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Favourable changes in economic well-being and self-rated health among the elderly

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ABSTRACT

Adverse economic shocks exert an influence on health perceptions, but little is known about the effect of sudden positive changes in a person's financial situation on self-rated health, particularly among low income people. This paper explores the association between an increase in the amount of non-contribution pensions, public cash transfers given to Costa Rican elderly of low socio-economic status (SES) and changes in self-rated health over time. The analysis is based on data from CRELES, the "Costa Rican Study on Longevity and Healthy Aging", which is based on a probabilistic sample of people born in 1945 or earlier, and living in Costa Rica by 2002. The fieldwork for the first and second waves of CRELES was conducted from 2004 to 2006, and from 2006 to 2008, respectively. The Costa Rican Government raised the amount of the non-contribution pension for the poor 100% before July 2007, and an additional 100% after that date. Due to the CRELES fieldwork schedule, the data have a natural quasi-experimental design, given that approximately half of CRELES respondents were interviewed before July 2007, independently of their status in receiving the public cash transfers. Using random effects ordered probit regression models, we find that people who experienced such increase report a greater improvement in self-rated health between waves than those who experienced a smaller increase and than the rest of the interviewees. Results suggest that increases in income may lead to a greater improvement in self-rated health.

Introduction

The socio-economic status (SES) gradient in health and mortality refers to health differentials by income, education, occupation, and social class: People with higher SES have better health and lower death rates (Kawachi, Adler, & Dow, 2010; Macintyre, 1997; Marmot, 1994; Preston & Taubman, 1994; Smith, 1998; Smith & Kington, 1997). SES can impact health through availability of resources to purchase and manage medication and health services, as well as healthier goods and lifestyles, and better education may help in adopting healthy practices and enhances the ability to understand and deal with the complexities of health services. SES can also influence health through relative levels of income or wealth that a person has rather than through the absolute amount of economic resources, or through the relative social position (ranking) of a person with respect to others (Kawachi, Adler, & Dow, 2007; Marmot et al., 1991).

Among some elderly populations (e.g., in the U.S.), the SES gradient in health appears less steep than among younger groups (Deaton & Paxson, 1998; Smith, 2004); it might hold only for certain conditions (notable, mental disorders and self-rated health), but not for others; or it might have the opposite direction to what is expected (Adams, Hurd, McFadden, Merrill, & Ribeiro, 2003; Rosero-Bixby & Dow, 2009). However, changes in pension income, especially among poorer populations, may have a strong impact on health (Case, 2001; Duflo, 2003; Jensen & Richter, 2004).

Empirically, it is difficult to determine the direction of the causal relationship between health and SES components, such as education, income, and wealth. The association might be due to reverse causation or to an omitted variable bias (Kawachi, Adler, & Dow, 2007; Smith, 2004). Natural experiments and quasi-experiments have also been used to control for reverse causation and omitted variables. These analyses rely on unexpected, sudden, and possibly large income changes, and compare the health status of those who experience the changes versus those who do not experience them. Some of these studies find that income increases or losses are related to some health indicators, but not to all (Apouey & Clark, 2009); mental health and self-rated health are linked to income shocks in several of these studies (Frijters, Haisken-DeNew, & Shields, 2005; Gardner & Oswald, 2007). Several studies have analyzed the relationship of public cash transfers to the poor with household health using natural quasi-experimental designs given that they compare persons or households who experienced changes in pension income

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against those who did not. These quasi-experimental studies have analyzed how cash transfers or changes in pensions affect health. In the U.S., Snyder and Evans (2006) found that higher pensions lead to higher mortality because persons eligible for higher income did not engage in more employment. The quasi-experimental studies in Mexico (Gertler, 2004) and South Africa (Case, 2001; Duflo, 2003) have found that cash transfers are beneficial to child health. In Russia, Jensen and Richter (2004) found that pension loss increased mortality.

Self-rated health has been used as a summary measure in studies about the SES gradient of health, including some studies mentioned above (Adams et al., 2003; Cheng et al., 2002; Frijters et al., 2005; Monden, 2005; Smith, 2004; von dem Knesebeck et al., 2003). Self-rated health is a good predictor of mortality (Idler & Benyamini, 1997) and health services utilization (Dening et al., 1998). It is associated with disease burden and physiological markers of health (Goldman, Glei, & Chang, 2004; Lee & Shinkai, 2003). It is also influenced by psychological characteristics such as sense of control, sense of well-being, life satisfaction, behavioral intentions on health improvement, positive and negative affect, and depression (Bailis, Segall, & Chipperfield, 2003; Benyamini, Idler, Leventhal, & Leventhal, 2000; Bobak, Pikhart, Hertzman, Rose, & Marmot, 1998; Lee & Shinkai, 2003; Schneider et al., 2004), and by the socio-economic context in which the person lives (Kawachi, Kennedy, & Glass, 1999). Hence, life stressors can influence the way people rate their own health.

This article intends to explore how increases in income among the destitute can improve the way people rate their own health. After a means test, the Costa Rican government provides free access to public health care services and monthly cash transfers, called non-contribution pensions, to low SES elderly. The Arias Sanchez administration (2006–2010) decided to raise the amount of money paid through the non-contribution pension system. After the presidential inauguration, the cash transfers were raised from 16,000 colones (approximately US$32) per month to 35,000 colones (approximately US$70) per month: close to a 100% increase. The non-contribution pensions were raised again to 50,000 colones (approximately US$100) after July 2007: almost 200% increase from the amount paid during 2005. The analysis takes advantage of this natural experiment design. Therefore, approximately half of the survey respondents entitled to these public cash transfers experienced the 100% increase between the first and the second waves, while the other half experienced the 200% increase. The survey also asks respondents to rate their own health in both waves. Therefore, the article studies whether the people entitled to such public transfers and interviewed after July 2007 rate their health better on average, than people interviewed in July 2007 or before, controlling for confounders.

Aside from non-contribution pensions, around half of the Costa Rican elderly population receives a retirement pension, called a contribution pension because formal workers have to make mandatory contributions to the main public insurance and pension fund through payroll deductions and mandatory contributions from employers and the state. The main public fund is administered by Caja Costarricense del Seguro Social (CCSS, the Costa Rican Social Security Fund). This main public fund is a pay-as-you-go system. Widows and young children are automatically entitled to the contribution pension after the beneficiary's death; this is the so-called "inherited pension". Some elderly people may not be retired yet and still be contributing to the Social Security fund through payroll deductions if they have not made enough contributions. These workers and their family are entitled to the public health insurance.

Objectives

The general goal of this paper is to study how income increases influence self-rated health. More specifically, the main objective is to determine whether a substantial rise in non-contribution pensions to poor elderly in Costa Rica made them improve the rating of their own health.

Methods

We use the dataset from CRELES, the "Costa Rican Study on Longevity and Healthy Aging". It is an ongoing longitudinal study of a nationally representative sample of 2827 adults born in 1945 or before (ages 60 and over at the first interview) and residing in Costa Rica by the year 2000. CRELES has been approved by the Institutional Review Board (Comité de Ética) of the University of Costa Rica. The first wave of interviews was conducted from November 2004 through August 2006. The second wave started in November of 2006 and concluded in July 2008. The description of the fieldwork, and the collection and processing of specimens can be found in Mendez-Chacon et al. (2007).

CRELES has a complex sampling design. There is an original master sample of 9600 individuals that was randomly selected from the 2000 census database with stratification by 5-year age groups and over sampling of older individuals. Within each stratum, persons were selected using simple random sampling involving a systematic selection procedure. In the master sample, sampling fractions ranged from 1.1% among those born in 1941–45 to 100% for those born before 1905. The individuals in the master sample were grouped into 102 geographical clusters according to the 102 "Health Areas" created by the Government. The final sample for the in-depth interview is composed of a probabilistic sub-sample of clusters: 60 "Health Areas" (out of a total of 102). This sub-sample originally included nearly 5000 individuals and covered 59% of Costa Rican territory. The first wave fieldwork yielded the following non-response rates: 19% deceased by the contact date; among those alive, 18% were not found in the field, 2% moved to other addresses, 2% rejected the interview, and 2% were not found after several visits (likely rejections). After non-response, the resulting sample size for the first wave amounts to 2827 individuals. Similar non-response rates were found for the second wave. All statistical analyses take sampling weights (inverse of selection probabilities) into account. Furthermore, 703 persons in the first wave and 676 in the second wave needed a proxy respondent to answer the survey questions. Given the focus of this analysis on perceptions, we exclude proxy respondents. We also exclude respondents who died before the first wave, who needed a proxy respondent in at least one wave, or who had missing values in any of the covariates of the regression models. The models are estimated using only 1556 respondents, which correspond to 55% of the first wave total sample size and 66% of the second wave total sample size. Given that we assume that self-rated health is a subjective measure determined by the awareness of the respondent to his or her socio-economic condition, the selected sub-sample of the analysis should not be seen as a problem but as the desired sub-sample to draw conclusions on.

Variables

Self-rated health is the main dependent variable. The variable comes from the answers to the question "How would you say your health is now: Excellent, Very Good, Good, Fair, Bad?" The same question was asked in both waves. The variable was coded as 5 for excellent, 4 for very good, 3 for good, 2 for fair, and 1 for bad, so that positive values in regression coefficients mean an improvement in perceptions of own health.

A series of other health and perception variables are used as complementary dependent variables. We choose variables that can change in a short period of time: disability (dichotomous, having at least one limitation in Activities of Daily Living ADL or Instrumental