Adult health and early childhood conditions: analysis of a new data set

Alberto Palloni
Mary McEniry

Center for Demography and Department of Population and Health
Unversity of Wisconsin-Madison

and

Ana Luisa Davila
Alberto Garcia
Hernando Mattei
Melba Sanchez

Department of Public Health
University of Puerto Rico

I. Background

It is now well-established that the rapid aging that most countries of the Latin American and the Carribbean region will undergo during the period 1990-2050 owes a great deal to the contribution of the mortality decline experienced during the period following 1930. The bulk of these mortality changes were due to the implementation and deployment of an assortment of medical innovations and public health interventions rather than to increases in the standards of living of the populations or to improvements in their levels of nutrition.

As a rule, when mortality decreases, members of the cohorts experiencing the decrease are of higher average frailty. But if, in addition, the root origin of mortality improvement leads to increased survival among those whose nutritional status and experience with illness is below average, the frailty composition of the corresponding cohorts would be even less favorable than under an average regime of survival gains.

Suppose that conjectures 'a la Barker' connecting early life conditions and late adult health status have any validity. According to these conjectures, detrimental conditions, including nutritional status and experiences with illnesses, which take place *in utero*, around birth and during early childhood, increase the susceptibility to certain chronic diseases during adulthood and old age. Given the nature of the mortality decrease in Latin America and the Caribbean one would expect that the health status of a substantial fraction of those who will attain their 60th birthday after 1990 will be powerfully influenced by early life conditions, thus potentially triggering Barker type of mechanisms and effects. In theory, the new cohorts of elderly will be of higher frailty than preceding cohorts whose early childhood experience was characterized by more severe mortality regimes. In addition, if there are strong connections between infant and child levels of malnutrition, experience with poverty and exposure to (and escape from) childhood illnesses, the new cohorts could be marked by higher than average exposure to at least some chronic conditions with onset in adult ages. In particular, one should find markers in the patterns of prevalence of certain chronic diseases and in relations between prevalence and indicators of early childhood conditions

II. Analyses and results

To investigate these conjectures we use preliminary data from a recently completed survey conducted with a nationally representative sample of about 4,500 elderly Puerto Ricans and their surviving spouses (PREHCO). We investigate age patterns of self reported health status, ADL and IADL among elderly Puerto Ricans and compare them to age patterns of self-reported health status, ADL and IADL among elderly elsewhere in the region using the SABE data set. We also use information on self reported diabetes and anthropometric measures to assess BMI and hip-to-waste ratios. Finally, we construct Waaler type surfaces to chart the relation between several anthropometric measures, including weight, height and knee-height, and health status as measured by self reported health, self-reported chronic conditions and, in particular, heart disease and diabetes. Of primary interest to us is the relation between early childhood health status and heart disease, on the one hand, and markers of early nutritional status and diabetes, on the other.

We investigate the relation between diabetes (and obesity) and conditions associated with early childhood (health status and socioeconomic conditions) while adjusting for the effects of age, gender and social class. Similarly, we estimate the effects of certain childhood diseases (self-reported) and heart disease while controlling for the effects of age, gender and social class. Of special relevance to us are the following: (i) the relations between a marker of early stunting (knee-height) and the risk of obesity and of self-reported diabetes and (b) the effects of rheumatic heart fever and current heart conditions.

We discover that short knee height entails a risk of adult diabetes that is almost as high as that associated with obesity, a somewhat surprising regularity. We interpret this finding as being consistent with the idea that there are links between conditions experienced in early childhood and the onset of some adult chronic conditions. Similarly, we show that having experienced rheumatic fever multiplies the relative risk of heart disease at older ages.

We suggest that forecasts of health status distribution, healthy life expectancy and residual life expectancy and older ages ought to include consideration of the special

character of those cohorts who will become part of the elderly population in the near future.