Correlates of Self-rated Health Status in the Context of South Asia

Introduction

Several medical, behavioral, and psychosocial risk factors such as smoking, alcohol, overweight, disease history, and current health status of the respondent have been recorded as predictors of mortality. Socioeconomic status and measures of social networks and support are also routinely included in mortality studies. Self-rated health, as a factor has emerged as a strong, independent predictor of well being in general and mortality, in particular. The aim of the present paper is to study this variable, namely self –rated or self-reported health in the context of South Asia comprising the five countries of Bangladesh, India, Nepal, Pakistan and Sri Lanka. The significance of this study lies in the fact that the research pursuit for self-rated health status is part of the larger research agenda of more than one discipline of the social sciences such as demography, economics and medical sociology - the common concern being that of exploring the production of health and illness.

This research reflects the following motivations. **First**, while considerable interest and research exists in understanding the relationship between self-rated health and mortality patterns in developed industrialized nations, there is very little to total absence of exploring such a relationship in developing countries. (Frankenberg and Jones, 2004). By focusing on South Asia, the study aims to contribute to the small but potentially growing literature. **Second**, while objective medical indicators are important, the subjective assessments of health status are also invaluable data on health status – morbidity and mortality occurrence. Subjective assessments of health are admittedly contentious, yet carefully designed surveys such as the one used in this study are likely to yield useful insights. To the extent that the health status categories are corroborated by nature and prevalence of morbidity and chronic illnesses, limited mobility,

physical pain, and dietary patterns (e.g. smoking, alcohol consumption), subjective health assessments are amenable to quantitative analysis. **Third**, although self-rated health is an independent variable, it is however, shaped by the socioeconomic matrix such as gender, class, socioeconomic status, and cultural capital within which the self-rating process operates. Hence, while socioeconomic status and social networks are independent predictors of mortality, they also *mediate* the influence on mortality patterns. Exploring the matrix is thus significant for an in-depth understanding of this variable. The study aims to capture the relative meaningfulness of structural variables such as socioeconomic status and cultural variables such as, gender and cultural capital (education) in shaping self-rated health. **Fourth**, this research sheds light on the comparative picture of the previously listed five countries. The five South Asian countries being in physical vicinity of one another share a notable number of structural and cultural characteristics yet are distinct from one another. For example Bangladesh and Pakistan are both predominantly Islamic countries with quite different patterns of some of the socioeconomic characteristics such as use of family planning methods etc. India is the socially and culturally the most heterogeneous country in this group experiencing visible intergroup differentials in socioeconomic attainments levels. Sri Lanka's record in indicators such as, poverty alleviation, education and objective indicators of health improvements, have not only been the most impressive but in some instances comparable to those of the developed world. However these improvements have also been a subject of debate (see, for example, the exchange between Sen and Bhalla, 1989, and subsequent contributions, notably Anand and Harriss, 1989). The present analyses of the subjective indicators of health status, its manifestations, and determinants in a comparative framework of the five countries therefore potentially advances our understanding of

the interaction between structural and cultural factors with reference to their correlation with self-rated health status.

The outline of the paper is as follows. First, an attempt is made to descriptively analyse some correlates of health status which can be broadly categorised into a) individual level socioeconomic indicators such as gender, education, employment; b) household level infrastructure variables; c) individual level behaviour such as smoking, consuming alcohol; d) objective indicators of individual's health status; e) health care access variables and individual's subjective perceptions of one's well being and health care quality. Second, the ordered probit regression of the correlates of self –rated health status supplements the cross-tabulations. Finally, some concluding observations from a policy perspective are offered.

Data and Methods

The analyses are based on World Health Organisation (WHO) survey data for the year 2002. It is a large and rich survey of self-rated health status, its objective manifestations in terms of mobility, pain and discomfort, a wide range of risk factors to which individuals are exposed – including consumption of tobacco, alcohol, quality of housing, access to medical services and drinking water, and demographic and socio-economic characteristics (gender, age, education).

The dependent variable is 4 category variable, self-rated health status. The choice of the independent variables is informed both by the generic research on self-rated health status and the South Asia specific context. They constitute a combination of individual level socio-economic characteristics, behaviour, objective measures of health status, access and perceptions regarding health care and household level infrastructure variables. The description and the reference category used in all the variables is provided in Appendix Table 1. The sequence of the results is as follows. First, the ordered probit results are given. These are followed by predicted

3

probabilities of self-rated health status and marginal effects of each right side variable separately for each health category[1].

Specification

The dependent variable is self-rated health status and is operationalised as follows

0-very bad, 1-bad, 2-moderate, 3-good, and 4-very good

This model is built around a latent regression similar to the binomial probit model.

$$y^* = x'\beta + \varepsilon$$

y^* is unobserved. What is observed is

$$y = 0 \text{ if } y^* \leq 0,$$
$$= 1 \text{ if } 0 < y^* \leq \mu_1,$$
$$= 2 \text{ if } \mu_1 < y^* \leq \mu_2$$

.

.

$$= J \text{ if } \mu_{J-1} \leq y^*$$

which is a form of censoring. The μs are unknown parameters to be estimated with β. ε is assumed to be normally distributed across observations.[2] Normalising the the mean and variance of ε to zero and one, the following probabilities are obtained:

$$\text{Prob } (y=0 \mid x) = \Phi(-x'\beta),$$

$$\text{Prob } (y=1 \mid x) = \Phi(\mu_1 - x'\beta) - \Phi(-x'\beta),$$

$$\text{Prob}(y=2 \mid x) = \Phi(\mu_2 - x'\beta) - \Phi(\mu_1 - x'\beta),$$

---

[1] As category-wise marginal effects vary, and differ from the ordered probit results, much of the discussion is based on the former (Greene, 2003).
[2] Other distributions, such as the logistic, could be used. The logistic and normal generally give similar results.

$$\text{Prob } (y{=}j|x){=}1{-}\Phi \ (\mu_{j\text{-}1} - x'\beta).$$

For all the probabilities to be positive,

$$0 < \mu_1 < \mu_2 < ..... < \mu_{j-1}.$$

Since the marginal effects of the regressors on the probabilities are not equal to the coefficients, the former are computed for three categories, as shown below[3] ;

$$\frac{\partial \text{Prob}(y{=}0|x)}{\partial x} = -\phi(x'\beta)\beta,$$

$$\frac{\partial \text{Prob}(y{=}1|x)}{\partial x} = \left[\phi(-x\beta) - \phi(\mu - x'\beta)\right]\beta,$$

$$\frac{\partial \text{Prob}(y{=}2|x)}{\partial x} = \phi(\mu - x'\beta)\beta.$$

This model is estimated using maximum likelihood.

The overall specification of the ordered probit model is validated by the likelihood ratio test.

---

[3] For details of the probabilities and why there is one μ , see Greene (2003).

References

Anand, S. and C. Harriss 1989. 'Food and Standard of Well-Being: An Analysis Based on Sri Lankan Data', in J. Dreze and Amartya Sen (eds.) *The Political Economy of Hunger*, Oxford: Clarendon Press.

Bhalla, S. S. 1988. 'Is Sri Lanka an Exception? A Comparative Study of Living Standards', in T. N. Srinivasan and P. Bardhan (eds.) *Rural Poverty in South Asia,* New York: Columbia University Press.

Frankenberg, E. and Nathan Jones. 2004. 'Self-Rated Health and Mortality: Does the Relationship Extend to a Low Income Setting?', *Journal of Health and Social Behavior*, Volume 45, Number 4, pp. 441-452.

Greene, W. H. 2003. *Econometric Analysis*, Fifth Edition, New York: Macmillan**.**

Sen, Amartya 1988. 'Sri Lanka's Achievements: How and When', in T. N. Srinivasan and P. Bardhan (eds.) *Rural Poverty in South Asia,* New York: Columbia University Press.

Appendix Table 1

List of Variables used in Ordered Probit Analysis

Self-rated health status: 0-very bad, 1-bad, 2-moderate, 3-good, 4-very good

Gender: Female=1, Male=0

Age group : <20 years = 0, 20-30, 30-50, >50

Marital status: currently married=1, 0 otherwise

Educational attainment: less than primary = 0, primary education completed=1, 0 otherwise, high school, higher secondary and above=1, 0 otherwise,

Occupation: not working = 0, government employee=1, 0 otherwise, non-governmental employee =1, 0 otherwise, self-employed=1, 0 otherwise, employer=1, 0 otherwise

Quality/type of floor: hard floor (tile, cement, brick, wood) =1, 0 otherwise

Water: How long does it take to fetch water: < 5 minutes +1, 0 otherwise

Toilet facilities: if flush to piped sewage system or flush to separate tank or pour flush latrine=1, 0 otherwise

Type of cooking stove used: if open or stove with chimney or closed stove with chimney or hood = 1, 0 otherwise

Where is cooking done: In a separate room used as kitchen or in a separate building used as kitchen=1, 0 otherwise

Is the house heated when cold? yes=1, 0 otherwise

Smoker: daily or occasional =1, 0 otherwise

Measure of stress: How often have you felt that you were unable to control the important things in your life during past 30 days- never or almost never =1, 0 otherwise

Measure of stress -How often have you found that you could not cope with all the things that you had to do-never or almost never=1, 0 otherwise.