The multiple facets of poverty in a developing country: the case of Madagascar's capital city

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INTRODUCTION

Madagascar is one of the world's poorest countries. In 1997, it ranked 160th out of 174 countries in terms of GDP per head, on a purchasing power parity basis (UNDP, 1999). According to the Human Development Indicator (HDI), which includes the health situation and education of the population in addition to income, the ranking improves slightly to 147th, but this still leaves it in the group of countries with the lowest level of human development, with an index below the average for sub-Saharan Africa. It is estimated that 76% of the population were living below a poverty line set at USD 1 per head[2] in 1993 and 79% in 1997 (Cogneau et al., 2000).

In these circumstances, combating poverty lies at the heart of the country's development policy. The DCPE (economic policy framework document), which constitutes the Malagasy government's economic programme, makes this the prime objective of the current reform policy. This priority given to reducing poverty has led the authorities, spurred on by the Bretton Woods organisations, to change the title of the DCPE. This is now called the CSLP (strategic framework for combating poverty). A first version is due to be completed in June 2000.

The stress placed on combating poverty goes well beyond the country's borders. After the two last decades of structural adjustment, the mixed results of these programmes as regards the living conditions of households have led all the international donors to place poverty at the centre of their official development assistance arrangements. There are an increasing number of international initiatives in this field. Even the IMF, which had hitherto lagged behind in this respect, is now actively participating. All countries wanting to benefit from financing under the new "Poverty Reduction and Growth Facility", co-managed by the IMF and the World Bank, and/or the "Enhanced HIPC (Heavily-Indebted Poor Countries) Initiative", are called on to prepare "Poverty Reduction Strategy Papers".

While the question of poverty is today unavoidable and is set to play the primary role in the implementation of economic policies by developing countries in coming years, a fundamental question remains to be answered. In order to introduce effective strategies to combat poverty, it is necessary to reach an understanding on the definition of the phenomenon, in order to target as precisely as possible the population concerned and to introduce arrangements for evaluation and monitoring of policies. And consensus is far from being achieved on this point. Different concepts and indicators exist alongside each other, without the links between them being clearly set out: monetary poverty, penury of capabilities, social exclusion, absolute and relative poverty, objective and subjective poverty, etc.. This confusion stems from the fact that poverty is a complex and multi- faceted phenomenon.. And, from this point of view, there is today unanimous recognition of its multidimensional character. Even the World Bank, which has been steering reflection on this theme in the developing countries, has finally accepted the fact, having for a long time given preference to the monetary approach (World Bank, 2000).

The vast majority of the existing analyses of the subject have mainly been concerned with identifying the best criterion or criteria to use in defining the concept of poverty and with the difficulties of measuring it,

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[2] Taking the purchasing power of the 1985 dollar.

without really calling into question the one-dimensional vision implicit in the monetary approach. And yet, the question deserves to be asked: in a country like Madagascar where the importance of poverty is unanimously recognised, can this phenomenon be reduced to a unique observable scale or does it have many dimensions? Is there a "hard core" of the poor that is easily identified and which it is necessary to reduce, or, on the contrary, is one confronted with various forms of poverty, which only partially overlap and which call for differentiated policies?

This article is intended to contribute certain answers to these questions, using the data derived from surveys carried out in 1998 in the Antananarivo conurbation. These data have the advantage of providing detailed information on both the consumption and the living conditions of households, as well as on their "subjective" perceptions of their standard of living. The analysis of the links between these different approaches throws new light on the nature and scale of the phenomenon. In particular, we shall be confronting the objective and subjective approaches. We shall concentrate our attention on the subjective dimensions of poverty, which have never been discussed in the context of the poor countries. It should be stressed that while this subject is beginning to be the subject of far-reaching research in the developed countries[3], it remains virtually unexplored -- paradoxically -- in the developing countries, especially in Africa despite the fact that these are the countries most affected by poverty.

Part I sets out various concepts of poverty that we shall be applying in the case of Madagascar, in order to identify their nature and quantify their scale. Part II is devoted to the relationships between the different approaches. The final part contains an analysis of the microeconomic determinants of poverty. We shall try to identify common and/or specific factors affecting each of the forms of poverty.

I. -- THE VARIOUS DIMENSIONS OF POVERTY

1. Definitions and measurement

While all measures of poverty consist of setting a threshold below which the population in question is regarded as poor, they differ substantially as regards the definition of poverty and, as a result, the setting of the poverty line. This lack of consensus clearly poses serious analytical and methodological problems. Our aim here is not to offer a detailed review[4], but to present a succinct typology of the various approaches.

Analysis of poverty has gradually become more complex as new «poverty areas" were taken into account. From a purely physiological approach, there has been a move in successive stages to a more global concept, taking account of the fact that individual needs and integration in society do not depend solely on a level of food consumption that ensures biological survival.

Ever since the studies made by Booth and Rowntree of poverty in English towns at the end of the nineteenth century, the monetary approach has remained the most common. It is also the most intuitive. Initially, it was based on the notion of a subsistence level. This can be limited to the simple expression of a physiological minimum, convertible into a daily calorie intake. But it can also be extended to other types of need, such as the fact of having decent accommodation, being able to take care of oneself, educate oneself or dress oneself correctly. In its broadest acceptance, this approach incorporates all the elements liable to monetary valuation. These elements are then combined and measured by composite variables: depending on the case, income, spending and consumption, at either individual or household level.

Various theoretical movements have adopted the monetary approach. The utilitarian economists tried to incorporate the concept of poverty into the theory of the consumer, going on to comparisons of well-being, stemming from individuals' utility and preferences (Ravallion, 1996). The levels of income or consumption constitute cardinal indicators of agents' indirect utility, with any increase in these variables increasing the level of well-being. The adoption of a reference framework of this kind is based on bold

[3] Examples include: Lollivier and Verger (1997) for France; Fall et al. (1997) for France and Slovakia; Nolan and Whelan (1996) for Ireland; Ravallion and Lokshin (1998) for Russia.

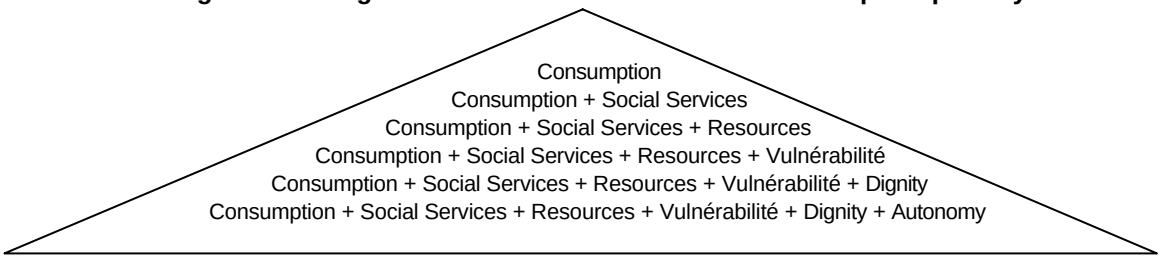
[4] See, for example, Herpin and Verger (1997), Fleurbaey et al. (1997) and Ravallion (1996).

assumptions, in particular that all agents have the same utility function. Moreover, they incorporate no theory of justice, which seems paradoxical in the context of setting a target for the reduction of poverty.

These limitations have led a certain number of writers to question these foundations and to propose alternative approaches, such as "essential needs" (or "basic needs"; Streeten et al., 1981), which revert to the concept of "primary goods" put forward by Rawls (1971). This approach starts from the principle that not all needs can be dealt with on an equal footing, some being regarded as more important than others: food, naturally, but also health and education. As a result, attention is directed to satisfaction of these needs, for which a minimum standard must be ensured. Implicitly underlying this approach is the criticism of the monetary and utilitarian approaches formulated by Sen (1983, 1993, 1997). In his view, poverty should not be measured by levels of consumption or income, but by the capacity of individuals to have access to them, and not only in formal legal terms. Rather than the "functionings", regarded as an end, it is the means of reaching this end that has to be highlighted. The approach through "penury of capabilities" seeks to guarantee the possibility of choosing and implementing this choice (capabilities), seen as the capacity to mobilise the available resources. It is then the responsibility of each individual whether or not to seize these opportunities in the light of his/her own aspirations. The concept of poverty discussed by Sen therefore seeks to distinguish between the conditions of access to the functionings, which should be equalised for all, and what is left to the agents' free choice. It is at the first of these levels that poverty should be measured and official policy should be aimed. Drawing on this work, the UNDP worked out its "Human Poverty Indicator" (UNDP, 1999[5]). In addition, it broadened the spectrum of fields to be taken into consideration from material goods to freedom of expression, dignity, self-respect and participation in social life in general.

One of the consequences of this broadening of the subject is to establish the junction with the approaches to poverty of a more sociological or anthropological nature, centred on the notion of social exclusion. Some sections of the population see themselves as marginalised in relation to the way of life that is either predominant or regarded as socially acceptable. This exclusion leads them to develop a "culture of poverty" from which it is difficult to extricate oneself (persistence of poverty). The question raised comes down to reflecting on the reproduction mechanisms within a life-cycle or between generations, bringing in notions of vulnerability and insecurity. The increasingly systematic use by the World Bank of qualitative techniques based on participatory groups derived from sociology ("participatory poverty assessment»), is the most tangible sign of this convergence (World Bank, 2000).

Figure 1 : The gradual extension of the theoretical scope of poverty



Source: Killick T. et al., 2000

[5] This indicator takes account of life expectancy, literacy, access to drinking water, health care and malnutrition.

This rapid overview shows that there is no unifying theoretical framework for poverty. This conceptual diversity clearly raises problems when one comes to work out empirical indicators of poverty. From a general point of view, the various quantitative measures of poverty can be classified using four principal criteria.

Monetary versus non-monetary

The monetary approach has the undeniable advantage of making it possible to attach a value to various components of well-being, based on a price system. Use of the monetary yardstick facilitates the resolution of certain aggregation problems and holds out the possibility of working out a battery of indicators and tests (intensity, severity, predominance, etc). However, not all dimensions of poverty can be evaluated by this means: what price should be attributed to the consumption of public goods, to leisure time, to the intensity of social relations or, more broadly, to the quality of life? Moreover, the assumption that all the types of consumption can be added together and so increase the level of well-being is not always justified. For example, is it legitimate to classify as either poor or non-poor households whose expenditure differs solely in terms of the amount spent on cigarettes and drugs or even weapons?

To alleviate these difficulties, a certain number of measures of poverty are based on non-monetary criteria. Alternative poverty lines have been put forward taking into account the conditions of existence (availability of healthful accommodation, access to health care and to education) or the enjoyment of capital (physical, human, social) and are based on cumulative scores consisting of a combination and addition of various criteria (Sahn, Stiefel, 1999). However, they do not remove the ambiguity over the meaning given to poverty, nor the element of arbitrariness in setting the poverty line.

Means versus results

Approaching poverty through the standard of living means favouring indicators of results rather than of means of achieving those results. Sen's criticism leads him to prefer the latter to the former. Depending on which approach is chosen, one will tend to give preference to resources, capital, stocks, "capabilities", in the one case, or to results, achievements, flows, utility, in the other. In practice, it is difficult to distinguish between the two, given the interpenetration of the causality chains. For example, education is a preferred means of improving one's material conditions of existence, by giving access to more skilled and better-paid jobs. But it is also an end in itself, valued for itself. This is also true of social capital, which is at the same time an indicator of participation in social life and a means of increasing the return on personal investment (physical, human, etc). Wealth generates income and income makes it possible to accumulate capital.

Objective versus subjective

The objective measures imply, a priori, setting a value on the poverty threshold. In the light of the indicators chosen to define poverty, the analyst decides both the fields (essential needs) and the level needed to escape from a situation of poverty, independently of the satisfaction expressed by the agents themselves. This approach is clearly normative and in all cases involves a certain degree of arbitrariness. It obliges the population to share the values and aspirations of the analyst himself, as well as his point of view on what he considers to be the "normal" way of life in a given society.

The subjective measures aim to relax these constraints by allowing each individual to assess his own level of well-being or the difficulties he encounters in life. As Ravallion and Lokshin (1998) have pointed out, it is paradoxical that economists, who base their analysis on individual utility, regard themselves as being better judges of other people's well-being (on the basis of objective indicators that are partial and subject to measurement problems) than the individuals themselves.

Taking into account the way in which people see their living conditions constitutes, a priori, the sole approach that is directly compatible with the subjectivity of the utility concept. For example, it is possible to construct a subjective poverty threshold by comparing the spending actually carried out with the sum that each individual or household says is the minimum needed to lead a "decent" life. In this case, the threshold varies from one individual to another, depending on his preferences. While this approach leaves each individual free to determine for himself what is right or necessary, it is not problem-free. For example, is it legitimate to classify as poor two households with incomes varying from 1 to 100, simply because they are both dissatisfied with their living conditions? In a way, the subjective approaches endorse without adjustment the phenomenon of attrition or self-limitation of aspirations that are often seen in the most disadvantaged groups.

However the rare studies using the qualitative perceptions of households in developing countries in measuring poverty (Pradhan, Ravallion, 1998 for Jamaica and Nepal) reach the conclusion that the approach is robust. The subjective poverty line deduced from households' perceptions of the level of their needs is just as consistent as an "objective" poverty line derived from the level of consumption and, in the end, the two measures give similar results. However, they do not do so entirely and lead to identifying poverty patterns that differ as regards the geographic location and the demographic characteristics (size of household) of the poor.

All this argues in favour of taking the subjective approach into account to supplement the classical approaches. One reason is that the subjective approach turns out to be no more subject to random variations than the objective ones; another is that it makes it possible to take into account criteria that are not easily measured and therefore often ignored in the objective approaches.

Absolute versus relative

Each of the above approaches can be modified depending on whether the poverty threshold adopted is absolute or relative. In the first case, the poverty line is chosen as a certain amount below which the population will be regarded as poor. For example, the measure proposed by the World Bank, most commonly used in the international databases, sets the poverty threshold at one dollar per head per year on a purchasing power parity basis. But there are others. For example, most of the poverty lines calculated at national level in the developing countries are based on a minimum calorific content of food consumption, with a possible extension to other types of need (Ravallion, 1996). But there are several norms that now coexist, based on the calculations of nutritionists. Most of them lie between 2000 and 2400 calories per day per person. But it is not always justified to regard such thresholds as fixed. From one society to another or one period to another, social needs, including food needs, evolve. Being deprived of a telephone or means of transport does not have the same significance in Madagascar as in France.

The second approach consists of setting an arbitrary threshold that is linked solely to the distribution of the poverty criterion chosen. For example, one can set the line at the bottom quintile of income. In this case, the «poverty rate» is no longer meaningful because it has been set a priori at 20%. Such a choice provides no indications on either the level of privation of certain needs, nor on the intensity of social exclusion. It simply makes it possible to identify in a given population those who are worst off (who have less than the others). It is more common in Europe to use half the mean income or half the median income, which permits a certain variation in poverty rates. But even in this case, there is nothing to say that these should be the same for Mali and for Sweden, and this may seem absurd. Moreover, a period of severe economic decline can simultaneously mean an increase in absolute poverty and a fall in relative poverty, if income distribution becomes more even.

In practice, there is a tendency to favour relative measures in the developed countries, whereas in the developing countries, where many basic needs are not met, the preference goes to absolute poverty. But here too, the frontiers are far from being watertight. It was shown earlier that the absolute poverty threshold is in part related to a given environment. Conversely, a relative poverty threshold can include an element of "absolute", if, for example, it is carried over from one year to another and kept constant in volume. Atkinson and Bourguignon (1999) highlight the fact that a relative threshold takes account of the social standing of the individual (poverty being conditional on social status), and that an absolute threshold makes it possible to rank priorities.They therefore propose considering the two thresholds as

two dimensions of poverty to be evaluated jointly in an aggregate index.

Generally speaking, while the monetary approach can use either type of threshold, the approach based on "essential needs", "penury of capabilities" or "social exclusion" calls rather for absolute property criteria, while subjective poverty would tend to be relative. However, regardless of the concept chosen, measurement by means of scores that combine different types of privation permits a choice between the two types of threshold. One takes either the population exceeding a given (absolute) score or a fixed percentage -- the decile, for example, which is a relative threshold -- of the most disadvantaged groups.

Table 1
A typology of the different approaches to poverty

		Monetary		Non-Monetary	
		Absolute	**Relative**	**Absolute**	**Relative**
Means					
	Objective				The UNDP HPI ; Measurement of physical and human capital (Sahn et Stifel, 1999)
	Subjective			Household satisfaction /access to health care and education	
Results					
	Objective	Consumption < 1 $PPA	Income < ½ median	Material living conditions (housing)	
	Subjective	Consumption < minimum regarded as necessary for each household/individual		Degree of satisfaction in terms of consumption of goods regarded as essential	Perception of standard of living in relation to the population as a whole

We have merely touched on the problems related to the measurement of poverty. Apart from questions regarding the concept or approach to be preferred, other difficulties arise, especially when one wants to make temporal or spatial comparisons. These involve, in particular, the choice of equivalence scales, price deflators and taking into account changes in consumption norms, subjects that we shall not deal with here.

In the end, one is confronted with a wide range of measures of poverty, which combine various of these criteria, without one measure being systematically preferable to another. The object of the analysis then comes down simply to being careful regarding the use one makes of them.

2. Application in the case of Antananarivo

These various considerations led us to distinguish, in a first stage, seven approaches to poverty (four objective and three subjective). The methods and the approaches considered draw partly on the article by Lollivier and Verger (1997) regarding France. The wealth of data available from the study carried out in 1998 in the Antananarivo conurbation makes it possible to use new approaches that were not applied by these authors. However, in certain fields, the indicators adopted show limitations linked to the type of information available. This study, which is intended above all to be exploratory, makes no claim to deal with poverty in all its dimensions, or to mobilise a comprehensive battery of indicators to deal with every dimension of the phenomenon.

Following a description of the incidence of monetary poverty using various absolute and relative thresholds, we shall thereafter use the international poverty line (1 $PPP) to make comparisons between the various forms of poverty. Since our main objective is to analyse the inter-relationships between the various dimensions of poverty, it seemed to us more judicious to set, a priori, a single proportion of poor in all the cases. This makes it possible to assess whether the individuals regarded as poor, who still

account for the same portion of the population, are the same under one approach as under another. In line with the considerations set out above, this choice combines absolute measures (monetary poverty) and relative poverty (other forms). Our estimates concern the number of individuals and not the number of households, in order to take account of the different sizes of households depending on the status as regards poverty[6].

A. Monetary poverty

The monetary approach is based on the consumption levels of households (including imputed rent and auto-consumption). The next question is what threshold to use. Initially, several options will be confronted with each other:

– the first takes the international threshold, namely 1 $PPP(1985) per head and per day. Consumption per head is calculated without applying an equivalence scale. In order to obtain the equivalent in local currency (FMG), United States inflation between 1985 and 1992 was used, along with the $/FMG PPP exchange rate in 1992 and Malagasy inflation from 1992 to 1998;
– the second includes the use of an equivalence scale. In this case the threshold is 1 dollar per consumption unit and per day, with each child under 15 counted as 0.5 consumption units;
– an absolute threshold of 2 dollars a head can also be considered, with the 1-dollar threshold used to isolate cases of extreme poverty;
– finally, a subjective poverty line can also be calculated on the basis of the minimum income that households regard as necessary to "make ends meet" (Minimum Income Question -- MIQ). Normally, the replies to this question are an increasing function of actual income. In line with the so-called Leyden approach which aims to define a subjective poverty threshold (according to the characteristics of the households), we have adopted the specification used by Gardes and Loisy (1997) for France, drawing on the Van Praag equation (1982).

$$\text{Ln}(Y_{min}) = k + a \ln(Y) + bZ + gm + ds + e$$

where

Ymin is the household's reply to the MIQ
Z are the characteristics of the household (size, age, number of children)
m and s are the mean and standard deviation of the log incomes in a population used as reference.

We have nevertheless taken the level of consumption C and not the actual income Y. And we have assumed the population in question to be homogeneous. The estimated equation can be written:

$$\text{Ln}(Y_{min}/head) = k + a \ln(C/head),$$

where

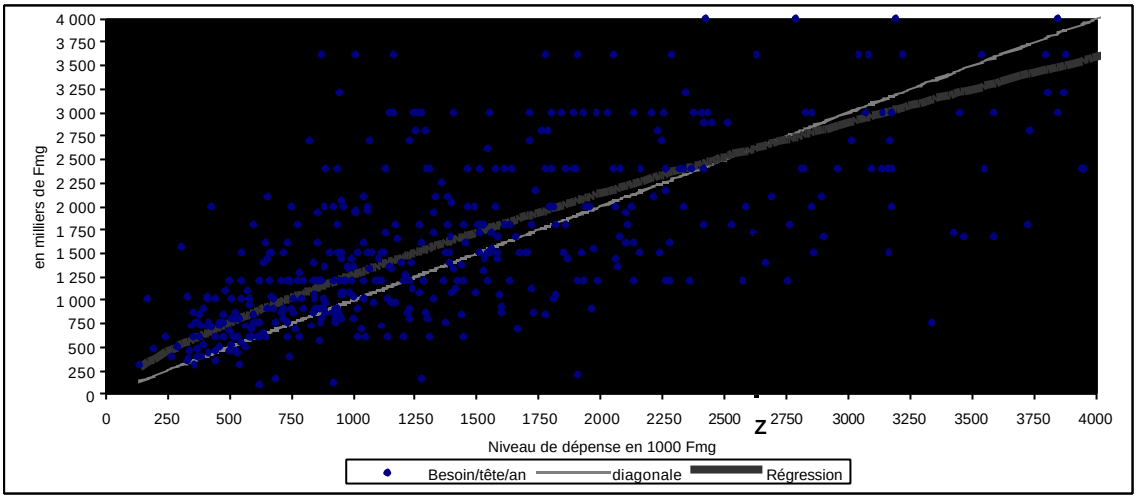
$K=0.86$ (9.4), $a = 0.74$ (26.1) ($R^2 = 0.55$) (Student's t shown in brackets).

Subsequently, we adopted the method habitually used for the European countries (Hagenaars, 1987 comparison for seven European countries; Ravallion and Lokshin, 1998 for Russia) and proposed for the developing countries in Ravallion (1996). This consists of taking as the threshold of subjective poverty the point z at the intersection of the 45-degree diagonal and the curve resulting from the preceding regression of Ymin/Y, the underlying idea being that people whose income is higher than z generally regard their income to be adequate, while those whose income is lower than z mostly feel that their current income is insufficient. Consequently, the intersection between the 45-degree diagonal and the curve gives a poverty threshold.

Graph 1

[6] The measurement of poverty in terms of numbers of households underestimates the incidence of poverty, since poor households are on average larger than the rest. Having no detailed information on the individual levels of consumption for each member within a household, an individual will be considered as poor if the household to which he or she belongs is poor.

Estimated minimum income as a function of level of consumption per head



Source: Survey 1-2-3, P398, MADIO, authors' calculations.

For information, the results taking three relative thresholds are also presented:
- half the mean level of consumption per head;
- half the median consumption per head;
- the median of the minimum income regarded as necessary by the households (Ymin)

Table 2
Incidence of poverty by threshold

	Threshold in 1998 FMG	poverty rate
1$/head per day	850 000 FMG/head per year	32.0%
1$/cu per day	850 000 FMG/cu per year	22.1%
2$/head per day	1 700 000 FMG/head per year	65.8%
Subjective poverty threshold (SPL)	2 600 000 FMG/head per year	83.7%
Half mean consumption/head	766 000 FMG/head per year	*30.2%*
Half median consumption/head	520 000 FMG/head per year	*11.6%*
Median of Ymin	1 200 000 FMG/head per year	*50.2%*

Source: Survey 1-2-3, P398, MADIO, authors' calculations.

The size of the differences in the incidence of poverty depending on the definition used highlights the importance of the choice of threshold in evaluating the level of poverty, as well as the limitations of such an indicator. While the overall conclusion is familiar, it is nevertheless interesting to note that the threshold of 1$ constitutes an extreme value that is only satisfactory if one takes into account the "subjective" opinion of households, especially the minimum level of income they regard as necessary. This means that, taking the international poverty line of 1 dollar, roughly one-third of the inhabitants of the capital would be regarded as poor. The relative line corresponding to half the mean gives very much the same result. On the other hand, the incidence of subjective poverty reaches 84%, in other words the vast majority of inhabitants.

B. The non-monetary objective approach

In order to avoid the "normative" character of the definition of the concept of poverty (based on "minimum needs" and a threshold), as in Lollivier and Verger (1997), we have chosen, in the case of the non-monetary approaches, to measure the phenomenon using cumulative scores established on the basis of a certain number of criteria. While avoiding the trap of imposing a unique way of life, this limits the uncertainties linked to measurement errors. Accordingly, using the terminology of Herpin and Verger (1997) in their presentation of the different approaches to poverty, people are considered as poor who report the most difficult living conditions, characterised by a cumulative lack of certain amenities, taken in the broad sense.

However, such an approach remains open to discussion and it is useful to point out its limitations. In particular, it still retains a normative aspect inasmuch as the choice of questions makes it possible to identify the forms of privation, and used in constituting the scores, remains a matter for the analyst's initiative. Questions can also be raised concerning the relative importance of the different items and hence on the weightings to be attributed to each type of observed shortfall in constructing the composite indicator. In the ideal case -- and as will be shown later for the subjective approach measuring the degree of satisfaction of essential needs -- it would be necessary to be able to pose an initial set of questions on the importance attributed by households to the types of amenity considered.

For the purposes of this study, the choice of the basic items used in the construction of the scores was made ex post in the light of the information available. Moreover -- and unlike the studies quoted above -- the weighting of the various forms of foundation is not uniform[7]. This choice was imposed on us by the requirement, for purposes of international comparison, of identifying the same proportion of poor, regardless of the approach taken. While this specification takes on a random character, the sensitivity tests carried out show that the conclusions obtained were relatively unaffected by changes in the weighting coefficients.

a. Poverty in terms of living conditions

The approach based on "living conditions" consists of defining the level of poverty using actual conditions of accommodation. Since this indicator therefore involves stocks, it makes it possible to measure poverty over the long term, unlike the monetary variables, which are subject to short-term variations (such as income or spending). It is therefore an objective non-monetary indicator tackling poverty from the point of view of results rather than means, even if the fact of having comfortable accommodation can also be a means, for example, of improving one's labour productivity and increasing one's income

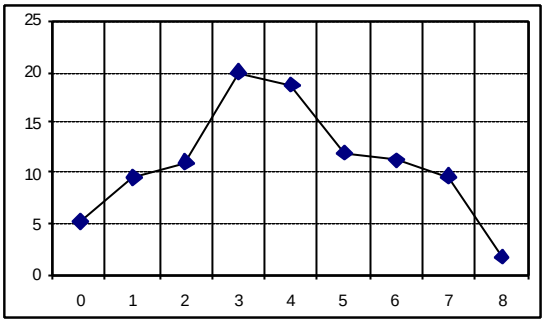
A cumulative score concerning the characteristics of the accommodation is then built up:
-- permanent structure (walls of concrete or brick) or otherwise
-- number of persons per room (including kitchen and bathroom, with a child under 15 counting 0.5)
-- access to running water in the house or the courtyard
-- method of lighting: electricity
-- fuel used: electricity, gas, kerosene
-- toilets with septic tank (individual or communal, with or without flush)

[7] The weightings are not necessarily identical for all the items entry into the scores.

Graph 2

Distribution of scores for poverty in terms of living conditions

Score	% population	cumulative %
0	5.3	99.8
1	9.6	94.5
2	11.2	84.9
3	20.0	73.7
4	18.7	53.7
5	**12.1**	**35.0**
6	11.3	22.9
7	9.8	11.6
8	1.8	1.8



Source: Survey 1-2-3 MADIO, phase 1, Antananarivo, 1998, authors' calculations.

The distribution of the scores is shown in the graph. The definition of a threshold beyond which households can be regarded as poor is difficult and takes on a relatively arbitrary character. As in Lollivier and Verger (1997), since the object is to compare the different approaches to poverty, the cut-off point is chosen so as to isolate a proportion of poor people of the same order as that obtained using the monetary approach (and the absolute criteria of 1 $ per head). This means that the poor in terms of living conditions are those households with a score of five or more, i.e. combining at least five forms of privation. These account for 35% of the total population.

b. Poverty measured by human capital

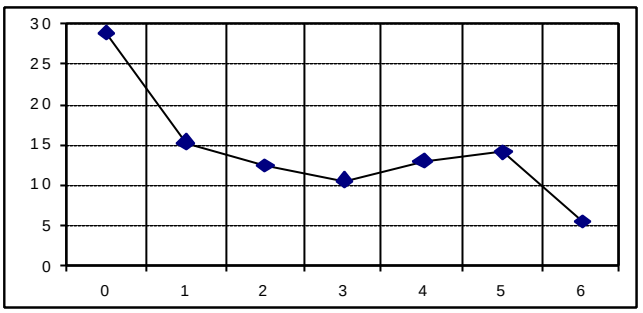
This approach favours the concept of poverty that highlights " penury of capabilities". However, as we have already mentioned, human capital can be regarded as an end in itself and evaluated as such. Since the chosen indicator relates to a stock that is not affected by short-term fluctuations, it also measures a structural form of poverty. The approach consists of constructing a cumulative score relating to the human capital at the disposal of the various members of the household. Four variables characterising " penuries" in terms of human capital are taken into account:
-- the number of years of education attained by the head of household in relation to the maximum number of years he could have attained in view of his age had he not repeated classes[8]
-- the total number of years of education attained by other members of the household in relation to the sum of the potential years of education they could have attained
-- the level of French of the head of household
-- the level of French of the other members of the household.

[8] For example, for an individual aged 10, the maximum potential years of study is 4, since the theoretical age for starting school is 6. For adults aged more than 28, the maximum number is 22, which corresponds to the number of years needed to obtain the highest universe the level (thesis defence).

Graph 3

Distribution of human capital poverty scores

Score	% of the population	cumulative %
0	28.9	100.0
1	15.4	71.1
2	12.4	55.7
3	10.7	43.3
4	**13.0**	**32.6**
5	14.1	19.6
6	5.5	5.5



Source: Survey 1-2-3 MADIO, phase 1, Antananarivo, 1998, authors' calculations.

In conformity with the option chosen in the previous approach, those households are regarded as poor in terms of human capital whose score is four or greater. While making it possible to isolate 32.6% of the population, a proportion similar to that obtained through the monetary approach, the cut-off point also corresponds to a break in the distribution. It would therefore seem that one has in this way then defined a specific group which stands out from the rest in terms of penury of human capital.

c. Poverty measured by social exclusion

The concept of social exclusion is difficult to capture empirically. It may be based on a subjective feeling (considering oneself to be excluded) or objective considerations (low degree of participation in economic, political or social life, exclusion from mutual aid and solidarity networks, etc). It is this second approach that we have adopted. It makes it possible to incorporate in concrete fashion the theoretical advances leading to the inclusion of the phenomenon of marginalisation in the criteria defining the notion of poverty.

The objective variables used to constitute the score of wealth in terms of social integration (the complement of the exclusion score) takes into account:

- Indicators of social integration seen from the solidarity angle (density and mobilisation of social capital):
  - at least one member of the household has participated in mutual aid activities with neighbours;
  - at least one member of the household has found his job thanks to personal relations;
  - the household has received (or given) gifts coming from (or to) other households at the time of festivities during the year;
- Indicators of social integration seen from the angle of participation in social life (access to and keeping abreast of information, knowledge of institutions):
  - whether the news is followed or not
  - the possibility or otherwise of having easy access to information (access to a radio or a TV[9])
  - the fact of knowing the principal institutions operating in social life: KMF-CNOE, FFKM and ASCOMA[10].

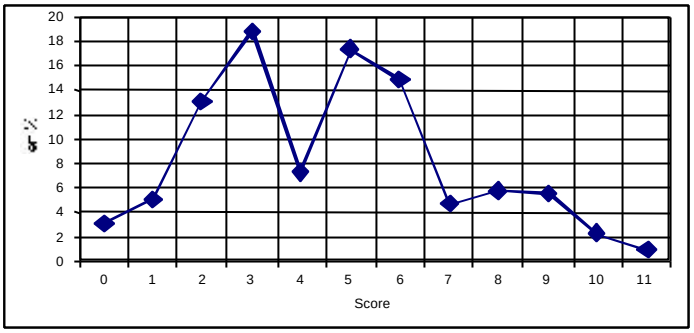
[9] As newspapers are expensive in Madagascar in view of the low purchasing power, few households have genuine access to them. Circulation figures do not exceed 10,000.

[10] KMF-CNOE is an association which carries out major information campaigns for the population regarding civic rights and duties, especially at election time. The FFKM is the ecumenical council, bringing together the principal Christian churches, operating not only in the religious field but also on major questions affecting society. It plays, and has always played, a major political role in the country. ASCOMA is the Malagasy consumers' association.

Graph 4

Distribution of social exclusion poverty scores

Score	% of population	cumulative %
0	3.2	99.9
1	5.2	96.7
2	13.2	91.5
3	18.9	78.3
4	7.3	59.4
5	17.5	52.1
6	**15.0**	**34.6**
7	4.7	19.6
8	5.9	14.9
9	5.6	9.0
10	2.4	3.4
11	1.0	1.0



Source: Survey 1-2-3 MADIO, phase 1, Antananarivo, 1998, authors' calculations.

In order to obtain a proportion of the poor of the same order as that obtained in the previous approaches, we regard as poor those individuals whose score is six or more. This leads to the isolation of 34.6% of the total population. It might usefully be pointed out here that another threshold might have been chosen, given the distribution, if the intention had been to identify a quite specific group standing out from the rest.

C. The subjective approaches

a. General perception of standard of living

The first approach is based on a purely subjective assessment by households of their living conditions and standard of living. This way of measuring poverty makes it possible to cover a very diverse range of criteria that are taken into account by households but not identified among the objective criteria set out above.

This approach is based on two questions, with multiple responses, relating to general perception:
-- The first relates to the way households judge their living conditions. The responses are: "I live well", «I live more or less well", "I live moderately well and have to take care", "I live with difficulty".

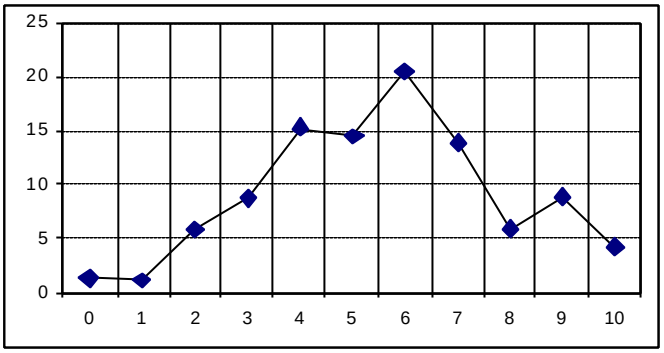
-- the second asks the household how it sees its standard of living. There are seven possible responses: "very high standard of living", "high", "probably high", "probably low", "low", "very low".

The general subjective poverty score is built up by spacing out the replies to each question. A maximum value is given to the most negative responses and 0 to the first two responses, which reflect satisfaction.

Graph 5

Distribution of general subjective poverty scores

Score	% of population	cumulative %
0	1.3	100.0
1	1.1	98.7
2	5.8	97.6
3	8.7	91.8
4	15.3	83.1
5	14.4	67.8
6	20.4	53.4
7	**13.9**	**33.0**
8	6.0	19.1
9	8.8	13.1
10	4.3	4.3



Source: Survey 1-2-3 MADIO, phase 1, Antananarivo, 1998, authors' calculations.

We have taken as subjectively poor from a general standpoint those households with a score of seven or more. This isolates 33% of the population.

b. Non-satisfaction of needs seen as vital

This approach is based on the classic concept of satisfaction of vital needs in defining poverty. However, unlike the indicators normally used, which set objective criteria, the level of satisfaction is measured here from the subjective point of view.

In a first stage, in order to determine the needs which the population being studied considered to be vital, we based ourselves on the responses to a first set of questions asking households what they regard as absolutely necessary out of a certain number of items. As in Lollivier and Verger (1997), we chose the criteria using the consensus principle. This meant that we took the types of need considered to be absolutely necessary by more than 75% of the households interrogated, leading to a final list of 9 items out of the 23 proposed. These are:

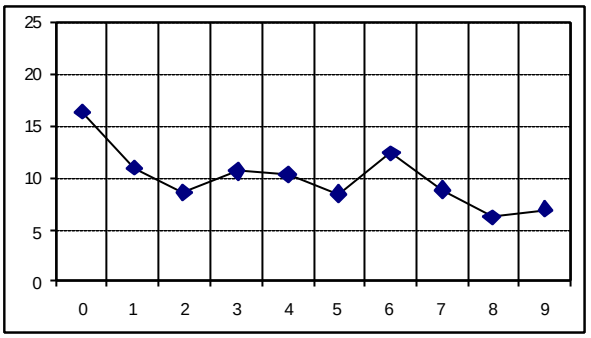
– to have breakfast
– to eat rice every day
– to have something with rice every day
– to have a minimum number of sets of clothes in order to be able to change
– to have at least two pairs of shoes
– to have sufficiently roomy accommodation
– to be able to receive treatment when ill
– to be able to keep clean and take care of one's body
– to be able to send the children to school.

It is interesting to note that the principal needs regarded as essential by households broadly match those that are usually listed by economists (food, health, education). Concerning each of these needs, households were asked for the level of satisfaction, in the light of their actual consumption. The cumulative score of subjective poverty in terms of satisfaction of needs was therefore built up on the basis of the replies obtained for the items identified as basic.

Graph 6

Distribution of subjective poverty scores based on satisfaction of needs

Score	% of population	cumulative %
0	16.4	99.8
1	10.9	83.4
2	8.6	72.5
3	10.7	63.9
4	10.3	53.2
5	8.4	42.9
6	**12.3**	**34.5**
7	8.9	22.2
8	6.2	13.3
9	7.1	7.1



Source: Survey 1-2-3 MADIO, phase 1,Antananarivo, 1998, authors' calculations.

In the light of the distribution of the scores, we regarded as poor those households with a score of six or more, in other words those expressing dissatisfaction regarding at least six of the needs identified as essential. On this criterion, the poor in terms of subjective assessment of satisfaction of needs accounted for 34.5% of the population.

c. Financial poverty (financial affluence)

This approach, too, is inspired by that used by Lollivier and Verger (1997). While it does not directly correspond to any of the concepts of poverty described in Part I, it is nevertheless based on the monetary criterion although from a more subjective point of view. By comparison with the classic monetary approach, it takes into account people whose level of consumption can be regarded as adequate, but who only achieve this by making substantial efforts (borrowing, etc). This approach therefore makes it possible, in a way, to identify the vulnerable households. It includes the notion of dependency (those who borrow), and captures, in a way, those households liable to slip into poverty.

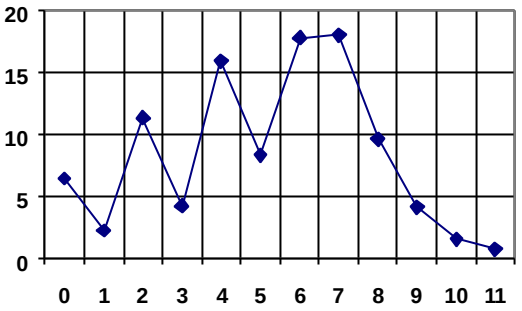
In order to construct the financial poverty score, the following characteristics were regarded as signs of a low degree of financial affluence:

- a level of spending by the household that was less than or equal to the declared minimum need (the level of consumption regarded as the minimum by households in the MIQ)
- inflows of money regarded as insufficient to live well or moderately well
- dis-saving by the household
- in the previous 12 months, frequent lateness in paying
  - the rent
  - water and electricity bills
  - the children's schooling
  - servants' wages.

Given that late payment can sometimes be a question of forgetfulness and that it can tend to concern the better-off households (those with a domestic servant, water and electricity), a lower weight was attributed to these final criteria than to the first three.

Graph 7
Distribution of subjective financial poverty scores

Score	% of population	cumulative %
0	6.4	100.0
1	2.2	93.6
2	11.3	91.4
3	4.2	80.1
4	15.9	75.9
5	8.3	60.0
6	17.8	51.7
7	**18.0**	**33.9**
8	9.6	15.9
9	4.1	6.3
10	1.5	2.2
11	0.7	0.7



In view of the distribution of scores obtained, and in order to obtain a proportion of the order of 30%, households were considered as poor if their score was seven or more. This isolated 33.9% of the population as being characterised by financial affluence which they regard as very limited.

3. Do the poor combine the different symptoms?

Although none of the seven groups of poor people defined above represents less than 32% of the population, only 2.4% combine all the criteria. These people form the "hard core" of poverty. However, it is inconceivable to pick out as genuinely poor only 2.4% of the population, when 32% are identified as being below a monetary poverty threshold that is already regarded as extreme and which is itself far removed from the subjective threshold determined from the standpoint of the households.

Table 3
Summary of results

• Monetary poverty (consumption < 1$ per head)	32%
• «Objective» «non-monetary» poverty:	
- in terms of living conditions	35.0%
- in terms of human capital	32.6%
- in terms of social exclusion	34.6%
• "Subjective" poverty:	
- General perception:	33.0%
- Non-satisfaction of needs seen as vital	34.5%
- Financial difficulties	33.9%
Combination of different types of poverty	**2.4%**
Combining the four types of objective poverty	7.1%
Combining the three types of « objective» «non-monetary» poverty	8.9%
Combining the three types of « subjective» poverty	11.9%
Showing at least one type of poverty	**77.7%**

Source: Survey 1-2-3 MADIO, phase 3, Antananarivo, 1998, authors' calculations.

7% of the population combine the various forms of objective poverty and 9% the three objective non-monetary forms, percentages which are low in relation to the 32% obtained using the more classic criterion. Conversely, 78% of the population show at least one form of poverty. These results give a first indication of the low degree of overlap between the different dimensions, confirming that even in a poor country, poverty is a multidimensional phenomenon. The characterisation of the various forms of poverty and the linkages between them will be examined in more detail in Part II.

Box
Poverty in terms of living conditions and monetary poverty
Comparison with other countries

In order to construct the scores for poverty in terms of living conditions shown here, we have taken the questions and modalities that are common to the different surveys.

Score	Tana	Bamako	Abidjan	Dakar
0	100.1	100	100	99.9
1	96.2	98.5	82.2	58.7
2	85.8	81.4	50.1	29.9
3	**73.7**	**59.6**	**23.2**	**15.9**
4	46.6	33.9	8.1	5.5
5	19.9	7.3	2.6	1.4
6	2.8	0.1	0.7	0.2

Sources: Survey 1-2-3, 1998, MADIO, Enquêtes UEMOA 1996 consumption Budget pour Bamako, Abidjan and Dakar, authors' calculations.

	P0			
Threshold	**Tana**	**Bamako**	**Abidjan**	**Dakar**
1$/head	32.0%	16.2%	5.5%	8.6%
2$/head	65.8%	57.2%	33.2%	45.3%

Sources: Survey 1-2-3, 1998, MADIO, DIAL (2000b).

Comparison of the results shows that, regardless of the threshold adopted for poverty in terms of living conditions, first, the ranking of the capitals is unchanged and, second, that the poor population is much larger in Antananarivo than in the three West African capitals. This second conclusion still holds when the monetary approach is used. However, the ranking changes for the two richest towns, with Dakar, which came top in terms of the low level of poverty in terms of living conditions, moving into second place behind Abidjan.

II THE RELATIONSHIPS BETWEEN DIFFERENT FORMS OF POVERTY

1. Correlations

In order to measure the relationships among the seven forms of poverty, we calculated the various correlation coefficients. The first conclusion is that all the forms of poverty are positively (and significantly) correlated. The presence of one appreciably increases the probability of occurrence of all the others. These links are nevertheless far from perfect, showing that the different types of poverty overlap only partially. For the dichotomic variables, the correlation coefficients are all below 0.43, with a minimum of 0.11 between poverty in terms of living conditions and general subjective poverty.

Taking scores increases the level of the correlations, while maintaining the overall ranking of the associations. These vary between 0.65 (monetary poverty, poverty in terms of living conditions) and 0.19 (exclusion poverty, subjective financial poverty). It will be noted, however, that the correlations are in general greater than those obtained in France for similar indicators, suggesting that the relationships between the various forms of poverty are stronger in Madagascar.

Table 4
Correlations between the various forms of poverty

	1	2	3	4	5	6	7	Cons/hd
1. Monetary poverty	1	0,65	0,53	0,37	0,48	0,46	0,48	-
2. Poverty in terms of living conditions	0,43	1	0,56	0,32	0,36	0,43	0,38	-0,49
3. Poverty in terms of human capital	0,41	0,26	1	0,35	0,31	0,37	0,30	-0,36
4. Poverty in terms of social capital	0,22	0,16	0,25	1	0,28	0,30	0,19	-0,18
5. General subjective poverty	0,30	0,11	0,16	0,14	1	0,52	0,50	-0,45
6. Subjective satisfaction poverty	0,34	0,24	0,25	0,29	0,32	1	0,52	-0,33
7. Subjective financial poverty	0,24	0,19	0,20	0,13	0,24	0,31	1	-0,43
Consumption per head	-0,31	-0,27	-0,27	-0,17	-0,22	-0,25	-0,26	1

Source: Enquête 1-2-3, P398, MADIO, authors' calculations. Normal characters (below the diagonal show correlation coefficients calculated using dichotomic variables; above the diagonal (in italics), they are calculated from the scores.

These results suggest that all the indicators are indeed capturing a single phenomenon, i.e. poverty. The irreducibility of the ones against the others tends to confirm the hypothesis of multidimensionality. Of all the forms of poverty, monetary poverty is the one most highly correlated with the others. In addition, the ranking of the correlations seems to show the existence of two distinct sub-groups, although these are not completely disconnected: objective poverty on the one hand, and subjective poverty, on the other. For each of the two sub-groups, the intra-correlations come out around 0.50 (for the scores), with the exception of social capital poverty, whereas the inter-correlations are lower on average.

The correlation coefficients depend on the thresholds selected to define the poverty line. In order to test the robustness of our results, we adopted a common threshold of around 5% for all the criteria. In taking such a low figure, one might think it possible to identify a hard core of the poor, with the idea that the poorest of the poor should combine all forms of poverty. Contrary to this intuitive expectation, the correlations are in fact lower than in the previous case. They are even non-significantly different from 0 as between subjective financial poverty and the various components of objective poverty. On the other hand, the distinction between objective and subjective forms is maintained. The combination of these different forms of poverty reaches 32%, whereas the intersection is void. It therefore emerges clearly that the various forms of poverty are not reducible one against the other.

2. Analysis of the data

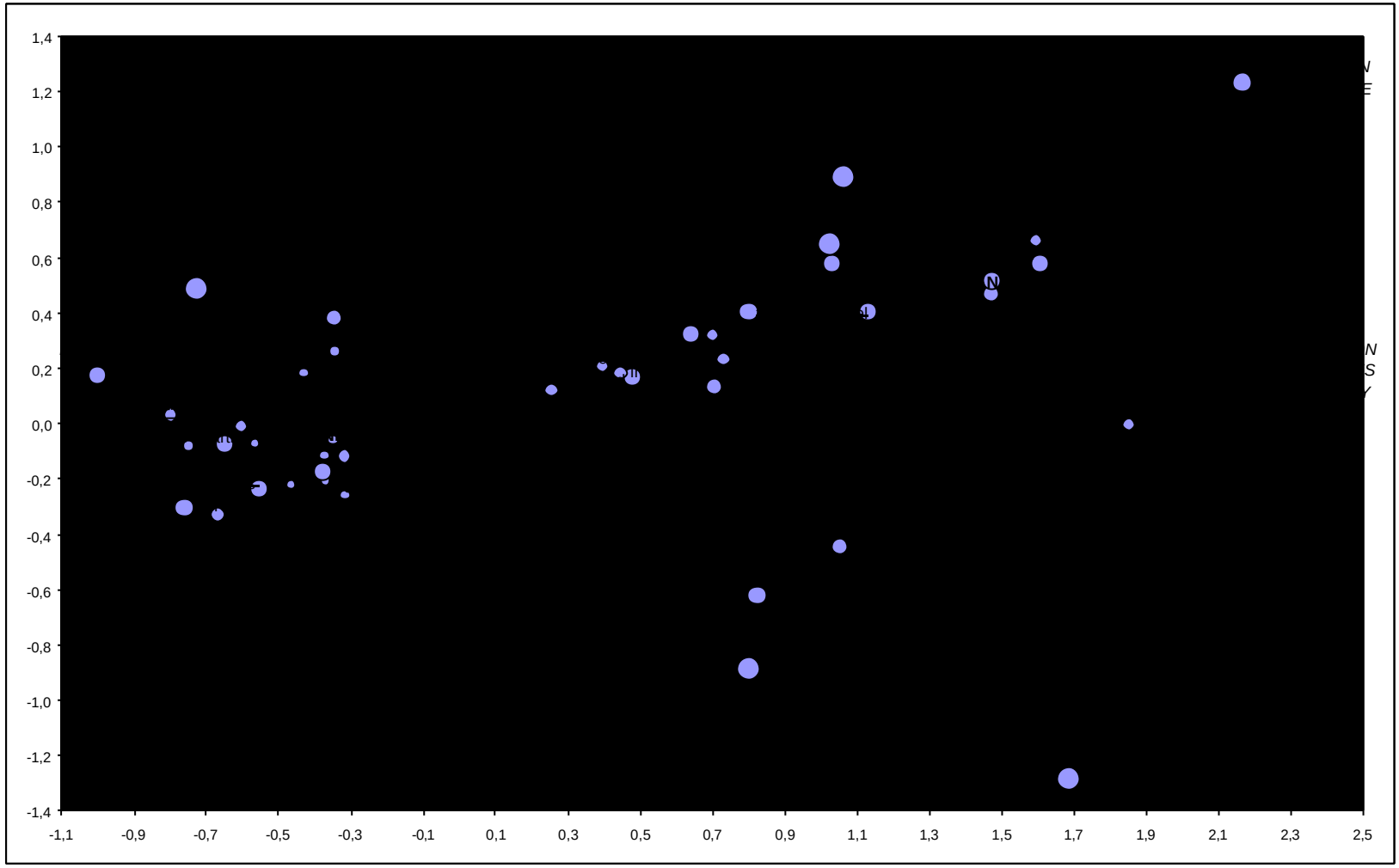
In order to go beyond the stage of correlations taken in pairs, and to give a global assessment of the linkages between the various types of poverty, we turned to data analysis. Multiple-component analysis for the "global poverty space" gives some particularly interesting results:

– the first factorial axis is by far the most discriminating. It accounts for 36% of the total inertia, as against less than 15% for all the other six axes. It provides a clear opposition between poverty and non-poverty, in all its forms;
– the second axis (14% of the inertia) is also highly legible, differentiating the two main dimensions of poverty: objective poverty (monetary, human capital, existential and social exclusion) from subjective poverty (financial affluence, satisfaction of needs, general perception).

Hence, the first factorial level shows three quite distinct poles: objective poverty, subjective poverty and non-poverty (objective or subjective). The projection of the extreme forms of poverty (individuals combining the three forms of subjective poverty, the four forms of objective poverty, all forms of poverty) accentuates still more the distance separating the three apexes of the triangle representing the structure of the poverty space.

Finally, what conclusions can be drawn from the relationships between the different forms of poverty? While the latter do not entirely overlap, they nevertheless provide a convergent set of indications in which each dimension of poverty tends to strengthen the probability of the appearance of the other forms. Among the multiple dimensions of poverty the main distinguishing factor is the subjective/objective criterion. Within each of these dimensions, the various approaches are highly inter-correlated.

Graph 8a
First factorial scatter diagram of the poverty space
(taking the basic variables used in the construction of the poverty indicators)



Source: Survey 1-2-3, phase 398, MADIO, authors' calculations. The principal variables of the ACM here are those that indicate whether or not an individual belongs to the seven groups of poor people identified by the different approaches: monetary, living conditions, human capital, social exclusion, general subjective, subjective for satisfaction of needs, financial affluence (these variables, capitals no italics). The others are supplemantary variables. The size of the dots indicates the representation of the variables on the two axes.

Graph 8b

First factorial scatter diagram of the poverty space

(taking the basic variables used in the construction of the poverty indicators)

Source: Survey 1-2-3, phase 398, MADIO, authors' calculations. The principal variables of the ACM here comprise the basic criteria used to construct the various poverty indicators (characteristics or assessments by individuals). The various types of poverty occur only as additional variables (in italics, underlined). Only the variables whose representations at factorial level are of good quality (contribution to the inertia of the two axes and square of the cosine) have been included in the graph.

The same type of analysis, but starting from the basic variables used in the construction of the different poverty scores, confirms the above results. Moreover, it tends to confirm the appropriateness of the choice of variables for the construction of the different indicators, since the criteria chosen for each of the approaches to poverty are found grouped within a clearly defined pole.

3. The links between the approaches excluding the income effect

We saw earlier that the different approaches are intercorrelated, but do not fully overlap. In order to take the analysis a stage further, we examined the links existing between the various non-monetary dimensions of poverty when the income effect which operates on all the approaches is excluded, the aim being to identify the major groups which stand out the most. Accordingly, using logit models, we tried to see to what extent, for equivalent income, the probabilities of showing the different forms of non-monetary poverty are mutually reinforcing.

Table 5

Explanatory variables	POBJEXI	POBJHUM	POBJEXC	PSUBGEN	PSUBSAT	PSUBFI	3 objective forms combined	3 subjective forms combined
Poverty in terms of living conditions				-0.5 (3.6)				
Poverty in terms of human capital			0.7 (8.2)					
Poverty in terms of social exclusion		0.7 (7.9)			0.9 (16.4)			1.0 (10)
General subjective poverty	-0.5 (3.6)				0.9 (17.7)	0.4 (3.9)		
Non-satisfaction subjective poverty			0.9 (16.9)	0.9 (18.1)		0.7 (9.5)		
Subjective financial poverty				0.4 (3.8)	0.7 (9.9)			
Log (consumption / head)	-2.2 (72)	-1.6 (52)	-0.4 (5.7)	-0.8 (20.4)	-0.8 (14.3)	-1.3 (38)	-2.2 (29.7)	-1.6 (27.8)
Constant	29.5 (65)	21.3 (44)	4.6 (3.3)	10.9 (15.6)	9.0 (9.1)	16.8 (32)	27.9 (24.4)	20.6 (21.4)
Concordant pairs	85.0%	81.3%	71.1%	74.1%	80.9%	77.7%	86.9%	81.7%
Correlation with cons'n/head	*-0.27*	*-0.27*	*-0.17*	*-0.22*	*-0.25*	*-0.26*		

Source: Enquête 1-2-3, P398, MADIO, authors' calculations. Only coefficients that were significant at the 10% level are incluuded in the table. Figures in brackets next to the coefficients are the Wald's X^2.

The first major conclusion is confirmation of the fact that the various subjective approaches are mutually reinforcing. The probability, for equal income, that a household shows one of the forms of subjective poverty increases if it is identified as poor according to the two other subjective approaches. It therefore seems that these approaches do indeed form a homogeneous group.

Similarly, poverty in terms of human capital, on the one hand, and social exclusion on the other are linked. In this case we find two approaches: by "penury of capabilities" which leads to the isolation of a set of indicators which give preference to means in capturing poverty, in parallel with the purely monetary approach based on the results. On the other hand, the links between poverty in terms of living conditions and the two other objective forms mainly transit through the income effect.

A negative link emerges between poverty in terms of living conditions and general subjective perception by households of their standard of living. For equal income, the fact of living in an under-equipped dwelling diminishes the probability of regarding one's living conditions as difficult and one's standard of living as low, and vice versa. The household's immediate environment therefore influences its conception of the average standard of living. A household that is living from hand to mouth in difficult conditions is content with a level of consumption that is lower than one which enjoys a more favourable environment. What we find here is the phenomenon of attrition of needs in the case of the poorer groups, which leads them to be less exacting in terms of consumption levels. Conversely, the negative link between poverty in terms of living conditions and the general subjective perception of poverty could reflect the opposition between structural and immediate poverty. In fact, the first approach relating to the conditions of existence measures "stock" variables which result in major part from the household's previous history (especially previous income). The second, on the other hand, reflects a judgement which gives more importance to the present day and more particularly to the evolution in the income flow. Thus, for equal income, the household living in difficult conditions and having always enjoyed only limited inflows of money is less liable to complain than one which has known better days.

It would therefore seem that the subjective approach based on households' general perception incorporates the notion of hoped-for standard of living, with those which are poor in terms of living conditions turning out to be those most inclined to limit their ambitions. These conclusions highlight, not so much the limits of the subjective approaches, which turn out all to be negatively correlated with the households' level of consumption per head (a purely objective criteria), but mainly those of the monetary approach in its instantaneous application, which makes no distinction between structural poverty and transient poverty.

Finally, poverty in terms of exclusion stands out by having a specific link with the subjective approaches. Showing the characteristics of social exclusion increases, for equal income, the probability of combining the various forms of subjective poverty. Knowing that this approach is the least correlated with consumption per head, and that the density of the "social links" has an appreciable influence on the degree of satisfaction expressed by households, it provides an additional dimension that is not taken into account in the traditional objective approaches, especially the monetary approach.

III. -- THE FACTORS CONTRIBUTING TO POVERTY

The projection of the principal socio-economic characteristics of households on the poverty space gives a first glimpse of the factors that favour the occurrence of this situation. Leaving aside levels of income or education, which by construction are directly linked to our indicators of monetary poverty or human capital, the occupational category, the sector of employment and the size of the family are the most significant variables. Among the poor, one finds the unskilled workers, participants in the informal sector and the large families. At the opposite end of the scale, belonging to a household headed by a manager or a civil servant or to a family with less than two children is positive for avoiding poverty. It is interesting to note that these variables are positioned on the non-poverty/objective poverty axis. On the other hand, we have not succeeded in identifying particular categories of households that are liable to be subjectively poor.

In order to go a step beyond this initial analysis, and in order to give greater details of the multiple dimensions of poverty, we turned to econometric models (logit and bivariate probit) that make it possible to identify the risk factors of poverty, all other things remaining equal. Various specifications were tested. We shall show here only those variables and values which turned out to be the most relevant in drawing up profiles of poverty. Our models are essentially descriptive and do not make it possible to identify the direction of causality between the explanatory variables and household poverty[11]. Identifying the variables that play a significant role regarding poverty simply provides indications of the factors which increase the

[11] For example, the fact that the signs of household increases monetary poverty does not make it possible to know whether it is the fact of having many children that makes one poor or, on the contrary, the fact of being poor which means that one produces many children.

probability of poverty occurring.

The poverty concepts used in this study were of many kinds. A comparative analysis of the results of the logit models for each of the seven forms of poverty does not bring out, in any conclusive fashion, the distinctive characteristics of the various populations. The poverty profiles that emerge remain fairly similar in their broad lines, especially that obtained through the monetary approach. We saw earlier that the correlations among certain approaches are relatively high. It therefore seemed more judicious to place the accent on the principal forms of poverty where there is opposition. The approach adopted is then in three stages. In the first stage, the principal characteristics of the poor population using the monetary approach, which is both the most traditional and the most highly correlated with the other forms of poverty, will be set out. In a second stage, we shall attempt to identify the characteristics which distinguish the objective and subjective approaches. Finally, by way of illustration, we shall conclude with a comparison of the poverty profiles that emerge from the approaches that are the least intercorrelated, in other words poverty in terms of living conditions and poverty as generally subjectively perceived by households.

1. Characterisation of the poor population using the monetary approach

Poor households, according to the monetary approach, are mainly headed by women, all other things remaining equal. The likelihood of belonging to this group increases with the size of household and the number of children. The level of competence in French turned out to.be a more important determining factor than the educational level of the head of household. Households headed by someone who speaks no French are more liable to be poor relatively to others, and those headed by someone speaking perfect French are more inclined to avoid monetary poverty. The educational level of the spouse of the head of household also has the expected influence. If he or she has not been educated beyond secondary level, the risk that the household will be poor is greater. Moreover, three categories stand out for having a lower frequency of situations of monetary poverty: those headed by a civil servant, those headed by someone with a senior management post and those headed by independent workers.

Table 6
The determinants of monetary poverty

	Numbers	Coeff.	Wald
Constant		-8.5	5.6
Gender of head of household			
- male	452	ref	ref
- female	110	1.0*	3.1
Level of French of head of household			
- speaks French	444	ref	ref
- does not speak French	118	0.8**	3.9
Educational level of spouse			
- none, primary, secondary or no spouse	418	2.0**	7.9
- 2nd cycle secondary or higher education	144	ref	ref
Activity of spouse			
- active	284	-	-
- inactive or no spouse	278	ref	ref
Type of household			
- single-parent	82	-	-
- other	480	ref	ref
Migratory status of head of household			
- native or merina migrant	488	ref	ref
- migrant from another ethnic group	74	-	-
Religion of head of family			
- FJKM	255	-	-
- Catholic and other	307	ref	ref
Institutional sector of head of household			
- public sector	110	-2.1**	9.1

- informal sector	222	-	-
- private formal sector or unemployed/inactive	230	ref	ref
Socio-professional category of head of household	124	-3.4**	18.4
- manager or head of firm	148	-1.1**	6.4
- independent worker	290	ref	ref
- other			

Seeking another activity			
- Yes	56	-	-
- No	506	ref	ref
Socio-professional category of father of head of household	79	-	-
- manager or head of firm	483	ref	ref
- other			
Institutional sector of father of head of household	89	-0.8*	3.1
- formal sector	473	ref	ref
- other			
Educational level of father of head of household			
- none or primary	366	-	-
- secondary or better	196	ref	ref
Educational level of head compared with his father	345	-	-
- higher	217	ref	ref
- same or lower			
Evolution of household's income over previous year	56	-	-
- down by more than one third in real terms	506	ref	ref
- other (incl. Income not available)			
Log (age of head)		**-**	**-**
Log (size of household)		1.7**	8.6
Log (number of children)		1.2**	8.8
Log (activity rate, excl. servants)		1.0**	4.4
Log (head's years of education)		-	-
% de concordant pairs: 92.7%			

Source : Survey 1-2-3, phase 3, 1998, MADIO, authors' calculations. The sample comprises 562 households. An estimation was made using the detailed values for each variable, but we finally restricted ourselves to agrouping showing only those for which the coefficients were significant. Variables which appeared not to be determinant were kept to facilitate comparison with following results.. * significant at the 10% level. ** significant at the 5% level. - : non-significant ref :reference value.

As regards the social origins of the head of household, it is the institutional sector of this person's father that has an influence on the likelihood of being poor and not the occupational category. Those whose father worked in the formal sector have a greater chance of avoiding poverty than the others. On the other hand, the descendants of civil servants do not stand out. Finally, whereas one might have expected that the activity of several people in a household reduces the risk of poverty, the opposite result emerges. The greater the household's activity rate, the greater the probability of belonging to the poor population. Therefore, the activity of secondary members is mainly explained by the need for compensatory income, which nevertheless remains insufficient for the household. Conversely, the age of head of household, his migratory status, his religion, his search for activity or the evolution of incomes in the past year have no effect on monetary poverty.

Finally, a limited number of variables turn out to be decisive in characterising monetary poverty. These are relatively traditional: the gender of head of household, the size of the household, the number of children[12] , competence in French on the part of the head of household and not his educational career, the level of

[12] While the question can be asked to what extent this factor is still determinant if a different equivalence scale is used to calculate consumption units, on the one hand, by taking the Oxford scale, the fact off having more than three children still exert a positive influence on poverty with a significant coefficient, although smaller. Second, the results that we shall see later for the other dimensions of poverty, where the question of the equivalence scale does not come in, will confirm the role of this variable.

education of the spouse, the head's institutional sector, his occupational category and finally the activity rate of the members of the household.

2. Characterisation of the objective and subjective approaches

In order to identify the characteristics that distinguish objective and subjective poverty, we shall address ourselves here more specifically to the non-monetary approaches. Rather than consider households which combine the various forms of poverty or those which show at least one of its forms, composite indicators incorporating the scores of the non-monetary objective approaches (living conditions, human capital and social exclusion) on the one hand, and those of the subjective approaches on the other (general perception, satisfaction needs, financial affluence/comfort), were constructed[13]. Households are regarded as poor if they combine the most privation measured in objective fashion on the one hand, with expression of the greatest dissatisfaction on the other. As previously, the two poor populations identified in this way (objectively and subjectively) are the same size in order to facilitate comparison.

The factors behind objective poverty are fairly traditional: low level of education, insertion in the informal sector, unskilled employment, the number of children in the household, the rate of mobilisation of family manpower on the labour market favour objective poverty; similarly for households headed by a woman. More interestingly, Protestant families more often avoid this form of poverty. This must be interpreted as the traces left by the history of Madagascar in the 19th century. The aristocracy and the local bourgeoisie, converted to Protestantism by English missionaries, withstood the proselytising of the French invaders, with conversions to Catholicism being found mainly in the more popular strata of the population (Roubaud, 2000). The religious divide partly overlaps the division into castes, officially abolished in 1896. Reminiscence of this principle of pre-colonial statutory stratification, based on slavery, continues to have an influence on the present social hierarchy. Somewhat unexpectedly, single-parent households are less subject to objective poverty. Two explanations can be put forward for this: either they derive relatively greater benefit from the forms of social solidarity, or they have put more effort into giving their existence a "normal" character in the face of the adversity due to family situation.

The determinants of subjective poverty, on the other hand, are very different. If one excludes the number of children and unskilled jobs, which operate in the same direction as for objective poverty, all the other significant variables have no effect on subjective poverty. Generally speaking, **it is the variables related to social origins and past history that have an influence on subjective poverty, whereas they have no direct impact on objective poverty**. For example, a fall in the household's real income during the year increases the sentiment of subjective poverty but has no effect on objective poverty. Similarly, the status of migrant increases the level of economic dissatisfaction, whereas it has no effect in its own right on objective poverty. Having a well-educated father or one who has been employed as a manager is a protection only against subjective poverty. The values transmitted by family socialisation in childhood continue to have a direct impact on the level of satisfaction, not on the level of achievement. For example, because my father was a manager, I consider myself to be intrinsically better off than if his situation had been less favourable, all other things remaining equal. On the other hand, I derive no specific advantage in terms of my material situation, other than those which his status procured for me in terms of being able to continue my education, etc.

Finally, the fact of being in a dominated social position has much less impact on subjective poverty than on objective poverty**. Two interpretations, not necessarily mutually exclusive, can be invoked to explain these differences. They may reflect the phenomena of attrition of preferences in the case of those whose material conditions are the most precarious. But they can also highlight the importance of sociability links and modes of social insertion that are positively assessed by those**

[13] We shall not discuss here the technical questions relating to the construction of these two composite indicators, notably the possible risk of redundancy in view of the correlation between the approaches. These questions are treated at length in Lollivier and Verger (1997). Given that the different scores relate to clearly differentiated concepts, and that the subjective and objective approaches produce two quite specific groups, this choice of accumulating the scores seems to be justified.

who are most disadvantaged in material terms. While having many children or working in the informal sector are indeed the signs of objective poverty, the situations are not seen as reasons for dissatisfaction. To belong to a large family may reinforce the feeling of belonging to a community and make it possible to avoid isolation or exclusion processes. Being at the head of a small informal enterprise, in which many members of the household are occupied, even for derisory levels of remuneration, may be considered as a token of success and personal accomplishment. From this point of view, the ranking in the social hierarchy, assessed in terms of income or prestige, is far from being the unique determinant of the level of satisfaction. Cohesion, solidarity, the "density of the social links" are shared values that do not necessarily correspond to financial affluence.

Table 7
The determinants of objective non-monetary poverty and subjective poverty
(bi-variate probit model)

	Objective non-monetary poverty	**Subjective poverty**	**Objective non-monetary poverty**	**Subjective poverty**
Constant	-2.5	-1.8	11.9**	14.8**
Gender of head of household : - female	0.7**	-	0.7*	-
Level of French of head: - cannot speak it	0.7**	-	0.6**	-0.4*
Educational level of spouse: - secondary or less	-	-	-	-
Activity of spouse: spouse active	-	-	-	-
Type de household: - single-parent	-0.8**	-	-0.9**	-
Migratory status: - migrant from another ethnic group	-	0.5**	-	0.6**
Religion of head of family: - FJKM	-0.6**	-	-0.6**	-
Institutional sector of head: - public sector - informal sector	- 0.6**	-0.5** -	- 0.6*	- -
S-PC of head of family : - cadre ou patron - travailleur à son propre compte	-1.0** -	-0.5** -	- -	- -
Seeking another activity	-	-	-	-
S-PC of father of head: - manager or head of firm	-	-0.6*	-	-0.6*
Institutional sector of father: - formal sector	-	-	-	-
Educational level of father of head: - none or primary	-	0.4*	-	-
Educational level of head compared to fathher: - more	-	-	-	-
Evol'n in houshold's income: - sharp fall in real terms	-	0.5**	-	0.6**
Log (age of head)	**-**	**-**	**-**	**-**
Log (size of household)	-	-	-0.6*	-0.4*
Log (number of children)	0.5**	0.5**	-	-
Log (activity rate, excl. servants)	0.7**	-	0.6*	-
Log (head's years of education)	-0.9**	-	-0.9**	-
Log (consumption/head)			-0.9**	-1.2**
Log likelihood: Wald X^2	-313.5 (150.3)		-283.8 (171.6)	
Correlation des residuals : r X^2	0.36 (8.0)		- ns	

Source : Survey 1-2-3, phase 3, 1998, MADIO, authors' calculations. The sample comprises 562 households. An estimation was made using the detailed values for each variable, but we finally restricted ourselves to agrouping showing only those for which the coefficients were significant. Variables which appeared not to be determinant were kept to facilitate comparison with

following results.. The reference population is the same for each variable. * significant at the 10% level. ** significant at the 5% level. - : non-significant ref :reference value.

The positive and highly significant correlation between the residuals in the model justify the bivariate specification used here. It proves that there are non-observed explanatory variables that operate in combination and in the same direction on both forms of poverty (objective and subjective). This correlation of the residuals disappears when the level of consumption per head is introduced as an explanatory variable in the model. The non-observed factors mentioned above are in fact determined by monetary income[14].

The introduction of the level of consumption into the model has another advantage: it makes it possible to compare the relative effect of the explanatory variables, for equivalent income. Two major results deserve to be stressed. First, whatever the form of poverty considered, the probability of belonging to a poor household decreases with the level of everyday consumption. All other things remaining equal, monetary poverty largely determines all the other forms of poverty. Second, the explanatory factors identified in the model, not including income, remain stable for both objective and subjective poverty. The phenomena of attrition of needs as regards the most disadvantaged from an objective point of view is even more striking. In fact, for equal levels of income, households whose head does not speak French, who are objectively poorer, avoid subjective poverty.

The effects brought out here are therefore robust and are not merely a disguised reflection of income factors. Each form of poverty has its own logic, providing confirmation that they cannot be reduced simply to monetary poverty.

3. The poor in terms of living conditions and the "subjective" poor: two distinct populations

By way of illustration, and in order to be able to indicate more clearly exactly in what way the approaches are totally different, we have taken the two forms of poverty that are least correlated with each other: "living conditions" poverty, on the one hand, and "subjective" poverty, on the other. The first measures poverty using objective criteria, the second purely subjective criteria.

The same results are found regarding single-parent households, those whose head is a non-Merina and those whose income has fallen sharply compared with the previous year. Two new factors emerge as determinant for general subjective poverty without having an influence on poverty in terms of living conditions: the age of the head of household and the activity of the spouse. All other things being equal, the young and households where the spouse of the head is active turn out to be more exacting in terms of standard of living and living conditions than the others. This remark holds also for the young, even for equivalent levels of consumption per head.

However, the most striking results concern three factors in which the two approaches are opposed: the size of household, the activity rate of its members, and whether or not the head is looking for another job. These oppositions persist for equal consumption per head. While a large household has a higher probability of being poor in terms of living conditions, it has a greater chance of escaping subjective poverty seen from a general standpoint. The same is true for households whose secondary members are active. On the other hand, if the head of household is looking for another activity than his present one, it is less likely that it will be poor in terms of living conditions but, on the other hand, it will be categorised by a higher probability of being subjectly poor from a general standpoint. The size of the household has a negative influence on the living conditions (notably because of promiscuity in the home), but has a positive impact on the way the household perceives those conditions. Having a large family, not feeling alone, therefore seems to provide an element of satisfaction for households, sidelining the criteria of the amenities of dwelling. The same is true for households whose members are inserted on the labour market. Dissatisfaction of the head of household

[14] In the final analysis, the subjective approaches are based in large part on questions of a monetary nature.

with his job and his decision to seek another, more characteristic of the better-off households, is, on the other hand, of determinant importance for the fact of subjectively considering that one's living conditions are difficult and one's standard of living low.

Table 8

The determinants of objective poverty in terms of living conditions and subjective poverty as perceived by households

(bivariate probit model)

	Objective poverty (living conditions)	**General subjective poverty**	**Objective poverty (living conditions)**	**General subjective poverty**
Constant	-4.5**	3.5**	5.5*	15.1**
Gender of head of household : - female	-	-	-	-
Level of French of head: - cannot speak it	-	-	-	-
Educational level of spouse: - secondary or less	0.7**	0.4**	0.6**	-
Activity of spouse: spouse active	-	0.3*	-	-
Type de household: - single-parent	-0.7**	-	-0.8**	-
Migratory status: - migrant from another ethnic group	-	0.5**	-	0.6**
Religion of head of family: - FJKM	-0.4**	-0.4**	-0.4**	-0.3**
Institutional sector of head: - public sector	-	-	-	-
- informal sector	-	-	0.4*	-
S-PC of head of family : - cadre ou patron	-1.0**	-0.4*	-0.7**	-
- travailleur à son propre compte	-	-	-	-
Seeking another activity	-0.5**	1.1**	-0.6**	1.1**
S-PC of father of head: - manager or head of firm	-	-	-	-
Institutional sector of father: - formal sector	-	-	-	-
Educational level of father of head: - none or primary	-	-	-	-
Educational level of head compared to fathher: - more	-	-	-	-
Evol'n in houshold's income: - sharp fall in real terms	-	0.7**	-	0.8**
Log (age of head)	**-**	-0.8**	**-**	-0.6**
Log (size of household)	1.1**	-0.5**	1.0**	-0.7**
Log (number of children)	0.3*	0.6**	-	0.4**
Log (activity rate, excl. servants)	0.8**	-0.2**	0.7**	-0.2**
Log (head's years of education)	-0.3*	-	-	-
Log (consumption/head)			-0.7**	-0.8**
Log likelihood:	-448.8		-419.5	
Wald X^2	(254.7)		(273.4)	
Correlation des residuals : r	0		0	
X^2				

Source : Survey 1-2-3, phase 3, 1998, MADIO, authors' calculations. The sample comprises 562 households. An estimation was made using the detailed values for each variable, but we finally restricted ourselves to agrouping showing only those for which the coefficients were significant. Variables which appeared not to be determinant were kept to facilitate comparison with following results.. The reference population is the same for each variable. * significant at the 10% level. ** significant at the 5% level. - : non-significant ref :reference value.

CONCLUSION

Various approaches to poverty have been compared in this study. This comparison, rarely carried out for the developing countries and made possible thanks to the availability of a comprehensive database for the Malagasy capital, throws new light on the nature of poverty. In parallel with the more traditional definition based on the monetary criterion, various concepts of poverty have been distinguished. These are based either on objective criteria (material living conditions, human capital, social exclusion), or on households' subjective assessment (general perception, satisfaction of needs regarded as essential, financial affluence).

The low degree of overlap between the various approaches highlights the multidimensional nature of poverty, even in a poor country. With seven groups of "poor" defined using different criteria, each representing roughly one-third of the population, a proportion equivalent to that obtained using the absolute monetary threshold of one dollar, only 2.4% are found to combine the various forms of poverty. Conversely, 78% of the population are identified as being poor according to at least one approach.
The significant positive correlation between the different forms shows that the presence of one appreciably increases the probability of the occurrence of all the others. This suggests that the various indicators capture a single phenomenon, poverty. However, the links between them remain partial, confirming the fact that what we have is a multi-faceted phenomena.

Two other results deserve to be recalled:

– in the first place, it seems that the monetary approach, despite its limitations, is the one which best captures poverty in all its dimensions. Of all the forms of poverty, monetary poverty is the one most correlated with all the others;
– second, two sub-groups can be distinguished, although they are not entirely unconnected: objective poverty on the one hand and subjective poverty on the other. The intra-correlations, between the approaches for a single sub-group, are higher than the intercorrelations. This differentiation between two types of approach, objective and subjective, is confirmed by factor analysis.

The characterisation of poor groups in the population by the different types of approach show differentiated profiles. Only two variables act in the same direction for monetary poverty, objective non-monetary poverty and subjective poverty, namely, the number of children in the household and the fact that the head has an unskilled job. This makes targeting poor households difficult, given the specificity of situation depending on the category.

For example, while civil servants and independent workers escape monetary poverty, the latter are not differentiated from the rest of the population using non-monetary objective criteria. These households have on average a higher level of consumption, but that is not necessarily reflected in better material conditions or more substantial human or social capital. Conversely, households headed by women are more liable to be poor from a monetary standpoint, but are not particularly exposed to the risk of objective poverty. Finally, the informal households, identified objectively as being poor, are not differentiated by the purely monetary criterion.

When one looks at subjective poverty, it is the variables for social origin and past history that are decisive whereas the two do not influence objective poverty (either monetary or non-monetary). Having a less well-educated father or one who has an unskilled job, being a migrant, suffering a fall in real income (regardless of its initial level), tend to encourage a sentiment of economic dissatisfaction. The fact that the socially dominated categories (informal sector, badly-educated, headed by a woman) are not found among the "subjective" poor reveals phenomena of attrition of preferences on the part of the materially disadvantaged. In parallel, while a high degree of mobilisation of the family manpower is one of the signs of households that are poor from an objective standpoint, these do not seem to regard the situation as difficult in itself. On the contrary, the insertion in working life of all the members of the family is seen as a positive factor, even if the income derived is derisory. It would therefore seem that income is not the sole determinant of the level of households' satisfaction. Sociability links and other modes of social insertion come into play in the criteria which they use to judge their well-being.

Finally, poverty can take on several forms even in a country where a large part of the population is affected. The fact that it is visible every day, and that it can be attributed, above all, to a single cause -- the economic crisis -- might lead one to think that identifying the poor groups is an easy matter. However, our analysis demonstrates the complexity of the phenomenon. It shows, in the final analysis, that the workings of the economy and of society in general show shortcomings at several levels. Policies for combating poverty therefore cannot be based on a single instrument, nor concern a single field. These policies must also act

on the labour market as well as on access to health care and education, on infrastructure (especially distribution of water and electricity), on information, on the participation of all social strata in socio-economic life, on the integration of migrants, on inequalities between men and women, on solidarity networks, etc.. For example, increasing the supply of education without at the same time enabling disadvantaged households to have income in compensation for what the children can bring in will have only a limited impact. Similarly, an increase in incomes can only be reflected in the housing conditions of households if an effort is made to give them access to supply networks for water and electricity.

From a methodological point of view, the more traditional option consisting of using a monetary indicator to measure poverty seems justified, since this approach is the one most correlated with all the others, but it turns out to be insufficient. For one thing, it only partially reflects the degree of satisfaction expressed by the population concerning their living conditions. For another, the construction of this indicator requires data on household consumption that can only be obtained through a costly survey. It is therefore worth considering the possibility of using non-monetary indicators, especially for the monitoring of the year-to-year evolution of poverty. While it is not possible to base oneself uniquely on subjective measures, because of the phenomenon of attrition of needs for the poorest groups, this option, which has the merit of taking into account the genuine aspirations of the population, could be combined with other non-monetary objective approaches.

Generally speaking, this analysis, which remains of an exploratory nature, argues in favour of obtaining more comprehensive information regarding the various dimensions of poverty. In particular, two types of approach that are relatively little used at present deserve attention: subjective approaches, which make it possible to have a better idea of the level of households' dissatisfaction; and those relating to social exclusion, which are a means of identifying those households that are genuinely marginalised, since the feeling of exclusion or isolation has a negative impact on the way households assess their living conditions.

At the same time, as regards the non-monetary approaches, we have proposed a method using cumulative scores to measure of the level of poverty taking different criteria into account. This approach deserves to be taken further in order to refine the indicators and to discover the best way, especially through more pertinent questions, of taking into account the multiple facets of poverty. The use of two sets of questions, the first addressed to households regarding their criteria of well-being, and especially the needs they deem to be essential, the second covering either objective measures concerning achievement, or the subjective assessment by households of their level of satisfaction regarding different needs, turn out to be interesting in limiting the normative nature of the definition of poverty. A composite indicator taking into account the importance accorded by the households to each form of privation could therefore be constructed.

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ANNEXES

Table 9
Combination of different types of poverty

	% of the population	% cumulative
None of them	22.3%	100%
Shows one type	19.6%	77.7%
Combines two types	14.9%	58.1%
Combines three types	13.5%	43.2%
Combines four types	12.1%	29.7%
Combines five types	10.5%	17.6%
Combines six types	4.7%	7.1%
Combines all seven types of poverty	2.4%	2.4%

Source : Survey 1-2-3, phases 1 and 3, 1998, MADIO, authors' calculations.

Table 10

The determinants of objective monetary poverty and objective and subjective non-monetary poverty

(bivarate probit model)

	Objective monetary poverty	Objective non-monetary poverty	Objective monetary poverty	Subjective poverty
Constante	-4.1**	-1.6	-4.5**	-1.8
Gender of head of household : - female	0.6*	0.9**	0.5*	-
Level of French of head: - cannot speak it	0.5**	0.7**	0.5**	-
Educational level of spouse: - secondary or less	1.0**	-	0.9**	-
Activity of spouse: spouse active	-	-	-	-
Type de household: - single-parent	-	-1.0**	-	-
Migratory status: - migrant from another ethnic group	-	-	-	0.5**
Religion of head of family: - FJKM	-	-0.6**	-	-
Institutional sector of head: - public sector	-1.2**	-	-1.1**	-0.5**
- informal sector	-	0.6*	-	-
S-PC of head of family : - cadre ou patron	-1.7**	-1.0**	-1.7**	-0.5**
- travailleur à son propre compte	-0.6**	-	-0.6**	-
Seeking another activity	-	-	-	-
S-PC of father of head: - manager or head of firm	-	-	-	-
Institutional sector of father: - formal sector	-0.5*	-	-0.5**	-
Educational level of father of head: - none or primary	-	-	-	0.3*
Educational level of head compared to fathher: - more	-	-	-	-
Evolution in household's income: - sharp fall in real terms	-	-	-	0.5**
Log (age of head)	-	-	-	-
Log (size of household)	1.0**	-	1.0**	-
Log (number of children)	0.7**	0.5*	0.6**	0.4**
Log (activity rate, excl. servants)	0.5**	0.7**	0.5**	-
Log (head's years of education)	-	-0.9**	-	-
Log likelihood:	-254.8		-343.1	
Wald X^2	(197.5)		(167.1)	
Correlation des residuals : r	0.44**		0.44**	
X^2	(10.3)		(15.1)	

Source : Survey 1-2-3, phase 3, 1998, MADIO, authors' calculations. The sample comprises 562 households. An estimation was made using the detailed values for each variable, but we finally restricted ourselves to agrouping showing only those for which the coefficients were significant. Variables which appeared not to be determinant were kept to facilitate comparison with

following results.. The reference population is the same for each variable. * significant at the 10% level. ** significant at the 5% level. - : non-significant ref :reference value.

Tableau 11
Poverty rate by characteristics of household

	Objective non-monetary poverty (Composite indicator)	Subjective poverty (Composite indicator)	Objective monetary poverty	Objective poverty (living conditions)	General subjective poverty
Household run by a woman	37.0	27.6	40.2	34.5	40.9
Head completed higher education.	0.0	9.0	5.9	2.1	28.2
Head at level of primary education	39.7	24.9	53.6	50.1	42.6
Head not speaking French	48.3	25.7	63.2	55.3	45.0
Spouse's education level <= secondary	23.0	21.7	39.4	41.8	37.7
Souse active	17.3	18.4	35.0	39.5	34.1
Single-parent household	30.9	25.2	38.4	34.4	35.0
Native household	21.3	20.0	37.1	38.8	33.3
Non-merina migrant household	5.7	21.9	13.5	19.1	39.2
Religion FJKM	10.2	12.7	25.5	23.2	22.6
Head working as civil servant	2.7	5.1	4.4	18.6	13.0
Head working as manager	3.4	6.2	7.1	15.0	16.5
Head an independent worker	27.2	23.6	42.6	46.9	38.9
Head seeking another activity	30.2	32.2	39.8	29.4	78.5
Head's father was a manager	7.8	6.3	9.1	24.5	15.5
Head 's education level<= primary	22.7	22.2	39.0	41.6	36.4
Sharp fall in household's real income	9.3	23.2	23.6	29.2	49.0
TOTAL	**18.3**	**18.6**	**32.0**	**35.1**	**33.0**

Source : Survey 1-2-3, phases 1 and 3, 1998, MADIO, authors' calculations.

Table 12
Characteristics of poor households

	% of Pop'n	Cons/hd 1000 FMG	Cons/cu 1000 FMG	% satisf. Min needs	% h-hold	Size h-hold	No. of children	Age head	Activity rate	Head's yrs of edn
TOTAL	**100.0%**	**1 751**	**2 431**	**62.5%**	**100.0%**	**4.9**	**1.7**	**42.7**	**45.1%**	**9.3**
"Objectively" poor	18.3%	705	1 038	81.0%	14.1%	5.4	2.5	44.8	49.6%	4.1
"Subjectively" poor	18.6%	878	1 278	88.6%	15.7%	5.1	2.3	42.8	41.8%	6.9
Poor / monétary	32.0%	571	872	86.7%	20.1%	6.5	3.1	42.3	43.0%	5.6
Poor / living conditions	35.1%	882	1 303	76.6%	22.8%	6.4	2.9	42.0	45.1%	6.3
Poor / human capital	32.6%	896	1 296	74.3%	26.3%	5.3	2.2	46.1	48.6%	3.6
Poor / social capital	34.7%	1 207	1 700	65.4%	32.9%	4.8	1.9	43.5	43.8%	7.3
Poor / general subjective	33.0%	1 057	1 489	74.0%	30.1%	4.6	2.0	38.4	41.1%	8.3
Poor / subj. sat'n needs	34.6%	1 064	1 532	75.3%	28.8%	5.3	2.2	43.1	43.4%	7.1
Poor/ financial affluence	33.9%	985	1 417	93.3%	29.4%	5.3	2.1	43.2	43.2%	7.5

Source : Survey 1-2-3, phases 1 and 3, 1998, MADIO, authors' calculations.