Extended Abstract for - Regional Disparities in Chronic Illness and Acute Illness in Albania: A Multilevel Analysis of the Albanian Living Standards Measurement Survey 2002

Co-Authors: Katie Bates, LSE and Dr Arjan Gjonca, LSE

Description of the topic to be studied: This paper explored whether a north-south gradient in the health of the Albanian adult population remained following the transition to a market economy in the 1990s. Gjonca's work on demography in Albania from 1950 to 1989 revealed an adult population whose experience was comparable to the classical 'good health at low cost' countries, with health indicators exceeding the expectations of economic determinism.

For example, in 1989 the average life expectancy at 15 was 57.8 years, higher than other Central and Eastern European countries and similar to Western European countries values, such as the UKs average life expectancy at 15 in 1992 of 58.7 years. Most importantly the adult male mortality in Albania continued to improve in contrast to all countries in CEE. In contrast per capita income in Albania was not comparable with that of the UK, with per capita income at its worst estimated at just $390 in 1994. The social and economic conditions in Albania from 1950 to 1989 in Albania paralleled those Caldwell identified as being 'routes to low mortality' in the so-called 'good health at low cost' populations, including adequate nutrition, reduced income inequality and efficient health care accessible to all.

Gjonca's work on the population of Albania also revealed a further point of interest – a north-south in mortality within Albania that remained stable over time, with mortality being the highest in the northern part of the country.

In the case of Albania, the regional disparities in mortality cannot be argued to be solely due to socioeconomic disparities in terms of income, health care and education access, given the seemingly successful communist government policies that provided accessible health care, education and increasing commitment to reducing income inequality across the country regardless of region or level of urbanisation. Furthermore, Gjonca's research highlighted that it is unlikely that there were any systematic differences in the age structure of each region leading to regional disparities in mortality, especially given that internal migration was restricted under communism.

The most compelling hypothesis for the north-south gradient in mortality is the 'diet hypothesis' that relates to traditional dietary patterns in Albania. Traditionally, the north-eastern regions consume a greater proportion of animal fats, compared to the south-western regions where a greater proportion of the diet is composed of olive oil and fresh vegetables, a diet similar to the Mediterranean diet that has been shown to be integral to both the prevention and treatment of CVDs. The pattern correlates with that of mortality, where mortality in the north-eastern districts of Albania was almost double that of the south-western regions.

The diet hypothesis is particularly interesting given the low levels of CVDs in Albania comparable with other countries that consume a 'Mediterranean diet' – in 1990s CVDs in Albania caused 108 deaths per 100,000 population, compared to 133 in the UK in 1992. Moreover, this hypothesis could explain why Albania as a whole was different from the rest of EE in terms of adult mortality for males. Consequently, the rationale behind this study is rooted in the north-south gradient in mortality that remained stable over time in the Albanian population,

The Albania Living Standards Measurement Survey 2002 provided the first opportunity since transition to use individual level data to see if regional disparities in mortality within Albania remained, while controlling for socioeconomic variables. Particularly, in the light of the socioeconomic changes during transition, a stable pattern in the regional distribution of mortality would highlight the importance of region and the 'diet hypothesis'.

In order to analyse this, the correlation between ill-health and mortality is utilised in order to make use of the new opportunities for research provided by the cross sectional Albania Living Standards Measurement Survey 2002, by utilising health status variables.

The hypothesis of this paper is thus that a north-south gradient in health remains despite changing socioeconomic conditions within Albania.

The research questions posed are:

Is region related to adult health outcomes in Albania?
      a) Is region related to acute illness in adults
      b) Is regions related to chronic illness in adults

Theoretical Focus: The theoretical focus of this paper is routed in geogprahical distribution of health previously highlighted in Albania. Frameworks of the socioeconomic determinants of health, which were previously shown to be particularly important for the traditional *'good health at low cost countries',* guided the selection of additional variables to control for in the regression models employed.

Data and Research Methods : As noted above, the Albania Living Standard Measurement Survey (ALSMS) provides the first opportunity to assess whether the regional differences in adult health have remained stable over time in Albania**.**

In order to answer the research questions two dependent variables were analysed – one for chronic illness and one for acute illness. Self-reported chronic illness (in the past three years) has been found to be a reliable estimate of the prevalence of chronic health conditions within a population. In order to assess the hypothesised association between region and chronic illness, a dichotomous variable for whether or not an individual had a chronic illness that has lasted more than three months was created. Equally, in order to explore the hypothesised association between region and acute illness, a dichotomous variable for whether an individual had an acute illness in the last 4 weeks.

The multistage sampling nature of the Albanian Living Standards Measurement Survey resulted in data that is hierarchically structured, with individuals clustered within households, highlighted by the log likelihood ratio tests for each of the 'empty models', the results showed that the null hypothesis that between-cluster variance is zero. Thus by not incorporating a random intercept, the assumption of independence would be violated , failing to take into account the intra-class correlation could result in an underestimation of the standard errors of the regression coefficients leading to Type I Errors. Consequently, logistic variance components models were fitted for each dependent variable.
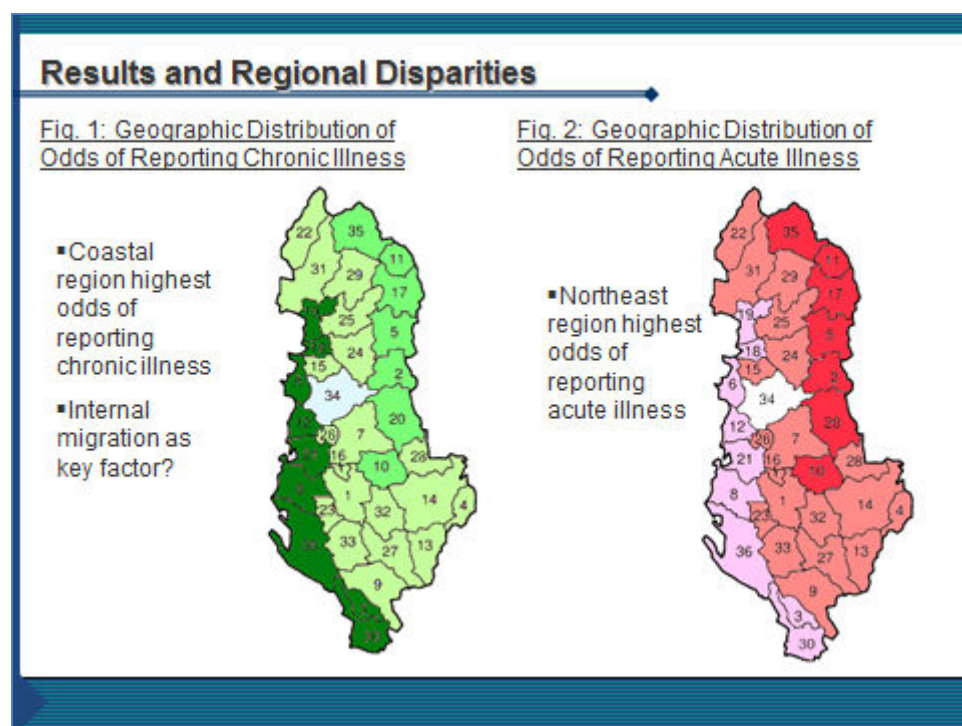
In order to assess the relationship between the dependent variables and region, demographic and socioeconomic variables were included in the model in order to control for their effects.

Region was included in the model as a fixed effect. It is a categorical variable for the four regions in Albania – the north-east (or the mountain region), the central region, the coastal region and the capital Tirana, as depicted by the map. The stratification of this sample was based on region, for which we are lucky (AG was part of the team that designed the 2002 sample:) as the regions are similar to the mortality map found by Gjonca in previous research.

Results: For chronic illness, region was found to contribute to the model, controlling for all other variables. The ORs showed that those in the reference category (the coastal region) have the highest odds of reporting a chronic illness over not reporting a chronic illness. The odds of reporting a chronic illness in the northeast compared to the coastal region are 28.2% lower, but higher than those in other regions. Individuals from Tirana have the lowest odds of reporting chronic illness over no chronic illness. The geographical disparities in mortality reported by previous studies analysing health under communism showed a north-south gradient in both overall mortality and adult mortality that had remained stable over time, with the coastal regions experiencing a health advantage. This analysis shows, however, that in 2002 individuals from the coastal region were more likely to report they were suffering from a chronic illness.

The analysis did show that region was significantly associated with acute illness controlling for all other variablesIndividuals from the northeast have the highest odds of reporting an acute illness, 2.219 times those of individuals from the coastal region. Individuals from Tirana have the lowest odds of reporting an acute illness, at 76% lower than the odds of someone from the coastal region, holding all other variables constant. The north-south gradient in morbidity (used to indicate mortality) persists for acute illness in the sample, with an urban health advantage for those in Tirana.

To visualise the regional distribution of both self-report chronic and acute illness, the offs of reporting an illness is displayed geographically here, with darker shades depicting higher odds.

Results and Regional Disparities

Fig. 1: Geographic Distribution of Odds of Reporting Chronic Illness

- Coastal region highest odds of reporting chronic illness

- Internal migration as key factor?

Fig. 2: Geographic Distribution of Odds of Reporting Acute Illness

- Northeast region highest odds of reporting acute illness

The coastal region has the highest odds of reporting a chronic illness, with the north-east having the highest odds of reporting an acute illness.

Discussion: The question is thus what does this research show us? In terms of acute illness the north-south gradient in morbidity (used to indicate mortality) persisted in 2002. This complements previous research, but also can be explained by the increase in socioeconomic differences within Albania since the 1990s, with the north-east 'lagging' behind in terms of its development. It is unsurprising therefore that the majority of acute illnesses reported are respiratory diseases, the diseases of poverty. In terms of chronic illness in Albania, however, we can conclude the pattern of chronic illness is at odds with the previous regional distribution of poor health, with the coastal region now having the highest odds of reporting a chronic illness.

Speculatively, there are two explanations that can be put forward:

CVDs account for the majority of chronic illnesses reported in the survey. Studies have suggested that the coastal region is becoming increasingly culturally orientated towards Western Europe. This could have become manifest in behavioural risk factors associated with chronic diseases such as smoking, lack of physical exercise, increased alcohol consumption and poor diet. The increased overall rates of diabetes and obesity reported by Knai and Rechel et al. may reflect the regional pattern suggested by the model, with the highest rates occurring among individuals in the coastal region who are thought to be undergoing a cultural and nutritional transition.

A second suggestion for the change in the regional distribution of ill health lies in that of internal migration since the 1990s. Gjonça argues that traditional dietary patterns and behaviours rarely change dramatically (2001). Furthermore, the effect of increased behavioural risk factors on chronic illness is unlikely to be reflected in chronic illness rates and patterns already; for example there studies highlighting increases in female smoking rates in Albania, that have not been reflected in cancer rates yet.

Consequently, an explanation could be rooted in the massive internal migration that has occurred since 1990. Studies have shown that people are migrating from the north-east and central region to the coastal region and Tirana. Thus it is hypothesised that the geographical disparity still remains, but the direction of internal migration has meant that the coastal region appears worst for chronic illness due to the influx of people from northern regions.

Further research is currently being conducted to include a variable indicating previous residence, in order to control for its effects and test this hypothesis; this will be ready for the paper submission deadline for the PAA conference.