



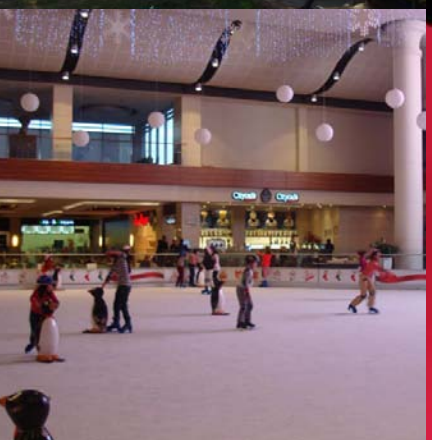

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Adult health and health equity in times of fast economic growth in Albania (2002–2005)

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Abbreviations

AE	adult equivalent
ALSMS	Albania Living Standard Measurement Survey
CDF	cumulative density function
EA	enumeration area
Est.	estimated
EU	European Union
GDP	gross domestic product
HFA-DB	Health for All database
HH	household
ICC	intraclass correlation coefficient
N	number
NIS	newly independent states of the former USSR
SAH	self-assessed health
SES	socioeconomic status
SD	standard deviation
UNDP	United Nations Development Programme

Foreword

This report was requested to shed light on what happened to adult health in Albania during the period of strong economic growth such the one that occurred during 2002 and 2005. There is a shortage of studies that have look at the issue of health and its distribution during period of economic growth or downturn that specifically focus on lower-middle-income European countries.

The present study has used as its main source of data the Albania Living Standard Measurement Survey. The analysis carried out provides some new knowledge related to the impact of fast economic grown on average population health and to health inequity gaps within the population.

One of the conclusions of the report was that during the economic growth period surveyed there was a noticeable improvement of average health in Albania. The report also identifies domains where the distribution of such health gains shows gaps between different sections of the population, including between rich and poor. The example of inequity gaps in chronic illness was duly highlighted in the report.

The finding of the report point to the need for systematic monitoring of health trends and their distribution across different population groups in countries. The report also emphasizes the importance of reliable sources of data and appropriate methods of analysis. These are essential to increase country capacities to monitor the patterns and evolution of socioeconomic inequalities in health. Such increased capacity is crucial to identifying policy action which improves both the average of population health and reduces the health gap in our society by leveling up the health of the worse off.

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1. Introduction

Albania is a lower-middle-income country with a gross domestic product (GDP) per person of US$ 3740 in 2008. The country has made significant progress since its transition from a communist regime towards a market-based economy. It has pursued major structural and economic reforms and has pushed ahead with the establishment of democratic institutions. The 1997 financial crisis and its associated large-scale civil disturbances halted progress, but subsequently the country restored and maintained macroeconomic stability and put structural reforms back on track. Despite the influx of refugees from Kosovo (in accordance with Security Council resolution 1244 (1999)) in early 1999, the successive governments were able to continue the implementation of structural reforms, aided by significant external assistance flows. Overall, Albania has achieved and sustained strong economic growth while containing inflation almost every year. The economic structure has shifted from agriculture and industry to services and construction. Meanwhile, large-scale migration has fuelled high workers' remittances, which make up around 13% of GDP. Albania had also started negotiations with the European Union (EU) for a Stabilization and Association Agreement, which was finally signed in 2006.

High GDP growth rates near 5–6% per year have brought about a massive reduction in poverty. For instance, over the 2002–2005 period, the focal period of this study, the absolute poverty rate fell from 25.4% to 18.5%, lifting roughly a quarter of the poor in 2002 out of poverty. Over this period, income inequality rose only marginally, but it is still at fairly moderate levels by international standards.

How has health fared during this economically very successful period? One might expect that as wealth improves, so would health. While this may hold on average and over longer time horizons, the reality in any given country over particular periods may be different. In fact, in several newly independent states of the former USSR (NIS), after the worst of the initial transition crisis was over, wealth and health moved in opposite directions, most notably so in the Russian Federation (Marquez et al., 2007). Unfortunately, there does not appear to be any easy answer to this question for the case of Albania. While several studies have documented its economic changes, relatively little research has assessed its health performance during this time (Shapo et al., 2003, 2004; Rechel, Shapo & McKee, 2005). Part of the reason may be that it is simply difficult to assess health progress in Albania, because official statistics differ significantly from estimates by researchers or international organizations. Such difficulties may call into question any attempt to track the "true" evolution and pattern of health.

The problems in assessing progress are exemplified in Fig. 1.1, which compares national "official" government data on life expectancy at birth by gender with life expectancy estimates by WHO. WHO has prepared such estimates only in recent years.[1] While both series suggest a declining gender gap in life expectancy, two noteworthy differences emerge from the figures.

1. Official data suggest a far higher level of life expectancy in any year for which an estimated comparator is available. The gaps range from four to seven years.

2. Upon visual inspection, the trends also appear to differ slightly, in that the WHO estimates appear to indicate a small increase in life expectancy, while the official data show hardly any trend movement.

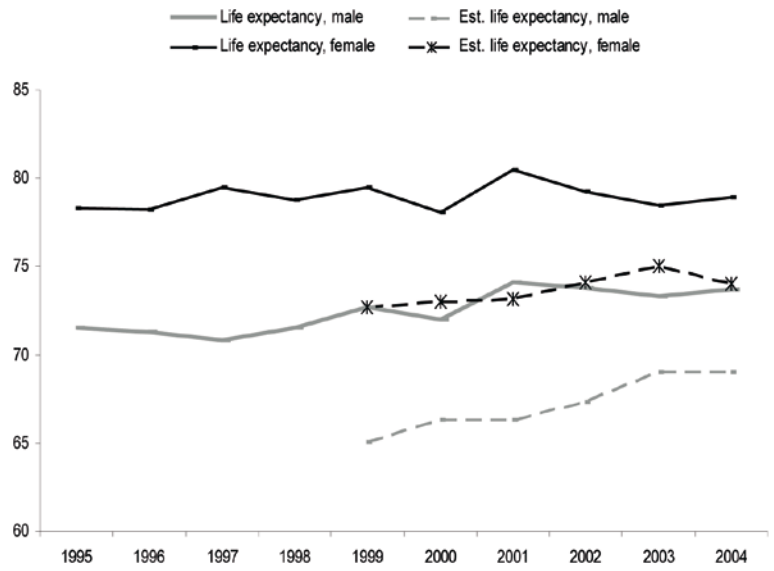
Both insights leave huge degrees of uncertainty about just what happened to health in Albania during the period of solid economic growth. Perhaps most importantly, while official data suggest that Albania's overall population health status compared remarkably favourably to most other countries that were at similar levels of economic development, this favourable picture is very much qualified or even reversed if WHO estimates are closer to the true figures.

It was beyond the authors' means to evaluate which of the two sources of data is more accurate – and there are indeed good reasons to question either. Instead, they took a different road by tapping another source of data – the Albania Living Standard Measurement Survey (ALSMS), which was carried out each year from 2002 to 2005 – and by looking at morbidity rather than mortality. In addition, the authors exploited this data

[1] Similar discrepancies have been found with respect to infant mortality data, e.g. in Aleshina and Redmond (2003).

source to assess Albania's performance in terms of health equity or, more precisely (and as it is commonly understood), in terms of its socioeconomic inequalities in health. To the best of the authors' knowledge knowledge, this is the first systematic assessment of patterns and trends in health and socioeconomic inequalities in health in Albania that uses this unique data source.

Fig. 1.1. Life expectancy at birth in Albania from different sources



Source: WHO Health for All database 2009.
Note. "Est" stands for "estimated".

There is growing concern in Europe about health differences between the rich and poor in any given country. Several studies indicate that while average health has improved in most high-income European countries, the rich gained more in health than the poor, leading to sometimes worrying degrees of health "inequities" (Mackenbach et al., 2008). It is not a priori clear what the impact of the rather remarkable economic growth has been on health inequalities in Albania. On one hand, the fact that income inequality has not changed much (World Bank, 2007) means that, other things being equal, income-related health inequalities will not have changed much either. On the other hand, it is clearly not solely the distribution of underlying socioeconomic determinants that affects health equity but also any changes in the elasticities between those underlying determinants and health. Moreover, there is reason to question the very meaning of income as a proxy for socioeconomic status (SES) in Albania (Pudney & Francavilla, 2006). Other indicators, such as consumption or an appropriately defined asset index may be more useful for capturing variation in wealth in this specific situation. As the World Bank finds in its latest Poverty Assessment for Albania, despite fairly constant income inequalities, the gap (measured by poverty levels) between urban and rural areas grew significantly between 2002 and 2005 (World Bank, 2007). Last but not least, there is evidence of substantial (and possibly growing) out-of-pocket payments for health care spending, with a noticeable effect on households' probability of falling into poverty (Mendola, Bredenkamp & Gragnolati, 2007). Hence, while some evidence points to no expected change in health inequalities, other evidence suggests health inequalities may have increased. The authors used the ALSMS data to perform a detailed analysis to answer this question empirically.

This report is organized as follows: Section 2 discusses the advantage of using the ALSMS for this study, describes the data used and defines the socioeconomic and health variables created for the analysis. Section 3 assesses the levels and trends in average health indicators. Section 4 describes the relationship between health and socioeconomic indicators, using a range of SES indicators. Section 5 attempts to detect trends in socioeconomic inequalities in health over the period 2002–2005. Section 6 undertakes a dynamic analysis of the transition among health statuses and the impact of previous health on current health conditions.

2. Data: the ALSMS

The purpose of this study was to assess average adult health as well as the socioeconomic inequalities in Albanian adults' health at the beginning of the century, during a period of remarkable economic growth. The ideal source for such analysis is a survey that provides information on both the respondents' health and their SES, ideally for a number of consecutive years. However, not many nationally representative surveys contain a variety of socioeconomic indicators in addition to a variety of health indicators. Particularly difficult is finding both sets of indicators in consecutive surveys for any given country.

The ALSMS offers one positive exception to the rule. The ALSMS is a multipurpose household survey that includes data on a wide range of demographic and socioeconomic characteristics. In addition, it has the advantage of being available for each year from 2002 to 2005.

The ALSMS is a periodic survey carried out by the Albanian Institute of Statistics with the technical and financial assistance of the World Bank. The first survey, conducted in 2002, provided individual- and household-level data from 599 households and about 16 500 individuals. That survey was followed by two panel surveys, one each in 2003 and 2004, and by a new survey in 2005.

The ALSMS panel, therefore, comprises three waves (2002, 2003, and 2004) in which the second and third waves are subsamples of approximately half the households drawn in 2002. The panel is essentially an individual-level survey, as individuals are followed over time regardless of the household they occupy at any interview.

The ALSMS 2002 used a stratified, two-stage, cluster-sampling design in which the primary sampling units were represented by the census "enumeration areas" (EAs), while the second-stage sampling units were the households. (An EA is a geographic region of one or more adjacent blocks canvassed by one census representative.) The sample selected for the panel was designed to be nationally representative of Albanian households and individuals. This differed from the original ALSMS whose sample was designed to be representative of Albania as a whole but also of each of its main regions (mountain, central, coastal and the city of Tirana) so region-level statistics could be generated. The 2005 sampling design followed that of 2002 but required an update of some EAs in areas subject to marked demographic changes due to migration flows (for example, Tirana). Weights were provided in the 2002 and 2005 surveys to enable analyses that are valid at the national, rural/urban or geographical (coastal, central, mountain, Tirana) levels.

Unfortunately, the 2005 survey is not part of the panel and hence does not allow the authors to follow the same individuals into the fourth consecutive year. However, the availability of health and socioeconomic characteristics in four consecutive years does allow them to study changes in inequality over time using a static approach. In addition, the panel for the years 2002–2004 permits a dynamic analysis for individuals observed across those first three years.

The ALSMS contains a wealth of information collected at the individual and household levels to show living conditions in Albania. Information collected at the individual level includes demographics, migration, education, health, fertility, labour, transfers and social assistance, and anthropometric measures. Information collected at the household level includes dwelling characteristics, consumption, income and subjective poverty, which enabled the authors to construct detailed socioeconomic indicators. The authors were able to construct four different indicators of living standards. Two are direct measures of material living standards based on household incomes and household consumption expenditures. The other two are nonmonetary proxies of living standards in the form of a deprivation index and the level of educational attainment. It is important to note that information on consumption expenditures are provided only for 2002 and 2005. Hence, the authors have no panel information on consumption, and had to limit themselves to the use of income as the socioeconomic indicator when the authors focused on the comparative analysis for all four years.

In addition, in the ALSMS a module with a rich set of questions on health targeted, in each year, all the members of the household aged 15 and older, whereas for children the most knowledgeable person (in

general the parent or guardian) was called to answer. The health module includes two subgroups of questions: one on individual general health status and the other on (household) access to health care. The former includes information on individuals' health statuses or states, such as chronic illness and disabilities, sudden illness, health conditions, visits to public and private doctors or nursery hospitals and traditional doctors, and density of visits. The latter provides information on the availability of medical services in the area of residence, including the availability of a health centre; the number of days in which the centre is open; and information on the centre's equipment, personnel, and so on. To target the aim of this study, the authors focused on information on health status and constructed indicators for mental, functional and self-assessed health.

2.1 Socioeconomic variables in the ALSMS

A common approach in studies that assess individuals' SES is to assume that people are better off if they have more command over resources. In this view, living standard indicators aim to capture whether individuals (or households) have enough resources to meet their needs. The most popular indicators used to capture material living standards are income and consumption. Income refers to the earnings from productive activities and public and private transfers; consumption refers to resources actually consumed.

Several authors have argued that consumption is preferable to income as a measure of individuals' and households' well-being, particularly for developing countries (Deaton and Grosh, 2000). They posit that income is subject to greater (positive or negative) shocks whereas consumption, being more directly related to real living standards, behaves more "smoothly" over time. A further limitation of the use of income as a proxy of individual living standards is that people tend to be reluctant to disclose information on their income, often resulting in systematic measurement errors, especially for some categories of workers, such as the self-employed and people who work in informal economic activities.

Such "income contamination" is not unique to developing countries. Berthoud, Bryan and Bardasi (2004) and Saunders (2005) reported, for instance, similar evidence for United Kingdom and Australian data, respectively. Pudney & Francavilla (2006) investigated the reliability of estimated income poverty profiles for Albania, also using the ALSMS, and found evidence that a significant number of households with low reported incomes were misclassified as poor on the basis of income. These households scored relatively high in many other living standard indicators, including the ownership of durables, general satisfaction, adequacy of food consumption and perceived place in living standards distribution.

Limitations are, however, also seen in the use of consumption expenditure as SES indicator. Consumption is usually calculated on the basis of household expenditure data. However, household expenditures do not perfectly represent real consumption. Expenditures, for example, include the purchase of goods or services that are not immediately consumed, but they do not take into account consumption that is not based on market transactions. To correct for this limitation, the consumption measure used for this report included self-produced food and excluded payments for rent and durable goods. Thus, the definition of consumption in this study included food and nonfood expenses (clothing, household supplies for cleaning, tobacco, household articles, entertainment, services, etc.) and utilities (electricity, gas, telephone services, water and fuels).

Unfortunately, as mentioned above, consumption expenditures in the ALSMS are available only for the 2002 and 2005 surveys, so for a comparison across all the four years, the authors had to focus on income as the SES proxy. For all four years income was defined as monthly household income. However, due to a reduction in questionnaire detail after the first wave, the authors were forced to use definitions of income that are not perfectly comparable across years. In 2002, income included labour market income (wages, in-kind salaries and job-related bonuses), income from nonagricultural business, agricultural income, private and public transfers and other incomes (such as rents, inheritance and gambling) and imputed value of self-produced consumption goods. Income variables for 2003 and 2004 included the same components of the income variable available in 2002, but they derive from a less-detailed questionnaire on business income implemented for these years. The income variable for 2003 is not directly comparable with those of the other years because questions on some income components (non-public transfers and other income) were omitted from the questionnaire that year. Thus, it is important not to attach too much importance to changes

in the absolute levels of income between waves. To overcome this problem in studying of socioeconomic inequalities in health across SES, the authors used income rank (discussed in Section 4).

Consumption and income variables were deflated to 2002 prices using the Consumer Price Index as published by the International Monetary Fund (IMF, 2008). Following the standard approach, the authors applied an equivalence scale to account for household size and composition. Applying an equivalence scale produces a measure of expenditure per adult equivalent that can be used consistently among households of different sizes and compositions. In this study the number of adult equivalents (AEs) in a household is defined as AE=(A+aK)b, where A is the number of adults in the household, K is the number of children, a is the "cost of children", and b reflects the degree of economies of scale.

Deaton & Zaidi (2002) proposed values in the region of 0.3–0.5 for α (higher in developed countries) and 0.75–1.0 for b, given that food accounts for a large proportion of total consumption and economies of scale are relatively limited. However, Francavilla & Mattei (2009) estimated for a subsample of Albanian women a b=0.338 that suggests higher economies of scale in Albanian households. In light of these results the authors assumed the cost of children to be half that of adults (a=0.5) and relatively high economies of scale (b=0.5). It is worth noting that the use of different parameters affects the distribution of the monetary SES that in turn can affect conclusions on the size of the socioeconomic inequalities in health.

In addition to income and consumption, the authors also created a deprivation index as an alternative measure of SES.

Finally, level of education was used as an SES indicator. Throughout the analysis the authors used two different definitions of education: the number of years in education and the highest level of degree achieved. Degrees of education were classified as not educated, primary education (eight years), vocational education and training (2–5 years), secondary education (three years), and university or higher (3–5 years). Since the degrees of education do not follow an unambiguously ordinal pattern (for example, secondary education and vocational education and training are alternative paths with different durations), the authors used years of educations as an alternative measure of education.

Albania has a high literacy rate (98.7%), comparable to those of other European countries (99% for most of them) (UNDP, 2007).

2.2 Health indicators in the ALSMS

The advantage of the ALSMS is that it includes a wide range of health indicators, facilitating the analysis of health under its multidimensional aspects. The authors concentrated on a range of self-reported adult health indicators, which can generally be categorized as medical, functional and subjective (Wagstaff, Paci & van Doorslaer, 1991).

"Medical indicators" measure health in term of the presence of certain diseases, conditions or handicaps that can be self-assessed or possibly diagnosed by a physician. The question in the ALSMS that was selected to create the medical indicator was: "Do you suffer from a chronic illness or disability that has lasted more than 3 months (including severe depression)?" The medical indicator the authors used was a dummy variable equal to one if the individual reported chronic illness in the three months prior to the interview and zero otherwise.

"Functional indicators" define health in terms of a lack of ability to perform "normal" tasks or roles. The functional indicator used was the number of restricted activity days due to chronic illness in the month before the interview. The question in the questionnaire was: "How many days during the last month have you been unable to carry out your usual activities because of this illness or disability?"

"Subjective health" refers to an individual's overall perception of his or her health, often relative to that of other people or previous periods. The question the authors used was: "How would you rate your health condition?"

This questionnaire provides five self-assessed health (SAH), ordered responses – very good, good, average, poor or very poor – for this question. This variable cannot be scored, since the true scale will

not be equidistant between categories. A common practice for the purpose of inequality measurement to scaling SAH is to dichotomize the multiple category responses. With this method, health is measured as the percentage of individuals with that characteristic; in this study computed the percentage of individuals with less than "good" SAH and with "very poor" SAH. This practice is easy to apply and avoids imposition of a health distribution. Yet it also results in a loss of information and requires the introduction of an arbitrary cut-off point (Wagstaff & van Doorslaer, 1994). More importantly, some studies (Wagstaff & van Doorslaer, 1994) show that this approach can affect the degree of measured inequality, so particular caution is required in the application of these methodologies to evaluate health inequality. An alternative method involves the construction of a continuous, standardized, latent health variable (Wagstaff & van Doorslaer, 1994).

2.3 The sample

As anticipated in the introduction, in this study both a static and a dynamic approach were adopted to study the relationship between SES and health in Albania during the period 2002–2005. The static approach was used to show the trend in different health status indicators over time. With this aim the authors created a data set that includes the observations of the unbalanced panel for the years 2002–2004 plus the observations of the survey in 2005. The authors allowed this sample to include new entrants in waves 2003 and 2004 since they (the authors) were interested in keeping as many observations as possible. Included were only "adults" (individuals aged 15 or more) and "household members" (individuals who had belonged to the household for at least six months.[2] Such limits on inclusion inevitably led to a reduction in the number of observations in each year.

The dynamic approach allowed the authors to study transition in health status and the impact of previous health on current health. For this purpose they had to use the same individuals throughout the years, which forced the authors to restrict the analysis to the panel sample years 2002–2004. For the dynamic analysis they thus used a balanced sample of respondents for whom information on all the required variables was reported at each of the three waves. The balanced sample tracked only (but all) those who were observed at the first wave (2002), thereby excluding new entrants. Table 2.1 reports the sample size for each year over the period 2002–2005 and for the balanced panel.

Table 2.1 Sample size for each year and for the balanced panel

Gender	2002	2003	2004	2005	Balanced panel 2002–2004
Male	2 521	2 550	2 506	5 791	2 189
Female	2 841	2 883	2 948	6 376	2 558
Total	5 362	5 433	5 451	12 167	4 747

Source: ALSMS 2002–2005.

Since the dynamic analysis was performed on only a subset of people who were observable for the panel period, the authors were interested in understanding how different people in this subsample compared to the overall observations. Table 2.2 shows that individuals in the overall sample and in the balanced sample were quite similar on the basis of their individual, household and geographical characteristics.

Table 2.2 Average values of individual, household and geographic characteristics in the overall and balanced sample

Characteristics	All observations, 2002–2005	Balanced panel, 2002–2004
Individual (%)		
Gender: male	47	46
Age	41	43
Ethnicity: Albanian	99	99

[2] Deceased individuals, lodgers, hired workers and servants were not considered to be household members. Guests who had stayed with the household for six months and over, infants under 6 months of age and new arrivals (such as newlyweds) were considered household members.

Characteristics	All observations, 2002–2005	Balanced panel, 2002–2004
Religion: Muslim	75	77
Marital status (%)		
Married	68	72
Widowed	7	7
Divorced/separated	1	1
Never married	24	20
Education (%)		
Not educated	5	5
Primary	61	60
Vocational	13	13
Secondary	14	15
University or higher	7	7
Household composition (number)		
Household size	4.7	4.7
Number of children aged 0–2	2.0	2.1
Number of children aged 3–6	3.0	3.1
Number of children aged 7–10	3.1	3.2
Number of children aged 10–14	4.0	3.8
Number of adults	3.6	3.5
Employment (%)		
Employee	18	19
Self-employed	7	7
Farm worker	30	31
Geographic area (%)		
Urban	50	49
Coastal	27	27
Central	43	44
Mountain	12	12
Tirana	17	17
Health (%)		
Chronic illness	22	24
SAH: very good	29	27
SAH: good	41	42
SAH: average	19	20
SAH: poor	9	9
SAH: very poor	2	2
Income (Leks)		
Real monthly household income	38 031	34 510
Real monthly household equivalized income	18 846	17 410
Total observations	16 246	4 747

Source: ALSMS 2002–2005.

3. Did Albanians' health improve during the period of strong economic growth?

This section assesses the average level of health during the first half of the past decade, as well as its trend from 2002 to 2005, using the selected medical, functional and self-reported indicators described in the previous section. A graphical analysis of some of these indicators examines possible differences in the mean values between age groups, gender and geographical areas.

Table 3.1 shows that over the observed period 21% of the population reported chronic illness and 26% rated their health as below average. A comparison across years shows an improvement in functional health and SAH in the 2003–2005 period but no obvious trend in medical health. However, the number of days restricted due to chronic illness monotonically decreased from almost seven per month in 2002 to less than four in 2005, suggesting that the adverse impact of chronic illness may have decreased, despite the higher proportion of people who reported chronic illness in 2003 and 2004.

Likewise, the SAH indicators point to a positive trend: the percentage of people who rated their health as lower than average fell 5 percentage points, passing from 31% in 2002 to 26% in 2005, and those in very poor health fell to 1.4% in 2005 from 2.1 in 2002.

Table 3.1 Indicators of adult health, Albania, 2002–2005

Indicator	Year				
	2002	2003	2004	2005	Average
Any chronic illness (three months)	21.4	23.0	23.2	20.8	20.8
Number of restricted days due to chronic illness (in the last month)	6.7	4.6	4.2	3.9	3.9
Below-average SAH	30.7	28.9	29.7	25.6	25.6
Very poor SAH	2.1	1.6	1.6	1.4	1.4

Source: ALSMS 2002–2005.

Table 3.2 shows that men fared better than women in all the health indicators and across all four years. However, despite the fact that the proportions of women who reported chronic illness or below-average health were substantially higher than those of men, functional health was not very different by gender in all four years.

Table 3.2 Indicators of adult health by gender, Albania, 2002–2005

Indicator	Years				
	2002	2003	2004	2005	Average
Male					
Any chronic illness (three months)	18.8	19.7	19.8	18.4	18.4
Number of restricted days due to chronic illness (in the last month)	6.8	4.3	4.2	3.9	4.0
Below-average SAH	27.0	24.8	25.3	22.6	22.6
Very poor SAH	2.3	1.1	1.2	1.3	1.3
Female					
Any chronic illness (three months)	23.7	25.9	26.2	23.0	23.0
Number of restricted days due to chronic illness (in the last month)	6.7	4.8	4.2	3.9	3.9
Below-average SAH	34.0	32.5	33.6	28.3	28.3
Very poor SAH	2.0	2.0	2.0	1.5	1.5

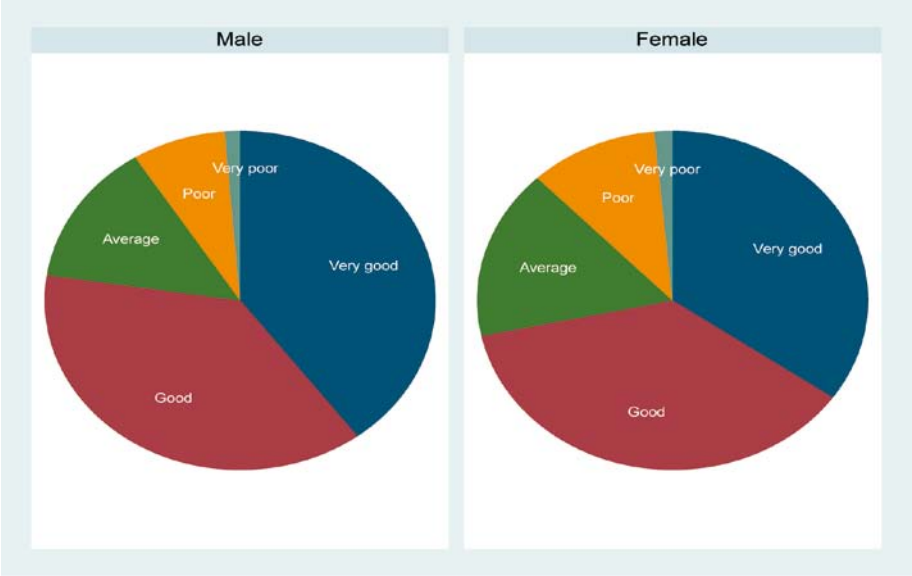
Source: ALSMS 2002–2005.

Next, the authors looked more closely at the distribution of health by gender, age and region, focusing on medical health and SAH, using a graphical representation. Fig. 3.1 shows the proportion of respondents in

each SAH category for all four survey rounds taken together, neglecting the fact that individuals who were observed over the first three years may be the same. This implies, for example, that the same individual could be accounted for more than once in a single SAH category if his/her health perception did not change over time. The aim of the graph is to give a general insight into individuals' health perception over time.

Fig. 3.1 gives the overall distribution of the five SAH categories. The modal category is good health, and a clear majority of respondents reported either very good or good health. This result is similar to those shown for more developed countries like the United Kingdom (for example, Jones & Rice, 2004). Comparing the distribution by gender, one observes that on average in the period 2002–2005 females reported a smaller proportion of very good and good health and a larger proportion of average, poor and very poor health than men. This result confirms the existence of inequality (already observed in Table 3.2) in SAH between men and women. Hendrik (2007) and others have also reported this gender difference.

Fig. 3.1. Self-assessed health by gender

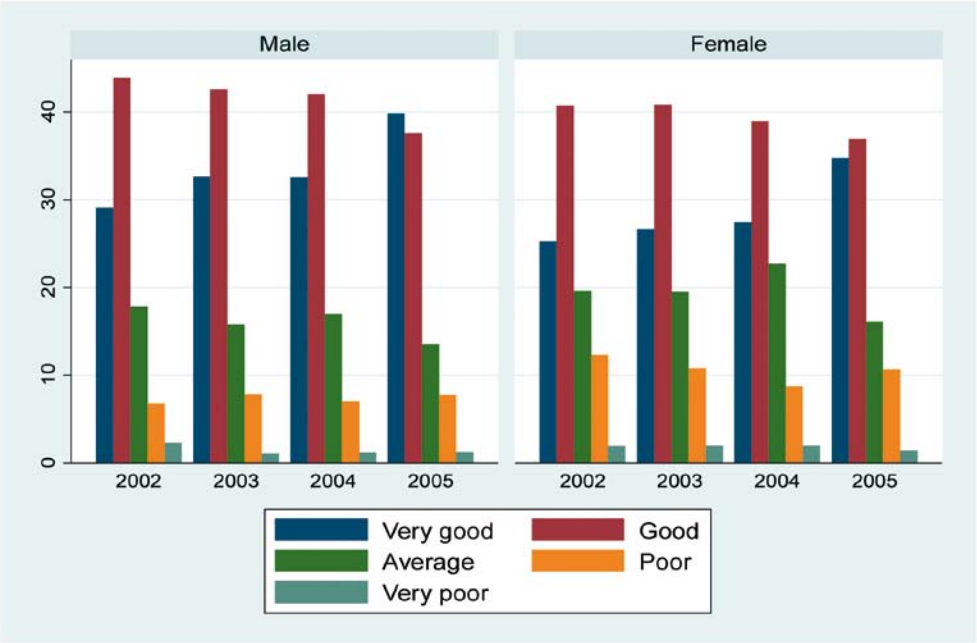


Source: ALSMS 2002–2005.

Fig. 3.2 disentangles the health perception in the four years, reporting the distribution of SAH for each year. The distribution by years and gender is skewed, rather than symmetric, with many individuals reporting average, poor or very poor health. For men the trend in health conditions appears slightly improved in the most recent years, showing a higher percentage of them in very good health in 2003–2005 compared to 2002, with a corresponding, slightly lower percentage of men with average, poor and very poor health over the same years. Moreover, the percentage of men with very good health is remarkably higher in 2005, compared to the preceding years. This increase is probably due to the further improvement in health for men with good health, since that level decreased in 2005 to that of men with very good health. Since the percentage of men with lower health status is not increased and men with health higher than average are more equally distributed between the two higher health groups, this probably implies a lower inequality in 2005.

In the same period a similar trend is observed for women. However, for them the increase in the percentage reporting very good health is more evident in 2005 and is probably due to a reduction in the percentage of women in good health (as for men) but also in average health. Fig. 3.2 shows that women report a worse health condition compared to men (confirming the finding observed in Fig. 3.1) but also reveals that this picture is persistent in all four years.

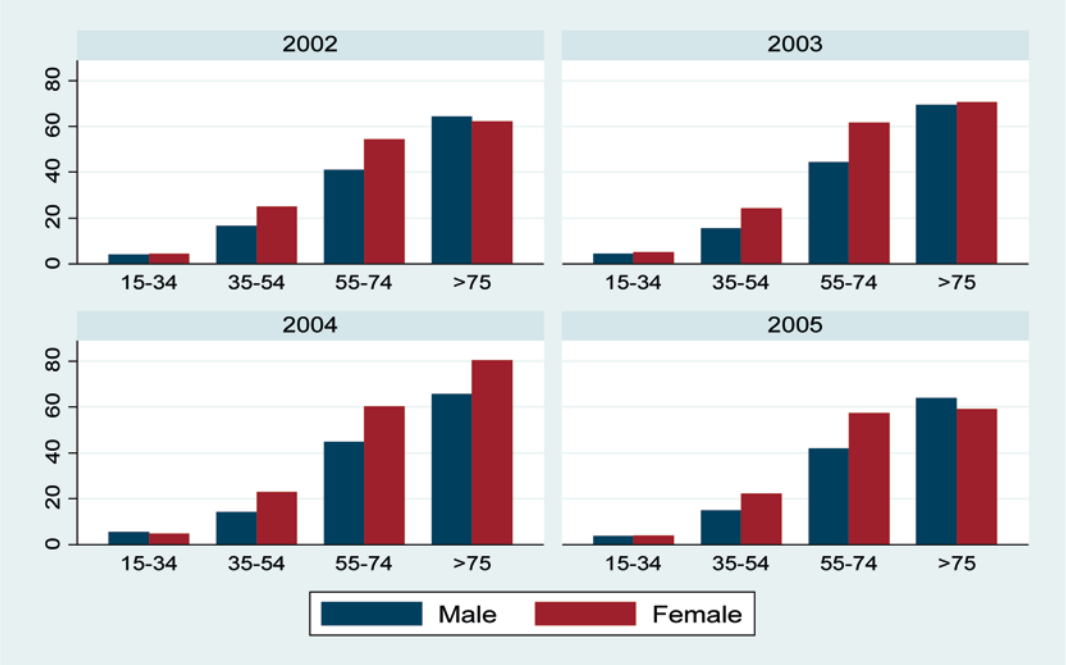
Fig. 3.2. Percentage of people in self-assessed health categories by gender and years



Source: ALSMS 2002–2005.

Unsurprisingly, a negative relationship was observed between age and health in all four years. Fig. 3.3 shows that older people had a higher probability of reporting chronic illness. The percentage of people with chronic illness, in fact, ranked from a very low proportion of the population for people aged 15–34 to slightly more than 60% for people older than 74. Females aged 15–74 were more likely to report chronic illness than men of the same age, a picture confirmed for the four years. For people older than 74, it is difficult to assert which gender is better off in terms of health, since in 2002 and 2005 the proportions of men with chronic illness is slightly higher than those of women.

Fig. 3.3. Percentage of people with chronic illness by gender, age group and years



Source: ALSMS 2002–2005.

To better understand the inequality in health between men and women, particularly for very old people, Fig. 3.4 reports the proportion of women and men in poor and very poor health across age groups. The finding of a worse health condition for women in the observed period is confirmed by the higher proportion of women in poor and very poor health in the 15–74 age groups compared to men of that age.

Fig. 3.4. Percentage of people in poor and very poor health by gender, age group and years

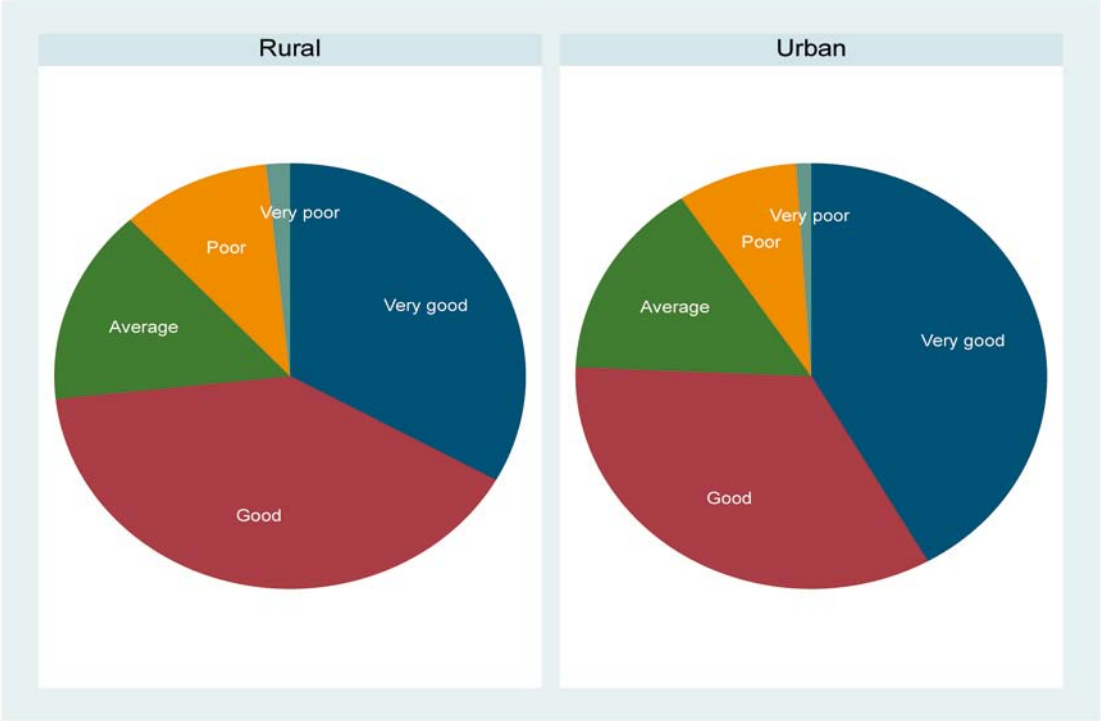
Source: ALSMS 2002–2005.

Focusing on people older than 74 in 2002 and 2005, when men reported a higher proportion of chronic illness than women, Fig. 3.4 shows that in 2002 a higher percentage of women reported poor or very poor health than men, whereas in 2005 the reverse was true. However, the proportion of women with very poor health was greater than that of men in all four years. Generally speaking, the graphical analysis suggests the presence of higher health vulnerability for women than men in the observed years.

Focusing on the inequality between urban and rural areas, the distribution of the overall population in the period 2002–2005 among the health status categories shows better health conditions in urban than rural areas (Fig. 3.5). The discrepancy in the two distributions is mainly due to the extreme statuses, with a higher percentage of people in very poor and poor health and a lower percentage in very good health in rural areas than in urban areas.

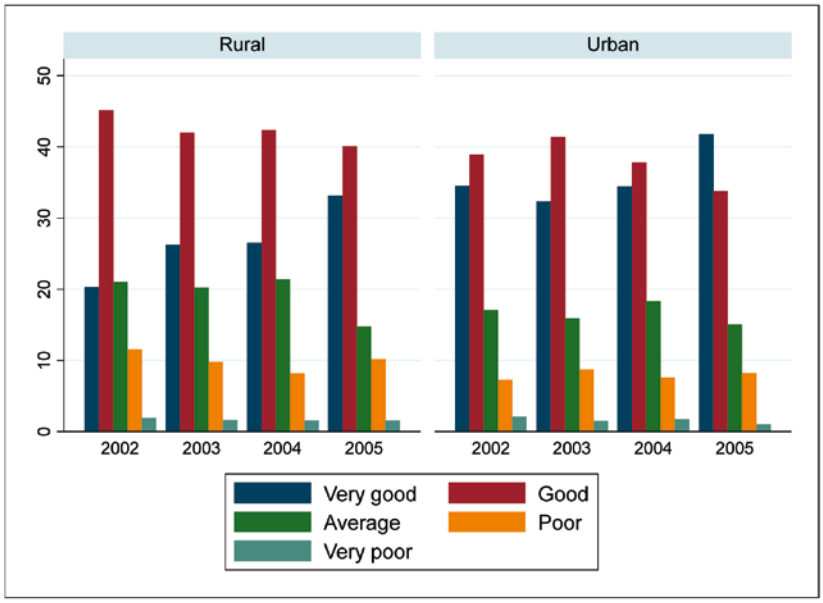
Fig. 3.6 reports SAH by year and type of area. As expected, in the two distributions the modal category is good health, and many individuals reported average, poor or very poor health. However, the distribution of those between the good and the very good categories is very different in the two areas. In urban areas the group of people in good health was roughly 5% larger than the group of those in very good health, and in 2005 more people were in very good health than in good health. Conversely, people in rural areas were less likely to be in very good health and more likely to be in good or average health than those in urban area.

Fig. 3.5. Self-assessed health by rural or urban area



Source: ALSMS 2002–2005.

Fig. 3.6. Percentage of people in self-assessed health categories by area and years



Source: ALSMS 2002–2005.

4. The relationship between health and SES in Albania

In the preceding sections the authors assessed health inequality through variations in mean health across demographic (age and gender) and geographic (urban versus rural) characteristics. In this section the aim is better understand the relationship between different socioeconomic indicators (e.g. income, consumption, education and deprivation index) and health status. Do people with higher income suffer less from health

problems? In other words, is health a more severe obstacle for people in poverty? Is individual heath correlated with individual income, or are other aspects more relevant, such as how much they spend in consumption or their level of education?

In recent years, European policy-makers have expressed growing concern about health inequities, understood as the gaps in health between SES levels. The choice of specific SES indicator (in addition to the choice of the health proxy of course) as well as of the specific inequality measure can critically affect the resulting picture of health inequity. The study of health inequalities reported in this section was based on the use of two monetary living standards, income and consumption, and two nonmonetary ones: deprivation index and education. The approach used to create each indicator was discussed in section 2; here the authors examine the relationship of each measure with SAH.

Evidence abounds on the positive association between health and SES (Smith, 1999; Deaton 2003). Individuals with greater wealth, better education and higher occupational status tend to have better health conditions. However, the observation of a correlation between SES and health cannot necessarily be interpreted as a reflection of a causal relationship. In principle, the causal direction can go either from SES to health or vice versa or can imply more complex processes that pass through third factors. Recent empirical studies have attempted to address the causality topic, focusing on the analysis of longitudinal data and observing changes in SES and health status over time (Adams et al., 2003; Arendt, 2005; Buckley et al., 2004; Contoyannis, Jones & Rice, 2004; Fritjers, Haisken-DeNew & Shields, 2005; Halliday, 2005; Hurd & Kapteyn, 2003; Jensen & Richter, 2003; Jones, Koolman & Rice, 2006; Kerkhofs & Lindeboom, 1997; Lindahl, 2005; Meer, Millar & Rosen, 2003; Salas, 2002).

To the best of the authors' knowledge, no studies have used data covering several years to investigate the link between heath and economic indicators in Albania.[3] This research aims to begin to fill this gap by analysing the dynamics of individual health and of health equity over time as well as the determinants of the persistence in health outcomes. The evaluation of the causal relationship between health and SES is beyond the aim of this study, but ought to be high on Albania's research agenda.

If the monetary living standards (that is, income and consumption) are expected to be positively associated with better health, the authors would expect to observe a monotonically decreasing statistical relationship between them and health (or, more precisely, disease) indicators. Table 4.1 shows that the percentage of people who report worse than average health decreases monotonically from the lowest (poorest) to the highest (richest) consumption quintile. A similar trend is observed by equivalized income quintiles, with the exception of the first (poorest) quintile. The unexpected lower proportion of people with poor and very poor health in the poorest income quintiles is probably due to misreported income, as discussed below.

Table 4.1. Percentage of people in "very poor" or "poor" health by income and consumption quintile

Quintile	Income				Consumption	
	2002	2003	2004	2005	2002	2005
1 Poorest	29.0	31.9	30.9	24.8	34.8	30.5
2	35.3	39.6	39.3	34.1	32.0	29.0
3	31.4	28.8	31.6	29.0	30.9	27.9
4	31.7	24.6	22.6	22.4	29.9	22.3
5 Richest	25.9	19.9	22.8	17.8	25.4	18.7

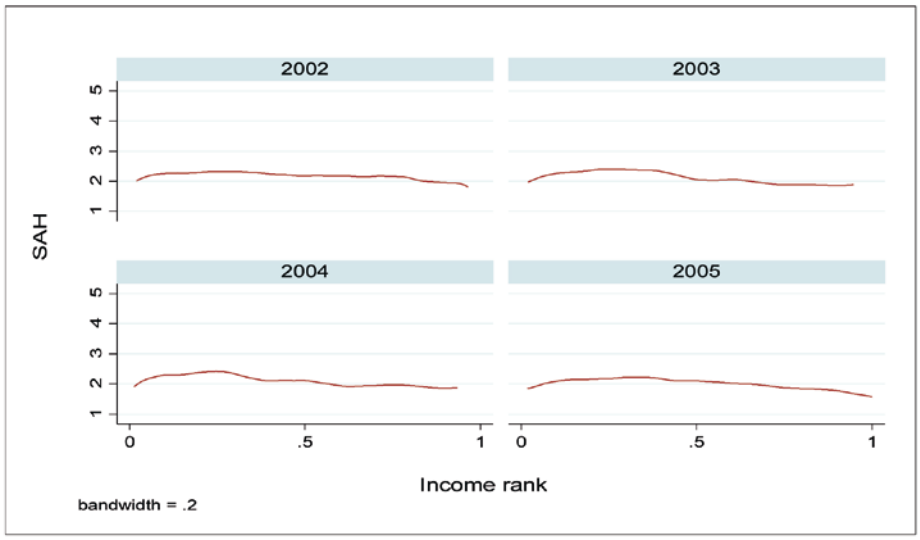
Source: ALSMS 2002–2005.

Fig. 4.1 and 4.2 illustrate this relationship graphically for the four years using income and consumption as indicators of monetary living standards and SAH as an indicator of individuals' health conditions. On the whole the figures document, as would have been expected, that poor health decreases (and good health improves) when moving from lower to higher SES. They show nonparametric, locally weighted regressions

[3] One important exception is a recent paper by Mendola, Bredenkamp and Gragnoliti (2007), but its focus is different: they analysed the effect of health shocks on household economic status, as well as the effect of out-of-pocket health care expenditures on poverty.

of SAH on the consumption or income rank. Fig. 4.1 reveals a low negative gradient between income and SAH. As expected the negative gradient appears higher at the top of the income distribution, but there is also evidence of an unexpected positive gradient at the very beginning of the income distribution. This may well be attributable to the fact that income is contaminated by negative measurement errors, as argued by Pudney & Francavilla (2006). This indicates a need to use different, less-biased measures of living standards.

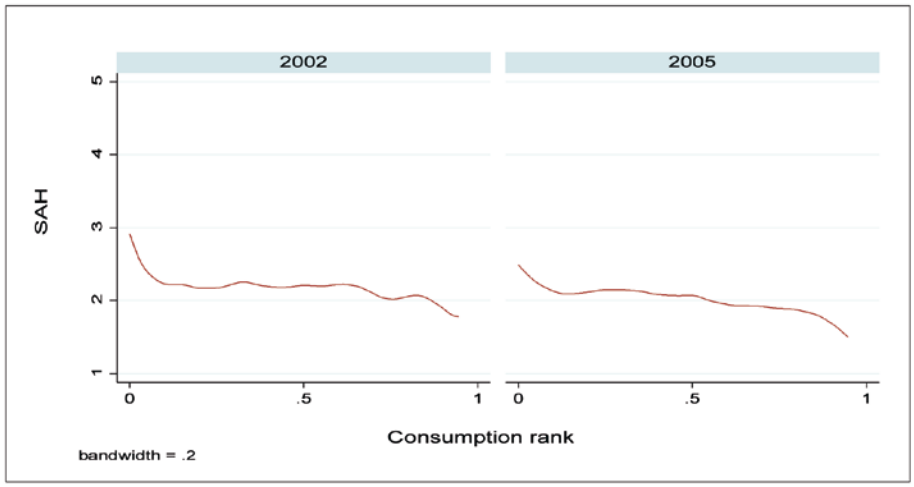
Fig. 4.1. Nonparametric, locally weighted regression of self-assessed health on income rank



Source: ALSMS 2002–2005.

Fig. 4.2 confirms the expected monotonic relationship between health and consumption with a higher slope at the top and the bottom of the consumption distribution. The same relationship is observed in 2002 and 2005, the only years for which consumption expenditures are available, unfortunately (that is, comparable results for 2003 and 2004 are not available). The same evidence on the link between (1) income and health and (2) consumption and health are observed using different health indicators. Fig. A.1 and A.2 in Appendix 1, for example, illustrate these same graphs using chronic illness rather than SAH as the health indicator.

Fig. 4.2. Nonparametric, locally weighted regression of self-assessed health on consumption rank

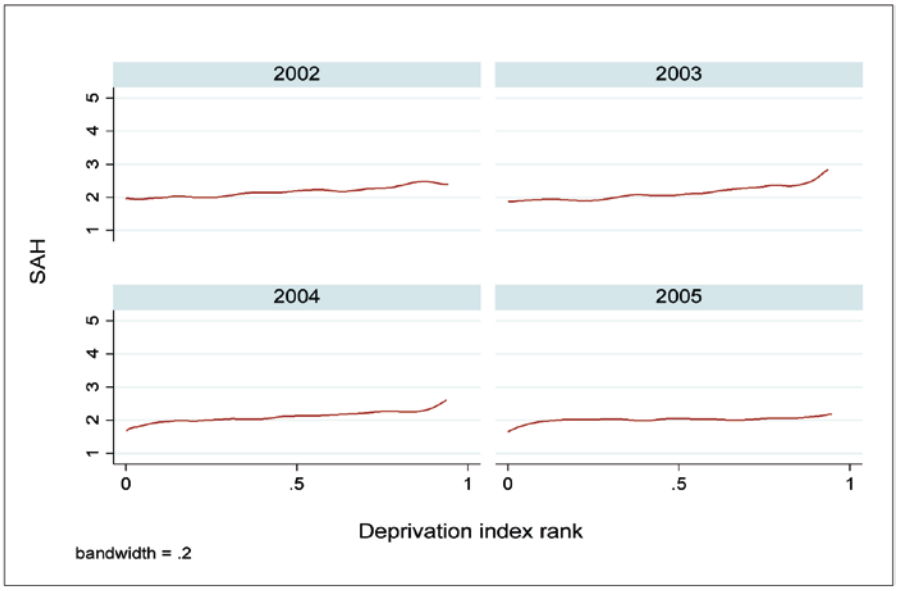


Source: ALSMS 2002–2005.

Next the authors consider the relationship between health and nonmonetary SES indicators. There are certain advantages to the latter: they tend not to present problems of misreporting, are available and perfectly comparable across the four years of the ALSMS data and allow representing the individuals' socioeconomic profile from a different (nonmonetary) point of view.

Fig. 4.3 confirms the expected positive monotonic relationship between health and the deprivation index. The slope of the relationship seems steeper than that observed for income with a higher gradient at the bottom of the distribution. The relationship is the same in the four years and using different health indicators (Appendix Fig. A.3 offers an example using chronic illness).

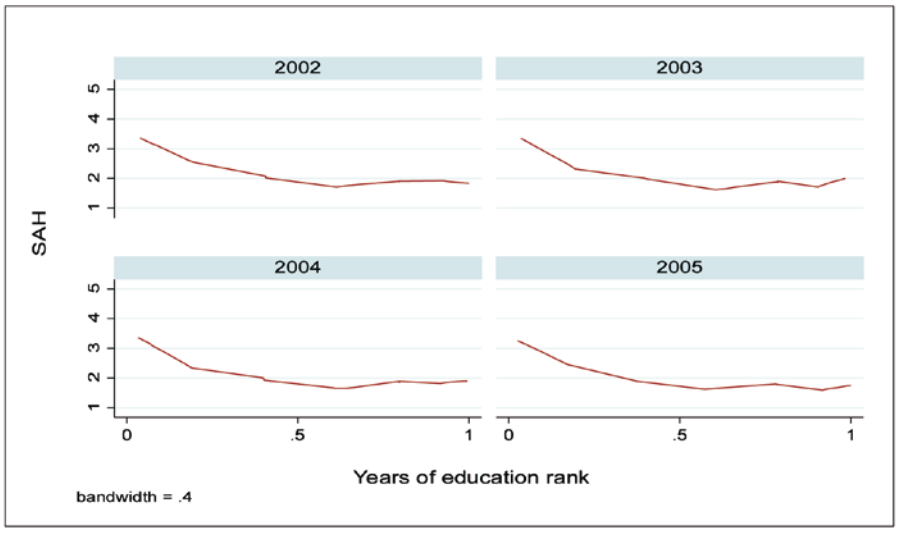
Fig. 4.3. Nonparametric, locally weighted regression of self-assessed health on deprivation index rank



Source: ALSMS 2002–2005.

Finally, Fig. 4.4 shows nonparametric, locally weighted regressions of health and years of education rank. It illustrates a strong positive relationship between education and health in all observed years. The same results are confirmed using chronic illness as the health indicator in Fig. A.4.

Fig. 4.4. Nonparametric, locally weighted regression of self-assessed health on years of education rank

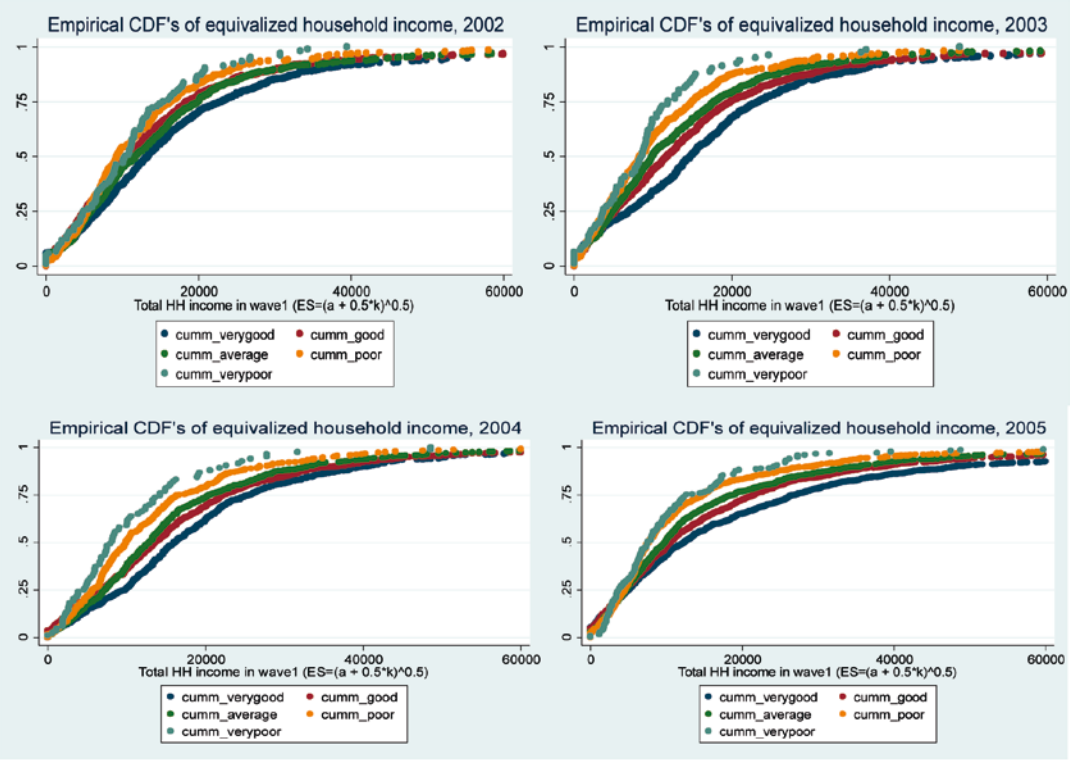


Source: ALSMS 2002–2005.

Another way of visualizing the income–health gradient is by plotting the empirical distribution function for income (in the form of cumulative density functions (CDFs)), split by levels of SAH. Each of these distributions was computed separately and then plotted on one graph. Moving from left to right across the graph allows a comparison of distribution of income across increasing levels of SAH. In the presence of a positive relationship between health and income, the authors would expect that the empirical distribution

functions would be located to the right for those in better health. This result is indeed observed in Fig. 4.5, which plots the equivalized real income for the different categories of SAH in different graphs for each year. However, at low-income levels the expected hierarchy among CDF curves is not always respected. This is particularly evident in the graph for 2002, when the income CDF of those in very poor health overlaps with that for those in better health. This finding is again consistent with the idea of misreported income found in 2002 compared to income observed in the following two years (Pudney & Francavilla, 2006).

Fig. 4.5. Empirical CDFs of mean equivalized income by self-assessed health status



Source: ALSMS panel 2002–2004.
Note. "HH" stands for household; "ES" stands for equivalence scale; "cumm_verygood" stands for cumulative density function of income by SAH very good (and accordingly for "cumm_good", "cumm_average", "cumm_poor", and "cumm_verypoor").

5. Did socioeconomic inequalities in health increase from 2002 to 2005?

In previous sections this report assessed the relationship between health and different measures of living standards (income, consumption, deprivation index and education) in each year observed. This section attempts to explain how this relationship changed over the period. This task is particularly challenging since the variation in heath socioeconomic inequality over time turned out to be the joint result of variations in economic and social conditions and health.

The income-related gradient and the consumption-related gradient are summarized in Tables 5.1 and 5.2 using as a measure of relative inequality a simple ratio of the prevalence of heath limitation (that is, SAH and chronic illness) in the first and fifth quintiles of the income and consumption distributions. The two extreme quintiles would be expected to reflect the extremes of the distributions for each quintile.

Both income and consumption show a lower level of income-related and consumption-related inequality in 2002 than in 2005 for both measures of health, suggesting increasing inequality in the more recent year. However, the income figures do not suggest a clear trend in the four years: the highest inequality appears in 2003. Interestingly, both tables suggest the same pattern in the years on the basis of health inequality: 2002-2004-2005-2003 (from the lowest to the highest).

Table 5.1. Measure of income-related inequality

SES: income	Poor and very poor health				Chronic illness			
	2002	2003	2004	2005	2002	2003	2004	2005
1st to 5th quintile ratio	1.12	1.60	1.36	1.39	1.16	1.66	1.18	1.28

Source: ALSMS 2002–2005.

As expected, income-related inequality is lower than consumption-related inequality for the years in which consumption expenditures are observable. This evidence is a consequence of the misreported income in the lower income quintile. Some people reported in that quintile have higher income and should be recorded in higher quintiles. Given the negative relationship between income and health limitation, their presence in the first quintile turns down the proportion of people with health problems in the numerator, resulting in a lower income-related ratio.

Table 5.2. Measure of consumption-related inequality

SES: consumption	Poor and very poor health		Chronic illness	
	2002	2005	2002	2005
1st to 5th quintile ratio	1.37	1.60	1.38	1.48

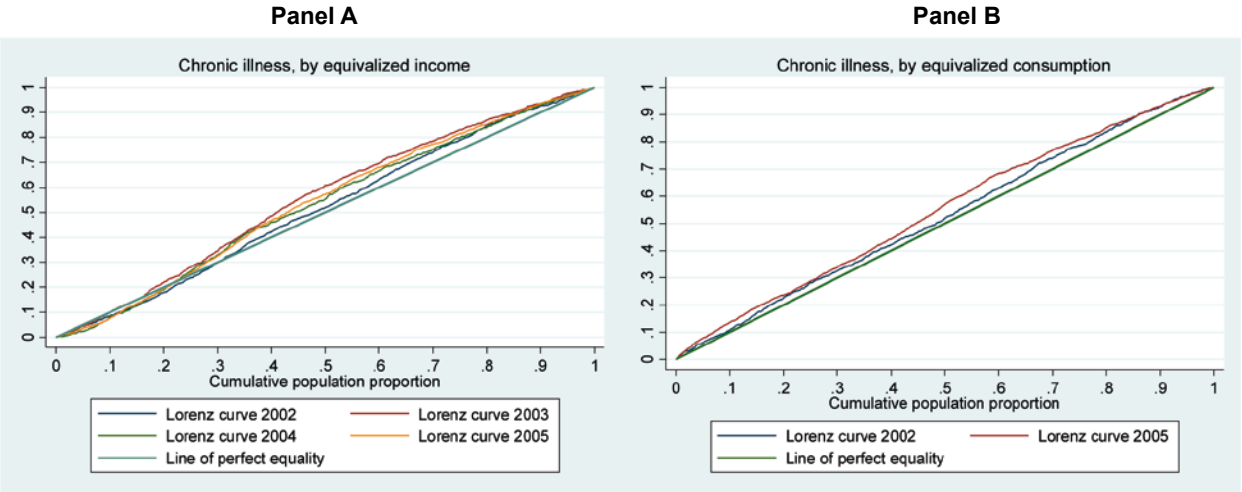
Source: ALSMS 2002–2005.

A more accurate tool to measure inequalities across the entire distribution of living standards is the "concentration curve", which displays the share of health accounted for by cumulative proportions of individuals in a population ranked from poorest to richest (Kakwani, 1997; Kakwani, Wagstaff & van Doorslaer, 1997; Wagstaff, Paci & van Doorslaer, 1991). In principle the concentration curve can be used to assess inequality in any variable of interest. The concentration index allows comparing differences in inequality across time and countries. In the research on health inequality, for example, this index has been used to assess inequality in subsidies to the health sector (O'Donnell et al., 2007; Sahn & Younger, 2000), to assess inequality in child mortality among countries (Wagstaff, 2000) and to assess inequality in adult health among countries (van Doorslaer et al., 1997). This analysis used concentration curves to assess how inequalities in adult health in Albania changed from 2002 to 2005.

The concentration curve depicts the distribution of the health variable with respect to a variable capturing SES. Here the study examines the distribution of individuals who reported chronic illness in the last three months among the four dimensions of SES (consumption, income, deprivation index and education). The use of living standard measures at the individual level allows the authors to depict a detailed, graphical representation of the health status distribution among individuals.[4] Concentration curves for the same variable (that is, chronic illness) and different measures of living standards (consumption, income, deprivation index, education and age) were computed for different years (from 2002 to 2005) and plotted, for each SES measure, on a single graph in order to make visible variations in Albania's health inequality across years. The line of equity is a 45-degree line running from the bottom left-hand corner to the upper right-hand corner and represents the case in which everyone, irrespective of his/her living standard, experienced exactly the same value in the chronic illness variable. For SES measures that are inversely related to chronic illness (that is, income, consumption and education), the concentration curve will lie above (below) the line of equality whenever chronic illness is more (less) prevalent among poorer people. On the contrary, for SES measures directly related to chronic illness, the concentration curve will lie below (above) the line of equity, when chronic illness is more (less) common among poorer SES groups.

[4] The living standard measure can be at the individual level (e.g. household per-capita income) or at a grouped level (e.g. income quintiles). In the former, values of both the health variable and the living standards variable are available for each observation (individual), whereas in the latter the ranking of the group is derived from the percentage of the sample falling into each group.

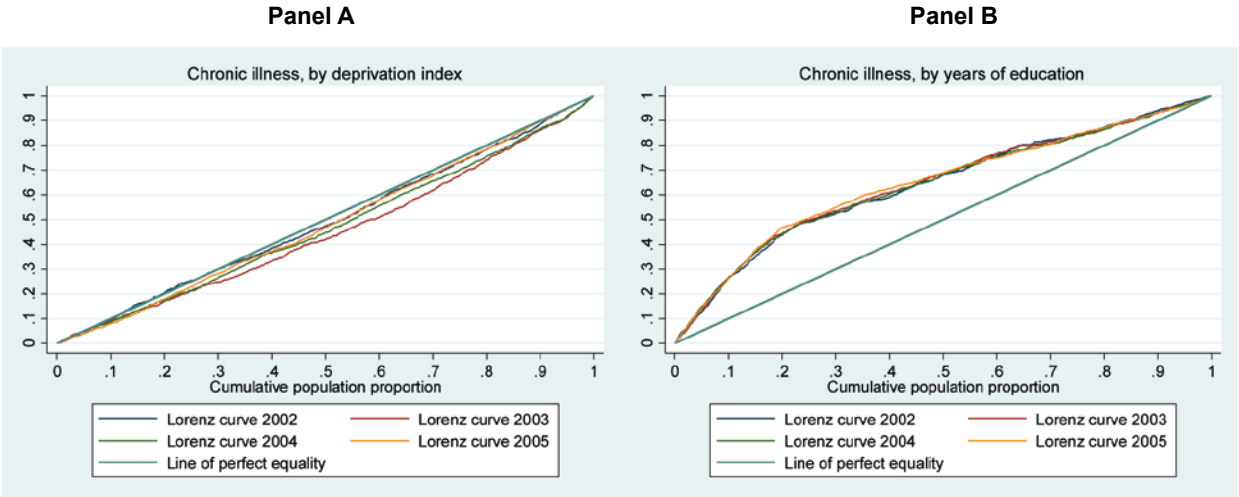
Fig. 5.1. Lorenz curves by equivalized income and equivalized consumption



Source: ALSMS 2002–2005.

Fig. 5.1 confirms that chronic illness is more prevalent among the poorest people, i.e. people with lower income (Panel A) and lower consumption (Panel B) report a higher percentage of chronic illness than those with higher income or consumption. This is observed for the four years for which there is information on income in the ALSMS and for the two years for which consumption data are available. The income distribution, however, suggests a pro-poor distribution for the first two deciles at the beginning of the distribution. As discussed above, this evidence must be interpreted with caution, keeping in mind that at least some households reported in the poorest deciles misreported their income (Pudney & Francavilla, 2006).

Fig. 5.2. Lorenz curves by deprivation index and years of educatio



Source: ALSMS 2002–2005.

Fig. 5.2 also shows that people with a higher deprivation index (Panel A) and less education (Panel B) are more likely to report chronic illness.

The comparison of concentration curves across years also allows for an assessment of the trend in health inequalities in the observed period. If the curve for one period lies everywhere above all other curves, the former curve is said to “dominate” the rest, and the ranking by degree of inequality is unambiguous. Alternatively, curves may cross, in which case neither distribution dominates the other. It is then still possible

to make comparisons of degrees of inequality but only by resorting to a summary index of inequality, which inevitably involves the imposition of value judgments concerning the relative weight given to inequality arising at different points in the distribution. Rankings by degree of inequality can then differ depending on the inequality index chosen.

In the case of Albania, the comparison across time is challenged by the fact that distributions are not drastically different across years. Asserting unambiguously that one year dominates another in terms of inequality is only possible if the concentration curve of the first year lies everywhere further from the equity line than the second year. This is the case in Fig. 5.1 (Panels A and B if the first two deciles of the income distribution are disgregarded), in which the 2002 curve dominates the following years. This suggests a higher inequality in chronic illness for individuals with different levels of income and consumption in the most recent years with respect to the first year of observation. In other words, the poorest report a higher proportion of chronic illness in 2003, 2004 and 2005 with respect to 2002, indicating a worsening in health equity according to these monetary dimensions of living standard and the deprivation index. This result is consistent with that reported in Tables 5.1 and 5.2. Moreover, if the first deciles are disgregarded, Fig. 5.1 Panel A suggests the same order in the four years, from the lower inequality in 2002 followed by higher inequality in 2004, 2005 and 2003.

The distribution of health by education across years is roughly the same, suggesting that there was no increase in socioeconomic inequalities in health when SES was measured by education in the recent years (Fig. 5.2, Panel B). Nevertheless, education is an important dimension in the understanding of health inequality, and people with the lowest level of education remain strongly disadvantaged compared with those at higher levels.

6. Transition between health statuses

This section aims to explain the determinants of SAH in a dynamic framework. This framework allows the authors to address such questions as: Does a person's health status or state remain constant over time, or is it likely to improve or worsen? Do individuals in very poor health have any chance of reaching good or very good health, or do they improve their health conditions only slightly (for example, do they move only from the very poor to the poor health category)? Why do some individuals experience persistently good health, while others experience persistently poor health? How is persistence in bad health associated with SES?

To answer these questions, the authors had to restrict their sample to three years of the ALSMS panel (2002–2004), since they had to follow the same individuals over time. They used a balanced sample of respondents, for whom information on all the required variables was reported every year. In this sense, the analysis treats the sample as a cohort consisting of all those present in the first year (2002). To be included in the analysis, individuals had to be the "original sample members" who were aged 15 or over and who provided a valid response for the health measures at the first year.

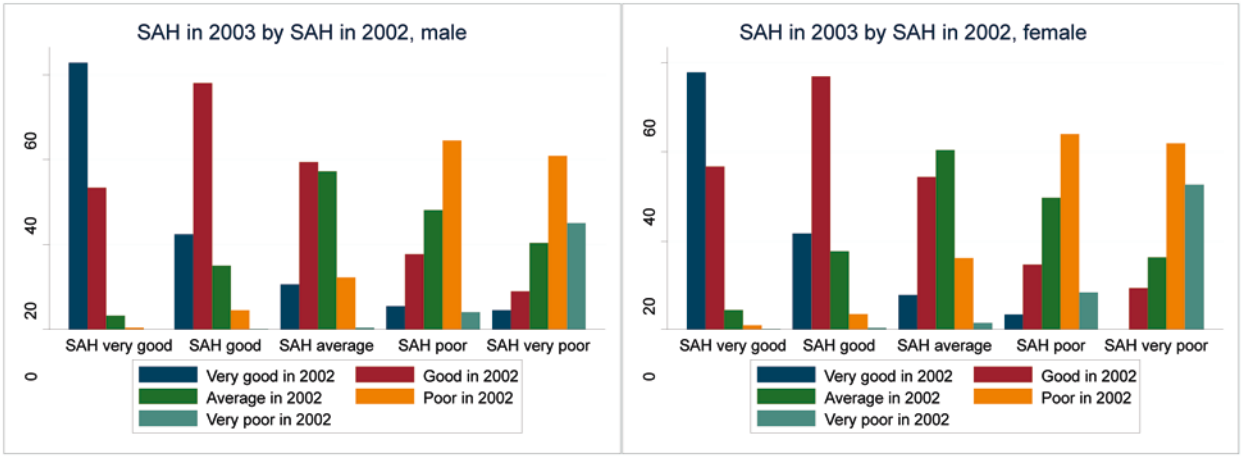
6.1 Descriptive analysis of health state dependence

How does health status in the previous year affect current health status in the adult Albanian population? This section addresses this question using a descriptive approach that provides a picture of people's mobility across different health states, disregarding the effect of other characteristics, such as individual and socioeconomic characteristics. The descriptive approach aims to inform about the health state dependence observed across a population. The role that individual and socioeconomic characteristics may play in explaining health state dependence is studied in the following subsection.

A graphic representation of health transition between 2002 and 2003 and between 2003 and 2004 is shown in Fig. 6.1 and. 6.2, respectively, by plotting the distribution for reported SAH split by levels of SAH in the previous year. The graphs refer to an SAH measure that classifies individuals into the five health categories used above. Thus, the horizontal axis in Fig. 6.1 shows the health category declared in 2003 and the bar height refers to the health status in 2002. In the same way the horizontal axis in Fig. 6.2 shows the health category reported in 2004 and the bar height refers to the health status in 2003. Both figures show

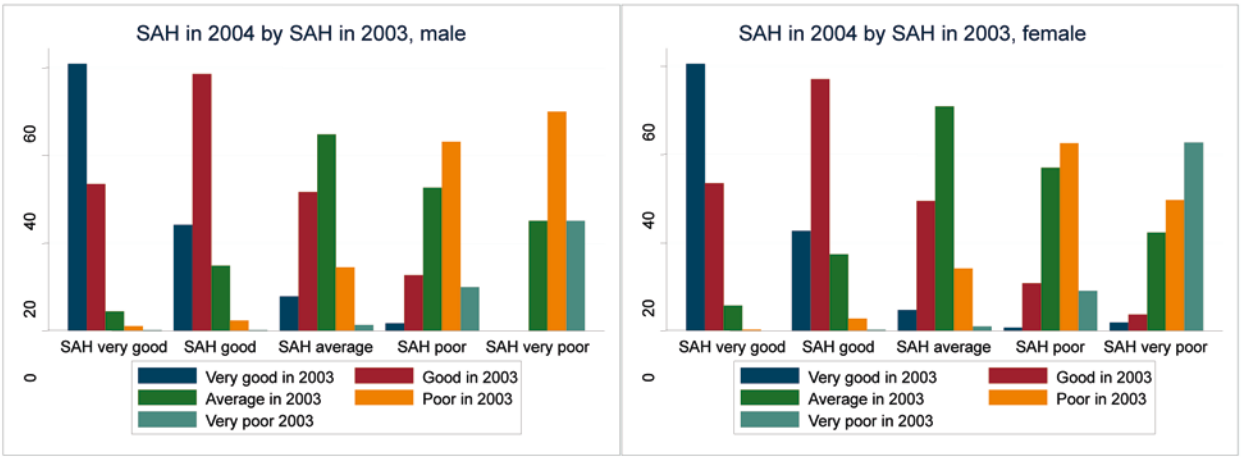
persistence in health outcomes. Health persistence is particularly strong for people in very good health: their probabilities of moving to very poor health are almost zero. On the other hand, persistence is lower for people in very poor health, for which, although moving to good or very good health is almost zero, persistence in very poor health is much lower than that in all the other states.

Fig. 6.1. Self-assessed health in 2003, by self-assessed health in 2002 and gender



Source: ALSMS panel 2002–2004.

Fig. 6.2. Self-assessed health in 2004, by self-assessed health in 2003 and gender



Source: ALSMS panel 2002–2004.

To better investigate the dynamics of health and its state dependence, the authors report transition matrices by gender. This is a common approach adopted from the early literature on earnings and income mobility (for example, Shorrock, 1978). Transition matrices for men and women in urban and rural area are presented in Table 6.1 for the transition between 2002 and 2003 and in Table 6.2 for that between 2003 and 2004. Here the row indicates the previous health state while the columns indicate the current state. Mobility can be assessed by considering the relative magnitudes of the diagonal elements and those close to them. The strong degree of persistence in SAH shows up in the high probabilities on or close to the diagonal and the lower probability farther from the diagonal.

The figures confirm evidence of persistence in SAH in the three years, especially for those who declare very good or good health. For instance, among individuals who reported very good health in 2004, more than 60% were in very good health the year before; the remaining 40% reported worse health than in the previous year (Fig. 6.2 and Table 6.2). No substantial gender differences exist in the extent of this persistence. These percentages are roughly the same when health between 2003 and 2002 is compared. Among individuals who report good health, the number whose health improved or worsened was about equal. Again, this result is confirmed for all the years and for men and women.

Table 6.1. Transition in SAH from 2002 to 2003, row percentages

SAH in 2003	Male					Female				
	SAH in 2002					SAH in 2002				
	Very good	Good	Average	Poor	Very poor	Very good	Good	Average	Poor	Very poor
Very good	62.85	33.39	3.27	0.49	0	57.83	36.57	4.45	0.99	0.16
Good	22.28	58.01	15.09	4.52	0.10	21.49	56.93	17.72	3.49	0.38
Average	10.63	39.37	37.20	12.32	0.48	7.79	34.22	40.3	16.16	1.52
Poor	5.48	17.81	28.08	44.52	4.11	3.43	14.64	29.60	43.93	8.41
Very poor	4.55	9.09	20.45	40.91	25.00	0	9.30	16.28	41.86	32.56
Total	29.92	43.95	16.95	8.27	0.91	24.67	41.32	20.68	11.22	2.11

Source: ALSMS 2002–2003.

Table 6.2. Transition in SAH from 2003 to 2004, row percentages

SAH in 2004	Male					Female				
	SAH in 2003					SAH in 2003				
	Very good	Good	Average	Poor	Very poor	Very good	Good	Average	Poor	Very poor
Very good	60.92	33.44	4.43	1.07	0.15	60.54	33.44	5.71	0.32	0
Good	24.12	58.52	14.86	2.39	0.10	22.52	57.14	17.41	2.74	0.19
Average	7.82	31.54	44.74	14.56	1.35	4.73	29.00	50.85	14.18	0.95
Poor	1.66	12.71	32.60	43.09	9.94	0.70	10.80	36.93	42.51	9.06
Very poor	0	0	25.00	50.00	25.00	1.85	3.70	22.22	29.63	42.59
Total	30.29	42.12	18.36	7.86	1.37	25.33	39.21	23.73	9.54	2.19

Source: ALSMS 2003–2004.

More interestingly, individuals who reported average health in 2004 and 2003 tended to see their health deteriorate with respect to the previous year. The proportion of individuals reporting better health in the previous year is, both in 2003 and 2004, greater than the proportion of people who reported worse health. This result is confirmed with higher evidence for individuals who in 2004 and 2003 reported poor (very poor health): the percentage of individual with better health in the previous year is largely higher than the percentage of individuals who reported worst health (same health).

Persistence in very poor health was higher for adult females than males. Women with very poor health in 2002 and 2003 were 33% and those with very poor health in 2003 and 2004 were 43%. Figures are lower for men, with 25% of men in very poor health both in 2002 and 2003 and in 2003 and 2004.

Table 6.3 reports the proportion of people with above-average health in 2002 who declared worse health in the following two years and the proportion of those whose health condition didn't change. People with good or very good health in the three years were about 77%. However, 8% declared worse health in the two following years, and more than 15% reported worse health in at least one of those years.

Table 6.3. Transition in health for those with above-average SAH in 2002

Transition	Frequency	%
Worse health in 2003 and 2004	783	8.02
Worse health in 2003	651	6.67
Worse health in 2004	846	8.67
No change in health	7 479	76.64
Total	9 108	100

Source: ALSMS 2002–2004.

Similarly, Table 6.4 shows the proportion of people with worse than average health in 2002 who improved their health in the two following years and those who, instead, reported poor and very poor health for the three years: 35% reported poor and very poor health in all three years, indicating greater mobility from the worst health state to the better ones, rather than vice versa.

Table 6.4. Transition in health for those with below-average SAH in 2002

Transition	Frequency	%
Improved health in 2003 and 2004	594	35.74
Improved health in 2003	168	10.11
Improved health in 2004	309	18.59
No change in health	591	35.00
Total	1 494	100

Source: ALSMS 2002–2004.

Table 6.5 reveals the associations between SAH and socioeconomic characteristics, showing the average characteristics of people who report persistence in good or poor health. Not surprisingly, those who are always in very good or good health on average are younger and better educated and have higher income and work participation rates than those in the other group. This pattern is commonly observed in the study on heath and SES (for example, in Jones et al., 2007).

Table 6.5. Characteristics of people who reported persistence in good or bad health in 2002–2004

Characteristic	Above-average SAH		Below-average SAH	
	Mean	SD	Mean	SD
Characteristics (%)				
Male	50	50	35	48
Age (years)	33	12	63	15
Married	67	47	57	50
Widowed	1	10	34	47
Divorced/separated	1	7	1	8
Never married	32	47	9	28
Ethnicity: Albanian	99	10	97	17
Religion: Muslim	78	42	76	43
Education (%)				
Not educated	0	6	36	48
Primary	56	50	49	50
Vocational	14	35	9	29
Secondary general	21	40	4	18
University or higher	9	28	2	15
Household characteristics (%)				
Household size (number)	4.91	1.82	3.79	1.98
Children aged 0–2	0.23	0.48	0.11	0.35
Children aged 3–6	0.34	0.59	0.19	0.44
Children aged 7–10	0.34	0.58	0.20	0.45
Children aged 10–14	0.41	0.63	0.24	0.48
Adults	3.60	1.44	3.07	1.32
Employment (%)				

Employee	26	44	1	12
Self-employed	10	30	1	8
Farm worker	30	46	11	31
Geographic areas (%)				
Urban	54	50	42	49
Coastal	26	44	29	46
Central	43	49	49	50
Mountain	12	32	13	33
Tirana	20	40	8	28
Income (Leks)				
Real monthly household income	38 555	70 426	18 185	18 121
Real monthly household equivalized income	19 254	37 278	9 690	8 398
Health (%)				
Chronic illness	1.67	12.82	96.11	19.36
SAH: very good	45.22	49.77	0	0
SAH: good	54.78	49.77	0	0
SAH: average	0	0	0	0
SAH: poor	0	0	76.65	42.34
SAH: very poor	0	0	23.35	42.34
Total observations	7 479		591	

Source: ALSMS 2002–2004.
Note. "SD" is standard deviation.

6.2 Estimation model for ordinal outcome in SAH

While the previous part of this describes the level of health state dependence across time looking separately at males and females, this part aims to identify the individual and socioeconomic characteristics that are correlated with health status across time. The aim is to determine whether health persistence is because people with health problems in the previous years have a higher probability of reporting health problems in the current years (state dependence) or whether health persistence is more related to the individuals' characteristics, such as age, gender, marital status, education and economic condition (individual heterogeneity). In other words, do people experience long-lasting health conditions because of the nature of their health issue or because their individual and socioeconomic circumstances, which predispose them to poor health, exacerbate over time?

To answer this question, the authors developed a multivariate model investigating the contribution of state dependence, i.e. how a health condition in previous years affects health in the following years, and individual heterogeneity, i.e. the role of individuals' characteristics in the explanation of health dynamics. In contrast to the descriptive analysis presented before, the multivariate model allowed the authors to control for other variables when ascertaining the effect of previous health status. Again, they modelled the dynamics of SAH using the three waves of the ALSMS panel.

Technically speaking, individual SAH represents an ordinal variable in the ALSMS. An "ordinal" variable is one that is categorical and ordered, in this case from very poor health to very good health. The statistical tool used to estimate the relationship between an ordinal dependent variable and a set of independent variables is the "ordered probit model". The underlying idea of this model is that the "real value" of the individuals' health is not observable, but the category of their health (for example, very poor, poor) is known. In the ordered probit model, the probability of observing an individual reporting a specific health category (for example, very poor) corresponds to the probability that the estimated linear function, plus random errors, is within the range of the cut points estimated for the same category. Following the approach used by Contoyannis, Jones & Rice (2004), the authors modelled self-reported health with a dynamic panel

ordered probit specification on the balanced panel used in the previous sections. This section discusses the main findings of the estimation using ALSMS panel data. A more formal presentation of the dynamic panel ordered probit model is reported in the Appendix 2.

Table 6.6 presents the estimated coefficient for the ordered probit model based on random effects specifications for the entire, balanced panel sample and for the men and the women samples. These are obtained by using Stata10 "reoprob" command, where time dummies (not shown) within-individual averages of time-varying regressors on demographic household characteristics and SES (not shown) and a vector of dummy variables to represent the first-period observations on the dependent variables (Verygood1, Average1, Poor1, Verypoor1) are included as explanatory variables. To test for state dependence, the authors also include dummy variables representing a one-period lag of the categories of the dependent variable (Verygood_1, Average_1, Poor_1, Verypoor_1).

Table 6.6. Dynamic, ordered probit models

Variables	All	Male	Female	Variables	All	Male	Female
Male	0.254***			Urban	0.087**	0.101*	0.071
	(0.035)				(0.042)	(0.060)	(0.058)
Age	-0.111**	-0.176*	-0.105	Coastal	0.110*	0.178**	0.050
	(0.056)	(-0.090)	(0.075)		(0.056)	(0.0813)	(0.079)
Age2	0.263	0.557*	0.188	Central	-0.008	0.061	-0.075
	(0.184)	(0.303)	(0.243)		(0.054)	(0.078)	(0.075)
Age3	-0.408	-0.887**	-0.257	Mountain	-0.164**	-0.110	-0.213**
	(0.251)	(-0.424)	(0.327)		(0.070)	(0.101)	(0.098)
Age4	0.224*	0.483**	0.134	Verygood1	0.718***	0.738***	0.677***
	(0.121)	(0.209)	(0.155)		(-0.068)	(0.098)	(0.094)
Married	-0.003	0.021	-0.0126	Average1	0.406***	0.330***	0.468***
	(0.051)	(0.092)	(0.065)		(-0.061)	(0.086)	(0.086)
No Albanian	-0.348**	-0.220	-0.448**	Poor1	0.936***	0.832***	0.998***
	(0.147)	(-0.208)	(0.208)		(-0.100)	(0.153)	-0.134
No Muslim	0.124***	0.125**	0.125**	Verypoor1	1.433***	1.281***	1.520***
	(0.041)	(0.060)	(0.056)		(-0.184)	(0.258)	(0.264)
Primary	0.220***	0.384***	0.14	Verypoor1	0.118*	0.143	0.099
	(0.078)	(0.124)	(0.103)		(0.061)	(0.087)	(0.084)
Vocational	0.376***	0.463***	0.358***	Verygood_1	-0.0958*	-0.096	-0.093
	(0.092)	(0.138)	(0.128)		(0.056)	(0.082)	(0.077)
Secondary general	0.457***	0.584***	0.393***	Average_1	0.363***	0.437***	0.316***
	(0.092)	(0.142)	(0.125)		(0.091)	(0.130)	(0.122)
University	0.484***	0.525***	0.531***	Poor_1	0.767***	0.863***	0.693***
	(0.103)	(0.149)	(0.152)		(0.167)	(0.256)	-0.226
Number of children < 2 years	0.369	0.499	0.237	Verypoor_1	-0.363	-0.428	-0.299
	(0.314)	(0.446)	(0.446)		(0.317)	(0.450)	-0.449
Number of children 3–6 years	0.008	0.269	-0.102	Cut1	-6.327**	-6.412**	-6.87**
	(0.375)	(0.535)	(0.531)		(0.628)	(0.981)	(0.835)
Number of children 7–10 years	0.354	0.431	0.259	Cut2	-4.666**	-4.715**	-5231**
	(0.494)	(0.693)	(0.707)		(0.620)	(0.967)	(0.835)

Number of children 11–14 years	0.224	0.249	0.231	Cut3	-3.227*	-3.399**	-3.692*
	(0.275)	(0.417)	(0.367)		(0.615)*	(0.960)	(0.827)
Household size	-0.025	0.022	-0.070	Cut4	-1.243	-1.439**	-1.683**
	(0.041)	(0.059)	(0.057)		(0.610)	(0.952)	(0.820)
Income	0.018*	0.014	0.022*				
	(0.009)	(0.014)	(0.012)	ICC	0.338	0.311**	0.352**
Deprivation index	-1.361***	-1.072***	-1.574***		(0.030)**	(0.045)	(0.041)**
	(0.272)	(0.397)	(0.373)				
Log likelihood	-9074.823	-4155.551	-4896.423	Observations	9201	4271	4930

Source: ALSMS 2002–2005.
* significant at 10%; ** significant at 5%; *** significant at 1%.
Note. Standard errors in parentheses.

Cut1–Cut4 are the estimated cut points. N is number. ICC is the intraclass correlation coefficient, ICC=($\sigma_u^2/(1+\sigma_u^2)$.

The Wooldridge specification of correlated effects and initial condition holds (Wooldridge 2005). Coefficients for year dummies and within means variables are not reported.
Base category: married, not educated, good health, Muslim, Albanian and living in Tirana.

Focusing on health state dependence, results show a positive correlation between the initial period observation and the unobserved latent health. This is shown by the fact that there is a positive gradient in the estimated effect when moving from very poor to very good initial period health (that is, from Verypoor_1 to Verygood_1). These coefficients are statistically significant for the overall observation but also for the male and female subsamples regardless of the smaller number of observations.

There is also evidence of dependence in health status in the previous year (2003), but dependence is not statistically significant for very poor health in previous health status.[5] Moreover, the state dependence in men is bigger than in women.

Turning to the effect of individuals' observed and unobserved characteristics, for both men and women, educational attainment is statistically significant and positively correlated with higher health status. That is, a positive correlation exists between higher levels of education and better health status. Conditioning on the within-individual average of the income variable is statistically significant only for the overall population and for women (at 10%), whereas the deprivation index is statistically significant (at 1%) for both men and women despite the presence of the within-individual average of the deprivation index. This result is in line with what was observed in the descriptive analysis in the previous sections. Religion and ethnicity also enter as significant explanatory variables.

Looking at the unobservable heterogeneity, the estimation of the ICC shows that for men approximately 32% and for women approximately 36% of the latent error variance is attributable to unobserved individuals' heterogeneity. This is an indicator of the correlation in health status for the same individual across time due to his/her unobservable characteristics (for example, health-friendly behaviours).

The interpretation of the magnitude of the relationship between SAH and the regressors is not easy to interpret since it requires the ceteris paribus condition: in order to estimate the association between a variable and SAH, all the other variables would have to be held constant at a determinate value.

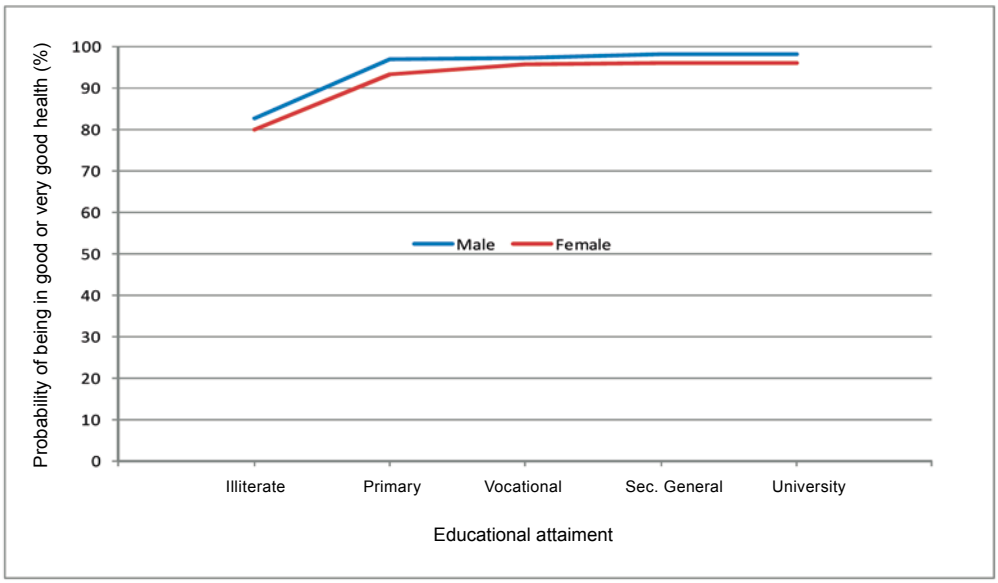
To appreciate the multivariate analysis, the authors focused on the contribution of two socioeconomic variables that prove to be highly correlated with health status and statistically significant at 1%: individuals' educational attainment and the deprivation index.

[5] These results may be affected by the fact that the authors observed only three years, and in their estimation they lost one year due to lagged variables.

To see how these variables affect the predicted probability of being in a specific health status (for example, good or very good health), the authors have to respect the ceteris paribus condition, that is, keep all the other individuals' covariates fixed at the baseline value. Fig. 6.3 and 6.4 show the estimated predicted probability of being in good and very good health for a Muslim Albanian living in Tirana, married, illiterate (when estimating the effect of deprivation index), belonging to a four-member household with one child aged 7–10 and another aged 10–14, with an average income and an average deprivation index (when estimating the effect of education).

Fig. 6.3 shows that the probability of being in good or very good health is strongly influenced by individuals' education, with people with a higher level of education more likely to be in better health. It is worth noting that illiterate people report a markedly lower probability of being in good or very good health compared to those with a primary education, showing the crucial role that basic education plays in the achievement of good health. Higher degrees of education beyond primary give a much lower marginal contribution to a better health status. Gender differences are observed, with women reporting a lower probability than men of being in good or very good health for all the educational levels.

Fig. 6.3. Predicted probability of being in good or very good health, by level of education

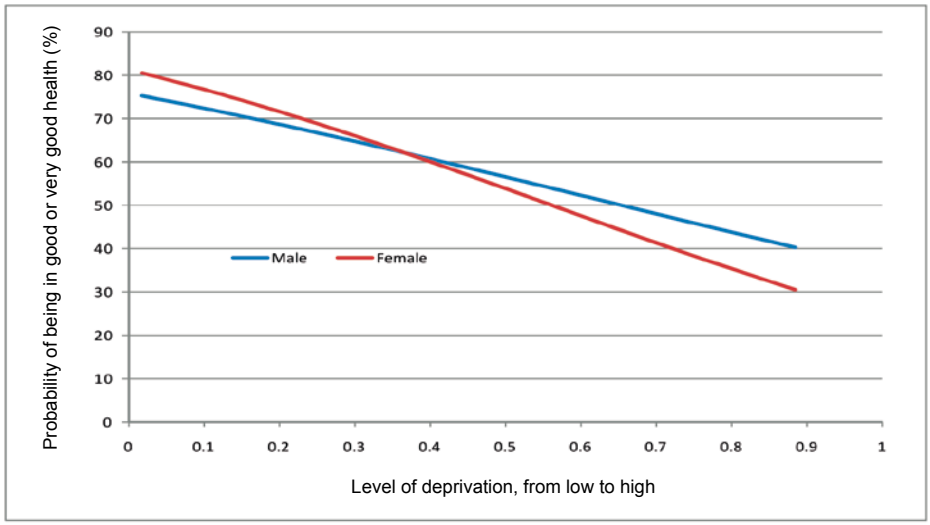


Source: ALSMS 2002–2005.
Note. The lines show the predicted probability of being in good or very good health for a hypothetical individual with the following characteristics held constant: a Muslim Albanian living in Tirana, married, belonging to a four-member household with one child aged 7–10 and another aged 10–14, with an average income and an average deprivation index.

Fig. 6.4 shows the plot of predicted probability of being in good or very good health against values of the deprivation index in the observed range, when the other covariates are at baseline values. Good and very good health is positively influenced by wealth: individuals who suffer higher deprivation levels (for example, their deprivation index is closer to value one) have a lower probability of being in good or very good health. Male and female chances of being in good or very good health differ slightly at very low and very high levels of deprivation, with women suffering more at higher deprivation levels.

The positive correlation observed between education levels and good health and the negative correlation observed between deprivation and good health shown in Fig. 6.3 and 6.4 respectively confirm results discussed in the descriptive analysis in the sections above. However, with the multivariate analysis performed in this section, the authors are confident that the effects observed are persistent after having controlled for all the other covariates.

Fig. 6.4. Predicted probability of being in good or very good health, by level of deprivation.



Source: ALSMS 2002–2005.
Note. The lines show the predicted probability of being in good or very good health for a hypothetical individual with the following characteristics held constant: a Muslim Albanian living in Tirana, married, illiterate, belonging to a four-member household with one child aged 7–10 and another aged 10–14, and with an average income.

7. Concluding remarks

This report was stimulated by:

- the uncertainty of what actually happened to overall population health during a period of strong economic growth in Albania; and
- the growing interest in and concern over health equity in Europe.

The authors used a remarkably comprehensive source of information, the ALSMS from 2002 to 2005, which to the best of their knowledge has so far been underutilized from a health and even more so from a health equity perspective.

They started by using the health information contained in this survey to first track the evolution of overall health, measured in terms of various self-reported adult morbidity indicators. Using this information was motivated by the need to complement existing data on mortality, for which existing data on trends and levels differ by data source. The authors found that most, but not all health indicators pointed to an improvement in health. Hence, they concluded that the fast economic growth observed was probably not bad for health in Albania. This contrasts with other research suggesting that exceptionally fast economic growth can sometimes be harmful to health, at least in the short run.

The authors then moved on to track the degree and evolution of the socioeconomic inequalities in health. A priori it was difficult to hypothesize what might have happened to health inequity during this period, not least because many factors do affect health inequity. However, since income inequality was said to have remained broadly constant in this period, the authors expected no major change, at least as far as income-health inequalities were concerned. Their analysis showed that no simple conclusions can be drawn about the evolution of health inequity, partly because they used a range of socioeconomic indicators (income, consumption, deprivation index and education) as well as a range of health indicators.

For certain, though, the authors can conclude that significant gaps in adult health between the poor and the rich did (and may still) exist in Albania. This was shown irrespective of the choice of SES and health proxy and in every year from 2002 to 2005. They also note that income – as opposed to consumption, deprivation index and education – is likely not a very appropriate proxy for SES in Albania. It is harder to say whether health inequities have unambiguously increased over the observation period. The authors do however find

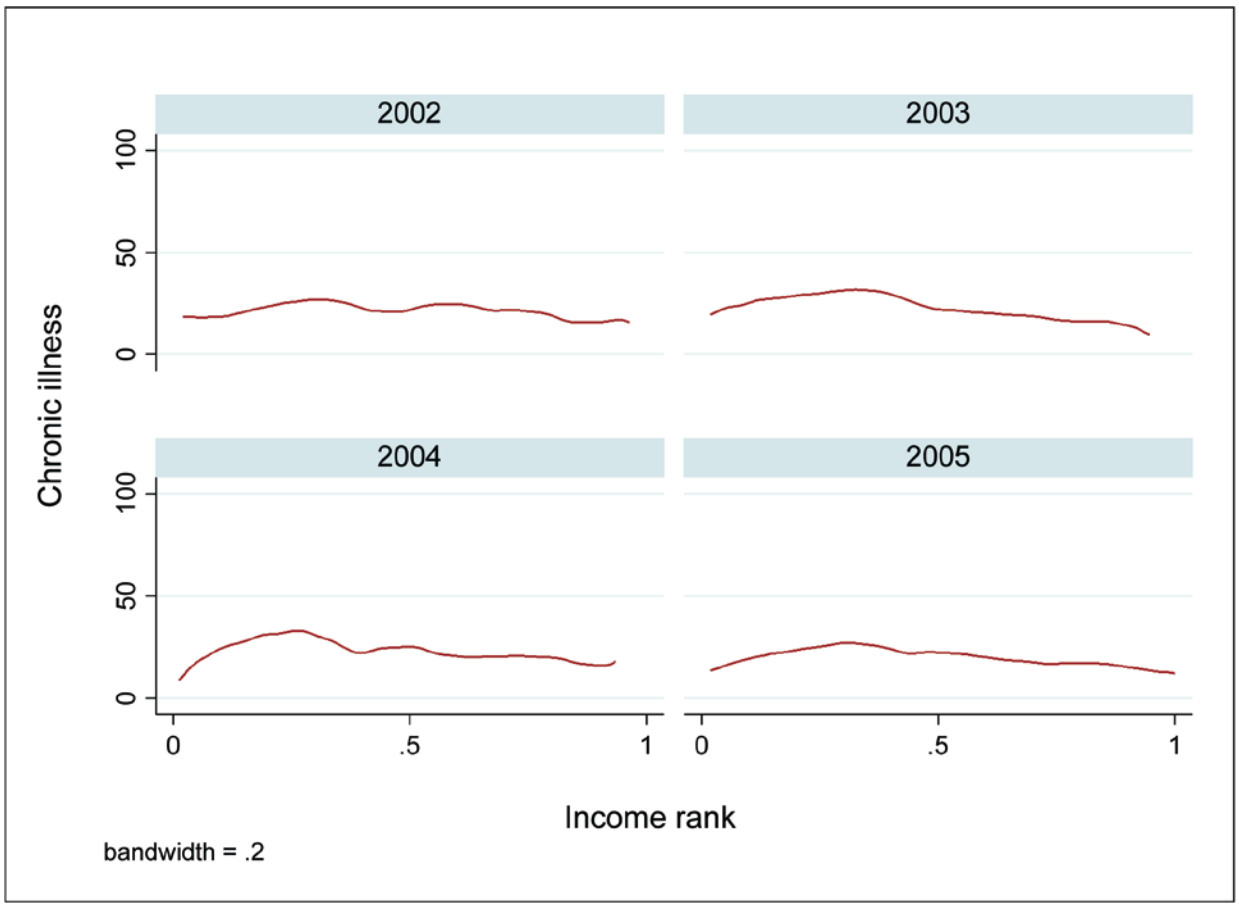
that as far as chronic illness is concerned, the degree of health inequity was bigger in 2003–2005 taken together than in 2002. It is hard, though, to discern the differences in health inequities between each of the years from 2003 to 2005.

What are the policy implications of these findings? While progress in average health in Albania, as the authors have measured it, is laudable, it is no reason for complacency. In light of the sizeable and in some cases perhaps even increased gaps in health between the rich and poor, more efforts should be undertaken to reduce the sizeable health inequality between the rich and poor.

The authors have shown that the causes of these health inequalities are largely driven by differences in SES. This suggests that while improving the access to and the quality of health care could certainly help reduce health inequities, health care alone is highly unlikely to be the sole or even the main factor that matters. Major international initiatives, especially the WHO Commission on Social Determinants of Health, have demonstrated the importance of the factors other than health care in determining health equity (Commission on Social Determinants of Health, 2008) and have outlined ways in which socioeconomic inequalities in health can in principle be reduced. To be relevant for Albania, this work must be taken to the Albanian context. More research with Albanian data, ideally more recent than what the authors had access to, is of course needed to help inform the policy debate and ultimately decision-making that would involve intersectoral collaboration to improve health and reduce health inequity. The present report may serve as an initial step in this direction, as well as a call for more research and action.

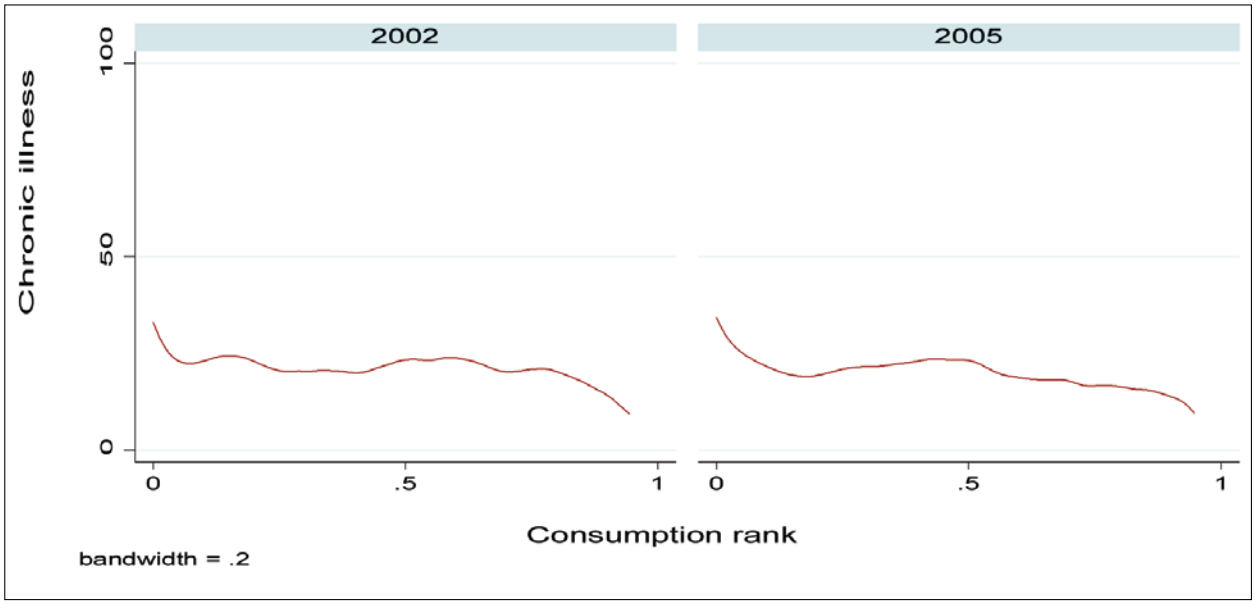
Appendix 1

Fig. A.1. Nonparametric, locally weighted regression of chronic illness on income rank



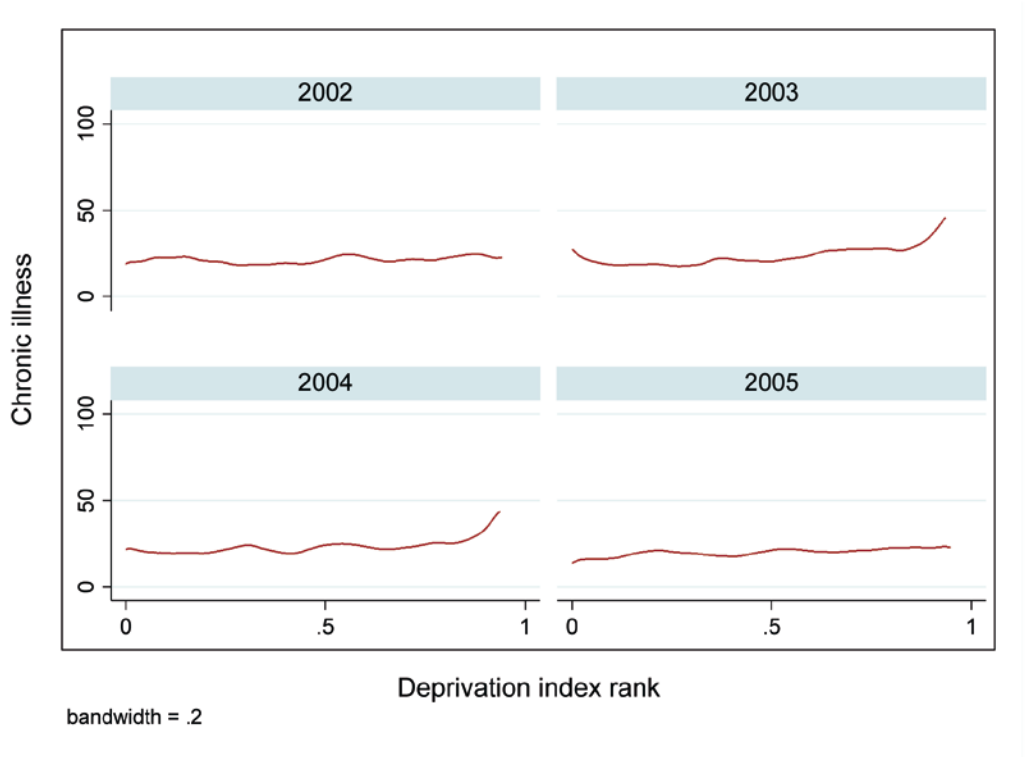
Source: ALSMS 2002–2005.

Fig. A.2. Nonparametric, locally weighted regression of chronic illness on consumption rank



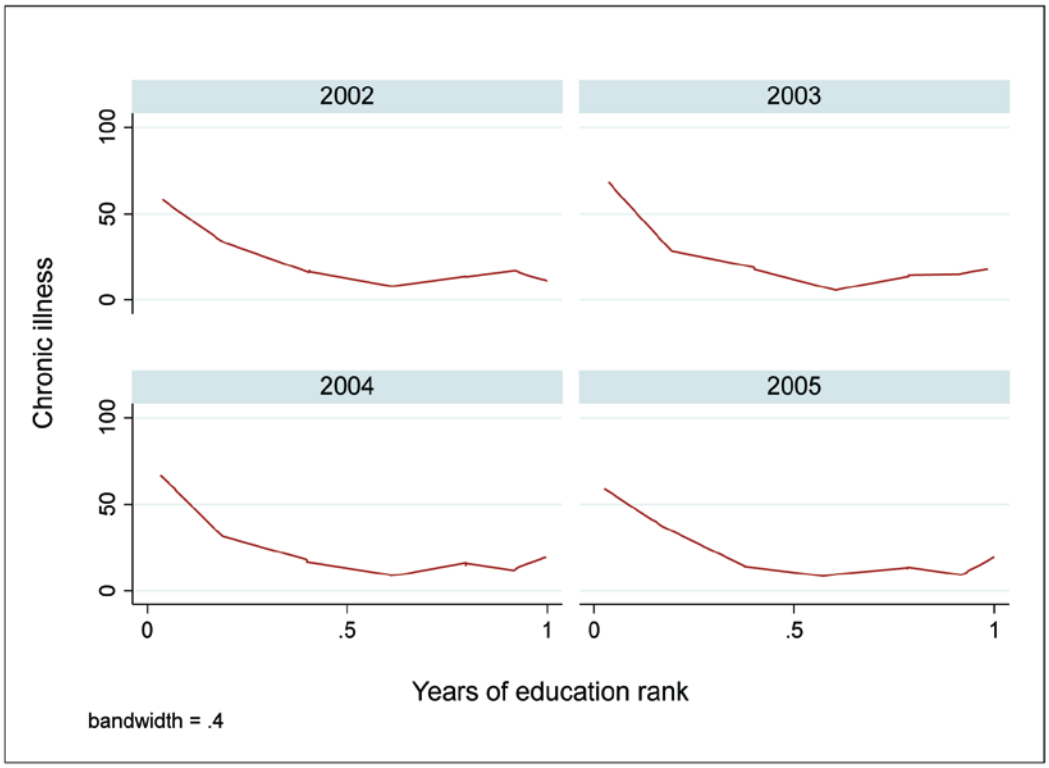
Source: ALSMS 2002–2005.

Fig. A.3. Nonparametric, locally weighted regression of chronic illness on deprivation index rank



Source: ALSMS 2002–2005.

Fig. A.4. Nonparametric, locally weighted regression of chronic illness on years of education rank



Source: ALSMS 2002–2005.

Appendix 2

This appendix characterizes the dynamic panel probit in greater detail than was done in the main text, which paid more attention to findings.

The latent variable specification of the self-assessed model ranks from $-\infty$ to $+\infty$ and can be written as:

$$h_{it}^{*} = \beta' x_{it} + \gamma' h_{it-1} + \alpha_i + \varepsilon_{it} \quad (i=1, \ldots., N;\ t=2,3) \tag{1}$$

where x_{it} is a set of observed variables (characterizing individual *i* at time *t*) that may be associated with the health outcome, h_{it-1} is a vector of indicators for the individual's health state in the previous wave, α_i is an individual-specific and time-invariant random component, and ε_{it} is a time- and individual-specific error term that is assumed to be normally distributed, uncorrelated with α_i and uncorrelated across individuals and waves.[6] In addition ε_{it} is strictly exogenous, that is, the x_{it} is uncorrelated with ε_{it} for all *i* and *t*, and has variance equal to 1.

The latent outcome h_{it}^{*} is not observable in the data, but it is possible to observe the category in which the latent indicator falls. The observed measurement model divides h_{it}^{*} into *j* ordinal categories:
if

$$h_{it} = j \quad \text{if } \mu_{j-1} < h^{*}{}_{it} \le \mu_j, \quad j = 1,\ldots..,m \tag{2}$$

where $\mu_0 = -\infty$, $\mu_j \le \mu_{j+1}$ and $\mu_j = \infty$ and the cut points μ_1 through μ_{j-1} are estimated.

In this example possible responses are 1 = very poor health, 2 = poor health, 3 = average health, 4 = good health and 5 = very good health. The observed response categories are tied to the continuous latent variable by the following measurement model:

$$h_{it} = \begin{cases} 1 \Rightarrow very-poor & if \quad \mu_0 = -\infty \le h_{it}^{*} < \mu_1 \\ 2 \Rightarrow poor & if \quad \mu_1 \le h_{it}^{*} < \mu_2 \\ 3 \Rightarrow average & if \quad \mu_2 \le h_{it}^{*} < \mu_3 \\ 4 \Rightarrow good & if \quad \mu_3 \le h_{it}^{*} < \mu_4 \\ 5 \Rightarrow very-good & if \quad \mu_4 \le h_{it}^{*} < \mu_5 = +\infty \end{cases} \tag{3}$$

Given the assumption that the error term is normally distributed, the probability of observing the particular category of SAH h_{it} reported by individual *i* at time *t*, conditional on the regressor and the individual effect, is:

$$P_{itj} = P(h_{it} = j) = \phi(\mu_j - \beta' x_{it} - \gamma' h_{it-1} - \alpha_i) - \phi(\mu_{j-1} - \beta' x_{it} - \gamma' h_{it-1} - \alpha_i) \tag{4}$$

where $\phi(\cdot)$ is the standard normal distribution function.[7] Under the assumption that the individual effect density is $N(0, \sigma_\alpha^2)$, it is possible to integrate out the individual effect obtaining the sample log-likelihood function:

$$\ln L = \sum_{i=1}^{n} \left\{ \ln \int_{-\infty}^{+\infty} \prod_{t=1}^{T} (P_{itj})[1/\sqrt{2\tau\sigma_\alpha^2}\, \exp(-\alpha^2 / 2\sigma_\alpha^2)] d\alpha \right\} \tag{5}$$

[6] The dynamic model is estimated using data from wave 2003 due to the use of lagged, depended variables.
[7] As pointed out in Contoyannis, Jones and Rice (2004), the model described in equation (4) only indentifies $(\mu_j - \beta_0)$ and does not allow distinguishing the intercept in the linear index and the cut points. A conventional assumption to overcome this problem is to assume that $\beta_0 = 0$ In the same way, without other restrictions it is not possible to distinguish the individual effect α_i from an individual-specific cut point shift.

Function (5) can be approximate by the Gauss-Hermite quadrature. A random effects, ordered probit can be estimated by maximum likelihood using the Gauss-Hermite quadrature in STATA (see ado-file “reprob.ado”).

To estimate a dynamic model, the authors have to deal with the initial conditions problem. This concerns the fact that it is not possible to study a dynamic process from its starting point. In this case they were able to observe heath outcomes in Albania from 2002 even if this is not the true initial outcome of the process. Wooldridge (2002) has suggested an approach to handling the initial conditions problems in dynamic, nonlinear, unobserved-effect models by modelling the distribution of the unobserved effect conditional on the initial value and any exogenous explanatory variables. Following Contoyannis, Jones & Rice (2004) the authors parameterize the distribution of the individual effect as:

$$\alpha_i = \alpha_0 + \alpha_1' h_{i1} + \alpha_2' \bar{x}_i + u_i \qquad (6)$$

where x_i is the average over the sample period of the observations on the exogenous variables, and u_i is assumed to be distributed $N(0, \sigma_u^2)$ and independent of the x variables, the initial conditions and the idiosyncratic error term.

Substituting equation (6) in equation (1) gives a model with a random effects structure with, in addition to the regressors at time t, a vector of dummy variables h_{i1}, and x_i.

References

Adams P et al. (2003). Healthy, wealthy, and wise: tests for direct causal paths between health and socioeconomic status. *Journal of Econometrics*, 112:3–56.

Aleshina N, Redmond G (2003). *How high is infant mortality in central and eastern Europe and the CIS?* Florence, UNICEF Innocenti Research Centre (Innocenti Working Paper No. 95).

Arendt JN (2005). Does education cause better health? A panel data analysis using school reforms for identification. *Economics of Education Review*, 24:149–160.

Berthoud R, Bryan M, Bardasi E (2004). *The dynamics of deprivation: the relationship between income and material deprivation over time*. London, Department of Work and Pensions (Research Report No. 219).

Buckley NJ et al. (2004). The transition from good to poor health: an econometric study of the older population. *Journal of Health Economics*, 23:1013–1034.

Commission on Social Determinants of Health (2008). *Closing the gap in a generation: health equity through action on the social determinants of health*. Geneva, World Health Organization.

Contoyannis P, Jones AM, Rice N (2004). The dynamics of health in the British Household Panel Survey. *Journal of Applied Econometrics*, 19:473–503.

Deaton A (2003). Health, inequality, and economic development. *Journal of Economic Literature*, XLI:113–158.

Deaton A, Grosh M (2000). Consumption. In: Grosh M and Glewwe P, eds. *Designing household survey questionnaires for developing countries: lessons from 15 years of the living standards measurement study*. Washington, DC, World Bank, Vol. 1, 91–133.

Deaton A, Zaidi S (2002). *Guidelines for constructing consumption aggregates for welfare analysis.* Washington, DC, World Bank (Living Standards Measurement Study Working Paper No. 135).

Francavilla F, Mattei A (2009). Assessing the causal effect of childbearing on household income in Albania. In: Engelhardt H et al., eds. *Causal analysis in population studies: concepts, methods, applications.* Dordrecht, Springer:201–231 (The Springer Series on Demographic Methods and Population Analysis, Vol. 23).

Fritjers P, Haisken-DeNew JP, Shields MA (2005). The causal effect of income on health: evidence from German reunification. *Journal of Health Economics*, 24:997–1017.

Halliday TJ (2005). *Heterogeneity, state dependence and health*. Manoa, University of Hawaii at Manoa, Department of Economics (Working Paper No. 05–03).

Hendrik J (2007). *True health vs. response styles: exploring cross-country differences in self-reported health.* Berlin, Deutsches Institut für Wirtschaftsforschung (Diskussionspapiere No. 588; http://www.diw.de/documents/publikationen/73/diw_01.c.44377.de/dp588.pdf, accessed 28 August 2010).

Hurd M, Kapteyn A (2003). Health, wealth, and the role of institutions. *Journal of Human Resources*, 38:386–415.

IMF (2008). World Economic Outlook Database, version April 2008 [online database]. Washington, DC, International Monetary Fund (http://www.imf.org/external/pubs/ft/weo/2008/01/weodata/index.aspx, accessed 11 October 2010).

Jensen RT, Richter K (2003). The health implications of social security failure: evidence from the Russian pension crisis. *Journal of Health Economics*, 88:209–236.

Jones AM, Koolman X, Rice N (2006). Health-related non-response in the British Household Panel Survey and European Community Household Panel: using inverse-probability-weighted estimators in nonlinear models. *Journal of the Royal Statistical Society*, Series A (Statistics in Society), 169(3):543–569.

Jones AM, Rice N (2004). Using longitudinal data to investigate socioeconomic inequality in health. In: Smith PC, Sculpher M, Ginnelly L, eds. *Health policy and economics: opportunities and challenges.* Maidenhead, Open University Press.

Jones AM et al. (2007). *Applied Health Economics*. London, Routledge.

Kakwani N (1997). *Inequality, welfare and poverty: three interrelated phenomena.* Sydney, University of New South Wales (Discussion Paper No. 18).

Kakwani N, Wagstaff A, van Doorslaer E (1997). Socioeconomic inequalities in health: measurement, computation and statistical inference. *Journal of Econometrics*, 77(1):87–104.

Kerkhofs M, Lindeboom M (1997). Age related health dynamics and changes in labour market status. *Health Economics*, 6(4):407–423.

Lindahl M (2005). Estimating the effect of income on health and mortality using lottery prizes as an exogenous source of variation in income. *Journal of Human Resources*, 40:144–168.

Mackenbach JP et al. (2008). Socioeconomic inequalities in health in 22 European countries. *New England Journal of Medicine*, 23:2468–2481.

Marquez P et al. (2007). Adult health in the Russian Federation: more than just a health problem. *Health Affairs*, 26(4):1040–1051.

Meer J, Millar DL, Rosen HS (2003). Exploring the health–wealth nexus. *Journal of Health Economics*, 22:713–730.

Mendola M, Bredenkamp C, Gragnoliti M (2007). *The impoverishing effect of adverse health events: evidence from the Western Balkans*. Washington, DC, World Bank (Policy Research Working Paper No. 4444).

O'Donnell O et al. (2007). The incidence of public spending on health care: comparative evidence from Asia. *World Bank Economic Review*, 21(1):93–123.

Pudney S, Francavilla F (2006). *Income mis-measurement and the estimation of poverty rates: an analysis of income poverty in Albania*. Colchester, University of Essex, Institute for Social and Economic Research (Working Paper 2006–35).

Rechel B, Shapo L, McKee M (2005). Are the health Millennium Development Goals appropriate for eastern Europe and central Asia? *Health Policy*, 73(3):339–351.

Sahn D, Younger D (2000). Expenditure incidence in Africa: microeconomic evidence. *Fiscal Studies*, 21(3):321–348.

Salas C (2002). On the empirical association between poor health and low socioeconomic status at old age. *Health Economics*, 11(3):207–220.

Saunders P (2005). Researching social policy: trends, tragedies and triumphs [plenary address]. *Ninth Australian Social Policy Conference, University of New South Wales, July 2005.*

Shapo L et al. (2003). *Prevalence and determinants of smoking in Tirana city, Albania: a population-based survey.* Philadelphia, Elsevier.

Shapo L et al. (2004). Type 2 diabetes in Tirana City, Albania: a rapid increase in a country in transition. *Diabetes Medicine*, 21(1):77–83.

Shorrock AF (1978). Income inequality and income mobility. *Journal of Economic Theory*, 2:376–393.

Smith JP (1999). Healthy bodies and thick wallets. *Journal of Economic Perspectives*, 13:145–166.

UNDP (2007). *Fighting climate change: Human solidarity in a divided world.* New York, United Nations Development Programme (Human Development Report 2007/2008; http://hdr.undp.org/en/reports/global/hdr2007-8/, accessed 11 October 2010).

Van Doorslaer E et al. (1997). Income-related inequalities in health: some international comparisons. *Journal of Health Economics*, 16:93–112.

Wagstaff A (2000). Socioeconomic inequalities in child mortality: comparisons across nine developing countries. *Bulletin of the World Health Organization*, 78(1):19–29.

Wagstaff A, Paci P, van Doorslaer E (1991). On the measurement of inequalities in health. *Social Science and Medicine*, 33(5):545–557.

Wagstaff A, van Doorslaer E (1994). Measuring inequalities in health in the presence of multiple-category morbidity indicators. *Health Economics*, 3:281–291.

Wooldridge JM (2005). Simple solutions to the initial conditions problem in dynamic, nonlinear panel-data models with unobserved heterogeneity. *Journal of Applied Econometrics*, 20:39–54.

World Bank (2007). *Albania: urban growth, migration and poverty reduction. A poverty assessment.* Washington, DC, World Bank.

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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Albania experienced remarkable economic growth in the years before the current economic crisis. The question arises then, what, if any, benefits did that growth bring to health? Furthermore, did the gaps in health between the rich and poor increase? The research team sought to answer those questions using a hitherto underexploited but promising source of data: the Albanian Living Standard Measurement Survey from 2002 to 2005. The team found that most, but not all health indicators derived from this survey point towards an improvement in overall health. Hence, while some literature on other countries suggests that exceptionally fast growth was bad for health, this does – fortunately – not seem to be the case here. They also found significant socioeconomic inequalities in health in every year from 2002 to 2005, irrespective of the choice of socioeconomic status (SES) and health proxy. Income proves to be a less appropriate proxy for SES in Albania, compared to consumption, the deprivation index and education. It is harder to say whether health inequities have unambiguously increased over the observation period. The authors do can, however, conclude that as far as chronic illness is concerned, the degree of health inequity was greater in 2003–2005 taken together than it was in 2002. Hence, while the general progress in average health in Albania is laudable, the country may need to invest more efforts in reducing the sizeable gaps in health between the rich and poor. Such efforts require action within but also outside the health care system.

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