

Being Poor, Feeling Poorer: Combining Objective and Subjective Measures of Welfare in Albania

Gero Carletto and Alberto Zezza

ESA Working Paper No. 04-12

June 2004

Agricultural and Development Economics Division

The Food and Agriculture Organization
of the United Nations

www.fao.org/es/esa

ESA Working Paper No. 04-12

www.fao.org/es/esa

Being Poor, Feeling Poorer: Combining Objective and Subjective Measures of Welfare in Albania

June 2004

Gero Carletto

Agricultural and Development
Economics Division
Economic and Social Department
Food and Agriculture Organization
Italy
e-mail: gero.carletto@fao.org

Alberto Zezza

Agricultural and Development
Economics Division
Economic and Social Department
Food and Agriculture Organization
Italy
e-mail: alberto.zezza@fao.org

Abstract

As shown empirically for many transition economies, even small changes in assumptions on economies of size and adult equivalence scales are likely to produce significant changes in the analysis of poverty and its distribution across households and individuals. Since such exercises are then used to orient and prioritize policy actions (e.g. the targeting of scarce social assistance resources) it is important to refine our understanding of the extent to which poverty measures and the resulting profiles are sensitive to specific assumptions. In this paper we investigate how combining objective and subjective measures of welfare can provide insights that are helpful in addressing these questions, particularly with respect to the presence of economies of scale in consumption.

Key Words: Poverty, Poverty Measurement, Subjective Poverty, Equivalence Scales, Economies of Scale in Consumption, Albania.

JEL: I31, I32, O52, D60.

The authors would like to thank Leigh Anderson, Ben Davis, and Peter Lanjouw for providing comments on an earlier draft. We are also indebted to participants in an FAO seminar for their comments and suggestions. Finally, we are grateful to Albania Institute of Statistics (INSTAT) for granting free access to their datasets.

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

1. Introduction

Following the collapse of the communist regime, in the past decade Albania has pursued an aggressive reform agenda towards a fully-functioning market economy. After a period of erratic growth in the early 1990s, linked to a series of political and economic crises, since 1997 annual GDP growth rates have consistently been among the highest in Europe varying from 4.7 to 8 percent. Sustained growth is predicted to continue in the next 3-4 years.

However, despite impressive achievements in some areas, living standards remain among the lowest in Europe – with GDP per capita at less than \$1,300 – and dismal conditions of basic services and public infrastructure. Analysis based on a recent nationally representative Living Standards Measurement Study survey (LSMS) indicates widespread income poverty across Albanian households, with one in four Albanians living below the poverty line. This poverty incidence estimate is based on a consumption-based money metric indicator, as is generally the case in traditional welfare analysis. These measures inevitably imply making a number of more or less arbitrary assumptions on economies of size and adult equivalence scales¹.

As empirically shown for several transition and developing countries, even relatively small changes in the economies of scale assumptions underlying conventional quantitative measures can produce significant changes in the analysis of poverty and its distribution across households and individuals². Sensitivity analysis is generally performed to test the robustness of the results, but it is inevitable that such assumptions do affect the results of any exercise aimed at sketching the demographic and spatial profiles of poverty in a country.

Particularly in transition economies, some of these assumptions have been shown to raise concerns on some of the results of poverty analysis. For example, a consistent finding in poverty profiles in transition economies, including Albania, is the high incidence of poverty among large households with many children *vis a vis* the moderate poverty rates exhibited by households comprised by elderly individuals (Lanjouw et al, 2004; World Bank and INSTAT, 2003).

In transition economies, where the magnitude of recent relative price changes is such as to generate rapid changes in the extent of economies of scale in consumption, it becomes increasingly important to gain a better understanding on the consequences of discounting the presence of scale effects in consumption. In Poland, for instance, the relative price of housing (an expenditure component typically associated with economies of scale) compared to food increased 455 percent between 1989 and 1993 which, at given expenditure patterns, can translate into a sizeable increase in the magnitude of economies of scale in consumption, with a potential relative adverse effect on smaller households. Failing to capture the effect of these changes can significantly affect the poverty ranking of different population groups, not only large vs. small households, but also the elderly *vis-à-vis* the young, or female headed households (Lanjouw et al., 2004). The policy implications of neglecting this reality can be

¹ See Deaton and Zaidi (1998), Ravallion (1998), and Hentschel and Lanjouw (1996) for details on widely used methodologies for computing consumption aggregates and poverty lines.

² See Lanjouw and Ravallion (1995) on Pakistan, Lanjouw et al. (1998 and 2004) on transition economies, Drèze and Srinivasan (1997) on India, and Deaton and Paxson (1997) on a set of developing and transition economies. See also Buhmann et al. (1988) for an application to a set of industrialized countries.

especially pernicious, for instance in terms of prioritization and targeting of public expenditure and social policies.

In addition to the stated potential problem related with the presence of scale economies not adequately captured by conventional poverty analysis, relying exclusively on objective income or expenditure measures of welfare presumes that respondents think about their welfare in monetary terms alone, while their assessment may be more complex. A gap between objective and subjective measurements of welfare is frequently observed and there is a growing body of literature attempting to explain the observed differences. Factors affecting people's own perception of welfare may include their employment and health status, demographic factors such as marital status and age, relative wealth status (i.e. relative to a reference group, e.g. people living in the same area), and not least stable inherent personality traits.

The main goal of this paper is to investigate how combining objective and subjective measures can provide useful insights into welfare analysis and the profiling of poverty in a country. Towards this end, we first explore how closely do the profiles of poverty obtained through an objective and a subjective measure match. We then focus on explaining the differences observed by looking, among other things, at the role played by economies of scale in consumption and at how people's own perception of welfare can contribute to inform the debate on scale economies in consumption expenditures.

The Albania 2002 LSMS offers an excellent opportunity to build on the existing literature. This dataset, in fact, allows the construction of good nationally representative measures of objective welfare based on consumption expenditures, while also including multiple instruments for the assessment of subjective welfare. The analysis in this paper will also benefit from other work that has integrated the LSMS dataset with population census data and additional official data sources. We are therefore able to use for the first time an uncommonly rich dataset, in terms of both geographic and thematic coverage.

In more detail, the paper is organized as follows. In Section 2 we present a brief review of the recent literature on subjective welfare. Section 3 introduces recent objective and subjective measurements of poverty in Albania, and section 4 compares the poverty profiles associated with each measure. Section 5 analyses the determinants of subjective welfare in a multivariate setting and explores the viability of using respondent perception to complement traditional profiling of poverty. The paper closes with some concluding remarks.

2. Subjective measures of welfare: A brief literature review

In the last couple of decades the literature on the measurement and analysis of poverty has been growing rapidly across the spectrum of the social sciences. This growth has been linked to the parallel increase in the availability of both qualitative and quantitative data on poverty and standards of living. As a result, a related body of literature trying to understand the differences, links, and overlaps between quantitative and qualitative approaches to poverty measurement and analysis has emerged. In this section we will briefly review some recent contributions of the latter strand of literature that are closely related to our analysis. More extensive reviews can be found in Oswald (1997), Ravallion and Lokshin (2000), and Frey and Stutzer (2002).

A variety of approaches have been proposed to quantify poverty and welfare through instruments that rely on respondents' subjective assessments. One of the earliest attempts was proposed by Cantril (1965), who pioneered the idea of a ladder on which respondents were asked to rank themselves in terms of happiness or satisfaction with life. This has been modified to a narrower definition of economic welfare, asking people to put themselves on a poverty scale. Examples are the Philippines Social Weather Station (Mangahas, 1995), the Eurobarometer (Riffault, 1991), and Ravallion and Lokshin (2002).

An alternative approach to mixing quantitative and qualitative methodologies for poverty measurement does not abandon the use of consumption or income estimates that are proper of standard 'objective' measures, but combines them with subjective assessments. The approach was first introduced by Van Praag (1968), with the Income Evaluation Question (IEQ). The question consists of asking respondents what income they would consider "very bad" to "very good" (with a number of options in between). The answers are then used to construct a utility function on which to assess welfare.

A similar method (Kapteyn, 1994) asks respondents what income they consider the minimum necessary "to make ends meet" (Minimum Income Question, MIQ). Objectively measured income normalized by the subjective poverty line can then be used as the welfare indicator. However, concerns have been expressed in the literature on how well this question suits the needs of developing countries, where the concept of income may vary greatly across respondents, and from the definition of income as perceived by economists (Ravallion and Lokshin, 2000; Deaton and Zaidi, 2002).

Pradhan and Ravallion (2000) adapt Kapteyn's approach to developing country situations, by asking questions on the perceived adequacy of (food or total) household consumption. They then define the subjective poverty line (SPL) as "the level of total spending above which respondents say (on average) that their expenditures are adequate for their needs." Their application of the methodology to Jamaica and Nepal data shows that the responses to these questions can be in line with objective assessments in aggregate, even though the results are different when one tries to sketch demographic or geographic profiles of poverty.

In a recent contribution, Lokshin, Umapathi and Paternostro (2004) estimate and compare welfare levels on the basis of categorical consumption adequacy questions for Madagascar and assess the robustness of the poverty profiles derived from different subjective welfare questions. Despite the overall strong correlation between subjective welfare and household income, the measures appear to differ substantially in some of the dimensions analyzed, particularly in relation to the demographic and spatial profile of poverty, raising some questions about the isolated use of objective measures for poverty comparisons within a country. They consequently advocate for the concurrent use of different approaches for better informed welfare analysis.

Irrespective of the subjective measure chosen, the literature consistently suggests that self-reported measures of welfare (whether defined broadly, e.g. "happiness", or narrowly, e.g. "poverty" or "financial situation") regularly deviate from objective measures of welfare such as GDP or poverty defined on the basis of income or expenditure data. As mentioned, one

source of discrepancy is that people may not equate their welfare or poverty with income or expenditure alone³.

A further explanation of the observed differences found in the literature is relative income. According to this explanation (Easterlin, 1974), it is relative rather than absolute income that matters in explaining self-reported levels of welfare. Quantitative measures of poverty are in most cases based on absolute poverty lines, but the way people ‘feel’ about their welfare status depends –according to this interpretation- on how the income around them is distributed.

The negative implications of unemployment and poor health on people’s perception of own welfare are well documented in the psychology and socio-economic literature. Being unemployed causes depression and anxiety, and carries a social stigma in many societies. At equal income levels, being unemployed or in ill health reduces the subjective assessment of one’s welfare, even when this is defined in purely economic terms (Ravallion and Lokshin, 2000).

Beyond experiencing unemployment directly, people may also worry about other people’s conditions or, more selfishly, they may be concerned that a situation of high unemployment may adversely affect them in the future. Empirical results from 12 European countries shows that a 1 percent point increase in local unemployment levels has a negative impact on people’s satisfaction (Frey and Stutzer, 2002).

Demographic characteristics (household size, marital status) have also been investigated and found to be significant (Diener *et al.*, 1999; Lanjouw and Ravallion, 1995). Ravallion and Lokshin (2000) using a longitudinal dataset for Russia found that the proportion of women and children in the household and marital status helped explain self-rated welfare. In their analysis, however, household size turns out to be insignificant, and they ascribe this result to the longitudinal dataset which allows them control for otherwise confounding unobserved personality traits. These traits, as suggested by evidence from the psychology literature, can at the same time influence the way people respond to subjective questions as well as their socio-economic characteristics (employment, income, household size). This complicates the effort to disentangle the various effects in the econometric analysis.

3. Measuring welfare in Albania

An ‘objective’ profile of poverty in Albania has been recently completed through the first nationally representative survey of living standards to include comprehensive information on household expenditure and income. Our data are mainly from this LSMS survey⁴, which was conducted in Spring 2002 by the Albania Institute of Statistics (INSTAT) with assistance from the World Bank. The survey used a stratified sample of 3600 households, and included an household questionnaire with detailed expenditure information and a subjective welfare module, as well as a community questionnaire through which price data were also collected.

³ If one accepts the idea that individuals do not equate poverty or their financial situation with consumption or income alone, an implication is that the two measures are in practice measuring different – if related – things, and as such a difference between them is to be expected.

⁴ In the multivariate analysis we present at the end of the paper we also include some variables from a dataset obtained through the consolidation of several official data sources, compiled by INSTAT with assistance from the World Bank.

In 64 percent of the cases the subjective module was administered to the household head, in 30 percent of the cases to the head's spouse, and in the remaining 6 percent of the cases to other adult household members⁵.

The objective welfare measure used in this paper is the household total consumption expenditure, deflated for regional price differences. No adjustment was made to account for economies of scale in consumption, as per capita figures were used. The objective poverty measure is based on the computation of a country-specific, absolute poverty line based on the cost-of-basic-needs methodology (Ravallion and Bidani, 1994). To estimate the full poverty line a food poverty line, i.e. the cost of obtaining a certain minimum amount of calories, was first computed and then adjusted to include essential nonfood items. The food basket is anchored to a reference population in the consumption deciles around the poverty line. The nonfood component was calculated as the average non-food share of those households that spend roughly the same amount for food as indicated by the food poverty line. The full poverty line, estimated making an allowance for basic nonfood items, equals 4,891 Leks per capita per month⁶. The objective poverty headcount for the country based on this poverty line is 25.4 percent (World Bank and INSTAT, 2003).

The welfare analysis based on this money metric revealed a pronounced spatial dimension of poverty in the country. Poverty in Albania is predominantly rural. The remote districts in the North and North-East of the country fare worst in terms of poverty: almost half of the residents of this area are poor.

As mentioned earlier and as observed in many transition economies, poor Albanians are more likely to live in larger, younger households. Poverty rates are highest among large households with 7 or more members, with headcount rates above 50 percent. About 40 percent of the poor live in these households. Poverty incidence among younger people is above the national average, and is highest among rural children. Almost half of the poor in Albania are below the age of 21. On the contrary, elders in Tirana exhibit some of the lowest rates, with a headcount of 12 percent. Despite the apparent robustness of the findings to different economies of scales assumptions⁷, it is evident that the assumption made on economies of scale is not neutral. In particular, the per capita measure is known to regularly yield higher poverty rates for large as opposed to small households, and for children as opposed the elderly (as the former tend to live in larger households)⁸. However, lacking sound empirical information on the exact magnitude of the scale parameters, their choice remains arbitrary.

Following the strand of economic literature on subjective welfare we propose complementing the existing poverty profile of Albania with information on respondents' perception of own welfare in an attempt to validate some of the findings and assess the implications of some of the assumptions, including the scale parameter. Specifically, in this paper we will use the responses to the modified Cantril scale question – as contained in the 2002 LSMS – asking

⁵ Another potential source of discrepancy between the two measures in our dataset is due to the fact that while objective poverty is based on household-level consumption expenditures expressed in per capita terms, the subjective measure is based on individual respondent's perceptions.

⁶ The average exchange rate at the time of the survey was 1 USD=145 Leks.

⁷ Poverty rankings according to demographic characteristics in the quantitative profile alone, appear to be robust to different assumptions regarding equivalence scales and economies of size (the net effect of which is reflected in a measure of economies of scale θ), even if for some household typologies the poverty numbers do vary quite substantially. Sensitivity analysis results on the objective poverty numbers are reported in Annex I.

⁸ See Deaton and Paxson (1997) for a discussion.

respondents to rank their financial status on the basis of a ten step welfare ladder⁹. Ravallion and Lokshin (2002) have termed this the Economic Welfare Question (EWQ).

Based on the answers to the EWQ, and assuming that we can classify as poor those households falling in the first two rungs, subjective poverty stands at 26.2 percent (Table 1). The poverty incidence is strikingly close to the objective measure. However, are the individuals in the two groups the same? How correlated are the two measurements?

Overall, there seems to be only a partial correspondence between objective and subjective measures. Although the measures are clearly correlated, the Spearman coefficient reveals a moderate association between per capita consumption expenditure and subjective welfare ranking ($\rho = 0.5$). Furthermore, among the “objective” poor, only about half perceive themselves as poor. A similar percentage of individuals who perceive themselves as poor are also poor according to the objective money metric measure. Among the non-poor, 1 individual in 5 perceives himself as poor. Despite the closer definition of the Economic Welfare Question to monetary well-being, it appears that people do not equate the concept of poverty exclusively with income and that other factors may be at play.

Table 2 shows a cross-tabulation of (un-weighted) objective and subjective measures of household welfare as they emerge from the data in the LSMS. The subjective measure of economic status is the self-reported ranking. The objective measure is per capita consumption by the household, deflated by the poverty line. The table is constructed so that for each rung the number of households placed on each objective welfare rung equals the number of households that are on the corresponding subjective rung. Rungs 7-10 are collapsed into one rung, as very few people placed themselves on the top rungs. In case of perfect correlation the off-diagonal elements of the table would be zero.

Clearly, the correlation is far from perfect. Of 271 respondents who place themselves on the lowest rung only 65 (24 percent) are among the poorest according to the objective measure. If we take rungs 1 and 2 (both for objective and subjective), then 50 percent of those who put themselves on the lowest rank are also on the lowest two objective rungs. Nonetheless, the correlation in this dataset is substantially higher than what is sometimes found in the literature¹⁰.

What this initial descriptive analysis shows is that while subjective and objective welfare ranking are clearly closely related, there may be factors other than (measured) expenditure that explain how people feel (or report feeling) about their welfare. In the remainder of this paper we explore these factors in an attempt to gain a better understanding of the main sources of these discrepancies, including the presence of unaccounted economies of scale in consumption.

4. Comparing objective and subjective profiles of poverty in Albania

On many dimensions, the profiles of poverty from our objective (per capita) and subjective definitions of poverty are very similar (see Table 3). The differences by age groups and

⁹ Specifically, the question was: “Imagine a 10 step ladder where on the bottom, the first step, stand the poorest people, and on the highest step, the tenth, stand the rich. On which step are you today?”

¹⁰ Ravallion and Lokshin (2002) find (using income rather than consumption) a Cramer’s V of only 0.099 for Russia. Also in their dataset the overlap within the first two rungs applies to only 39 percent of the respondents.

educational levels are minimal. For age, the only slight difference appears to be in the age group of 60 and older (the difference becoming larger for older subgroups, e.g. 70 or 75 and older – not shown). For education, respondents with the highest education feel somewhat poorer than what the objective measure would suggest, but for all the other educational groups (where most of the poor belong) the differences are again negligible. There is virtually no difference in the incidence of subjective as opposed to objective poverty by either gender or location.

An association emerges from the data between self-assessed poor health and being poor, with the relationship being significantly stronger for the subjective measure of poverty¹¹. Respondents reporting poor health also perceive themselves as significantly poorer than they are based on the objective measure. Similarly, people reporting to be suffering from chronic illnesses score lower on the subjective poverty measure (i.e. the incidence is higher) than on the objective measure, while no difference can be detected among the individuals not reporting such illnesses (not reported)¹².

Being unemployed may also affect people's subjective welfare. Unemployed individuals may be discouraged about their current situation and future prospects and may hence feel worse off than individuals who have similar levels of consumption but are employed (or they might be smoothing their consumption but be eroding their savings or assets, which would not be captured by the consumption aggregate but certainly can contribute to a bad financial situation). Surprisingly, no significant differences emerge between objective and subjective welfare measurements based on employment status of the respondent.

The most substantial difference between the objective and subjective profile emerges for the relationship between poverty and household size, particularly for the households composed by one person only for which the incidence of subjective poverty is highest while the incidence of objective poverty is lowest¹³. Interestingly, the rankings of poverty incidence for the groups of households of size 2 and over do not change. The only re-ranking occurs for the group of households of size one (Figure 1).

Although the gap between objective and subjective profiles with respect to household size is not completely surprising – as hypothesized at the beginning – it is the magnitude of these differences – particularly among household of size one – which warrants further investigation. Obvious candidates for an explanation include: (1) an economies of scale effect that is not captured in the objective measure, which is expressed in per capita terms, and (2) factors influencing the response to the subjective poverty questions that are linked to other household

¹¹ The relationship between health status and self-reported welfare should be interpreted with caution: a person may report a low level of welfare because she is ill, but she may also be inherently pessimistic and hence report a low status in terms of both financial and health conditions.

¹² There is an interesting parallel to be made here with the discussion on whether health expenditures should be included in the consumption aggregate (Deaton and Zaidi, 1998). Excluding health expenditures does not differentiate between the welfare of two persons, both ill, when only one can afford medications. But including health expenditure without correcting for the loss of welfare due to illness is also clearly incorrect. The observed discrepancy between objective and subjective welfare for the chronically ill may be at least partly imputed to the respondent implicitly making the adjustment for the welfare loss due to illness that could not be incorporated in the objective measure.

¹³ Pradhan and Ravallion (2000; p. 469) find the same is true in Nepal (households of size are poorest according to the subjective definition but the least poor according to the objective). In Jamaica, on the contrary, they find the relationship between poverty and household size to be similar for the two measures (poverty incidence increasing with household size).

characteristics that are correlated to living alone (e.g. age; vulnerability; unobserved personality traits). Clearly a combination of the above explanations cannot be ruled out.

Table 4 reports some descriptive statistics on the characteristics of our sample of respondents and their households, by household size. Households of size one are in large part (75 percent) old pensioners living alone: the mean age of the respondents in this group is 63 years as opposed to an average age for the total sample of the respondents of 48 years. Female headed households are also disproportionately represented in the size 1 group: 69 percent against an average 12 percent in the total respondent population. Also, 54 percent of the respondents in this household size group are single female pensioners; 56 percent are female widows; 64 percent suffer from chronic illnesses against a population average of 28 percent. One plausible conjecture these statistics suggest, is that the high incidence of subjective poverty in the size 1 group may be reflecting the vulnerability and exposure to risk of single females, widows, and single persons relying on pensions for their livelihoods – something that is clearly not captured in the objective measure. This result is in line with a study by Dreze and Srinivasan (1997) who, by relaxing slightly the assumption of no economies of scale, produce a substantially different profile of previous consumption-based analysis, with widows re-ranked as the most vulnerable group in rural India.

Finally, the fact that objective poverty is consistently lower than subjective poverty up to household size four and consistently higher at household size larger than five appear to reinforce the fact that some economies of scale effect may indeed be at work, something that would be consistent with what is found in the literature for other transition economies (Lanjouw *et al.*, 1998; van Praag and Warnaar, 1997; Ravallion and Lokshin, 2002). It is to exploring further this hypothesis that we now turn.

4.1 Economies of scale: can we improve our measures of poverty?

As Lanjouw and Ravallion (1995) put it, “the choice of a welfare measure, including equivalence scale, is ultimately based on value judgements about which differences of opinion must be expected”. In much of the remainder of this paper our attention will be devoted to assess whether combining subjective and objective measures can inform one’s value judgement, so as to somewhat reduce the level of arbitrariness inevitably involved in decisions such as the economies of scale parameter of choice. To examine the issue of economies of scale we analyze how the profile of income poverty compares with the subjective measure as we make different assumptions about economies of scale.

There is a broad range of reasons to expect that individuals living in households experiencing the same level of per capita consumption expenditure may in fact be able to command different levels of needs satisfaction. Also, larger households may experience economies of scale in consumption, both because some expenditure items (e.g. housing and utilities) have a ‘public good’ component, and because they may be able to buy in bulk at discount prices¹⁴. In examining the issue of economies of scale, we now focus on those aspects of the poverty profile in which we found the largest discrepancies between subjective and objective welfare, measured in per capita terms: primarily household size, but also the interaction of household size with age factors.

¹⁴ Additional issues that are related to household size and composition but that we will not tackle here are the intra-household allocation of resources and the fact that different individuals may have different needs (e.g. a person of working age may have higher transport and clothing needs than a pensioner).

When we look back at the distribution of poverty by household size and re-estimate the consumption-based profile – keeping the headcount constant – on the basis of different levels of economies of scale we find that for a value of $\theta=0.5$, the similarity between profiles is striking. Once the presence of economies of scale is introduced, the difference between the two measures becomes virtually non-existent for all household size categories.

The results are also similar when one looks at the incidence of poverty across young as opposed to old households, defined as those with all members above age 59 (see Table 5). While the objective poverty measure for old households is substantially lower than the subjective one when expressed in per capita terms, the two become strikingly close when θ is assigned a value of 0.5.

It is, however, difficult to disentangle the effects of age and household size in this comparison as all but one old households in the sample are size 2 or smaller. We therefore look at the result for the two groups (young and old) by household size category. The broad picture is similar, with the adjusted objective measure resembling much more closely the subjective one than does the simple per capita measure. However, the match is not quite as close as before for young households of size one.

The above results suggest that, particularly for households of size one, factors intrinsically associated with age may affect the subjective perception of poverty beyond what captured by the economies of scale parameter. One way to look at this is that if $\theta=0.5$ was the ‘true’ economies of scale parameter, then older households tend to perceive themselves as less poor than they actually are, while small, young households perceive themselves as poorer than what one would objectively measure. Looking at the same issue from a different angle, one can think that old and young households, having a different composition of their budget, might have different implicit economies of scale parameters. Clearly, a combination of the two effects may be at play.

What is also interesting to note is how the above results are very much in line with what the relevant literature on transition economies suggests¹⁵. Lanjouw *et al.* (1998) for instance discuss how one would expect a medium level of θ in transition economies as these are characterised by cheap housing and utilities (where economies of scale are high, pulling θ up) but also by subsidised education and children goods (which pulls θ down). In fact, the ‘true’ value of the θ parameter is largely determined by the magnitude of its economies of size in consumption component. The higher the budget share of expenditures with a public good component, say housing, the higher one can expect economies of size in consumption to be. Therefore, if housing costs increase in relative terms, it is fair to assume that smaller households will be more affected, at least in the short term (when the scope for adjusting expenditure patterns is limited).

Table 4 provides some additional evidence that economies of size in consumption may indeed be at play in Albania. The per capita expenditure in utilities (electricity, telephone, water, fuel) and their share in total expenditure are both inversely related to household size. Households of size 1 spend five times as much per capita in utilities than do households of

¹⁵ See Ravallion and Lokshin (2002) for Russia and van Praag and Wamaar (1997) for Poland and Greece.

size greater than 6, and their budget share allocated to utilities is twice as large, as is the share they allocate to rent¹⁶.

We should also emphasize that while the estimates of the incidence of poverty can vary substantially as θ changes for groups of households such as the elderly, the variability is much more limited when other profiling criteria are considered, such as households with a high dependency ratio. Again, this is in line with the results of existing evidence on transition economies, reported in Lanjouw *et al.* (1998) which the subjective measure confirms.

Although nothing conclusive can be said on these grounds, this may be evidence that the truth lies in the middle. Households of size 1 are most likely not the least poor as suggested by the objective profile, but they may not be the poorest either – as shown by the subjective figures. Also, part of the difference between the subjective and objective measures (and rankings) can be linked to the fact that the two are measuring different things. In particular, while the latter is measuring consumption poverty, the former may also be capturing factors such as risk exposure and vulnerability, as well as other non-monetary dimensions of deprivation.

5. Determinants of subjective welfare

In this section, we present the results of the estimation of a model that seeks to explain the gap between subjective and objective measures in terms of household and individual characteristics, as well as a set of attitudinal variables. As seen in the descriptive profiles, the gap between the two measures seems to be in part driven by a poor calibration of the welfare measure to the possible presence of economies of scale in consumption.

Consequently, following Ravallion and Lokshin (2002), we first test what they term the Wrong Weight hypothesis by regressing the subjective measure on the per capita objective measure and on a set of variables which entered the construction of the objective welfare measure, i.e. household size and regional price adjustment – the latter captured in the regression by regional dummies:

$$w = \beta \ln[y(x_z)/z] + \gamma_z x_z + \varepsilon,$$

where w is the subjective measure of welfare, y is per caput household consumption, z is the objective poverty line, and x_z is the vector of variables influencing both the objective and the self-rated welfare.

The idea behind the test is simple: if our objective welfare measure has been properly calibrated to reflect peoples' perceptions, which we are assuming implicitly accounts for economies of scale in consumption, then the coefficients on the additional variables in x_z , and specifically on household size, should not be statistically significant.

The test on the household size coefficient is highly significant, suggesting that economies of scale may be at play. To gauge the magnitude of the economies of scale (EoS) effects, we re-estimate our objective measure under different EoS assumption and determine in what range

¹⁶ The rental market in Albania is very thin as few households rent their dwelling. Therefore, the rent component was excluded from the welfare measure used in this paper. However, an alternative consumption aggregate with an estimated rental value has also been computed, and is shown in table 5 (expenditure per capita with rent). The budget share on rent is calculated on the latter consumption aggregate, while the share of utilities is computed on the aggregate without rent (see World Bank and INSTAT (2003) for a more detailed explanation).

the household size coefficient remains statistically significant. Figure 4 gives a visual representation of the simulation. The coefficient loses significance for values of the EoS parameter in the range 0.47-0.57, which includes the value of 0.5 shown in the descriptive analysis and is similar to the estimates reported in the literature for other countries in the region.

We then extend the model by also including a vector of variables we hypothesize to further explain the measurement gap. As the dependent variable are categorical values representing the subjective rungs in which respondents placed themselves, we estimate the relation by using a maximum likelihood ordered probit regression model.

The estimated parameters of the full vector are reported in Table 6. Care should be used in interpreting the results as the coefficients do not represent marginal effects. A negative (positive) coefficient indicates that an increase in that explanatory variable converts into an increase (decrease) in the probability of feeling poorer (i.e. falling in the lower rungs). The explanatory power of the model – as expressed by the pseudo R2 – takes a value of 0.6¹⁷.

As expected, household's per capita consumption is clearly an important determinant of subjective welfare, but a number of other factors are at play. One of these is the share of expenditure that goes to non food items. Not surprisingly, at equal income, the more a household is able to spend on non-food needs the better off its members feel.

As already seen, based on the per capita welfare measure household size has a positive and significant association with subjective welfare, i.e. at equal per capita consumption larger households feel richer than their objective income level seems to suggest¹⁸. A term interacting age with a dummy of households of size one, to capture the combined age-household size effects discussed in the previous section, has the expected negative sign, and is significant, i.e. holding income level constant, older people living alone feel considerably worse off than their younger counterparts. Also, in line with the descriptive results, respondents living in households receiving the bulk of their income from pensions do tend to feel worse off than their objective status implies.

After controlling for other individual and household level variables, age per se does not seem to influence self-rated welfare. The only exception is for households of size one, for which being older has a negative impact on subjective welfare. Female and more educated respondents tend to report a higher level of subjective welfare, while divorced respondents and respondents from female headed households report a lower standing. Relating this to the discussion in the previous section, one may find a confirmation that respondents to the EWQ are indeed factoring in vulnerability in their response patterns. For households of size 1 in particular, it is not the high proportion of females to drive the low subjective welfare ranking but rather their exposure to risk as female heads of households largely dependent on pensions.

¹⁷ We report the McKelvey and Zavoina pseudo R-squared. This has been shown to be the pseudo R-squared that best approximates the OLS R-squared on the latent continuous dependent variable. See Veall and Zimmermann (1996) for a discussion.

¹⁸ To account for the possibility that children bring utility to the household in themselves, or because they are seen as an asset or saving device we tried to include the number of children as an explanatory variable in the regression. The estimated coefficient was however not significantly different from zero unless we dropped the household size variable. We decided to drop the variable from our regression as it is highly correlated to household size and the theoretical justification for including it (in addition to household size and share of children) does not seem strong.

Occupational groups also influence Albanian's perception of their own welfare¹⁹. Being a professional, a manager, a worker in the service sector, a specialised handicraft or industry worker, are statuses associated with higher level of subjective welfare. In line with findings from other research, being unemployed (or under-employed) has a negative impact on people's perception of well-being. The psychological costs associated with being unable to find work are well documented in the literature and our results further support this conclusion.

Having enhanced access to assets is found, as expected, to positively influence subjective welfare rankings beyond what is already explained by monetary income. Also, having a migrant to Italy who sends remittances home has a positive effect on subjective welfare.

There are also differences in the perception of welfare across the country. Holding other household and individual characteristics constant, living in the north-eastern part of the country (Mountain stratum) reduces self-reported welfare significantly, and the same is true for people residing in Tirana.

As discussed above, a major issue in the subjective poverty literature is that of the role of relative income in determining one's perception of welfare. The welfare of the people one takes as a benchmark for comparison can be as important as one's own in determining how one feels about her welfare. This view is confirmed by our results. We constructed an index of relative deprivation²⁰ at the local level based on asset ownership and find that this has a significant effect on subjective welfare assessment. Holding income constant, people feel worse off if relatively more deprived than their neighbours. Also, at equal household income, the higher the average income in the immediate community, the worse the respondent feels about her own welfare.

A number of location-specific variables that are found to be significant in explaining self rated welfare are also those that reflect living standards by geographical areas, and in particular access to services, as well as work and education opportunities. Living in a geographical area not having access to a primary school, or higher unemployment levels than average are all factors that reduce perceived levels of welfare. Levels of government expenditures (a proxy for provision and quality of public services) contribute, on the contrary, to increasing perceptions of welfare.

Attitudinal variables are always very important in subjective welfare models of this type. In our model we include data on subjective perceptions of adequacy of food consumption and on self-assessed health status. As expected both sets are highly significant. These attitudinal variables alone explain more than half of the variability in the dependent variable. Part of what these variables capture are unobserved personality traits. If a person is inherently pessimistic she will tend to put herself on a lower welfare rung, and will most likely have a similar bias in responding to all questions in which an opinion is required.

¹⁹ Occupational groups in our model correspond to ISCO 1998 major occupational groups 1-9 (25 observations in group 10, armed forces, have been added to group 1).

²⁰ Following Stark and Taylor (1989) relative deprivation is measured by the product of the mean excess wealth of households richer than household i and the proportion of households in the community that are richer than household i . Wealth is defined as a combination, obtained through factor analysis, of physical and human capital variables (for more details see Carletto *et al.*, 2004).

As mentioned earlier, coefficients for the model estimated in this paper are not marginal effects. Marginal effects need to be calculated separately for each outcome. In Figure 5 we present the cumulative marginal effects for rungs 1 to 3 for the explanatory variables for which marginal effects are largest. The graph gives an immediate sense of the effect of each of these variables on the probability that the respondent fall in the first three rungs. Marginal effects for continuous variables are computed at their means, for dummy variables correspond to a change in the variable from 0 to 1²¹. As the graph shows, and as expected, attitudinal variables score highest. A ‘negative’ response to the food adequacy question is associated with a much higher probability of falling in the bottom subjective welfare rungs. Similar scores, albeit somewhat lower in magnitude, were recorded for the responses to the financial situation question and the subjective health assessment.

The log of household consumption and the log of the mean Primary Sampling Unit (PSU) consumption trail the food adequacy responses closely in terms of absolute magnitude of the marginal effect, but with opposite signs. This confirms that objective welfare, while not being the sole determinant, is certainly key in determining subjective welfare outcomes. It also confirms the finding in the literature on the importance of relative income in determining people’s perception of own welfare.

5.1 Model goodness-of-fit

How good is our model at predicting subjective welfare rankings? It is sometimes argued that what really matters for the goodness of fit of a categorical dependent variable model is the accurateness in predicting the category in which an observation would fall, rather than summary measures such as pseudo R-squared. To assess the performance of our model from this perspective, we now repeat the exercise we did in Table 2, but this time using the rung classification as predicted by our model. As we did earlier, we constrain row and column totals to have an equal number of observations. The resulting matrix is Table 6 below.

It is immediately apparent how the matrix is now much more ‘crowded’ around the diagonal. In fact, it is nearly dominant diagonal (the only exception being rung 6). For each rung a minimum of 75 percent of the observations are within one step off the diagonal (over 82 percent for the table as a whole). A negligible number of observations are more than two steps away. Cramer’s V increased from 0.2 to 0.4. What this entails in term of subjective poverty prediction, is that two out of three subjective poor are correctly predicted by our model, and as much as 88.9 percent of the subjective poor fall within the first three rungs of the predicted scale.

Figure 6 looks at the same issue from a different angle. It shows the percentage frequency of the difference in the rungs predicted from the actual rungs. Thus a zero value means that the predicted rung is exactly the reported rung for that observations, a +/-1 value means a rung higher/lower than the actual was predicted and so on. As it can be seen the number of observations in the tails is minimal, and nearly 40 percent of the observations are predicted with perfect accuracy.

6. Conclusions

²¹ By construction, the sum of marginal effects for the seven outcomes is zero (the total probability must sum to 1).

In this paper we compared recent data on subjective and objective welfare in Albania. We found that while subjective and objective measures of poverty are clearly correlated and yield very similar poverty headcounts, the actual overlap between the two definitions in terms of those that are identified as poor is not as strong.

While being similar in terms of key variables such as location, age, gender and education, the profiles of poverty according to the two measures are strikingly different if compared in terms of household size. To explore the reasons behind this finding, the second part of the paper focused on the issue of economies of scale in household consumption. As it turns out, if an economies of scale parameter θ around 0.5 is utilised to correct the objective measure, the match between the objective and subjective profiles increases dramatically. Although the choice of the EoS parameter remains ambiguous, as argued in Lanjouw et al (2004) it is becoming increasingly difficult in transition economies to disregard it entirely. The analysis presented in this paper seems to support the argument that using a scale neutral parameter may be somewhat misleading and that people's perception of own welfare can be used to complement traditional poverty analysis. What this implies for the methodology of poverty measurement is that, if one trusts subjective rankings, subjective poverty measurements can be a source of guidance for the presence of economies of scale. At a minimum, our findings do provide a good case for including a subjective module into surveys aimed at measuring poverty quantitatively in an attempt to complement – and not substitute – conventional profiles of poverty by taking into account respondents' view of own wellbeing.

To further explore the relationship between objective and subjective welfare measures in Albania, we model subjective welfare responses in a multivariate framework. In doing this, we were able to exploit a new Albanian dataset, the richness of which is unprecedented for the country both in terms of thematic coverage and of spatial disaggregation. Indeed, the dataset brings together information from the LSMS and administrative sources, and on objective and subjective indicators, in a manner that is not often encountered even in otherwise more data-rich countries.

The results of the multivariate analysis confirm several findings of the subjective poverty literature, and provide some new insights. First, our objective welfare measure contributes substantially to the explanation of subjective welfare ranking, but a number of other factors are also found to matter. Some household and demographic characteristics are found to be significantly related to subjective welfare. Satisfaction at work is important, with some occupations bringing greater welfare, while being unemployed, as expected, reduces it. Household wealth, beyond what captured by monetary income, also explains part of the gap in measures. Being vulnerable, e.g. being a single female or relying on pensions for the majority of one's income, reduces perceived welfare in a manner not entirely captured by our objective poverty measure.

We also find confirmation of the importance of relative, not only absolute, wealth in determining subjective welfare status. We do this by introducing in the regression both the average income level in the community as well as a composite relative deprivation index based on factor analysis of asset ownership.

Our analysis also adds to the existing literature in pointing out that access to local opportunities and more-than-basic services are additional important determinants of how one feels about her own welfare. We took advantage of our unusually rich dataset to show that local-level characteristics in terms of access to education infrastructure and public education

expenditure, work opportunities, all contribute to the explanation of welfare ranking along our subjective scale. In other words, people's own perception of welfare may factor in other non-income and idiosyncratic dimensions of poverty not fully captured by traditional money-metric measures.

Finally, even when all these factors are taken into account, a considerable part of the variance in subjective poverty ranking remains unexplained (pseudo R-squared equal 0.6), another finding that we share with the existing literature.

References

- Buhmann, B., Rainwater, L., Schmaus, G. & Smeeding, T.M. 1998. Equivalence Scales, Well-Being, Inequality, and Poverty: Sensitivity Estimates Across Ten Countries Using the Luxembourg Income Study (LIS) Database, *Review of Income and Wealth*, 34 (2): 115-142.
- Cantril, H. 1965. *The Pattern of Human Concern*, New Brunswick, Rutgers University Press.
- Carletto, C., Davis, B., Stampini, M., Trento, S. & Zezza, A., 2004. *Internal mobility and external migration in Albania*, FAO and World Bank, *ESA Working Paper 04-13*.
- Deaton, A. & Paxson, C. 1997. Poverty among children and the elderly in developing countries. Princeton University, mimeo.
- Deaton, Angus, & Paxson, C. 1998. Economies of Scale, Household Size and the Demand for Food, *Journal of Political Economy*, 106(5): 897-930.
- Deaton, A. & Zaidi, S. 1998. Guidelines for Constructing Consumption Aggregates for Welfare Analysis, *LSMS Working Paper 135*, Washington, DC, World Bank.
- Diener, E., Suh, E., Lucas, R.E. & Smith., H.L. 1999. Subjective well-being: Three decades of progress, *Psychological Bulletin*, 125: 276-302.
- Drèze, J. & Srinivasan, P.V. 1997. Widowhood and poverty in rural India: Some inferences from household survey data, *Journal of Development Economics*, 54, 217-234.
- Easterlin, R.A. 1974. Does Economic Growth Improve the Human Lot? Some Empirical Evidence, in P.A. David and M.W. Rider (eds.), *Nations and Households in Economic Growth. Essays in Honor of Moses Abramovitz*, New York, Academic Press.
- Frey, B.S. & Stutzer, A. 2002. What Can Economists Learn from Happiness Research?, *Journal of Economic Literature*, 40 (2):. 402-435.
- Hentschel, J. & Lanjouw, P. 1996. Constructing an Indicator of Consumption for the Analysis of Poverty: Principles and Illustrations with Reference to Ecuador, *LSMS Working Paper 124*, Washington, DC, World Bank.
- Kapteyn, A. 1994. The measurement of household cost functions. Revealed preferences versus subjective measures, *Journal of Population Economics*, 7: 333-350.
- Lanjouw, P. & Ravallion, M. 1995. Poverty and Household Size, *Economic Journal*, 105: 1415-1434.
- Lanjouw, P., Milanovic, B. & Paternostro, S. 1998. Poverty and the Economic Transition: How Do Changes in Economies of Scale Affect Poverty Rates for Different Households?, *Policy Research Working Papers No.2009*, Washington, DC, World Bank.
- Lanjouw, J.O, Lanjouw, P., Milanovic, B. & Paternostro, S. 2004. Relative Price Shifts, Economies of Scale and Poverty During Economic Transition, forthcoming in *Transition Economies*.
- Lokshin, M., Umapathi, N. & Paternostro, S.. 2004. Robustness of Subjective Welfare Analysis in a Poor developing Country: Madagascar 2001, *World Bank Policy Research Working Paper*, Washington, D.C, World Bank
- Mangahas, M. 1995. Self-Rated Poverty in the Philippines, 1981-1992, *International Journal of Public Opinion Research*, 7: 40-55.

- Oswald, A.J. 1997. Happiness and Economic Performance, *Economic Journal*, 107: 1815-1831.
- Pradhan M. & Ravallion, M. 2000. Measuring Poverty Using Qualitative Perceptions of Consumption Adequacy, *The Review of Economics and Statistics*, 82(3): 462-471.
- Ravallion, M. 1998. Poverty Lines in Theory and Practice, *LSMS Working Paper* 133, Washington, DC, World Bank.
- Ravallion, M. & Bidani, B. 1994. How Robust Is a Poverty Profile?, *The World Bank Economic Review*, 8 (1): 75-102.
- Ravallion, M. & Lokshin, M. 2000. Identifying Welfare Effects from Subjective Questions. *Policy Research Working Papers* No.2301, Washington, DC, World Bank.
- Ravallion M. & Lokshin, M. 2002. Self-rated economic welfare in Russia, *European Economic Review*, 46: 1453-1473.
- Riffault, H. 1991. How poverty is perceived, in Karlheinz, R., Inglehart, R. (eds.) *Eurobarometer: The Dynamics of European Public Opinion*, London, Macmillan Press.
- Stark, O. & Taylor E., 1989. Relative deprivation and international migration, *Demography*, 26 (1): 1-14.
- Van Praag, B.M.S. 1968. *Individual Welfare Functions And Consumer Behavior*, Amsterdam, North-Holland.
- Van Praag, B., & Warnaar, M. 1997. The Cost of Children and the Use of Demographic Variables in Consumer Demand, in Rosenzweig, M. & Stark, O. (eds.), *Handbook of Population and Family Economics*, 1A, Amsterdam, North-Holland.
- Veall, M. & Zimmerman K. 1996. *Pseudo-R2 Measures for Some Common Limited Dependent Variable Models*, mimeo.
- World Bank & INSTAT. 2003. *Albania: Poverty During Growth. A Poverty Profile of Albania*, background paper for the World Bank Poverty Assessment, Washington, DC and Tirana, World Bank and INSTAT, mimeo.

Tables

Table 1: Subjective poverty

Rung	Percentage	Cumulative %
1	7.7	7.7
2	18.5	26.2
3	23.7	49.9
4	21.3	71.2
5	16.1	87.3
6	5.9	93.2
7+	6.9	100.0

Table 2: Analyzing the correlation between objective and subjective measures

		Economic status							Total
		Subjective assessment							
		1	2	3	4	5	6	7	
Consumption rank	1	65	109	66	21	9	1	0	271
	2	89	215	187	126	46	16	4	683
	3	56	188	258	201	112	32	19	866
	4	39	103	182	183	140	44	39	730
	5	14	50	109	127	133	71	76	580
	6	7	13	32	32	65	19	40	208
	7	1	5	32	40	75	25	83	261
Total		271	683	866	730	580	208	261	3599

Pearson chi2 = 1096 Pr = 0.000

Cramer's V = 0.2253

Table 3: Comparing objective and subjective profiles of poverty

		Subjective	Objective
Location			
	Urban	18.5	19.5
	Rural	31.6	29.6
Gender			
	Male	28.5	26.6
	Female	22.9	23.8
Stratum			
	Coastal	22.6	20.6
	Central	25.2	25.6
	Mountain	44.3	44.5
	Tirana	20.9	17.8
Education			
	None or primary	33.1	32.5
	Secondary	16.6	17.9
	Vocational	18.1	16.2
	Higher	5.2	2.2
Age groups			
	<=25	28.7	28.3
	26-45	27.8	28.4
	46-59	23.4	22.6
	60+	25.7	21.6
Self-rated health condition			
	Good	23.0	24.8
	Average	27.0	24.1
	Poor	40.9	31.1
Employment status			
	Employed	25.4	24.6
	Unemployed	35.1	34.5
Household size			
	1	40.6	3.7
	2	16.4	2.6
	3	19.3	5.9
	4	22.4	12.7
	5	24.2	24.0
	6	31.3	35.3
	7+	36.1	56.2
Single pensioners			
	Single pensioners	41.6	1.1
	Others	26.1	25.5
'Old' versus 'young' households			
	Old hh (all members >59)	21.0	4.3
	Young hh	26.3	26.1
<i>of which:</i>			
	HH size=1	45.5	8.7
	1< HH size<=5	22.1	15.0
	HH size>5	33.8	46.2
Total		26.2	25.4

Table 4: Respondent and household characteristics by household size

	Household size							Total
	1	2	3	4	5	6	7+	
<i>Age</i>	63	60	48	42	45	47	48	48
<i>Gender</i>								
Male	31.2	56.5	48.7	50.6	59.6	64.6	68.3	55.5
Female	68.8	43.5	51.3	49.4	40.4	35.4	31.7	44.5
Female headed	68.8	16.2	16.6	7.8	9.7	7.2	4.3	12.4
<i>Years of education</i>	6.2	7.5	9.2	9.9	9	8.3	7.6	8.8
Work in agriculture	16.0	26.8	33.9	33.1	40.8	46.5	53.5	36.9
Pensioner (%)	75.1	64.5	29.7	12.7	20.1	24.6	26.6	28.5
Chronically ill (%)	63.7	46.3	30.9	19.4	21.5	24.6	27.9	28.1
% responding good/very good health	27.8	40.7	59.5	71.5	65.3	64.2	59.8	60.8
Hh receives remittances (%)	51.5	46.4	32.8	24.0	25.3	19.1	11.0	17.0
Hh has perm. int'l mig. (%)	41.2	68.6	43.3	20.3	26.9	25.5	28.7	33.6
<i>Location</i>								
Coastal	30.3	35.5	32.0	32.0	31.7	28.9	28.4	31.6
Central	38.5	45.1	44.4	46.7	46.9	45.9	45.9	45.7
Mountain	7.8	6.2	7.0	7.0	11.0	14.4	21.1	10.0
Tirana	23.4	13.3	16.7	14.3	10.4	10.8	4.6	12.7
Urban	60.3	53.1	51.5	53.7	41.1	32.4	23.8	45.6
Rural	39.7	46.9	48.5	46.3	58.9	67.6	76.2	54.4
<i>Budget composition</i>								
Share of food	67.0	65.5	63.0	63.1	64.3	65.0	66.8	64.3
Share of non food	33.0	34.5	37.0	36.9	35.7	35.0	33.2	35.7
<i>of which:</i> Share of utilities	11.9	9.7	9.8	9.1	8.0	7.2	6.7	8.7
<i>of which:</i> Electricity	8.3	5.5	5.0	4.6	4.3	3.9	3.7	4.7
Telephone	2.9	3.6	4.0	3.7	2.7	2.4	2.0	3.2
Utility exp. per capita (Lek)	1613	1187	1014	779	546.0	455	332	770
Total exp. Per capita (w/out rent)	15033	12370	10641	8728	7054	6446	5061	8762
Total exp. Per capita (w/rent)	20482	15597	12864	10295	8218.0	7499	5749	10558
Rent exp. per capita	5449	3227	2223	1567	1163	1053	688	1796
Share of rent	25.8	19.6	16.2	14.8	13.9	13.4	12.0	15.4
# obs in sample	139	443	546	963	703	427	378	3599

Table 5: Comparison of poverty profiles adjusted for economies of scale

	Subjective	Objective	
		$\Theta=0.5$	$\Theta=1$
Household size			
1	40.6	39.0	3.7
2	16.4	14.9	2.6
3	19.3	18.7	5.9
4	22.4	21.2	12.7
5	24.2	26.0	24.0
6	31.3	27.9	35.3
7+	36.1	35.2	56.2
Single pensioners			
Single pensioners	41.6	39.7	1.1
Others	26.1	25.3	25.5
'Old' versus 'young' households			
Old hh	21.0	25.2	4.3
Young hh	26.3	25.4	26.1
<i>of which:</i>			
HH size=1	45.5	30.8	8.7
1<HH size<=5	22.1	21.9	15.0
HH size>5	33.8	31.7	46.2
Dependency ratio			
High (>mean+sd)	27.2	30.3	32.1
Low (<= mean+sd)	26.0	24.8	24.6
Total	26.2	25.4	25.4

Table 6 – Ordered probit estimates of subjective welfare
(Dependent variable: 7-rung Economic Ladder Question)

Explanatory variables	Category	Coeff	S.E.
Income/Expenditure			
Log of household per capita expenditure/poverty line		0.951	0.058 *
Share of non food in total expenditure		0.009	0.002 *
HH characteristics			
Share of children		-0.001	0.001
Share of elderly		0.001	0.001
Household size		0.103	0.014 *
Age*hhsize =1		-0.007	0.002 *
Female headed		-0.161	0.076 **
Hh receives more than 50% income from pension		-0.150	0.064 **
Hh has migrant to Greece*Hh receives remittances		-0.057	0.085
Hh has migrant to Italy*Hh receives remittances		0.115	0.065 ***
Individual characteristics of respondent			
Age		-0.012	0.010
Age squared		0.0002	0.000 ***
Gender (female)		0.318	0.047 *
<i>Marital status</i>	Divorced	-0.432	0.211 **
	Widower	-0.042	0.091
	Single	-0.116	0.122
	Married	reference	
<i>Religion</i>	Muslim	0.074	0.102
	Catholic	-0.054	0.123
	Orthodox	0.272	0.116 **
	Others	reference	
Education (Years of schooling)		0.015	0.007 **
<i>Occupational group</i>			
Legislators, senior officials and managers (Incl. Armed forces)		0.463	0.126 *
Professionals		0.357	0.089 *
Technicians and associate professionals		0.171	0.094 ***
Clerks		0.359	0.166 **
Service workers and shop and market sales workers		0.358	0.079 *
Craft and related trades workers		0.219	0.065 *
Plant and machine operators and assemblers		0.151	0.081 **
Elementary occupations		0.085	0.082
Agricultural and fishery workers		reference	
<i>Occupational status</i>			
	Employed	-0.015	0.053
	Unemployed	-0.126	0.075 ***
	Inactive	reference	
Respondent is chronically ill		-0.099	0.055 ***
Household services/durables			
Household owns TV		0.244	0.095 **
Household owns refrigerator		0.328	0.057 *
Geographic variables			
<i>LSMS strata</i>	Central	0.072	0.050
	Mountain	-0.438	0.057 *
	Tirana	-0.235	0.077 *
	Coastal	reference	
Urban		0.083	0.073
PSU log mean per capita expenditure		-0.444	0.083 *
Relative deprivation index		-0.118	0.052 **
Community has primary school		0.226	0.062 *

District unemployment		-0.231	0.040	*
District education expenditure per person		0.230	0.053	*
Commune bank branches per 10,000 person		0.101	0.071	
Attitudinal variables				
<i>Subjective assessment of food consumption</i>	Less than adequate	-1.544	0.134	*
	Just adequate	-2.403	0.138	*
<i>Assessment of financial situation compared to previous year</i>	More than adequate	reference		
	Worsened	-0.664	0.046	*
<i>Subjective health assessment</i>	Same or Improved	reference		
	Poor	-0.232	0.075	*
	Average	-0.124	0.051	**
	Good	reference		
Ancillary parameters				
Cut 1		-7.247	0.815	
Cut 2		-6.054	0.814	
Cut 3		-5.060	0.813	
Cut 4		-4.210	0.813	
Cut 5		-3.271	0.811	
Cut 6		-2.706	0.810	
Number of observations	3521			
McKelvey and Zavoina's Pseudo R2	0.596			

Significance levels: *= 1 percent; **= 5 percent; ***= 10 percent.

Table 7 – Predicted versus actual subjective welfare ranking

Predicted rung	Subjective welfare rung							Total
	1	2	3	4	5	6	7	
1	104	121	24	5	1	0	0	255
2	94	259	215	77	10	2	0	657
3	44	189	319	212	73	8	6	851
4	11	74	201	233	158	30	13	720
5	2	11	73	153	200	88	46	573
6	0	1	15	26	76	41	48	207
7	0	2	4	14	55	38	145	258
Total	255	657	851	720	573	201	258	3521

Pearson chi2 = 3097, Pr = 0.000

Cramer's V = 0.38

Figures

Figure 1 – Subjective vs. objective poverty by household size

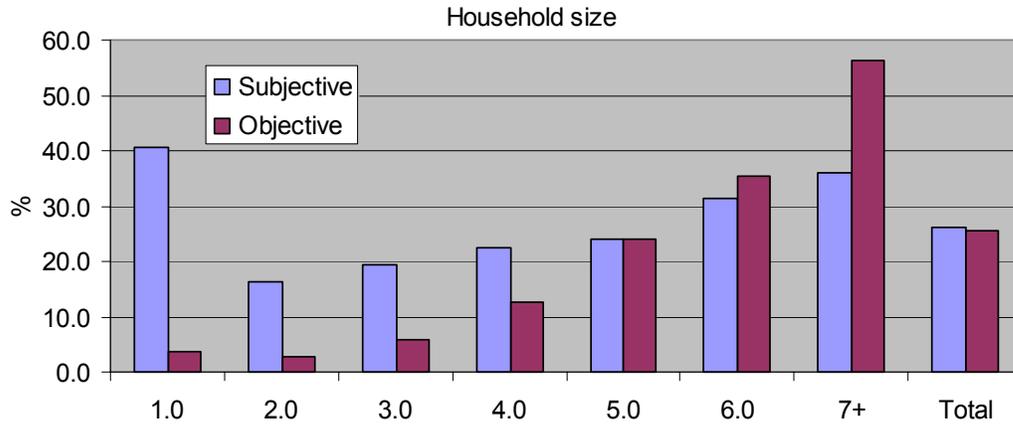


Figure 2: Poverty and household size revisited: Economies of scale

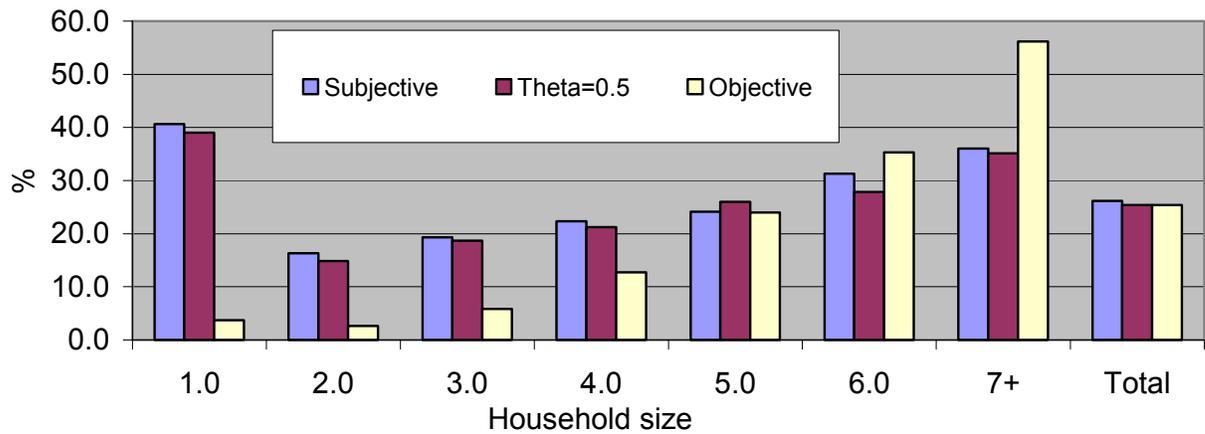


Figure 3 - Subjective and objective poverty profile by dependency ratio

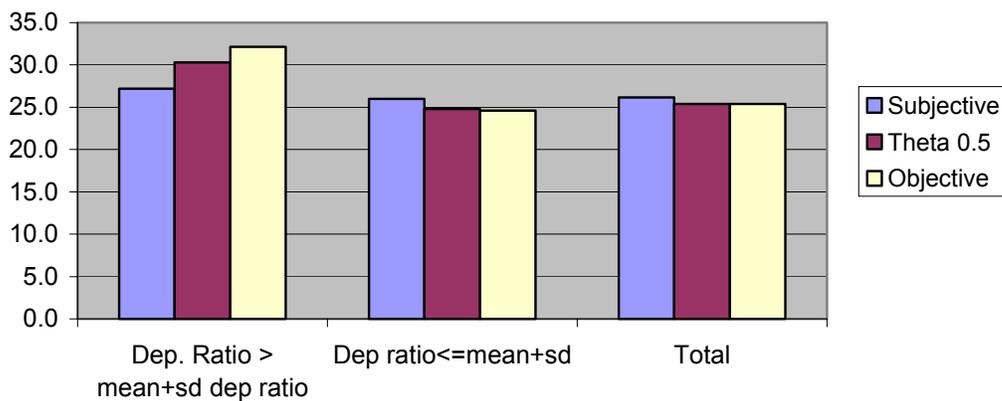


Figure 4 – Household size variable significance for different levels of theta.

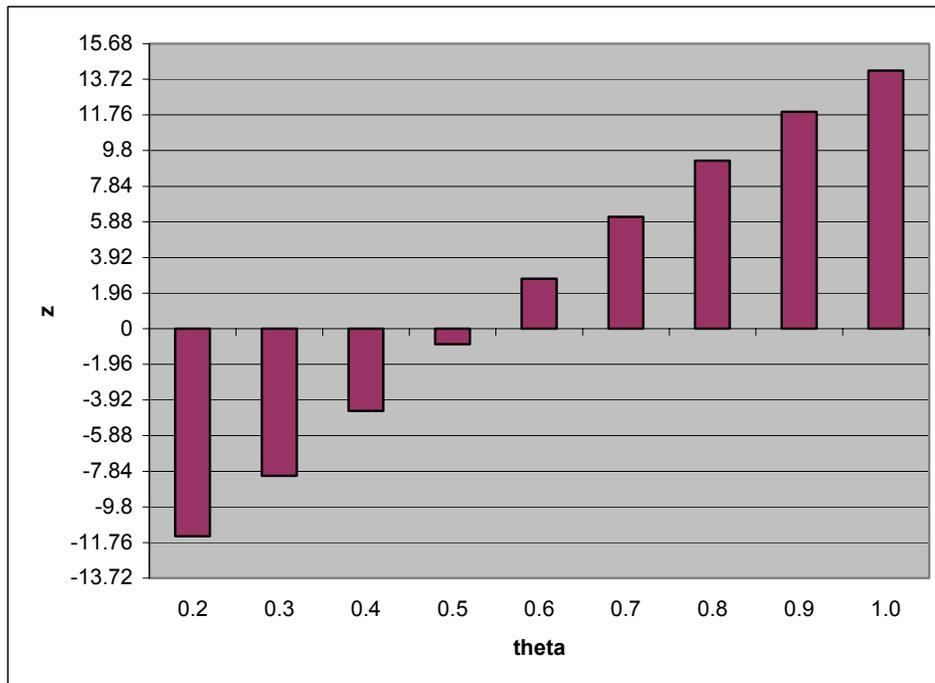


Figure 5: Cumulated marginal effects of select explanatory variables (effect on probability of falling in rung 1-3)

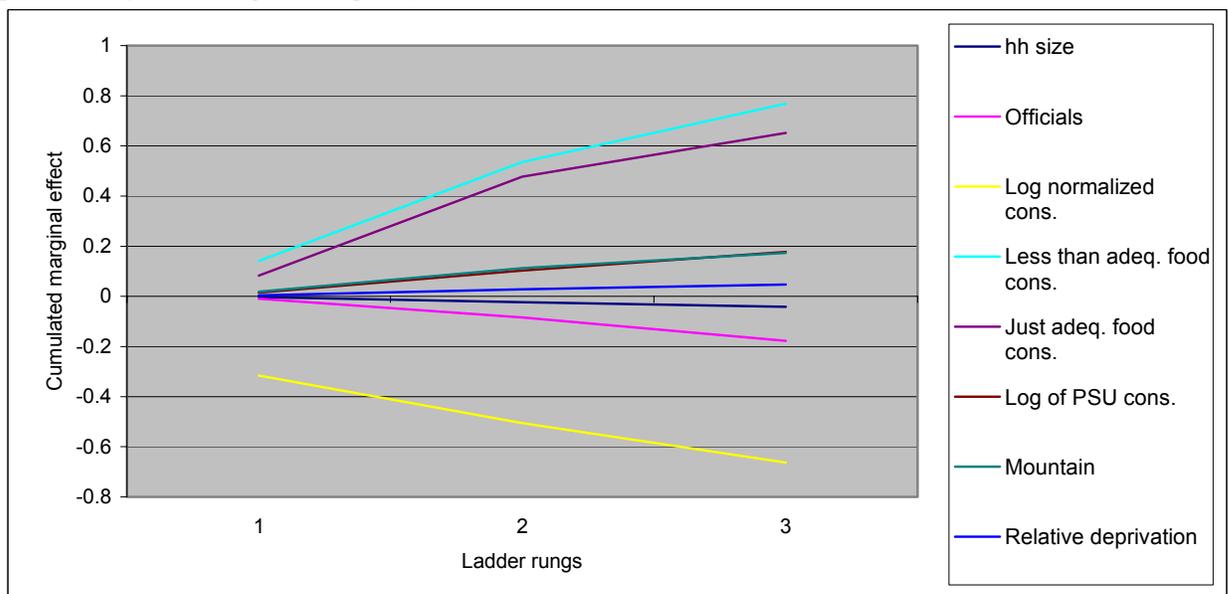
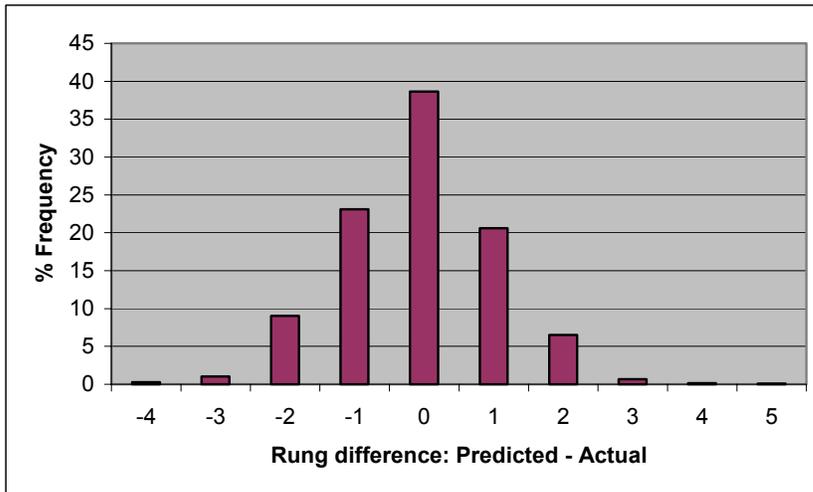


Figure 6: Goodness of fit of predicted subjective poverty rungs: Frequency of rung differences between actual and predicted ladder rungs



Annex I

Headcount within different groups of households making different assumptions on the extent of economies of scale

	$\theta = 0.5$	$\theta = 0.6$	$\theta = 0.7$	$\theta = 0.8$	$\theta = 0.9$	$\theta = 1$	% of pop.
Poor	25.4	25.4	25.4	25.4	25.4	25.4	
Elderly HH	20.9	14.3	10.0	6.0	4.5	3.5	4.0
Female headed HH	27.2	25.9	24.5	22.9	21.3	20.4	9.4
High Dependency Ratio	27.3	27.7	27.9	27.8	28.3	28.4	60.3
High Child Ratio	32.9	34.3	34.2	33.6	34.0	34.1	30.7
No children	16.6	13.6	11.3	9.6	8.4	7.2	22.1
1 child	21.9	20.3	19.7	19.5	18.3	18.0	22.0
2 children	24.2	25.0	24.6	24.2	24.3	23.6	31.4
3+ children	38.0	41.0	43.9	46.1	48.5	50.7	24.5

ESA Working Papers

WORKING PAPERS

The ESA Working Papers are produced by the Agricultural and Development Economics Division (ESA) of the Economic and Social Department of the United Nations Food and Agriculture Organization (FAO). The series presents ESA's ongoing research. Working papers are circulated to stimulate discussion and comments. They are made available to the public through the Division's website. The analysis and conclusions are those of the authors and do not indicate concurrence by FAO.

ESA

The Agricultural and Development Economics Division (ESA) is FAO's focal point for economic research and policy analysis on issues relating to world food security and sustainable development. ESA contributes to the generation of knowledge and evolution of scientific thought on hunger and poverty alleviation through its economic studies publications which include this working paper series as well as periodic and occasional publications.

Agricultural and Development Economics Division (ESA)

The Food and Agriculture Organization
Viale delle Terme di Caracalla
00100 Rome
Italy

Contact:

Office of the Director
Telephone: +39 06 57054358
Facsimile: + 39 06 57055522
Website: www.fao.org/es/esa
e-mail: ESA@fao.org