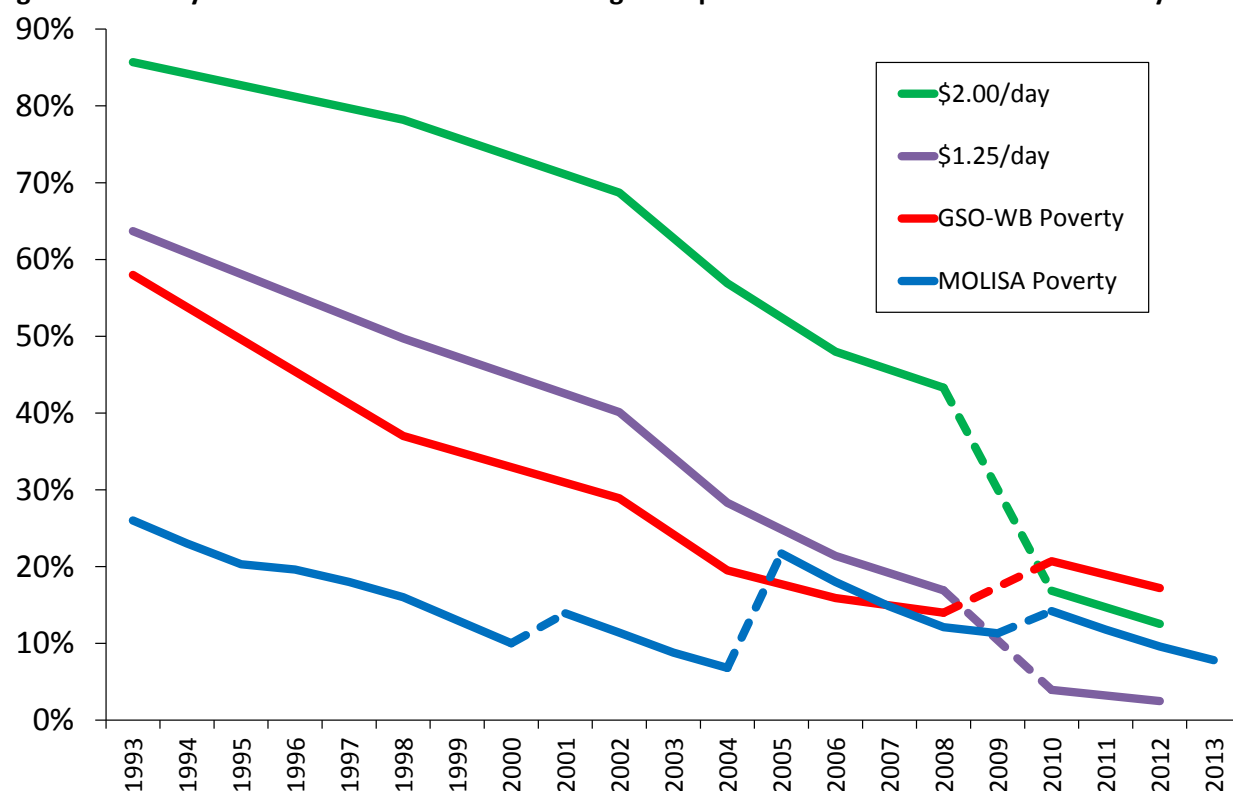
\*GSO-WB extreme poverty line figures are based on the food poverty line for 1993-2008 and 2/3 of the GSO-WB poverty line for 2010-2012.

WB= World Bank, GSO = General Statistics Office, MOLISA = Ministry of Labour, Invalids and Social Affairs

VHLSS= Vietnam Household Living Standard Survey, NCP = National Census of Poverty

Sources: GSO (MOLISA poverty rates calculated by GSO), MOLISA (MOLISA poverty rates calculated by MOLISA), World Bank 2012 (GSO-WB poverty rates), World Development Indicators (population figures and international poverty rates)

**Figure 3: Poverty Headcount Rates Over Time Using Principal National and International Poverty Lines**



Note: Dotted lines indicate periods when substantial changes were made to poverty lines and/or methodology.

### 3.1 MOLISA Income-Based Poverty Measurement for Targeting Social Programs

MOLISA is the primary government agency responsible for poverty reduction programs and policies. The ministry is responsible for proposing official urban and rural poverty lines at the beginning of each five-year Socio-Economic Development Plan (SEDP) and setting the beginning period poverty rate. MOLISA monitors changes in poverty and updates the list of poor households who are then targeted as beneficiaries under government programs designed to reduce poverty on an annual basis. Progress is assessed against poverty reduction targets set in the SEDP. The MOLISA poverty rates are also used to determine budget allocations and define eligibility for a number of targeted poverty reduction programs (e.g. National Targeted Program for Poverty Reduction – NTP-PR, Program 30a).

The MOLISA lines were initially based on rice equivalents but since 2005 have been calculated with technical support from GSO using a cost-of-basic-needs methodology similar to the second approach led by GSO (described in the next section). Specifically, the poverty line is based on expenditure for a reference food basket and a basic non-food allowance, using a caloric norm of 2100 kcals per person per day. The official lines are set in terms of income. Notably, the MOLISA poverty lines are *not* adjusted for inflation year-to-year. They are only revised every

five years with the introduction of each new SEDP. The value of the MOLISA poverty lines over time is shown in Annex Table 1.

Since 2006 GSO has published a set of income-based poverty rates based on MOLISA poverty lines. The Government assigned GSO responsibility for publishing national, regional, and provincial poverty rate in Vietnam based on MOLISA poverty lines. MOLISA also publish poverty rates using the same poverty lines. That creates some confusion over what are deemed as “official” poverty rates in Vietnam. There are two crucial differences between the two poverty rates: i) GSO adjusts the value of the poverty line for inflation year-to-year, while MOLISA keeps the same poverty line in nominal terms during each five year period, and ii) MOLISA poverty rates are obtained by bottom-up monitoring activities and village-level consultation, while GSO poverty rates are calculated based on income obtained from the VHLSS.

Up through 2005, identification of the “poor” by MOLISA was done by commune authorities using criteria that varied by commune and over time. In 2005, MOLISA implemented a National Census on Poverty (NCP) to produce a complete list of poor households for the period 2006–10 (MOLISA 2005). A similar procedure was used in 2010 for the second National Census on Poverty, which was the basis for the identification of poor households for the period 2011–15. According to the official guidelines, the NCP involved two stages. First a simple questionnaire on assets was administered to households. Each asset was scored, and those that scored above a cutoff were classified as “surely non-poor.” Then a second questionnaire was used to collect income information on all the remaining households (MOLISA 2010, Nguyen and Tran 2013).

In the years when there is not a National Census on Poverty, MOLISA updates the poverty lists through village-level consultations. An updated list of poor households is proposed, generally by the village leader and the commune officials based on their observations. The list is modified and then ratified by participants at the village level meeting.<sup>6</sup>

As the MOLISA poverty lines are changed every five years, they are not suitable for longer term monitoring of changes in poverty. Additionally as noted MOLISA does not adjust the lines year-to-year for inflation (although GSO does). This creates a “sawtooth” pattern of the poverty line in real terms, whereby it falls each year as its value is eroded by poverty until it jumps up when a new poverty line is determined at the beginning of the SEDP period.

Nguyen and Tran (2014) highlight some weaknesses of MOLISA’s poverty measurement process. First, the procedure is very complicated and hard for communes to strictly follow, leading to varied quality of poverty identification. Anecdotal accounts suggest that the complexity of the procedure leads to haphazard implementation. Second, they argue that the income questionnaires are too light to capture a household’s true income. Thirdly, since the purpose of the census is mainly to determine beneficiaries of Government supported poverty reduction programs, households have an incentive to underreport their income.

The MOLISA poverty classification system has incentive implications for both the potentially poor and for local officials. Individuals have an incentive to be classified as poor in order to be eligible for poverty reduction programs. Local officials, however, have an incentive to show declining numbers of poor over time in order to demonstrate that they are meeting SEDP targets.

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<sup>6</sup> The procedure described here is based on the description in MOLISA (2012).

### **3.2 GSO-WB Consumption-Based Poverty Measurement for Monitoring**

The first poverty line in Vietnam based on the cost-of-basic-needs was calculated by the GSO, with assistance from the World Bank using the 1993 Vietnam Living Standards Survey (VLSS). GSO produced poverty estimates based on the VLSS in 1993 and 1998 and based on the Vietnam Household Living Standard Survey in 2002, 2004, 2006, 2008, 2010, and 2012. Unlike the MOLISA income-based line, the GSO-WB line is based on consumption. The GSO-WB line was kept roughly constant in real purchasing power over time, which has made it suitable for monitoring changes over time. Due to an overhaul of the methodology in 2010, poverty estimates up through 2008 are not comparable to those since 2010.

The 2010 VHLSS and related welfare aggregates represented a break with the 2002-2008 VHLSS series in three important respects: 1) the 2010 survey was based on a new master sample, including a new set of communes and enumeration areas (EAs), 2) the questionnaire was revised in a number of areas (including the consumption module) and reduced in length, and 3) an updated methodology was been used to construct a more comprehensive consumption welfare aggregate. The changes to the consumption module and consumption welfare aggregate reflect the fact that as a substantially wealthier country today than it was in 1993, Vietnam's typical consumption basket now involves a wider range of goods. A sketch of the 2010 poverty line methodology is in Annex 1 of this paper, and a detailed discussion of the methodology and the 2010 changes can be found in World Bank (2012).

In 2012, consumption aggregates for 2012 were constructed in the same way as consumption aggregates for 2010. The 2012 GSO-WB poverty line was calculated on the basis of the 2010 GSO-WB poverty line, and was updated using a method that was used to update GSO-WB poverty lines during 2002-2008. It involves calculating the cost of food poverty line using 2012 unit values (January 2012 unit values), and recalculating the non-food component by estimating new Engels curves. The GSO-WB poverty line in 2012 is defined as 10,455,700 VND per person per year or VND 871,000 per person per month.

The strength of the GSO-WB approach in poverty measurement lies in consistent poverty monitoring and its independence from budgetary and political considerations. Generally it has been preferred for long-term poverty monitoring. However, due to the methodology changes in 2010, it is not possible to reliably make comparisons between figures for 2008 and earlier with those from 2010 and 2012.

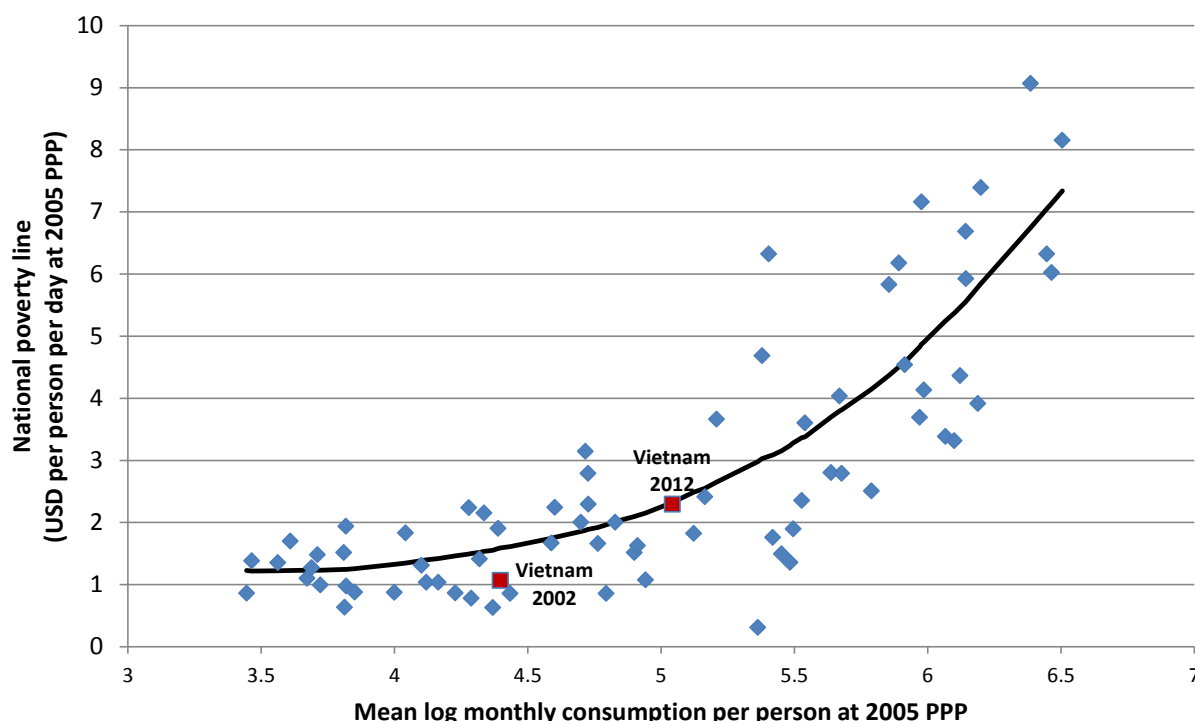
### **3.3 Vietnam's National Poverty Lines in International Perspective**

National poverty lines vary greatly across countries, as measured in purchasing power parity terms. In particular, wealthier countries typically have higher poverty thresholds. Conceptually this matches the sense that the package of what a society deems "basic needs" expands as national income increases. Ravallion (2012) show that national poverty rates in 2005 PPP terms range from \$0.62/day to \$43/day. The mean line for the poorest 15 countries is \$1.25/day while the mean of the richest 15 is \$25/ day.

How do the national poverty lines in Vietnam compare to those used in other countries with similar levels of development? We use national poverty lines in 2005 PPP for the 73 developing countries in Ravallion et al. (2008) for comparison. Vietnam was also included in the Ravallion et al. (2008) with data taken from the 2002 VHLSS.

The median poverty line across the full sample excluding Vietnam 2012 is almost exactly \$2.00 per day, while the mean is \$2.90. Figure 4 shows a plot of the value of national poverty lines in PPP for a wide set of countries against the log of mean consumption per person in those countries. Vietnam's GSO-WB poverty line of 2002 was relatively low compared to other countries with similar living standards. Vietnam's GSO-WB updated poverty line in 2012 is exactly on the trend line. This indicates that the value of the line in Vietnam is typical of countries at similar levels of development.

**Figure 4: Poverty Lines Vs. Mean Consumption Levels Across Countries**



Note: The line is fitted using a lowess smoother with bandwidth =0.8

Source: Other than Vietnam 2012, all data points are from Ravallion et al. (2008).

### 3.4 International Poverty Rates in Vietnam

The \$1.25-a-day and \$2-a-day poverty rates are calculated in Vietnam based on the Vietnam Household Living Standards Survey (VHLSS). Rates for 1993 and 1998 were calculated based on the predecessor to the VHLSS, the Vietnam Living Standard Survey (VLSS). As noted above, substantial changes were made to the VHLSS in 2010. Most importantly, they included an

expansion of the consumption questionnaire and the adoption of a new consumption aggregate reflecting this expansion. As a result of these changes, measured consumption increased in 2010, and the estimated poverty rate using the \$1.25-a-day and \$2-a-day lines dropped substantially. This drop can be understood as reflecting the fact that the drops in poverty shown over 1993-2008 using the old consumption aggregate had not fully reflected the gains in poverty reduction that were made over that period.

### 3.5 Other Poverty Thresholds and Approaches

There are a number of other less commonly used poverty measurement approaches in Vietnam:

- The *GSO-WB extreme poverty line* in 2010 and 2012 was defined as 2/3 of the GSO-WB poverty line (World Bank 2013). For earlier years, an extreme poverty rate was measured using the food poverty line.
- The Government also published *MOLISA near-poverty lines* in 2011 for the period 2011-2015 (Decision 09/2011/QĐ-TTg). Near-poverty lines are defined as VND 520,000 per person per month in rural areas and VND 650,000 per person per month in urban areas. The near-poor are defined as those with income levels below the near-poverty line but above the MOLISA poverty line. MOLISA estimated that near-poverty rate to be 6.3 percent in 2013.
- MOLISA has also recently developed proposals for *minimum living standards* and *average living standards* using an approach similar to GSO-WB poverty line.
- The Vietnamese Government recently considered using a *Multidimensional Poverty Index (MPI)* promoted by the UNDP and the Oxford Poverty and Human Development Initiative (OPHI). Unlike the other measures discussed in this paper, which are tied to income or consumption, the MPI is based on a variety of dimensions. MOLISA is delegated the task of choosing the dimensions and setting up the multidimensional poverty threshold.<sup>7</sup>

## 4 Issues in Poverty Measurement in Vietnam

The two most important approaches for poverty measurement are those of GSO-WB and MOLISA. The co-existence of two measures of poverty has sometimes been a source of confusion. Researchers often prefer to use the GSO estimates because the methodology is better suited to analysis of changes over time and of distributional issues. Yet the MOLISA estimates are widely recognized and used at local levels of Government and also officially used by the Government to monitor progress in poverty reduction within each five-year Socio-Economic Development Plan period.

Despite the occasional confusion generated by the use of multiple poverty methodologies, the parallel systems are sensible. The MOLISA approach is appropriate for its main purpose of guiding poverty reduction targeting, while the GSO-WB is better-suited for longer term trend

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<sup>7</sup> See Ravallion (2011) for a useful analysis of MPI approaches.

analysis. The use of separate approaches to monitor poverty changes and to target government programs is common around the world.

Poverty measurement in Vietnam has faced the happy challenge brought about by rapid poverty reduction over a twenty year period. The continual decline of poverty over time has required revisions of the choice of relevant measures. The ongoing gains in poverty reduction have required MOLISA to update its poverty line every 5 years to maintain a roughly constant group of “poor” for the purposes of anti-poverty program eligibility. The World Bank and the General Statistics Office also determined that it was necessary to revise the WB-GSO methodology in 2010 to keep it relevant to poverty issues facing the country.

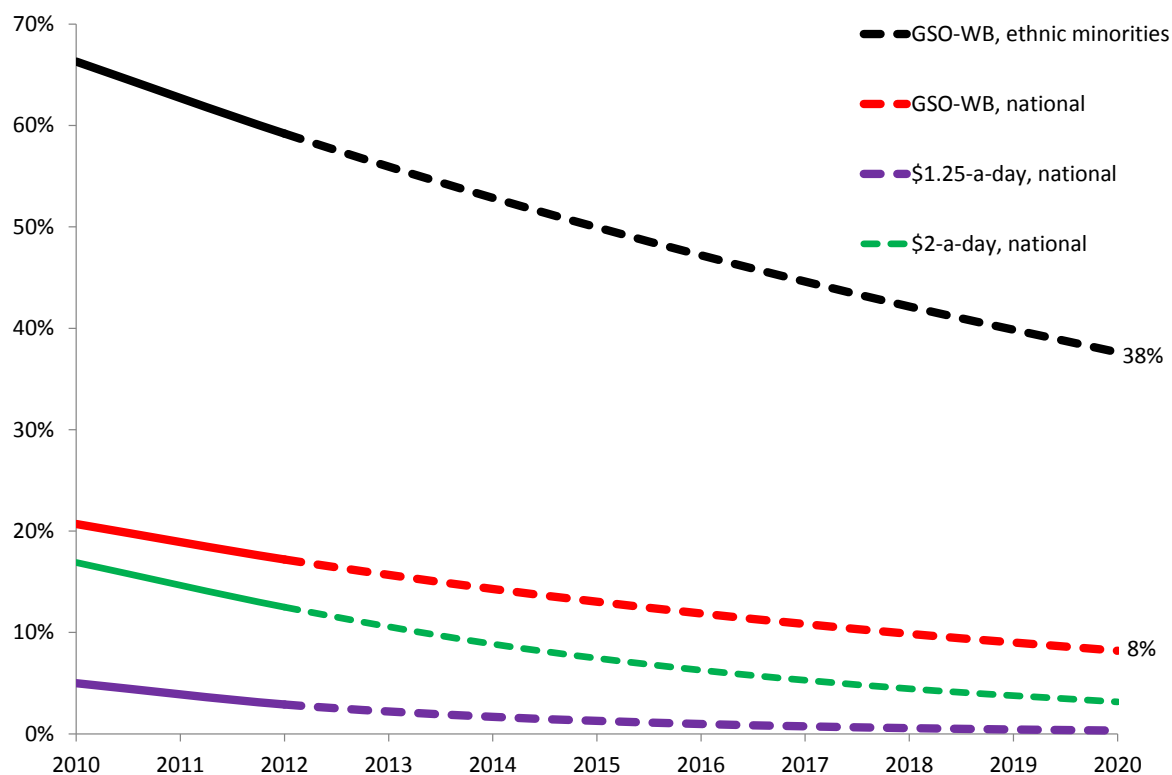
Looking forward, Vietnam can expect to continue to experience poverty reduction. Figure 5 shows “naïve” projections through 2020 of the poverty headcount for Vietnam. These projections are based on the assumption that GDP per capita continues to grow at the same rate observed in 2010-12 and that the growth elasticity of poverty remains constant. These projections should be taken as very much approximate: growth could be substantially higher or lower than these projections assume, and the growth elasticity of poverty may also change. By these rough projections, poverty as measured using the \$1.25-a-day rate, which is already negligible, will move towards zero. Likewise, the \$2-a-day poverty measure will likely become largely irrelevant for Vietnam. Under this projection scenario, overall poverty using the GSO-WB line will drop to 8 percent by 2020. Notably, even with continued gains, poverty among ethnic minorities will remain high at 38 percent.<sup>8</sup> (Projection were not made using the MOLISA line because the line will be revised again in 2016.)

For the purpose of poverty monitoring, the GSO-WB will continue to be useful for many years. At some point, however, it is likely that poverty by this measure will reach such low levels that it will be necessary to once again revise the approach.

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<sup>8</sup> A detailed review of poverty issues related to ethnic minorities in Vietnam can be found in World Bank (2012).

**Figure 5: Naive Poverty Headcount Projections for Vietnam**



Source: Authors' projections

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## Annex 1 The GSO-WB Poverty Methodology Update in 2010

Both the MOLISA and GSO-WB poverty lines follow a conventional Cost of Basic Needs (CBN) approach and over time, the methods have tended to converge. The GSO-WB CBN approach for Vietnam uses a single national food basket anchored in caloric norms, an Engel curve estimate of the non-food allowance, and spatial and regional cost of living adjustments applied to consumption aggregates that are thus reflected in poverty statistics.

During the period from 1993 to 2008, the original GSO-WB poverty line was anchored in a caloric norm of 2100 Kcals per person per day. For the new line in 2010, a caloric norm of 2230 Kcals per person per day was introduced, based on age- and sex-specific caloric requirements for the Vietnamese population developed by the Nutrition Institute in the Ministry of Health (MOH, 2006), and weighted by the age-sex composition of the national population in the 2010 VHLSS.

Consistent with the methodology used to estimate Vietnam's official poverty lines, the new GSO-WB food poverty line was calculated using mean unit values for food purchases by poorer households (bottom 2.5–20 percent) reported in the 2010 VHLSS. National food poverty lines were estimated for each round of the 2010 VHLSS (June, October, December) using the national reference food basket and food prices (unit values) from each round, then adjusted for inflation and averaged to construct a national food poverty line in January, 2010 VND. The new GSO-WB food poverty line for 2010 was VND 343,000 per person/month (VND 4,116,000 per person/year).

In addition to food, an allowance must be added for essential non-food spending such as on fuel, housing, schooling, health care, clothing, and other daily needs. However, estimating the non-food component of the poverty line is not as straightforward as estimating the food poverty line because there is no easily defined norm for nonfood expenditures in the way that caloric norms can be used to define food needs.

An Engel curve looks at the relationship between the share of spending on food and total per-capita expenditures; according to Engel's law, the food share decreases as expenditures (welfare) rise. The average food share for each group of households can be calculated using an Engel curve regression (Ravallion and Bidani, 1994):

$$\frac{f(y_i)}{y_i} = \alpha + \beta_1 \log\left(\frac{y_i}{b^f}\right) + \gamma'(d_t - \bar{d}) + residual_i$$

where  $\frac{f(y_i)}{y_i}$  is the food budget share,  $\alpha$  is a national intercept,  $\left(\frac{y_i}{b^f}\right)$  is total (nominal) expenditure divided by the food poverty line, and  $d_t$  is a vector of demographics with mean  $\bar{d}$ .

In keeping with international practice, the upper bound poverty line (i.e. with “minimal but adequate” allowance for non-food) was used the new GSO-WB poverty line, which is thus defined as the food poverty line divided by the Engel's coefficient estimated from the regression (.525):

$$\frac{b^f}{\alpha *}$$

The new poverty line assumes the non-food spending of a typical household at the point on the Engel curve where actual food expenditure is equal to the food poverty line.

**Annex Table 1: Official (MOLISA) poverty line 1993-2015 (rice equivalence and/or Vietnam Dong, per person, per month)**

	<b>1993</b>	<b>1995</b>	<b>1997</b>	<b>2001-05</b>	<b>2006-10</b>	<b>2011-2015</b>
<b>Urban</b>	20kg	25 kg	25kg or VND90,000	VND 150,000	VND 260,000	VND 500,000
<b>Rural</b>	15kg	20kg			VND 200,000	VND 400,000
<b>Rural mountainous and island</b>			15kg or VND 55,000	VND 80,000		
<b>Rural plains and midland</b>			20kg or VND 70,000	VND 100,000		