Dynamic Poverty Analysis in Vietnam 1992-2002

Multidimensional versus moneymetric analysis

Asselin L.-M. and Vu Tuan Anh, June 2005, draft paper.

1. Introduction

A methodology for measuring multidimensional poverty has been developed since 1999 by the CBMS research group in Vietnam, within the MIMAP network sponsored by IDRC. This methodology has been applied to different household surveys data sets, some generated by the MIMAP program itself, some by the General Statisical Office of Vietnam. In particular, the methodology has been applied to the three Vietnam Living Standard Surveys runned during the period 1992-2002. It has been fully described in a recent paper, Asselin L.-M. and Vu Tuan Anh (2005), with the results coming out of the VLSS-1 (1992-93) and VLSS-2 (1997-98) surveys. Since then, data from the VLSS-3 (2002) survey have been made available, and the multidimensional methodology has been applied to this third country representative data set.

The present paper focusses on the dynamic analysis of poverty across three points in time during the period 1992-2002, as provided by the three VLSS surveys. It highlights the convergence and divergence facts between the moneymetric and the multidimensional analysis, the first one measuring the consumption poverty, the second one one measuring the human and physical asset poverty.

2. Methodology

2.1 Development of indicators

The cornerstone of multidimensional poverty is the identification and the development of a relevant set of primary indicators. It obviously determines the concept of poverty expressed by these indicators and by any aggregate of them under the form of a composite indicator.

In Vietnam, a basic step was got over with the pilot test of a simple one-page questionnaire in four provinces, twenty communes and 22 770 households. Two of the four provinces were from the Northern region, Thai-Nguyen and Hai-Duong, two from the Southern region, Lam-Dong and Tra-Vinh[1]. This short questionnaire was able to provide thirteen indicators, presented in Table 1.

[1] See Vu Tuan Anh (2000)

Table 1 MIMAP Vietnam CBMS: first set of 13 poverty indicators (1999)

#1	Underemployment: lacking jobs
#2	Hld with chronic sick
#3	Enough clothes cold season
#4	Availability of mosquito nets
#5	Medical care unavailable
#6	Hld with illiterate adults
#7	Hld with children not going school
#8	Hld with children malnourished
#9	Hld has no radio and no tv
#10	Housing: type of dwelling
#11	Drinking water
#12	Income level
#13	Income structure: % cultivation

The first eleven of these indicators are qualitative (categorical) ordinal, the last two are quantitative (moneymetric). These last two come from a proxy to current (annual) income, obtained by going through the main sources of household income. Thus, they do not claim to be a measure of permanent income like the standard expenditure approach.

Analysis was done by computing a composite index of the first eleven non-moneymetric indicators, with a factorial methodology, the Multiple Correspondence Analysis[2]. Income information was considered, among other variables, as a determinant of multidimensional poverty, using income quintiles or classes for the percentage of cultivation income. An example of results coming from this MIMAP survey is given in Table 2.

Table 2 Mean poverty indicator by province

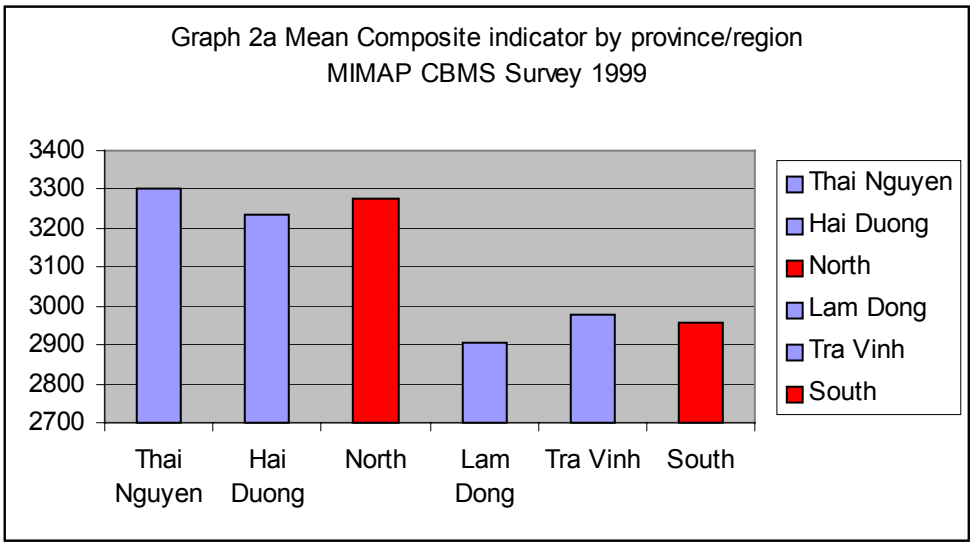
Region	Province	Multidimen-sional poverty indicator	Income per capita (proxy)
North	Thai Nguyen	3300	113
	Hai Duong	3234	140
	sub-total	3278	121
South	Lam Dong	2904	149
	Tra Vinh	2976	148
	sub-total	2956	148
Total		3091	138

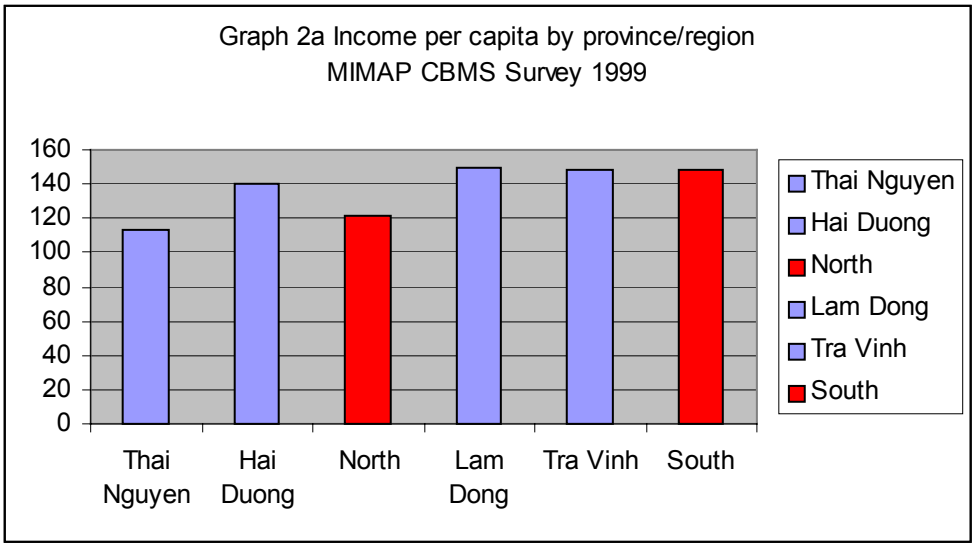
According to Table 2, the two northern provinces are better off than the two southern ones, relatively to multidimensional poverty. This questions the usual perception that the South is better off than the North in monetary terms, what was coming out of the first VLSS survey in 1992-93. Even here, as a proxy to

[2] See Asselin L.-M. (2002).

income, we have the same type of result: income welfare seems better in the South than in the North.

Graphs 2a and 2b show clearly this reverse situation, according to the poverty concept.





When such results came out of the multidimensional poverty analysis with CBMS data, the first question raised was: the MIMAP-CBMS sample cannot be considered as representative of the whole Vietnam. Could we then test the robustness of this result with household survey data representative of the whole country?

In the meantime, to the above 11 indicators one more was added, sanitation (toilet), about one year later, when the CBMS approach was implemented in view of poverty monitoring in a poverty alleviation project, the ILMC (Improved Livelihood for Mountainous Communities) project in the province of Thah

Hoa[3]. On the other hand, the child nutrition indicator (# 8) was progressively abandoned for the CBMS, considering its dubious reliability when measured with a very short questionnaire.

2.2 Data mining in national data sets

The preoccupations of robustness and representativeness led us to look at large national household surveys with the objective of identifying the availability, in these databases, of some, ideally all, of the eleven CBMS non monetary indicators of poverty. Fortunately, eight of these eleven indicators could be first constructed from the two VLSS surveys: VLSS-1 in 1992-1993, with a sample of 4 800 hlds., VLSS-2 in 1997-1998 with a sample of 6002 hlds. These eight indicators are given in Table 3.

Table 3 The eight Vietnam-CBMS indicators found in VLSS surveys

Indicator no.	Title	Description
#1	Underemployment	A worker is considered as underemployed if he is missing job for 3 months or more in last year. At household level, at least one main worker is underemployed.
#2	Chronic sickness	For a person, to be sick for at least one-month a year. At household level, at least one household member is a chronic sick.
#3	Adult illiteracy	Is illiterate a person 15 year+ who cannot read, write and do simple calculations. At household level, at least one adult member is illiterate.
#4	Underschooling	A child 6-15 not attending school. At household level, at least one child is not going to school.
#5	Without radio, tv.	There is no radio nor tv set owned by the household.
#6	Type of dwelling	Category of house, based on roof, walls and floor material.
#7	Drinking water	Type of main source for drinking water.
#8	Sanitation	Type of toilet used by the household.

We can say that these eight indicators present a concept of human (#1 to #4) and physical (#5 to #8) assets household poverty. It will compared in the following analysis with the classical consumption poverty based on the moneymetric expenditure approach.
A first extensive analysis of multidimensional poverty in Vietnam has then been done and published (see the introduction).
Recently, we have also been able to extract the same eight indicators from the VLSS-3 survey realized in 2002 with the first sample of 30 000 hlds, the only one made publicly available. Due to technical difficulties (changes in questionnaire, matching hld. files), adjustments had to be done for some indicators, especially # 2 Chronic sickness, and we could work with a random sub-sample of 22 702 hlds.

[3] See Asselin M. (2005).

2.3 Comparability across space and time: constant weigths and poverty line for multidimensional poverty.

The poverty composite indicator of the Table 3 indicators has been computed once for the base-year 1992-1993, from the VLSS-1 data. The required categorical weights, provided by the MCA technique, are given in Asselin & Vu Tuan Anh (2005) and are thus representative at the national level. They are kept constant across space (regions) and for any other socioeconomic classification. For the dynamic analysis, they are also kept constant across time. This means that, with the same weights, the household score for the composite indicator has been computed from the two subsequent surveys: VLSS-2 (1997-1998) and VLSS-3 (2002). There is no price issue.

A relative poverty line has been established just once, at the national level, as the composite indicator quantile 58,1 % corresponding to the consumption (expenditures) poverty rate as measured in 1992-1993 from the VLSS-1 survey. This choice of poverty line has been done for the methodological purpose of comparing the two types of poverty distribution, monetary and multidimensional, across time, space and socioeconomic groups, starting with the same basis. It must be understood that in all the following results on poverty incidence and especially on poverty dynamics, just one point in space and time has been fixed a priori: the 1992-1993 multidimensional poverty rate. All other values are completely independent from this first national rate. It is like having anchored or standardized once for all the multidimensional poverty line and then letting all factors influence the poverty differences.

3. Results

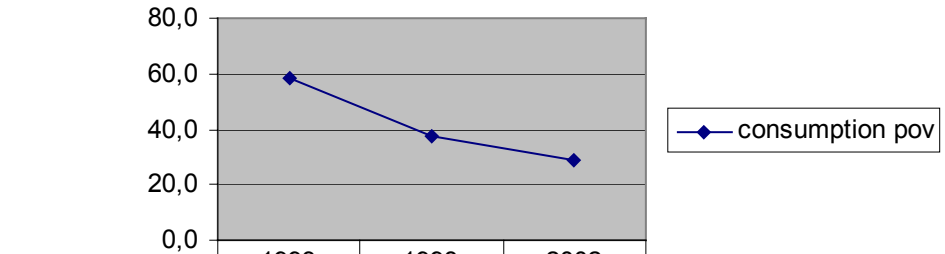
The focus is on poverty dynamics in Vietnam as revealed through the two approaches, the moneymetric poverty (consumption) and the multidimensional poverty (human and physical assets). The presentation is essentially graphical, with very short comments. All moneymetric results have been checked as fully consistent with the officially published figures, for the three periods.

3.1 Poverty rate (P_0)

3.1.1 Country level, rural and urban

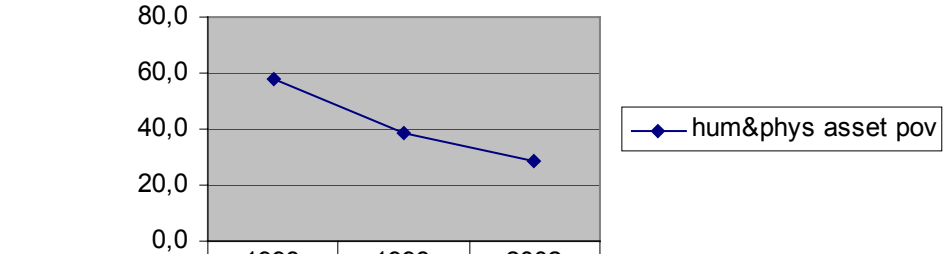
The first three graphs, 3.1a to 3.1c, present the most striking result of this comparative dynamic analysis: a complete convergence, at the Vietnam country level between the poverty reduction during the 10 year period 1992-2002. This achievement of the Vietnamese society was well-known for the consumption poverty since the publication of the VLSS-3 results. Here it is confirmed for the human and asset poverty, and with identical values, from 51,1% to 28,8%.

Graph 3.1a Vietnam Consumption Poverty Rate 1993-2002



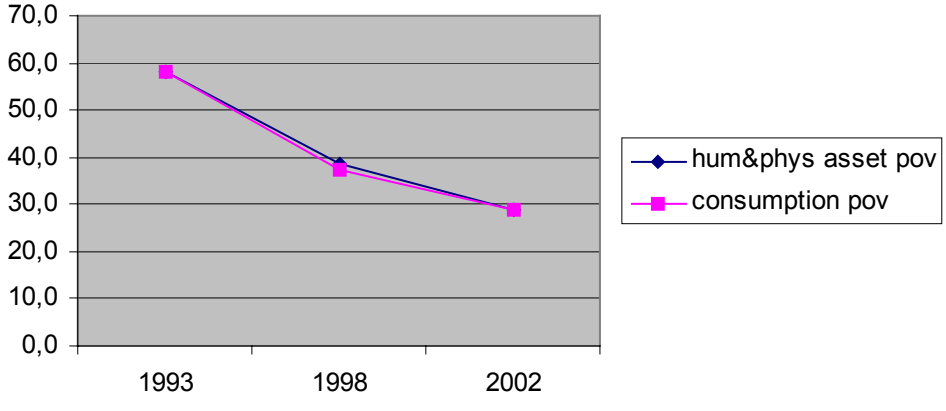
	1993	1998	2002
consumption pov	58,1	37,4	28,8

Graph 3.1b Vietnam Human & Physical Asset Poverty Rate 1993-2002

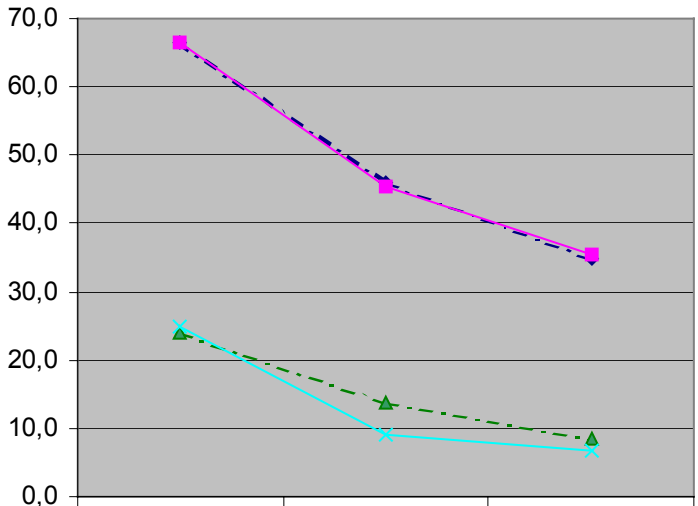


	1993	1998	2002
hum&phys asset pov	58,0	38,8	28,8

Graph 3.1c Vietnam Poverty Rate 1993-2002



Graph 3.1d Vietnam Rural/Urban Poverty Rate 1993-2002

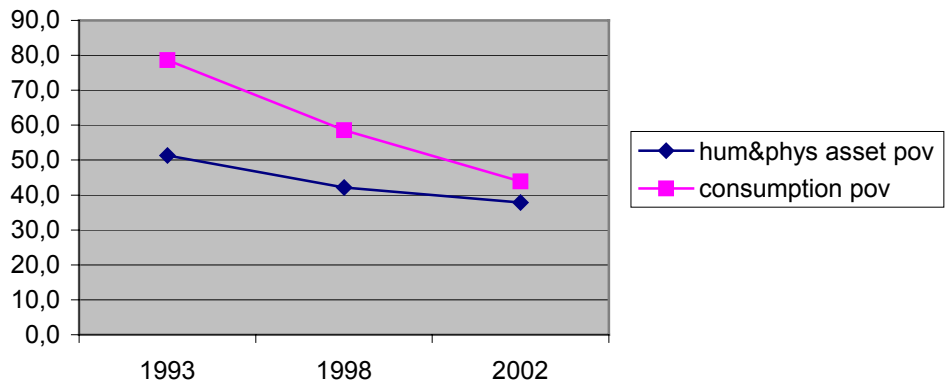


	1993	1998	2002
rural hum&phys asset pov	66,5	46,0	34,9
rural consumption pov	66,4	45,5	35,6
urban hum&phys asset pov	24,1	13,6	8,4
urban consumption pov	24,9	9,2	6,6

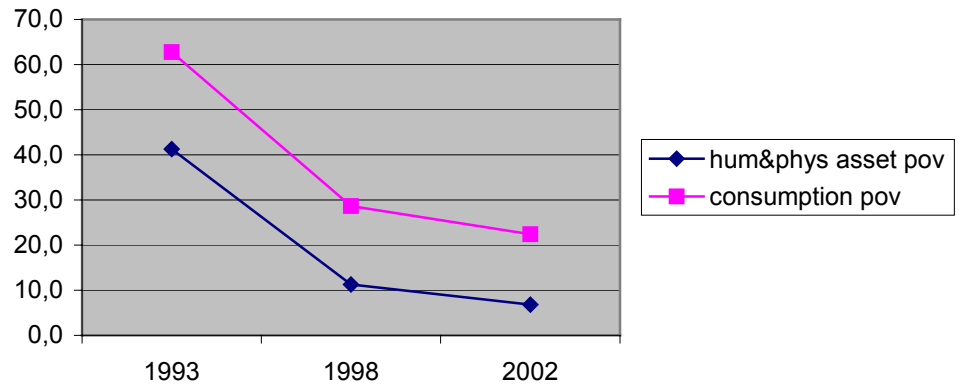
This complete convergence in trends is also obtained in rural and in urban areas, as shown in Graph 3.1d.

3.1.2 Regional level

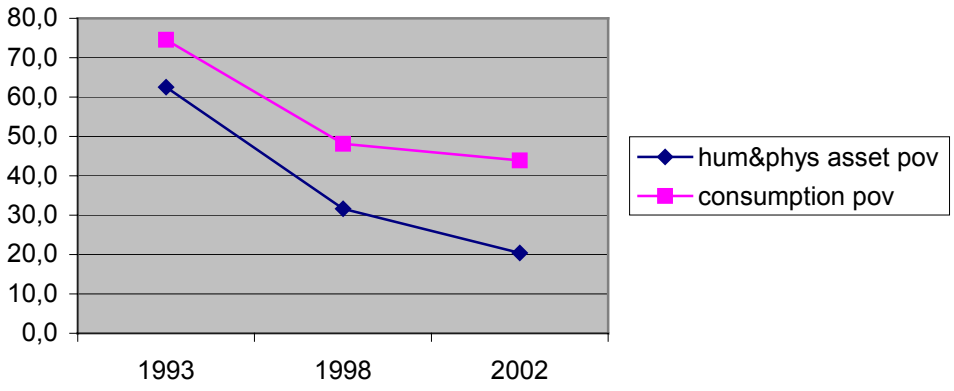
Graph 3.1e Northern Uplands Poverty Rate 1993-2002



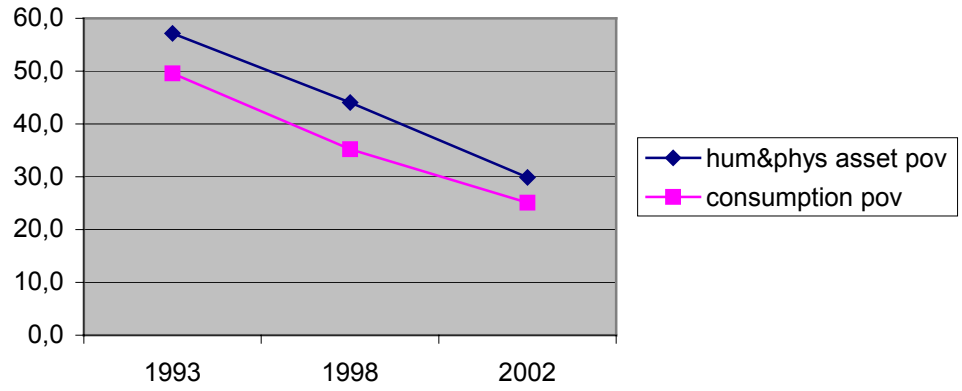
Graph 3.1f Red River Delta Poverty Rate 1993-2002



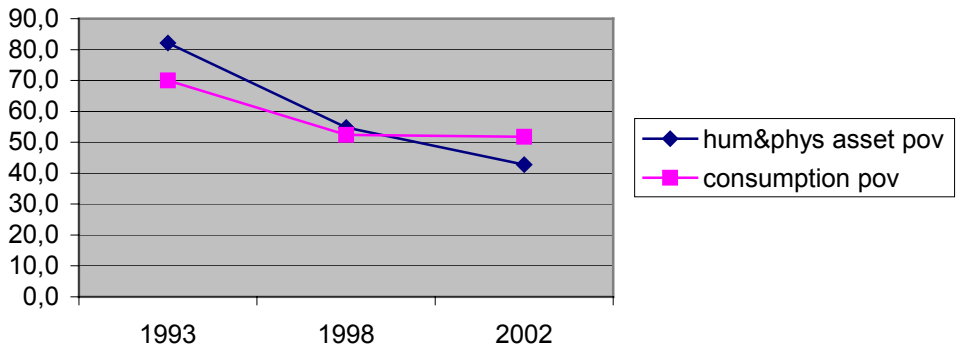
Graph 3.1g North Central Poverty Rate 1993-2002



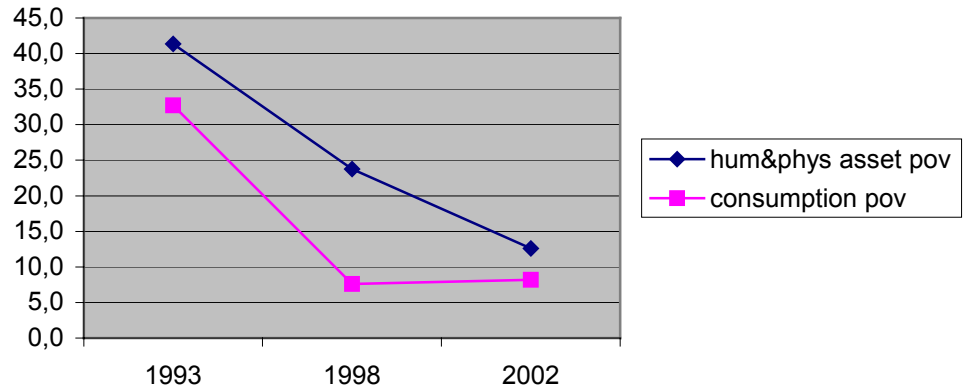
Graph 3.1h Central Coast Poverty Rate 1993-2002



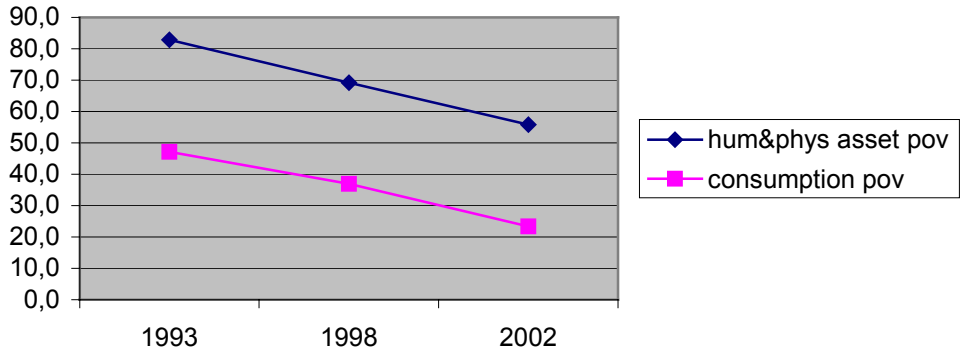
Graph 3.1i Central Highlands Poverty Rate 1993-2002



Graph 3.1j South East Poverty Rate 1993-2002



Graph 3.1k Mekong River Delta Poverty Rate 1993-2002

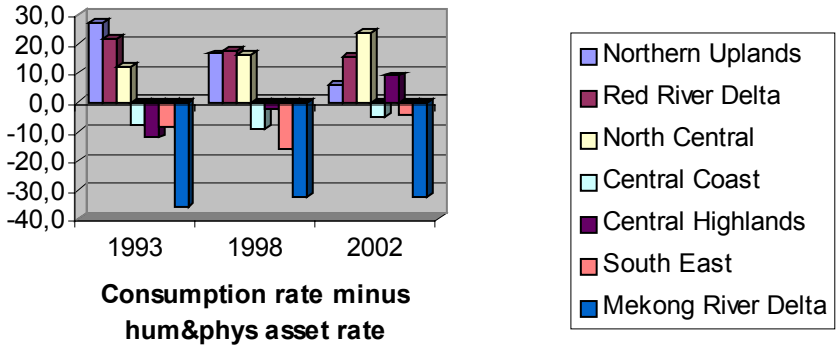


From these seven regional graphs, from North (3.1e) to South (3.1k), we read essentially three facts:

1. the general trend of declining consumption poverty, in all seven regions, is also observed for the human and physical asset poverty, but with a different decreasing rate in some regions, e.g. in Northern Uplands and Central Highlands;
2. when we go down from northern to southern regions, the asset poverty line (red) shifts from below to above the consumption poverty line (blue);
3. the level of asset poverty is globally lower in the North than in the South, contrarily to the consumption poverty.

These second and third facts confirm what we had seen previously on the basis of the CBMS data: human and physical poverty varies, from North to South, inversely to consumption poverty. This is synthetized in Graph 1l, where the differential (consumption poverty – asset poverty) varies from positive to negative when going down North-South.

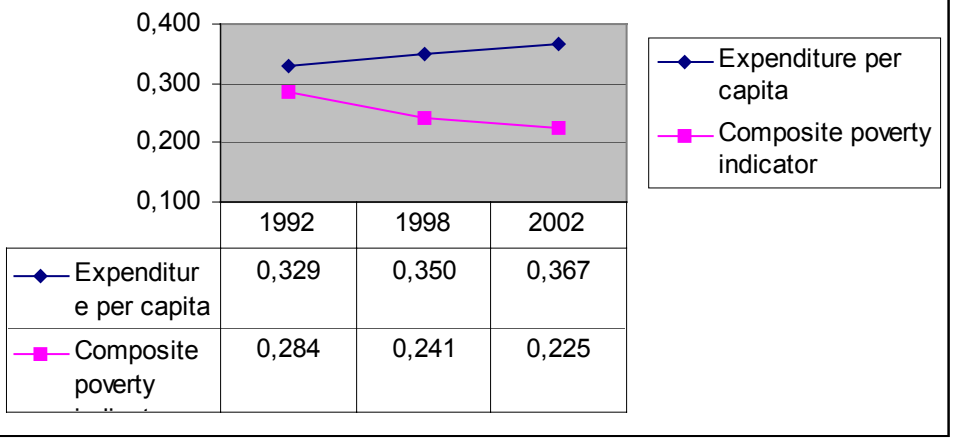
Graph 1l Regional Poverty Rate Differentials 1993-2002



3.2 Inequality

In Graph 2a, we see that for the whole Vietnam, consumption inequality is systematically higher than multidimensional poverty inequality, and increases from 1992 to 2002, while this last one decreases.

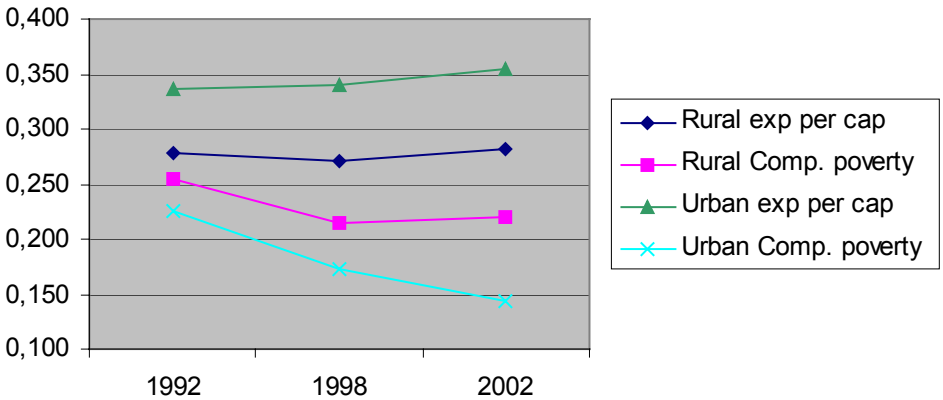
Graph 2a Gini coefficient for consumption and composite poverty indicators 1992-2002 Vietnam



	1992	1998	2002
Expenditure per capita	0,329	0,350	0,367
Composite poverty	0,284	0,241	0,225

This differential in inequality in particularly large in urban area, where the

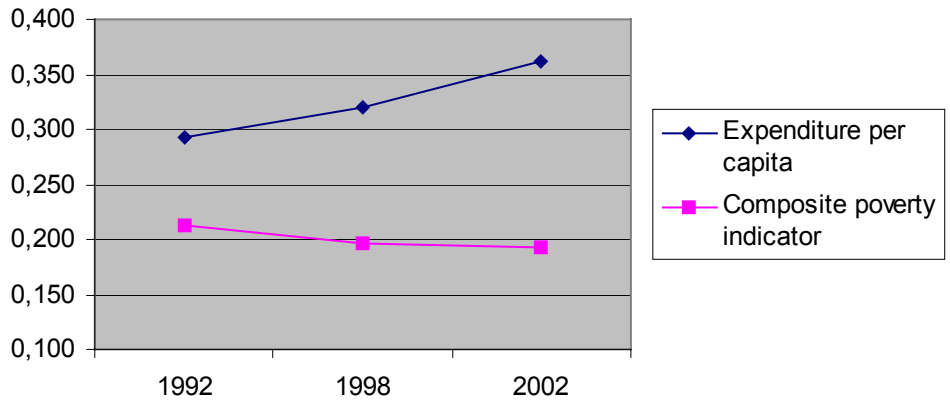
Graph 2b Gini coefficient for consumption and composite poverty indicators 1992-2002 Vietnam



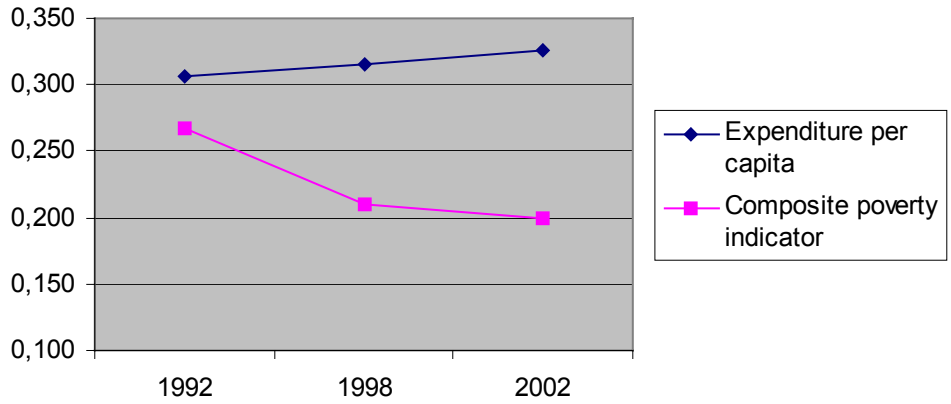
multidimensional inequality has decreased remarkably during the 10-year period (Graph 2b).

Graphs 2c to 2e below show the difference in inequality dynamics according to North, Center and South Vietnam.

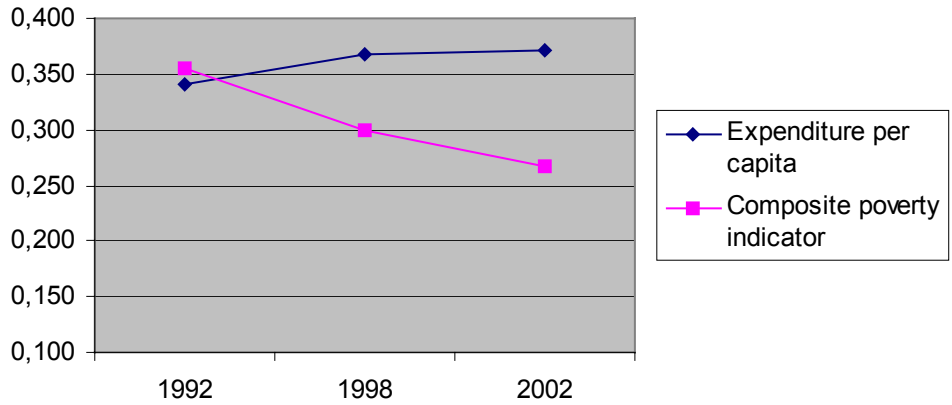
Graph 2c Gini coefficient for consumption and composite poverty indicators 1992-2002 North Vietnam



Graph 2d Gini coefficient for consumption and composite poverty indicators 1992-2002 Center Vietnam



Graph 2e Gini coefficient for consumption and composite poverty indicators 1992-2002 South Vietnam



We observe that consumption inequality has increased everywhere but particularly in the North, while human and physical asset poverty has decreased more in the South, where it remains still higher than in the rest of the country.

4. Conclusion

By extending to a longer period 1992-2002 the precedent analysis for the period 1992-1998, we can conclude that this more complete dynamic analysis reinforces the conclusion of the preceding paper:

- there is a remarkable convergence, at the country level, between the rate of decrease of human and and asset poverty and consumption poverty, from 58% (1992-93) to 29% (2002), as well in rural as in urban areas;
- on the other hand, regional differentials from North to South are important divergence facts, which show the complementarity of both measures and concepts of poverty;
- different levels and trends in inequality, according to both types of measures, are also an interesting fact for policy analysis.

We can certainly reaffirm our belief in the strong potential of CBMS indicators and methodology for poverty monitoring at national level:

> "We think that the MIMAP type indicators present a strong analytical potential for multidimensional poverty analysis, being complementary to the more standard moneymetric analysis. In addition, due to their easiness and their low cost, they should be looked at to meet the objective of regularly producing largely disaggregated poverty profiles for a more efficient monitoring of poverty reduction policies and programs... This does not preclude these indicators from being useful at the level where they have first been designed, the community level, for poverty targeting through local development interventions".

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References

Asselin Louis-Marie (2002), *Multidimensional Poverty, Theory*, IDRC, in MIMAP Training Session on Multidimensional Poverty, Quebec, June 2002.

Asselin Louis-Marie, Vu Tuan Anh (2005), *Multidimensional Poverty in Vietnam 1993-1998 according to CBMS indicators*, Vietnam Socio-Economic Development Review, Spring 2005, no. 41

Asselin Matthieu (2005), *Technique d'évaluation d'impact des projets de réduction de la pauvreté suivant un approche multidimensionnelle.Application vietnamienne.* Master degree thesis in rural economics, Laval Université, Québec. Unpublished.

Vu Tuan Anh (2000), *Poverty Monitoring in Vietnam*, Annual MIMAP meeting held in Palawan, Philippines, Sept. 2000. IDRC, Ottawa, mimeo.