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Income Dividends and Subjective Survival in a Cherokee Indian Cohort: A Quasi-Experiment

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Abstract

Persons with high temporal discounting tend to value immediate gratification over future gains. Low self-reported lifespan (SRL)—an individual's assessment of a relatively short future lifespan—concentrates in low-income populations and may reflect high temporal discounting. We use casino-based cash dividends among the Eastern Band of Cherokee Indians (EBCI) as a quasi-experiment to test whether large income gains among EBCI members translate into increased SRL. We used SRL data for EBCI and White youth, aged 19 to 28, participating in two waves of the Life Time Trajectory of Youth (LTI-Y) survey from 2000 to 2010. We controlled for unobserved confounding across individuals, time, and region through a longitudinal design using a difference-in-difference analytic approach (N=294). We conducted all analyses separately by gender and by quartile of socio-economic status. Cash dividends correspond with a 15.23 year increase in SRL among EBCI men below the lowest socio-economic quartile at baseline relative to Whites (standard error=5.39, p<0.01). Results using other socio-economic cut-points support improved SRL among EBCI men (but not women). The large magnitude of this result among EBCI men indicates that a non-trivial cash dividend to a low-income population may confer long-term benefits on perceptions of future lifespan and, in turn, reduce temporal discounting.

Keywords

income dividends; quasi-experiment; Cherokee; self-reported lifespan; subjective social status

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INTRODUCTION

Extensive literature reports a strong positive association between individual income and health (Chetty et al. 2016; Lynch et al. 2000; Wilkinson 1992). This finding remains robust across low, medium and high income countries (Bloom and Canning 2000; Rodgers 1979). In the high-income country context, one of the many explanations for this finding posits that low-income persons show a heightened prevalence of adverse health behaviors. Economic theory offers one explanation as to why unhealthy behaviors concentrate among low-income persons (Frederick, Loewenstein, and O'donoghue 2002). Given that unhealthy behaviors lead to morbidity later in life, persons who engage in these behaviors may devalue future health outcomes relative to the immediate satisfaction gained from practicing the behavior (Grossman 1972; Story et al. 2014). Low-income individuals who do not expect to have long lifespans would therefore discount the future more strongly than would high-income individuals (Syme 2007).

Intriguingly, empirical work on subjective survival supports this theory of temporal discounting. Subjective survival may capture not only an individual's strong temporal discounting preference but also their perception that they would enjoy later years of life less than they do in the present owing to increasing morbidity with age (Chao et al. 2009). Empirical research, moreover, finds that subjective survival provides distinct predictive power for realized lifespan above and beyond self-reported health measures (Palloni and Novak 2016). The literature finds that older adults with higher self-reported lifespan have lower mortality risk ratios (Siegel, Bradley and Kasl 2003; Hurd and McGarry 2002) and that self-reported lifespan correlates strongly and positively with actual mortality outcomes (Hurd and McGarry 1995). In addition, lower subjective survival among youth indicates anticipation of inevitable negative events and promotes a pessimistic view of the future (Nguyen et al. 2012; Bolland 2003; Beck et al. 1974; Borowsky et al. 2009).

Income supplementation through cash transfers may increase financial security, promote long-term investments in well-being and reduce pessimism about the future (O'Brien and Olson 1990; Courtin et al. 2018). New cash transfer recipients may revise their expectations about the future and exhibit greater optimism towards living a long life that in turn, may correspond with an increase in subjective lifespan (Courtin et al. 2018). Conversely, cash transfers to a population with insufficient resources to make health investments and plan for the future may also increase risky behavior, particularly in the short term (Bruckner, Brown, and Margerison-Zilko 2011; Goldin, Homonoff, and Meckel 2016; Carr and Packham, 2019).

Research on cash transfers generally finds improved health outcomes following income gains, particularly in developing countries (Fernald, Gertler and Neufeld 2009). In high-income countries such as the US, evaluations of welfare schemes (e.g. EITC[1], WIC[2], SNAP[3]) and cash transfer programs (e.g. Opportunity NYC-Family Rewards) mostly report beneficial health outcomes of supplementary income (Evans and Garthwaite 2014; Strully,

[1]Earned Income Tax Credit
[2]Special Supplemental Nutrition Program for **W**omen, **I**nfants and **C**hildren
[3]Supplemental Nutrition Assistance Program

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Rehkopf, and Xuan 2010; Bitler and Currie 2005; Courtin et al. 2018), although adverse outcomes are also observed (Bruckner, Brown, and Margerison-Zilko 2011; Bruckner, Rehkopf and Catalano 2013; Goldin, Homonoff, and Meckel 2016; Carr and Packham, 2019). These programs, however, differ from permanent cash transfers, such as the Alaska Permanent fund (O'Brien and Olson 1990), because (1) federal programs use means testing and other eligibility criteria such that recipients may get disqualified or "age out" of programs; (2) programs often target specific sub-groups such as new mothers; and (3) these programs often require labor market participation, thus making it difficult to distinguish the effects of exogenous income transfers from employment substitution (Currie 2009; Heckman and Mosso 2014; Akee et al. 2018).

Permanent unconditional cash transfers provide a uniquely exogenous exposure (income gain), independent of recipients' socio-economic or employment status. Such cash transfers, in essence, provide a basic income guarantee that allows recipients to adjust future expectations based on steady and assured financial resources (Goldsmith 2010; O'Brien and Olson 1990). In the present study, we examine whether a large, permanent income transfer corresponds with increase in subjective survival among a low-income population.

In the late 1990s, the Eastern Band of Cherokee Indians (EBCI) in rural North Carolina introduced a casino on the reservation. Fifty percent of the revenue is distributed to tribe members through a per capita dividend payment program and use the rest for various tribal programs (akin to public sector spending) through a general fund (IGRA, 1988). Since 1996, per capita payments to EBCI have averaged >$3,000 per year (Brown et al. 2006). The percent of EBCI below the poverty line fell from almost 60 percent pre-casino to < 25 percent five years after its introduction (Costello et al. 2003; Ullmer 2007). The success of the casino led to infrastructural improvements on the reservation and not only enhanced the material well-being of EBCI individuals and families (Akee et al. 2010), but also improved the community's social cohesion and community self-determination (Bullock and Bradley 2010). The sudden and large cash dividend to the EBCI has allowed researchers to examine whether income gains *per se* precede several health outcomes. Following an increase in casino-based income gains, EBCI youth have shown improvements in behavioral outcomes during childhood (Costello et al. 2003; Akee et al. 2018), reduction in prevalence of adult psychopathology (Costello et al. 2010) and higher educational attainment (Akee et al. 2010). One study, however, also finds an increase in accidental deaths in months of the payout, particularly among EBCI youth, suggesting short-term surges in unhealthy consumption and risky behaviors (Bruckner, Brown, and Margerison-Zilko 2011).

We contribute to this emerging literature by examining, in a young adult population, whether and to what extent accumulation over time of large cash dividends to EBCIs correlates with their longitudinal trajectory of subjective survival. American Indians exhibit lower life expectancy (by 4.4 years) than other race/ethnicities in the US combined (IHS 2017). Our study aims to assess a pathway that could reduce this disparity. We, consistent with research on improved mental health among the EBCI (Costello et al. 2003; Akee et al. 2018; Costello et al. 2010), hypothesize that those receiving the per capita payment will exhibit improved trajectories of subjective survival relative to non-EBCI (White) residents.

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Research on cash transfers finds that persons at the lower end of the socioeconomic status (SES) spectrum receive a relatively greater health and welfare benefit from the transfers. In the US, evaluations testing outcome changes by level of SES show that the greatest gains in health, education and behavioral outcomes occur among lower levels of SES at baseline (Evans and Garthwaite 2014; Strully, Rehkopf, and Xuan 2010; Bitler and Currie 2005). Studies on casino-based cash transfers among the EBCI also show greater health gains among children and youth from poorer households (Costello et al. 2003; Akee at al. 2010; Akee et al. 2018; Costello et al. 2010). We, therefore, expect that any potential improvement in subjective survival following the cash transfers would concentrate among EBCI participants who self-report as low SES at baseline.

Furthermore, prior research on EBCI participants shows that males disproportionately exhibit risky health behaviors and accidental death (Bruckner, Brown, and Margerison-Zilko 2011). Longitudinal studies on youth also find gender differentials in perceived survival, with lower subjective survival reported by males relative to females (Nguyen et al. 2012; Duke et al. 2011; Borowsky, Ireland, and Resnick 2009). These differentials may arise from greater exposure to violence, substance abuse and crime among male youth (Duke et al. 2011; Borowsky, Ireland, and Resnick 2009). This circumstance indicates that young EBCI men may have a much lower perception of subjective survival relative to women and therefore may have a greater likelihood of showing subjective survival gains over time. For this reason, we examine men and women separately.

METHODS

Data

We used the Life Trajectory Interview for Youth (LTI-Y) survey which contains longitudinal data on life-course achievement of a sub-sample of 350 adults that previously participated in the larger Great Smoky Mountains Study (GSMS) (Copeland, Angold, Shanahan, and Costello 2014). Researchers originally recruited participants in three cohorts aged 9, 11 and 13 years in the year 1993, with a saturation sample of 350 participants from the Eastern Band of the Cherokee Indian (EBCI) tribe. Researchers selected non-EBCI participants from 11 counties in western North Carolina using a household equal probability, accelerated cohort design (Costello et al. 1996).

The LTI-Y survey, administered after the year 2000 to a subset of GSMS respondents, aims to understand the relation between external structural and social processes and individual level outcomes including subjective social status, mental health, and subjective survival. The LTI-Y survey focused on 143 participants who identify as EBCI, 205 Anglo (or white) and 2 African American participants between 19 and 24 years of age. Researchers collected two waves of responses for each participant. LTI-Y1 of our analysis corresponds to a time period of 2000–2004 wherein all the participants fall within 19 to 24 years of age. LTI-Y2 corresponds to the time period of 2006–2010 wherein all participants fell within 24 to 29 years of age. Participants in the LTI-Y sample were drawn from GSMS so as to have uniform distribution of major risk exposures across race/ethnicity and gender. At the time of the LTI-Y study, researchers gained IRB approval from two universities (Emory and Duke)

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and coordinated with the EBCI Tribal Council for their approval. This Tribal Council approved both the GSMS and LTI-Y studies.

For our analysis of subjective survival, a total of 294 participants have non-missing information across LTI-Y1 and 2. We excluded participants lacking information on key variables (e.g., subjective survival, race) in either survey. Nine study participants dropped out between LTI-Y1 and 2. Of these, five were female (1 white and 4 EBCI members) and four were male (2 white and 2 EBCI members). Outlier analysis of attrition indicates no significant difference in self-reported lifespan scores for these subjects compared to the distribution of the retained 294 subjects (Appendix A). Additional information on LTI-Y design, sampling and data collection appears elsewhere (Brown, Worthman, Costello, and Erkanli 2008).

Variables

Although the area of subjective survival is relatively new, the standard measure of subjective survival involves asking a respondent a series of questions about his/her predicted probability of surviving to specific ages. The respondent also states his/her confidence in this predicted probability (Manski 2004; Peracchi and Perotti 2010). We did not have access to this survey tool at the beginning of the LTI-Y survey. We, rather, used point estimates of Self-Reported Lifespan (SRL) as our dependent variable across LTI-Y1 and 2. We retrieved SRL by asking the question “To what age do you think you will live?” In LTI-Y1, SRL was recorded in increments of 10 units ranging from 30 to 110 and was slightly re-adjusted in LTI-Y2 as a more continuous variable with unit increments (going from 30, 31, 32…. 99, 100).

SRL traces its origins from life history theory and measures an individual’s willingness to take risks as well as their assessment of future environmental unpredictability (Hill, Ross, and Low 1997). Previous studies support an inverse relation between SRL and adverse health outcomes (Nguyen et al. 2012; Duke et al. 2011; Borowsky, Ireland, and Resnick 2009; Chisholm et al. 2005; Wang, Kruger, and Wilke 2009; Duke et al. 2009). The construct validity of a point estimate of SRL also coheres with the standard measure of subjective survival probabilities, which correlate strongly and positively with predicted mortality (Siegel, Bradley, and Kasl 2003; Hurd and McGarry 1995). We retrieved a limited set of social and demographic variables from LTI-Y: race/ethnicity, gender, age at interview, and SES. We used the community version of MacArthur scale of Subjective Social Status (SSS) to capture SES (Adler and Stewart 2007). In the LTI-Y survey, Subjective Social Status is presented as a ten step ladder (ranging from 1 at the bottom to 10 at the top) and respondents indicate the step (or SSS ‘score’) on this ladder that “represents where you are on this ladder right now in a typical American Society.” Empirical examination of correlations between SSS and traditional SES measures such as education, income, and occupation reveals strong overlap between subjective perceptions of social status and objective SES (Jackman and Jackman 1973). The MacArthur SES scale measures a person’s subjective perception of social status compared to their immediate peers or community on a ten point scale (or ladder) with higher scores indicating higher (perceived) subjective social status. Furthermore, subjective social status may be superior to traditional or alternative SES

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measures as the age group of our study participants during LTI-Y1 (19–22 years), tends to exhibit low educational attainment and low income. Large cohort studies have validated the MacArthur scale for SSS as capturing the multidimensional nature of SES better than traditional measures of education, income and type of employment (Adler and Stewart 2007; Operario, Adler, and Williams 2004; Singh-Manoux, Adler, and Marmot 2003; Franzini and Fernandez-Esquer 2006; Leu et al. 2008). Thus, we used SSS for several reasons, including that (i) previous work on EBCI young adults uses this construct (Brown et al. 2008); (ii) income-level and educational attainment remain a challenge to interpret for 19 year olds who may not yet work or have not completed their schooling; (iii) SSS incorporates perceptions of marginalization and social exclusion (Adler et al. 1994; Schnittker and McLeod 2005; Chen and Paterson 2006; Goodman et al. 2001); (iv) SSS shows strong measurement validity and predictive power for multiple health outcomes (Franzini and Fernandez-Esquer 2006; Singh-Manoux, Marmot, and Adler 2005; Singh-Manoux, Adler, and Marmot 2003; Goodman et al. 2003; Hu et al. 2005). Stratification of results by SSS therefore permits direct comparability of our results to previous work on EBCI while also holding construct validity for approximating social standing.

Design and Analysis

We face two challenges in analyzing the relation between the casino-based cash transfers and improvements in SRL among the EBCI: 1) the lack of a clear control group, and 2) lack of subjective survival information on the EBCI before the opening of the casino (i.e. lack of a pre-treatment period). To address these challenges, we employ a “difference-in-difference” regression strategy which uses a series of control populations to adjust for unmeasured confounding and focuses on the difference in SRL change between the EBCI and whites over the study period.

The fact that EBCI members received the per capita payment each year indicates that they accrued substantially more cash dividends by LTI-Y2 (2006–10, age 24 to 29) of the study than by LTI-Y1 (2000–04, age 19 to 24). On average, this difference is expected to be around $15,000 (of the estimated $35,000 received in total by the time of the last assessment). We use LTI-Y2 interview status as an indicator of an EBCI respondent having accumulated more wealth from the casino, relative to their accumulation at LTI-Y1. In this longitudinal framework, we compare an EBCI adult member’s SRL score in LTI-Y2 relative to his/her SRL score in LTI-Y1. We reasoned that habituation to the cash dividends, and stable receipt of relatively more cash dividends over a longer time period, benefits EBCI members’ SRL by LTI-Y2.

Non-EBCI participants living in the similar geographic area received no per capita payment. We used this variation in cash dividends across the EBCI (receipt) and non-EBCI (no receipt) to further minimize unmeasured confounding. Our approach compares the SRL of a respondent identifying as EBCI in LTI-Y2 (2006–10) to the respondent’s SRL in LTI-Y1 (2000–04). In addition, we adjust for general aging of the LTI-Y cohort, as well as economic, structural, and institutional changes in the rural region that affect EBCI and non-EBCI residents equally, by estimating, in a regression framework, the difference in SRL observed between non-EBCI in LTI-Y2 and non-EBCI in LTI-Y1 from the difference in

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EBCI SRL in LTI-Y2 and LTI-Y1. We used non-EBCI respondents in LTI-Y analyses as a comparison population because of their geographic and temporal overlap with EBCI respondents, as well as their similarity with EBCIs in LTI-Y with respect to the age distribution and major risk variables including SSS. A propensity score analysis supports the exchangeability of these two populations in terms of factors thought to vary with SRL (Appendix B).

Our analytic strategy essentially rules out confounding by any factor that affects (1) EBCI adults equally over the two waves of the study; (2) EBCI and non-EBCI adults in LTI-Y equally; and (3) how the *difference* in SRL trajectory between EBCI and non-EBCI adults differs over the two waves of the study. Previous research employs this "difference-in-difference" approach to examine the effect of ecological change, such as income shocks, on adult health outcomes (Bertrand, Duflo, and Mullainathan 2004; Akresh, Verwimp, and Bundervoet 2011; Becketti, Gould, Lilliard, and Welch 1988). Studies have tested and demonstrated fulfillment of the assumption underlying our estimation strategy (i.e., parallel trends) with respect to key SES and psychiatric indicators for the LTI-Y population (Akee et al. 2010; Akee et al. 2018).

We, consistent with the above logic, estimated the following equation:

$$E(Y) = \beta_0 + \beta_1 * \text{Group} + \beta_2 * \text{Age at LTI-Y1} + \beta_3 * \text{SSS at LTI-Y1} \quad (1)$$

where Y is the individual-level difference in SRL over the two study waves (LTI-Y2 – LTI-Y1), Group is a binary indicator (EBCI status = 1; white = 0) and Age, SSS at LTI-Y1 are baseline controls. β_1 is the coefficient of interest and estimates the relative difference in change in SRL among the EBCI relative to whites. We analyzed Equation (1) by gender and then, as suggested in the EBCI literature, by restricting the sample to < 1st quartile, ≤ median, and ≤ 3rd quartile of SSS at LTI-Y1 (Costello et el. 2003; Akee et al. 2010; Akee et al 2018; Costello et al. 2010). For all regression analyses, we specified heteroskedasticity robust standard errors.

We further assessed whether results arise from regression to the mean using techniques described by Linden (2013a, b) (Appendix C). We report results for the unweighted sample as experts recommend using unweighted regressions when comparing minority and non-minority groups (Solon, Haider, and Wooldridge 2015). Results from weighted regressions do not show large differences in coefficient size relative to our non-weighted results (Appendix D). Lastly, we retrieved a variable indicating weekly alcohol consumption (drinks per week over three months preceding each survey) for LTI-Y1 and 2 and specified it as the dependent variable. We reasoned, consistent with the notion of a change in temporal discounting, that income accumulation among the EBCI may also precede reductions in alcohol consumption.

RESULTS

At LTI-Y1, EBCI participants report lower SRL and lower SSS scores than do whites (Table 1). This pattern holds for both men and women. The age distribution of respondents at both LTI-Y waves is similar across race and gender. Appendix E provides detailed histograms of

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SRL distribution (Figures E.1, E.2) and descriptive statistics stratified by SSS groups for both races and genders (Table E.1). For interested readers, in Appendix F (Table F.1), we also provide summary statistics of other covariates not included in the analysis owing to their time invariance (e.g. high school diploma/GED) and strong age-dependence (e.g., marital status, has a child).

Figure 1 plots the mean SRL for each gender and racial/ethnic group over the two survey waves. For women, SRL shows a downward slope over time for both racial/ethnic groups. By contrast, SRL for EBCI men shows an upward slope but remains relatively constant over time for whites.

For the entire sample across the complete range of SSS, gender-specific regression results do not indicate statistically detectable differences between EBCI and whites (Model (a) in Tables 2 and 3). Models (b), (c) and (d) in Tables 2 and 3 show results for respondents scoring below the 1st quartile, median, and 3rd quartile of SSS at LTI-Y1, respectively. Inference for women remains essentially unchanged from the overall test in that we do not reject the null (Table 2). For males, however, among the lowest quartile of SSS scores at LTI-Y1, we find a large increase in SRL among EBCI (but not whites) from LTI-Y1 to LTI-Y2 (Table 3). The magnitude of the coefficient shows an increase of 15.23 years of SRL among EBCI men. This relation diminishes in magnitude and in statistical significance with the inclusion of respondents below the median, and below the 3rd quartile, of SSS at LTI-Y1 (Table 3). The pattern of results indicates that increases over time in SRL appear specific to EBCI men who do not consider themselves at the top quartile of SSS at baseline. We refer interested readers to Appendix G for regression results of sample stratification by median SSS.

The discovered SRL coefficient among EBCI men at the lower end of SSS at LTI-Y1 reflects a relative difference in the SRL slopes across EBCI and white men. This coefficient, however, does not inform whether SRL among the EBCI increased in absolute terms from LTI-Y1 to LTI- 2. To investigate this possibility, we plotted the mean SRL by racial/ethnic group and wave for men according to SSS score at LTI-Y1. Figure 2 indicates that, consistent with our hypothesis, the discovered coefficients appear driven by large increases over time in SRL among EBCI men. SRL among white men, by contrast, remains relatively stable over time. In particular, while both EBCI and white males at or below the 25th percentile of SSS (reported at LTI-Y1) show gains in perceived life span (Figure 2), the change among EBCI is much greater (15 years) compared to whites (0.7 years).

Our analytic strategy rules out bias due to statistical artifacts or measurement error which is shared across EBCI and white respondents. We, nevertheless, assessed the robustness of our male-specific results to two such potential rivals. First, regression to the mean could occur if we selected a subsample of men at LTI-Y1 who, based on low SSS scores, would be expected to show low SRL at LTI-Y1 but higher SSS and SRL scores at LTI-Y2. We therefore conducted regression to the mean analysis using techniques described by Linden (Linden 2013a; Linden 2013b) across the distribution of SSS scores and SRL to determine whether unusually low (or high) scores at LTI-Y1 tend to “regress” to mean scores at LTI-Y2. We find that the magnitude of such regression to the mean is not patterned specifically

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among EBCI males (Appendix C). Second, SRL at LTI-Y1 shows more age heaping than does SRL at LTI-Y2, owing to a slightly different formulation of the scale in LTI-Y1. This change in the second survey wave applies to all respondents, regardless of gender and ethnicity, hence we do not expect it to bias our estimates. However, to ensure that changes in SRL scale across LTI-Y do not drive results, we repeated the entire analysis but normalized all SRL values to their corresponding z-score. All results remained essentially unchanged from the tests that used the original SRL values (Appendix H).

To explore whether measured indicators of risky behavior correspond with results from our analyses of SRL, we used change in weekly alcohol consumption over LTI-Y1 and 2 as the outcome for regressions identical to those in Tables 2 and 3. Results from these analyses (Appendix I: Tables I.2, I.3) show no relation between exposure and change in alcohol consumption over the two survey waves across all SSS groups for either gender. Furthermore, we explored whether change in alcohol consumption varies with change in SRL for each race and age group. Increases in SRL over time marginally correspond with a decline in alcohol consumption among EBCI men but not among other race/gender groups (Appendix I: Table I.4). Taken together, results suggest that risky behavior may not correlate directly with exposure (cash dividend), but may vary inversely with gains in SRL for EBCI men. Lastly, we repeated the regression analyses from Tables 2, 3 and included year fixed effects for LIT-Y2 survey period as this wave overlaps with the Great Recession of 2008, and hence, may confound our results due to mental health-related sequelae of economic downturns (Goldman-Mellor, Saxton, and Catalano 2010). Appendix J presents results from this exercise and shows that inclusion of year fixed effects does not change our prior inference.

DISCUSSION

Subjective survival provides predictive information about future expectations and an individual’s remaining lifespan above and beyond other measures (e.g., self-rated health) (Hurd and McGarry 2002; Siegel, Bradley, and Kasl 2003). Lower assessments of subjective survival also concentrate among low SES populations (Nguyen et al. 2012; Duke et al. 2011; Duke et al. 2009). We used casino-based cash dividends to the Eastern Band of Cherokee Indians (EBCI) in rural North Carolina to test whether large income gains over time improved subjective survival. Results among the full SES spectrum do not reach statistical significance for either gender. However, EBCI men at the lowest end of the SES spectrum show relatively larger gains in subjective survival compared to white men in the same region who did not receive any cash dividend. The large magnitude of this result (i.e., 15 additional years of subjective lifespan) indicates that a large cash dividend to lower SES men who identify as EBCI may confer a long-term benefit on future lifespan.

Prior studies on variation in life expectancy by SES and employment status among adult males in the US show that 25 year old white men who were employed lived, on average, 12 years longer than those who were unemployed at the same age (Rogot, Sorlie, and Johnson 1992). In addition, across all ages, men who participated in the labor force lived 20 years longer than those who did not (Rogot, Sorlie, and Johnson 1992; Kitagawa and Hauser 1973). In light of these findings, results from our sample appear large but plausible.

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Strong temporal discounting and risk-taking behaviors occur more frequently among low-income populations (Haushofer 2014). The casino-based cash transfers described in this study decreased poverty among the EBCI by over 30 percent (Costello et al. 2003; Ullmer 2007). These transfers corresponded with an increase in educational attainment and reduction in the probability of committing a minor crime among EBCI youth (relative to whites) with every $4000 increment in cash transfers, predominantly among poorer households (Akee et al. 2010). Our results, in conjunction with prior findings in this population, support the notion that positive income shocks coincide with a decline in temporal discounting, translating into improved future survival expectations particularly among EBCI members from the lowest SSS strata.

Grossman (1972) describes an economic framework wherein gains in income (wages) and education may correspond with increase in marginal efficiency of ‘good health’ (i.e. increased productivity from good health). Prior research finds an increase in parental and educational investments among EBCI adolescents following casino-based cash transfers (Akee et al. 2010; Akee et al. 2018). Children in EBCI households that received these unconditional, permanent cash transfers also show improved psychological outcomes during adolescence (Akee et al. 2018). In keeping with Grossman’s framework (1972), these gains in behavioral health and productive investments, at both the household level and within the EBCI community, may correspond with expectations of ‘good health’ among low-income EBCI men and serve as precursors of increased subjective lifespan.

Strengths of our study include the large per capita cash dividend to all EBCI members. By the time of our last assessment, EBCI subjects in the LTI-Y study received an average of $35,000 from the casino. This substantial dividend, as other studies have found, reduced poverty and improved several mental health outcomes (Costello et al. 2003; Costello et al. 2010; Akee et al. 2010; Akee et al. 2018). In addition, the longitudinal nature of the SRL measure permits control for within-individual factors that may affect subjective lifespan (e.g., current health, genetic susceptibility to premature mortality, willingness to take risks).

Limitations include that we cannot know the external validity of our results. We examined a small rural population that underwent a large change in economic circumstances over a relatively short time period. Next, we cannot rule out the possibility that level of income receipt accumulated among EBCI at wave 1 influences subjective survival in wave 2. Lack of data at more than two survey waves precludes a rigorous exploration of lagged effects. Our results, rather, should be interpreted as a perturbation of subjective survival that correlates with additional accumulation of ~$15,000 in income transfers, is reported only in wave 2, and occurs only among EBCI and not whites. In addition, although we conducted several statistical analyses to ensure comparability between EBCIs and whites in LTI-Y, we cannot rule out lack of exchangeability on unmeasured factors. Such an unmeasured factor could confound results if it met all of the following conditions: it concentrates only among men, during 2006–10 but not 2000–04, affects EBCIs but not whites, does not covary with age or SSS, and predicts SRL. We know of no such factor. Whereas we understand that low-SES males from these two race/ethnicities are not identical in all ways save for race/ethnicity, we know of no better alternative to minimizing confounding by secular improvements in economic opportunity for youth in Jackson, Swain, and Graham counties.

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As a robustness check, we examined only within individual differences in self-reported lifespan across Waves 1 and 2 among participants who identify as EBCI. Results remain essentially unchanged from those reported in Table 3.

We also did not have the exact amount of cash dividends received among each EBCI, and therefore used race and LTI-Y2 status as indicators of the greatest cash dividend accumulation. For this reason, we could not examine the extent to which specific levels, or attainment thresholds, of cash dividends induced more nuanced responses in SRL than what we report. Lastly, we remind the reader that our findings are correlational in nature. We caution against drawing causal inference from our results.

Studies that directly measure temporal discounting following cash transfers report mixed findings. Experiments in Zambia show that recipients of unconditional cash transfers increase their willingness to delay gratification (Handa, Seidenfeld, and Tembo 2019). Conversely, households in Colombia do not exhibit any change in their discounting choices following receipt of conditional cash transfers (Contreras-Suarez and Cameron *forthcoming*). In the US, income receipt at payday among low-income populations corresponds with changes in intertemporal choices, but these changes align more with reduction in liquidity constraints relative to reduction in temporal discounting. We encourage future research to examine whether subjective survival corresponds with empirically estimated temporal discount parameters (Carvalho, Meier, and Wang 2016).

As analyses of subjective survival do not enjoy a long history, the literature has not characterized the measurement validity and predictive power of SRL on realized lifespan in young adults. Much of the measurement validity of subjective survival focuses on older adults, although some literature indicates that youth answer questions about future expectations in an internally consistent manner (Nguyen et al. 2012; Fischhoff et al. 2000; Dominitz and Manski 1996). In addition, although strong temporal discounting correlates with a variety of adverse health behaviors (Story et al. 2014), hopelessness symptoms (Pulcu et al. 2014) and subjective survival (Chao et al. 2009), these correlations may arise from shared underlying antecedents. We await additional research to identify the extent to which longitudinal “perturbations” in subjective survival, either via environmental cues or behavioral interventions, improve healthy behaviors (Story et al. 2014) as well as actual lifespan.

The magnitude and direction of our findings coheres with previous research on adolescents in which increases in self esteem and improvement in relationships with adults vary positively with increase in the odds of perceiving survival beyond the age of 35 (Duke et al. 2011). Studies on the EBCI have also posited improved parental involvement as a potential mechanism through which cash transfers benefit children and youth (Akee et al. 2010; Akee et al. 2018). Other research on survival expectations in adolescents finds higher perceived risk of premature death (lower SRL) in males relative to females (Nguyen et al. 2012; Duke et al. 2011; Borowsky et al. 2009). The SRL distribution in our sample aligns with this finding (Figure 1). Conversely, among older adults (> 60 years), men report higher SRL than women (Elder 2007). As LTI-Y participants transition into adulthood from wave 1 to 2, SRL among males appears to shift towards levels found among adult men. We have two *post hoc*

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explanations for this ‘shift’ and our male-specific results. First, adult men show more optimism than do women about survival relative to actual gender-specific life tables (Elder 2007). Adult men may show such optimism and higher SRL gains than women due to greater mobility, freedom to invest in productive activities and access to more employment opportunities relative to women. The average age of LTI-Y respondents overlaps closely with initiation of childbearing, which places heavier family demands on women compared to men (Fussell and Furstenberg 2005). Second, young adulthood may serve as a particularly elastic period in terms of SRL for men in which they move out of the “accident hump” of risk-taking (Bruckner, Brown, and Margerison-Zilko 2011). For both explanations, an assessment of the underlying pathways of change will require further analysis of behavioral and risk variables with respect to SRL.

Very few programs in the US provide exogenously determined, permanent income transfers. Canada’s experiment with universal basic income shows that, relative to non-recipients, beneficiaries of guaranteed annual income had fewer accidents and mental health-related hospitalizations across all ages and greater high school graduation rates among adolescents (Forget 2011). In the US, while federal programs offer several targeted, conditional cash/ benefits transfers for vulnerable populations (e.g. EITC, WIC, SNAP), we know little about health and consumption-related downstream effects of raising basic income. Quasi-experimental circumstances, such as those created by the Alaska Permanent Fund and the casino-based cash transfers described in this study, offer valuable insights into our theoretical understanding of how permanent cash transfers may change perceptions about the future and health behavior. Examining this relation may hold particular relevance for youth who may exhibit greater plasticity in adaptive behavior, and consequently, realize higher gains over their lifetime in response to this exposure (Dahl 2004).

Our work adds to the existing literature in which subjective survival, including SRL, may serve as a key health variable. Whereas economists have used expectations surveys to garner information about risk-taking and future investments (Manski 2004), the applicability of subjective survival measures to realized survival remain underdeveloped. We, moreover, believe that a global measure of future expectations, such as subjective survival, better approximates the extent of temporal discounting (Chao et al. 2009) than do traditional risk factors (e.g., smoking) that researchers typically examine in isolation (Story et al. 2014). This issue remains especially salient in research that endeavors to identify and intervene upon antecedents of the income / health gradient in which many “risk-taking” behaviors cluster in low SES populations.

Appendix

A. Attrition between LTI-Y1 and LTI-Y2

Table A.1 describes the attributes of LTI-Y participants who dropped out between LTI-Y1 and 2 (five female; four male). The mean (and standard deviation) of SRL at LTI-Y1 among the non-attritions among EBCI women is 79.84 (17.04), and white women is 78.85 (10.35). While the mean SRL of EBCI female attritions is within one standard deviation of the SRL distribution in our study sample for this group, it is plausible that the single white female

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attrition may have been an outlier. Among males, two EBCI and two white men dropped out between LTI-Y1 and 2. The mean (and standard deviation) of SRL at LTI-Y1 for EBCI men among the non-attritions is 71.43 (21.35), and white men is 78.07 (14.45). Mean SRL values for EBCI and white male attritions fall within the one standard deviation of SRL distribution for these groups in our study sample. Hence, we do not believe these observations would have been outliers.

Table A.1:

Description of attrition characteristics

Descriptors	Male		Female	
	EBCI	White	EBCI	White
Number of participants who showed attrition after LTI-Y1	2	2	4	1
Mean SRL at LTI-Y1 in attritions	75	95	97.5	100
Mean SRL of study sample (N = 295) at LTI-Y1 (non-attritions)	71.43	78.07	79.84	78.85
Standard deviation of mean SRL at LTI-Y1 (non-attritions)	21.35	14.45	17.04	10.35

B. Results from Propensity score matching between EBCI and white participants in study sample

EBCI and white individuals in our sample were matched on LTI-Y1 values of personal income, smoking status, alcohol consumption, high school education, Subjective Social Status, marital status, age and sex. Table B.1 shows the results from this exercise. ‘Treated’ implies EBCI and ‘Untreated’ implies white (indicating receipt and non-receipt of casino cash transfers, respectively). High p-values (p>|t|) from the T-test column indicate absence of statistically detectable differences in mean values of these variables for the two groups. Figure B.1 shows that both groups lie on the common support.

Table B.1:

Results from propensity score matching (Treated = EBCI; Untreated = White)

Variable	Mean		T-test	
	Treated (EBCI)	Untreated (White)	t	p>|t|
Sex (Male = 1)	0.43	0.45	−0.30	0.76
Age at LTI-Y1	19.40	19.43	−0.23	0.82
Personal income at LTI-Y1	2.39	2.34	0.20	0.84
Number of cigarettes smoked per day at LTI-Y1	3.81	3.68	0.13	0.90
Weekly alcohol consumption in the past 3 months at LTI-Y1	2.87	3.58	−0.52	0.61
High school/GED (High School/equivalent diploma = 1) at LTI-Y1	0.88	0.85	0.44	0.66
Subjective Social Status at LTI-Y1	5.62	5.58	0.13	0.89
Marital status (married = 1) at LTI-Y1	0.08	0.08	−0.00	1.00

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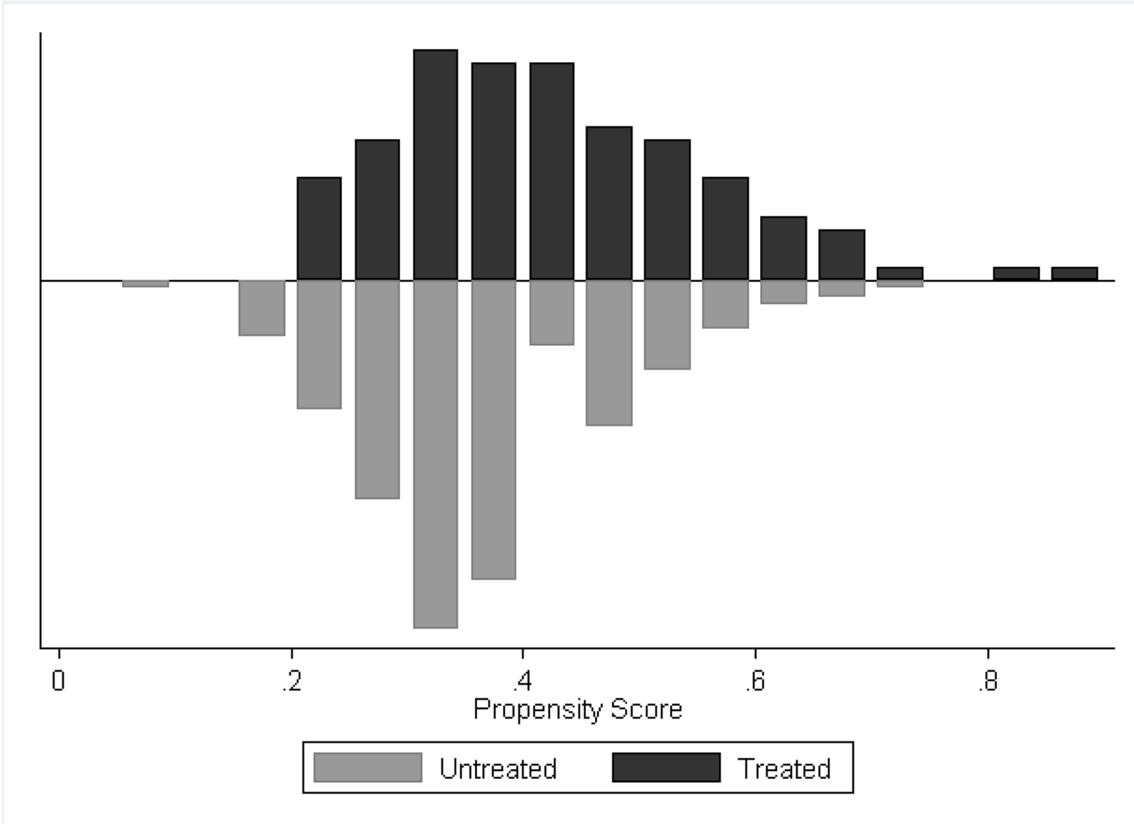

Figure B.1:
Common support graph from propensity score matching (Treated = EBCI; Untreated = white)

C. Test of regression to the mean

We assessed if our results could arise from regression to the mean (RTM) particularly among EBCI men at or below 1st SSS quartile. In this study, regression to the mean would occur when (1) low SRL values in LTI-Y 1 would increase to high SRL values in LTI-Y 2 and, (2) high SRL values in LTI-Y 1 would decline to low SRL values by LTI-Y 2 by exactly same magnitude, and this would only be observed among the 'treated' group (EBCI) and not the 'controls' (white) (Linden 2013a). We used Stata's user-written 'rtmci' command for this analysis (Linden 2013b). This procedure uses the treated group's mean of the variable of interest (SRL in this case) at LTI-Y 1 and estimates the 'expected value' of SRL at LTI-Y 2 based on the correlation in SRL values in the two survey waves. Mean SRL serves as the cutoff towards which high or low SRL values are theoretically expected to converge. Next, the 'rtmci' procedure obtains the bootstrapped difference in observed and expected SRL values below and above the cutoff (along with p values and confidence intervals), separately for the treated and control groups. This difference is reported as the coefficient of the RTM effect. Presence of RTM is indicated when (1) coefficients above and below the cutoff are identical or very similar and (2) coefficient magnitude and confidence intervals above and

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below the cutoff do not overlap (i.e. are significantly dissimilar) between the treated and control groups.

Table C.1 shows the results from this analysis for EBCI and white males. We used a cutoff of 58 as this is the mean value of SRL at LTI-Y1 in EBCI men at the 1st SSS quartile. RTM coefficients in Table C.1 indicate absence of RTM because (1) RTM effects above and below the cutoff are not identical for either groups (EBCI, white) and (2) the confidence intervals for EBCI and white RTM effects above and below the cutoff (respectively) overlap almost completely. Table C.2 repeats this exercise for women and we do not find evidence of RTM here as well. We repeated this exercise using mean SRL cutoff values at 2nd and 3rd SSS quartiles. Results were consistent with those found at 1st SSS first quartile (absence of RTM).

Table C.1:

RTM effect for white and EBCI males (cutoff = 58)

Summary statistics	Observed coefficient	Bootstrap Standard error	95% Confidence interval
RTM effect above the cutoff (EBCI)	4.84	1.56***	[1.79 7.90]
RTM effect below the cutoff (EBCI)	13.09	3.14***	[6.93 19.24]
RTM effect above the cutoff (white)	1.38	1.81***	[0.52 2.25]
RTM effect below the cutoff (white)	14.83	1.35***	[9.94 19.72]

* p value <= 0.1,

** p value < 0.05,

*** p value < 0.01

Table C.2:

RTM effect for white and EBCI females (cutoff = 85)

Summary statistics	Observed coefficient	Bootstrap Standard error	95% Confidence interval
RTM effect above the cutoff (EBCI)	7.78	2.11***	[3.65 11.92]
RTM effect below the cutoff (EBCI)	10.09	2.25***	[5.68 14.50]
RTM effect above the cutoff (white)	3.32	0.60***	[2.15 4.49]
RTM effect below the cutoff (white)	5.02	0.89***	[3.29 6.76]

* p value <= 0.1,

** p value < 0.05,

*** p value < 0.01

D. Results from weighted regression analysis

GSMS and LTI-Y data assign sampling weights to EBCI and white participants (Brown et al. 2006; Copeland et al. 2014; Costello et al. 1996). These weights remain constant over both LTI-Y waves. All EBCI participants have a weight of 0.15 and all whites are weighted at 1.45 (EBCI were oversampled relative to whites). Tables D.1 and D.2 show weighted regression results for females and males respectively. The magnitude of coefficients for the

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variable of interest, Group (EBCI), does not change markedly from our reported results. However, only the 25th SSS percentile results for EBCI men reaches statistical significance after weighting.

Table D.1:

Change in Self-reported lifespan score for **women** as a function of income dividend status, age, and social status at baseline, LTI-Y (weighted difference-in-difference estimates)

Variable	All Women		SSS <= 1st quartile		SSS <= median		SSS <= 3rd quartile	
Model	(a)		(b)		(c)		(d)	
	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)
Group (EBCI)	2.02	(3.04)	−4.36	(4.25)	1.69	(4.13)	3.46	(3.96)
Age at LTI-Y1	−3.33	(4.85)	5.21	(5.81)	7.40	(5.88)	−1.87	(7.05)
SSS at LTI-Y1	0.65	(0.79)	5.09	(3.07)	2.06	(1.76)	0.29	(1.62)
N	154		46		85		123	
R^2	0.02		0.14		0.058		0.009	

* p value <= 0.1,
** p value < 0.05,
*** p value < 0.01

Table D.2:

Change in Self-reported lifespan score for **men** as a function of income dividend status, age, and social status at baseline, LTI-Y (weighted difference-in-difference estimates)

Variable	All Men		SSS <= 1st quartile		SSS <= median		SSS <= 3rd quartile	
Model	(a)		(b)		(c)		(d)	
	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)
Group (EBCI)	2.81	(3.18)	15.36	(5.24)***	7.11	(4.54)	5.27	(3.66)
Age at LTI-Y1	−1.69	(2.80)	−4.15	(4.64)	−2.03	(2.90)	2.18	(3.08)
SSS at LTI-Y1	−2.14	(1.08)**	−5.45	(3.92)	0.12	(2.24)	−1.93	(2.18)
N	140		46		90		144	
R^2	0.06		0.18		0.021		0.039	

* p value <= 0.1,
** p value < 0.05,
*** p value < 0.01

E. Detailed description of Self-reported lifespan (SRL)

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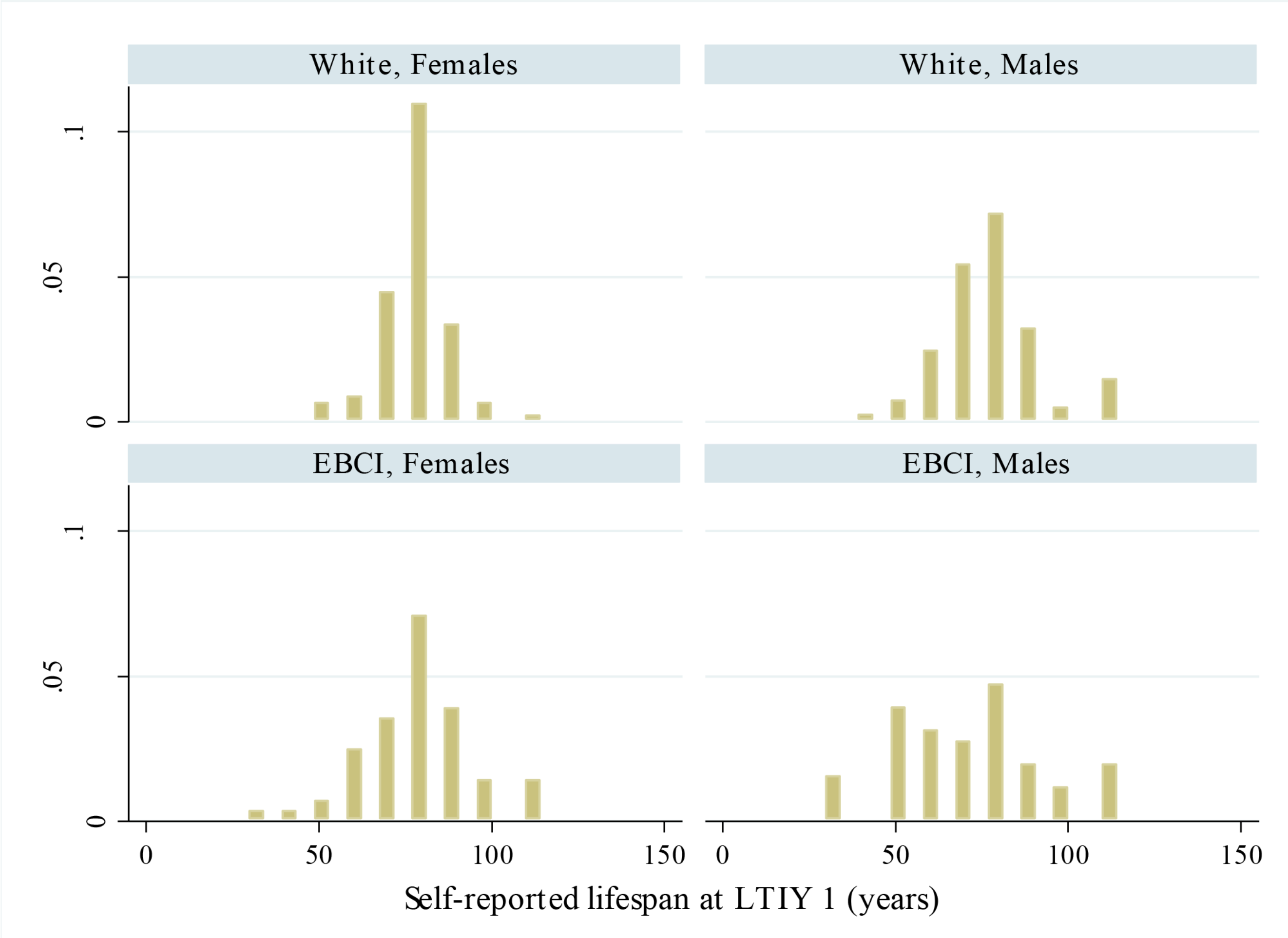

Figure E.1:
Frequency distribution of SRL by race and gender at LTI-Y 1

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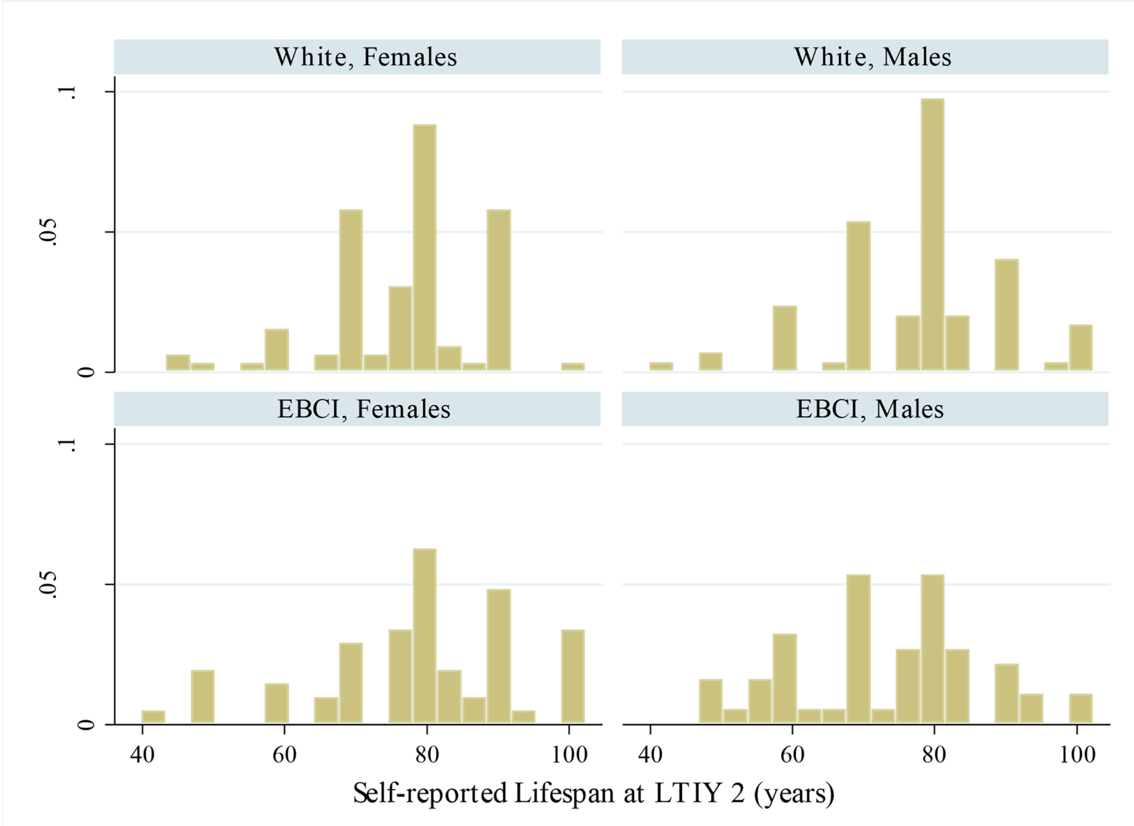

Figure E.2:
Frequency distribution of SRL by race and gender at LTI-Y 2

Table E.1:

Mean and Standard Deviation of Self-reported Lifespan by Race, Gender and Subjective Social Status (SSS) quartiles

	LTI-Y1				LTI-Y2			
	EBCI		White		EBCI		White	
	Males	Females	Males	Females	Males	Females	Males	Females
Mean (SD) of SRL at or below 25th SSS percentile	57.78 (17.34)	85 (15.08)	76.79 (15.65)	76.77 (11.47)	72.5 (14.58)	79.75 (12.34)	77.5 (12.59)	74.38 (11.66)
Mean (SD) of SRL at or below 50th SSS percentile	63.70 (20.41)	80 (19.31)	76.98 (13.75)	78.10 (11.20)	72.59 (12.67)	80.61 (11.83)	78.40 (10.85)	76.14 (11.06)
Mean (SD) of SRL at or below 75th SSS percentile	65.64 (21)	77.56 (16.81)	77.2 (14.76)	78.73 (10.79)	72.26 (13.03)	78.56 (15.37)	77.65 (11.07)	76.70 (10.72)

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F. Summary statistics of high school education, marital status and child status in LTI-Y1 and LTI-Y2

Table F.1:

Number of respondents who have a high school diploma/GED, are married, have children by Race, Gender and LTI-Y survey waves

Variables	LTI-Y1				LTI-Y2			
	EBCI		White		EBCI		White	
	Males	Females	Males	Females	Males	Females	Males	Females
Number of respondents with high school diploma/GED	52	36	71	85	52	36	71	85
Number of respondents who are married	1	8	3	6	9	23	28	34
Number of respondents with children	--	--	--	--	25	42	95	86
N (Sample size)	60	54	94	86	60	54	94	86

Note: LTI-Y1 did not record whether a respondent has children

G. Results from OLS regression analysis of change in SRL, stratified by SSS

Table G.1:

Change in Self-reported lifespan as a function of income dividend status, age, and social status at baseline, LTI-Y (difference-in-difference estimates)

Variable	Men				Women			
	SSS <= median		SSS > median		SSS <= median		SSS > median	
	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)
Group (EBCI)	6.82	(4.13)*	−0.25	(4.32)	2.51	(3.76)	1.69	(3.64)
Age at LTI-Y1	−2.46	(1.91)	1.77	(2.09)	−0.29	(2.72)	−6.09	(4.35)
SSS at LTI-Y1	−3.25	(2.20)	−3.90	(1.71)	1.35	(1.45)	0.25	(2.16)
N	90		50		85		69	
R^2	0.097		0.079		0.020		0.027	

* p value <= 0.1,

** p value < 0.05,

*** p value < 0.01

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H. Results from OLS regression analysis of Z-score of change in SRL

Table H.1:

Change in Z-score of Self-reported lifespan for **women** as a function of income dividend status, age, and social status at baseline, LTI-Y (difference-in-difference estimates)

Variable	All Women (a)		SSS <= 1st quartile (b)		SSS <= median (c)		SSS <= 3rd quartile (d)	
	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)
Group (EBCI)	0.12	(0.17)	−1.85	(0.26)	0.17	(0.25)	0.21	(0.20)
Age at LTI-Y1	−0.23	(0.19)	−0.06	(0.35)	0.02	(0.18)	−0.24	(0.22)
SSS at LTI-Y1	0.03	(0.04)	−0.06	(0.16)	0.09	(0.10)	0.04	(0.07)
N	154		46		85		123	
R^2	0.015		0.018		0.020		0.023	

* p value <= 0.1,

** p value < 0.05,

*** p value < 0.01

Table H.2:

Change in Z-score of Self-reported lifespan for **men** as a function of income dividend status, age, and social status at baseline, LTI-Y (difference-in-difference estimates)

Variable	All Men (a)		SSS <= 1st quartile (b)		SSS <= median (c)		SSS <= 3rd quartile (d)	
	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)
Group (EBCI)	0.30	(0.19)	1.03	(0.36)***	0.46	(0.28)	0.44	(0.22)**
Age at LTI-Y1	−0.08	(0.10)	−0.12	(0.19)	−0.17	(0.13)	−0.08	(0.11)
SSS at LTI-Y1	−0.22	(0.06)***	−0.40	(0.28)	−0.22	(0.15)	−0.23	(0.11)**
N	140		46		90		114	
R^2	0.121		0.213		0.097		0.096	

* p value <= 0.1,

** p value < 0.05,

*** p value < 0.01

I. Alcohol consumption as dependent variable

Alcohol consumption was measured as number of drinks consumed per week within 3 months preceding each survey wave in LTI-Y. Change in alcohol consumption was obtained by subtracting **LTI-Y 1 from LTI-Y 2** for this variable. Table I.1 presents the summary statistics of alcohol consumption and change in alcohol consumption by Race and Gender. Table I.1 describes the mean and distribution of this variable by race. Tables I.2, I.3 and I.4 present regression results with change in alcohol consumption as the outcome.

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Table I.1:

Description of Alcohol consumption for EBCI and white participants in the LTI-Y study (N = 294)

	EBCI			Whites		
	Mean	(SD)	Range	Mean	(SD)	Range
Alcohol consumption at LTI- Y1 (number of drinks per week)	3.69	8.55	0 to 48	5.47	13.64	0 to 90
Alcohol consumption at LTI- Y2 (number of drinks per week)	6.24	14.43	0 to 90	11.32	21.56	0 to 100
Change in alcohol consumption	−2.54	15.86	−78 to 36	−6.04	22.01	−97 to 78

Table I.2:

Change in alcohol consumption for women as a function of income dividend status, age and social status at baseline, LTI-Y (difference-in-difference estimates).

Variable	All Women		SSS <= 1st quartile		SSS <= median		SSS <= 3rd quartile	
	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)
Group (EBCI)	1.21	(1.66)	3.32	(5.55)	2.36	(3.10)	1.64	(2.15)
Age at LTI-Y1	3.11	(2.48)	13.37	(13.18)	5.97	(5.91)	4.59	(3.51)
SSS at LTI-Y1	1.69	(0.89) *	6.27	(5.86)	3.81	(2.59)	2.26	(1.64)
N	154		46		85		123	
R^2	0.067		0.085		0.075		0.062	

* p value <= 0.1,

** p value < 0.05,

*** p value < 0.01

Table I.3:

Change in alcohol consumption for men as a function of income dividend status, age and social status at baseline, LTI-Y (difference-in-difference estimates).

Variable	All Men		SSS <= 1st quartile		SSS <= median		SSS <= 3rd quartile	
	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)
Group (EBCI)	4.76	(4.18)	2.93	(8.01)	3.24	(6.50)	3.31	(4.82)
Age at LTI-Y1	−1.53	(3.42)	−4.21	(4.40)	−0.02	(3.14)	1.82	(2.52)
SSS at LTI-Y1	−0.25	(1.20)	−5.74	(−5.74)	−0.26	(2.85)	−0.41	(2.10)
N	140		46		90		114	
R^2	0.009		0.04		0.030		0.025	

* p value <= 0.1,

** p value < 0.05,

*** p value < 0.01

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Table I.4:

Change in alcohol consumption as a function of change in SRL, age and social status at baseline, LTI-Y (difference-in-difference estimates).

Variable	EBCI				White			
	Men		Women		Men		Women	
	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)
Change in SRL	−0.23	(0.12) *	0.05	(0.05)	−0.01	(0.16)	0.35	(0.49)
Age at LTI-Y1	−11.32	(5.09) *	−0.21	(2.53)	4.47	(3.03)	5.86	(5.86)
SSS at LTI-Y1	−1.45	(−1.24)	0.76	(1.13)	0.21	(2.22)	2.20	(1.06) *
N	54		60		82		94	
R^2	0.162		0.042		0.013		0.140	

* p value <= 0.1,

** p value < 0.05,

*** p value < 0.01

J. Results from OLS regression analysis of change in SRL including year fixed effects for LTI-Y2

Table J.1:

Change in SRL for women as a function of income dividend status, age, social status at baseline and year fixed effects, LTI-Y (difference-in-difference estimates).

Variable	All Women		SSS <= 1st quartile		SSS <= median		SSS <= 3rd quartile	
	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)
Group (EBCI)	1.27	(2.68)	−1.11	(4.65)	2.82	(4.44)	2.43	(3.17)
Age at LTI-Y1	−3.25	(2.96)	−1.98	(5.05)	2.12	(2.73)	−1.82	(3.28)
SSS at LTI-Y1	0.42	(0.69)	−2.95	(2.10)	1.11	(1.32)	0.79	(0.97)
LTI-Y2 survey year (reference = 2006)								
2007	1.23	(3.60)	4.08	(3.93)	−1.07	(6.35)	2.30	(4.42)
2008	3.44	(4.01)	2.63	(3.41)	−3.20	(6.24)	2.20	(4.48)
2009	−1.06	(3.92)	−5.53	(5.10)	−8.80	(6.65)	−3.88	(4.87)
2010	−5.94	(4.19)	−12.28	(5.14) **	−15.71	(6.38) **	−7.54	(5.01)
N	154		46		85		123	
R^2	0.053		0.220		0.161		0.085	

* p value <= 0.1,

** p value < 0.05,

*** p value < 0.01

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Table J.2:

Change in SRL for men as a function of income dividend status, age, social status at baseline and year fixed effects, LTI-Y (difference-in-difference estimates).

Variable	All Men		SSS <= 1st quartile		SSS <= median		SSS <= 3rd quartile	
	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)
Group (EBCI)	5.07	(3.05) *	16.24	(5.54) ***	6.89	(4.05) *	6.83	(3.40) *
Age at LTI-Y1	−1.09	(1.61)	−2.49	(3.71)	−2.85	(2.62)	−0.94	(1.90)
SSS at LTI-Y1	−3.63	(0.96) ***	−6.36	(4.19)	−3.85	(1.76) **	−4.11	(1.65) **
LTI-Y2 survey year (reference = 2006)								
2007	6.30	(2.93) **	6.16	(5.53)	6.69	(5.97)	5.68	(3.24) *
2008	1.46	(3.02)	3.47	(6.22)	1.42	(6.01)	1.30	(3.31)
2009	1.73	(4.76)	11.49	(8.42)	9.99	(7.03)	3.28	(5.30)
2010	4.43	(4.36)	−2.49	(8.20)	2.23	(6.46)	4.30	(4.78)
N	140		46		90		114	
R^2	0.164		0.355		0.097		0.143	

* p value <= 0.1,

** p value < 0.05,

*** p value < 0.01

LIST OF ABBREVIATIONS

EBCI	Eastern Band of Cherokee Indians
SES	Socioeconomic Status
LTI-Y	Life Trajectory Interview for Youth
GSMS	Great Smoky Mountains Study
SRL	Self-Reported Lifespan
SSS	Subjective Social Status

REFERENCES

Adler Nancy E., and Stewart Judith. "The MacArthur scale of Subjective Social Status." Psychosocial Notebook. Research Network on SES & Health, (The John D. and Katherine T. MacArthur Foundation, 2007). Last revised March, 2007. https://macses.ucsf.edu/research/psychosocial/subjective.php

Adler Nancy E., Boyce Thomas, Chesney Margaret A., Cohen Sheldon, Folkman Susan, Kahn Robert L., and Syme S. Leonard. "Socioeconomic status and health: the challenge of the gradient." American Psychologist 49, no. 1 (1994): 15. [PubMed: 8122813]

Akee Randall KQ, Copeland William E., Keeler Gordon, Angold Adrian, and Costello E. Jane. "Parents' incomes and children's outcomes: a quasi-experiment using transfer payments from casino profits." American Economic Journal: Applied Economics 2, no. 1 (2010): 86–115. [PubMed: 20582231]

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Akee Randall, Copeland William, Costello E. Jane, and Simeonova Emilia. "How does household income affect child personality traits and behaviors?." American Economic Review 108, no. 3 (2018): 775–827. [PubMed: 29568124]

Akresh Richard, Verwimp Philip, and Bundervoet Tom. "Civil war, crop failure, and child stunting in Rwanda." Economic Development and Cultural Change 59, no. 4 (2011): 777–810.

Beck Aaron T., Weissman Arlene, Lester David, and Trexler Larry. "The measurement of pessimism: the hopelessness scale." Journal of consulting and clinical psychology 42, no. 6 (1974): 861. [PubMed: 4436473]

Becketti Sean, Gould William, Lillard Lee, and Welch Finis. "The panel study of income dynamics after fourteen years: An evaluation." Journal of Labor Economics 6, no. 4 (1988): 472–492.

Bertrand Marianne, Duflo Esther, and Mullainathan Sendhil. "How much should we trust differences-in-differences estimates?." The Quarterly Journal of Economics 119, no. 1 (2004): 249–275.

Bitler Marianne P., and Currie Janet. "Does WIC work? The effects of WIC on pregnancy and birth outcomes." Journal of Policy Analysis and Management: The Journal of the Association for Public Policy Analysis and Management 24, no. 1 (2005): 73–91.

Bloom David E., and Canning David. "The health and wealth of nations." Science 287, no. 5456 (2000): 1207–1209. [PubMed: 10712155]

Bolland John M. "Hopelessness and risk behaviour among adolescents living in high-poverty inner-city neighbourhoods." Journal of adolescence 26, no. 2 (2003): 145–158. [PubMed: 12581723]

Borowsky Iris Wagman, Ireland Marjorie, and Resnick Michael D.. "Health status and behavioral outcomes for youth who anticipate a high likelihood of early death." Pediatrics 124, no. 1 (2009): e81–e88. [PubMed: 19564273]

Brown Ryan A., Worthman Carol M., Costello E. Jane, and Erkanli Alaattin. "The Life Trajectory Interview for Youth (LTI-Y): method development and psychometric properties of an instrument to assess life-course models and achievement." International Journal of Methods in Psychiatric Research 15, no. 4 (2006): 206–15.

Brown Ryan A., Adler Nancy E., Worthman Carol M., Copeland William E., Costello E. Jane, and Angold Adrian. "Cultural and community determinants of subjective social status among Cherokee and White youth." Ethnicity & Health 13, no. 4 (2008): 289–303. [PubMed: 18701990]

Bruckner Tim A., Brown Ryan A., and Margerison-Zilko Claire. "Positive income shocks and accidental deaths among Cherokee Indians: a natural experiment." International Journal of Epidemiology 40, no. 4 (2011): 1083–1090. [PubMed: 21527447]

Bruckner Tim A., Rehkopf David H., and Catalano Ralph A.. "Income gains and very low-weight birth among low-income black mothers in California." Biodemography and Social Biology 59, no. 2 (2013): 141–156. [PubMed: 24215256]

Bullock Ann, and Bradley Vickie L.. "Family income supplements and development of psychiatric and substance use disorders among an American Indian population." JAMA 304, no. 9 (2010): 962–963. [PubMed: 20810370]

Carr Jillian B., and Packham Analisa. "Snap benefits and crime: Evidence from changing disbursement schedules." Review of Economics and Statistics 101, no .2 (2019): 310–325.

Carvalho Leandro S., Meier Stephan, and Wang Stephanie W.. "Poverty and economic decision-making: Evidence from changes in financial resources at payday." American Economic Review 106, no. 2 (2016): 260–84. [PubMed: 28003681]

Contreras-Suarez Diana, and Cameron Lisa. "Conditional Cash Transfers: Do They Result in More Patient Choices and Increased Educational Aspirations?." Economic Development and Cultural Change (forthcoming).

Chao Li-Wei, Szrek Helena, Pereira Nuno Sousa, and Pauly Mark V.. "Time preference and its relationship with age, health, and survival probability." Judgment and Decision Making 4, no. 1 (2009): 1. [PubMed: 20376300]

Chen Edith, and Paterson Laurel Q.. "Neighborhood, family, and subjective socioeconomic status: How do they relate to adolescent health?." Health Psychology 25, no. 6 (2006): 704. [PubMed: 17100499]

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Chetty Raj, Stepner Michael, Abraham Sarah, Lin Shelby, Scuderi Benjamin, Turner Nicholas, Bergeron Augustin, and Cutler David. "The association between income and life expectancy in the United States, 2001–2014." JAMA 315, no. 16 (2016): 1750–1766. [PubMed: 27063997]

Chisholm James S., Quinlivan Julie A., Petersen Rodney W., and Coall David A.. "Early stress predicts age at menarche and first birth, adult attachment, and expected lifespan." Human Nature 16, no. 3 (2005): 233–265. [PubMed: 26189749]

Copeland William E., Angold Adrian, Shanahan Lilly, and Costello E. Jane. "Longitudinal patterns of anxiety from childhood to adulthood: the Great Smoky Mountains Study." Journal of the American Academy of Child & Adolescent Psychiatry 53, no. 1 (2014): 21–33. [PubMed: 24342383]

Costello E. Jane, Angold Adrian, Burns Barbara J., Stangl Dalene K., Tweed Dan L., Erkanli Alaattin, and Worthman Carol M.. "The Great Smoky Mountains Study of Youth: goals, design, methods, and the prevalence of DSM-III-R disorders." Archives of General Psychiatry 53, no. 12 (1996): 1129–1136. [PubMed: 8956679]

Costello E. Jane, Erkanli Alaattin, Copeland William, and Angold Adrian. "Association of family income supplements in adolescence with development of psychiatric and substance use disorders in adulthood among an American Indian population." JAMA 303, no. 19 (2010): 1954–1960. [PubMed: 20483972]

Costello E. Jane, Compton Scott N., Keeler Gordon, and Angold Adrian. "Relationships between poverty and psychopathology: A natural experiment." JAMA 290, no. 15 (2003): 2023–2029. [PubMed: 14559956]

Courtin Emilie, Muennig Peter, Verma Nandita, Riccio James A., Lagarde Mylene, Vineis Paolo, Kawachi Ichiro, and Avendano Mauricio. "Conditional cash transfers and health of low-income families in the US: Evaluating the family rewards experiment." Health Affairs 37, no. 3 (2018): 438–446. [PubMed: 29505381]

Currie Janet. "Healthy, wealthy, and wise: Socioeconomic status, poor health in childhood, and human capital development." Journal of economic literature 47, no. 1 (2009): 87–122.

Dahl R "Adolescent brain development: A period of opportunities and vulnerabilities." Annals of the New York Academy of Science 1021 (2004): 1–22.

Dominitz Jeff, and Manski Charles F.. "Eliciting student expectations of the returns to schooling." Journal of Human Resources 31, no. 1 (1996): 1–27.

Duke Naomi N., Skay Carol L., Pettingell Sandra L., and Borowsky Iris W.. "Adolescent perception of premature risk for death: Contributions from individual and environmental contextual factors." Academic Pediatrics 9, no. 4 (2009): 256–262. [PubMed: 19608126]

Duke Naomi N., Skay Carol L., Pettingell Sandra L., and Borowsky Iris W.. "Early death perception in adolescence: Identifying factors associated with change from pessimism to optimism about life expectancy." Clinical Pediatrics 50, no. 1 (2011): 21–28. [PubMed: 20837616]

Elder Todd E. "Subjective Survival Probabilities in the Health and Retirement Study: Systematic Biases and Predictive Validity." University of Michigan, Michigan Retirement Research Center Paper No. WP 2007–159 (2007): 48104.

Evans William N., and Garthwaite Craig L.. "Giving mom a break: The impact of higher EITC payments on maternal health." American Economic Journal: Economic Policy 6, no. 2 (2014): 258–90.

Fernald Lia C., Gertler Paul J., and Neufeld Lynnette M.. "10-year effect of Oportunidades, Mexico's conditional cash transfer programme, on child growth, cognition, language, and behaviour: a longitudinal follow-up study." The Lancet 374, no. 9706 (2009): 1997–2005.

Fischhoff Baruch, Parker Aandrew M., de Bruin Wändi Bruine, Downs Julie, Palmgren Claire, Dawes Robyn, and Manski Charles F.. "Teen expectations for significant life events." The Public Opinion Quarterly 64, no. 2 (2000): 189–205. [PubMed: 10984333]

Forget Evelyn L. "The town with no poverty: The health effects of a Canadian guaranteed annual income field experiment." Canadian Public Policy 37, no. 3 (2011): 283–305.

Franzini Luisa, and Fernandez-Esquer Maria Eugenia. "The association of subjective social status and health in low-income Mexican-origin individuals in Texas." Social Science & Medicine 63, no. 3 (2006): 788–804. [PubMed: 16580107]

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Frederick Shane, Loewenstein George, and O'donoghue Ted. "Time discounting and time preference: A critical review." Journal of Economic Literature 40, no. 2 (2002): 351–401.

Fussell Elizabeth, and Furstenberg Frank F. Jr. The transition to adulthood during the twentieth century: race, nativity, and gender. University of Chicago Press, 2005.

Goldin Jacob, Homonoff Tatiana, and Meckel Katherine. "Is there an Nth of the month effect? The timing of SNAP issuance, food expenditures, and grocery prices." Duke Public and IO Seminar Series, March, Vol. 29 2016.

Goldman-Mellor Sidra J., Saxton Katherine B., and Catalano Ralph C.. "Economic contraction and mental health: A review of the evidence, 1990–2009." International Journal of Mental Health 39, no. 2 (2010): 6–31.

Goldsmith Oliver Scott. "The Alaska permanent fund dividend: A case study in implementation of a basic income guarantee." (2010). http://dspace31b.library.uaf.edu:8080/xmlui/bitstream/handle/11122/4170/bien_xiii_ak_pfd_lessons.pdf?sequence=1

Goodman Elizabeth, Adler Nancy E., Kawachi Ichiro, Frazier A. Lindsay, Huang Bin, and Colditz Graham A.. "Adolescents' Perceptions of Social Status: Development and Evaluation of a New Indicator." Pediatrics 108, no. 2 (2001): e31–e31. [PubMed: 11483841]

Goodman Elizabeth, Adler Nancy E., Daniels Stephen R., Morrison John A., Slap Gail B., and Dolan Lawrence M.. "Impact of objective and subjective social status on obesity in a biracial cohort of adolescents." Obesity Research 11, no. 8 (2003): 1018–1026. [PubMed: 12917508]

Grossman Michael. "On the concept of health capital and the demand for health." Journal of Political economy 80, no. 2 (1972): 223–255.

Handa Sudhanshu, Seidenfeld David, and Tembo Gelson. "The impact of a large scale poverty targeted cash transfer program on inter-temporal choice." Economic Development and Cultural Change (2019). DOI: 10.1086/702997

Haushofer Johannes, and Fehr Ernst. "On the psychology of poverty." Science 344, no. 6186 (2014): 862–867. [PubMed: 24855262]

Heckman James J., and Mosso Stefano. "The economics of human development and social mobility." Annual Review of Economics 6, no. 1 (2014): 689–733.

Hill Elizabeth M., Ross Lisa Thomson, and Low Bobbi S.. "The role of future unpredictability in human risk-taking." Human Nature 8, no. 4 (1997): 287. [PubMed: 26197163]

Hu Peifeng, Adler Nancy E., Goldman Noreen, Weinstein Maxine, and Seeman Teresa E.. "Relationship between subjective social status and measures of health in older Taiwanese persons." Journal of the American Geriatrics Society 53, no. 3 (2005): 483–488. [PubMed: 15743294]

Hurd Michael D., and McGarry Kathleen. "Evaluation of the subjective probabilities of survival in the health and retirement study." Journal of Human Resources (1995): S268–S292.

Hurd Michael D., and McGarry Kathleen. "The predictive validity of subjective probabilities of survival." The Economic Journal 112, no. 482 (2002): 966–985.

Indian Gaming Regulatory Act (IGRA). Public Law 100–497-Oct. 17, 1988 100th Congress Sec. 2701 (1988). https://www.nigc.gov/general-counsel/indian-gaming-regulatory-act

Indian Health Service (IHS). "Indian Health Disparities." Last modified 4, 2017 https://www.ihs.gov/newsroom/includes/themes/newihstheme/display_objects/documents/factsheets/Disparities.pdf

Jackman Mary R., and Jackman Robert W.. "An interpretation of the relation between objective and subjective social status." American Sociological Review (1973): 569–582. [PubMed: 4745630]

Kitagawa Evelyn M., and Hauser Philip M.. "Differential mortality in the United States: A study in socioeconomic epidemiology" Vital and Health Statistics Monographs, American Public Health Association (1973) Harvard University Press.

Leu Janxin, Yen Irene H., Gansky Stuart A., Walton Emily, Adler Nancy E., and Takeuchi David T.. "The association between subjective social status and mental health among Asian immigrants: Investigating the influence of age at immigration." Social Science & Medicine 66, no. 5 (2008): 1152–1164. [PubMed: 18191317]

Linden Ariel. "Assessing regression to the mean effects in health care initiatives." BMC Medical Research Methodology 13, no. 1 (2013a): 119. [PubMed: 24073634]

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Linden Ariel. "RTMCI: Stata module to estimate regression to the mean effects with confidence intervals" Statistical Software Components S457757, Boston College Department of Economics (2013b).

Lynch John W., George Davey Smith George A. Kaplan, and House James S.. "Income inequality and mortality: importance to health of individual income, psychosocial environment, or material conditions." BMJ: British Medical Journal 320, no. 7243 (2000): 1200–1204. [PubMed: 10784551]

Manski Charles F. "Measuring expectations." Econometrica 72, no. 5 (2004): 1329–1376.

Nguyen Quynh C., Hussey Jon M., Halpern Carolyn T., Villaveces Andres, Marshall Stephen W., Siddiqi Arjumand, and Poole Charles. "Adolescent expectations of early death predict young adult socioeconomic status." Social Science & Medicine 74, no. 9 (2012): 1452–1460. [PubMed: 22405687]

O'Brien J. Patrick, and Olson Dennis O.. "The Alaska permanent fund and dividend distribution program." Public Finance Quarterly 18, no.2 (1990): 139–156.

Operario Don, Adler Nancy E., and Williams David R.. "Subjective social status: Reliability and predictive utility for global health." Psychology & Health 19, no. 2 (2004): 237–246.

Palloni Alberto, and Novak Beatriz. "Subjective survival expectations and observed survival: How consistent are they." Vienna Yearbook of Population Research 14 (2016): 187–227. [PubMed: 30740130]

Peracchi Franco, and Perotti Valeria. "Subjective survival probabilities and life tables: Evidence from Europe." Einaudi Institute for Economics and Finance (EIEF) Working Paper 10 (2010): 16.

Pulcu E, Trotter PD, Thomas EJ, McFarquhar M, Gabriella Juhász B. J. Sahakian, Deakin JFW, Zahn R, Anderson IM, and Elliott R. "Temporal discounting in major depressive disorder." Psychological Medicine 44, no. 9 (2014): 1825–1834. [PubMed: 24176142]

Rodgers Gerry B. "Income and inequality as determinants of mortality: an international cross-section analysis." Population Studies 33, no. 2 (1979): 343–351.

Rogot Eugene, Sorlie Paul D., and Johnson Norman J.. "Life expectancy by employment status, income, and education in the National Longitudinal Mortality Study." Public health reports 107, no. 4 (1992): 457. [PubMed: 1641443]

Schnittker Jason, and McLeod Jane D.. "The social psychology of health disparities." Annual Review of Sociology 31 (2005): 75–103.

Siegel Michele, Bradley Elizabeth H., and Kasl Stanislav V.. "Self-rated life expectancy as a predictor of mortality: evidence from the HRS and AHEAD surveys." Gerontology 49, no. 4 (2003): 265–271. [PubMed: 12792164]

Singh-Manoux Archana, Adler Nancy E., and Marmot Michael G.. "Subjective social status: its determinants and its association with measures of ill-health in the Whitehall II study." Social Science & Medicine 56, no. 6 (2003): 1321–1333. [PubMed: 12600368]

Solon Gary, Haider Steven J., and Wooldridge Jeffrey M.. "What are we weighting for?." Journal of Human Resources 50, no. 2 (2015): 301–316.

Story Giles, Vlaev Ivo, Seymour Ben, Darzi Ara, and Dolan Ray. "Does temporal discounting explain unhealthy behavior? A systematic review and reinforcement learning perspective." Frontiers in Behavioral Neuroscience 8 (2014): 76. [PubMed: 24659960]

Strully Kate W., Rehkopf David H., and Xuan Ziming. "Effects of prenatal poverty on infant health: state earned income tax credits and birth weight." American Sociological Review 75, no. 4 (2010): 534–562. [PubMed: 21643514]

Syme S. Leonard. "The prevention of disease and promotion of health: the need for a new approach." The European Journal of Public Health 17, no. 4 (2007): 329–330. [PubMed: 17670810]

Ullmer James. "The economic effects of Harrah's Cherokee casino and hotel on the regional economy of Western North Carolina." Journal of Economics and Economic Education Research 8, no. 2 (2007): 33.

Wang Xiao-Tian, Kruger Daniel J., and Wilke Andreas. "Life history variables and risk-taking propensity." Evolution and Human Behavior 30, no. 2 (2009): 77–84.

Wilkinson Richard G. "Income distribution and life expectancy." BMJ: British Medical Journal 304, no. 6820 (1992): 165. [PubMed: 1637372]

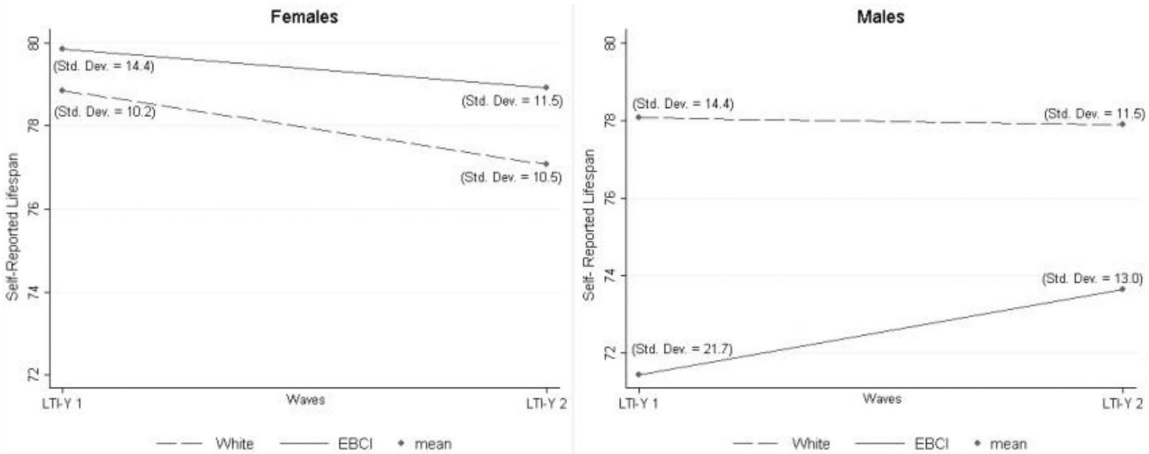

Figure 1:

Self-reported lifespan for women and men in years, for EBCI and White respondents over two survey waves, 2000 to 2010 (Standard Deviation of mean values shown in parentheses)

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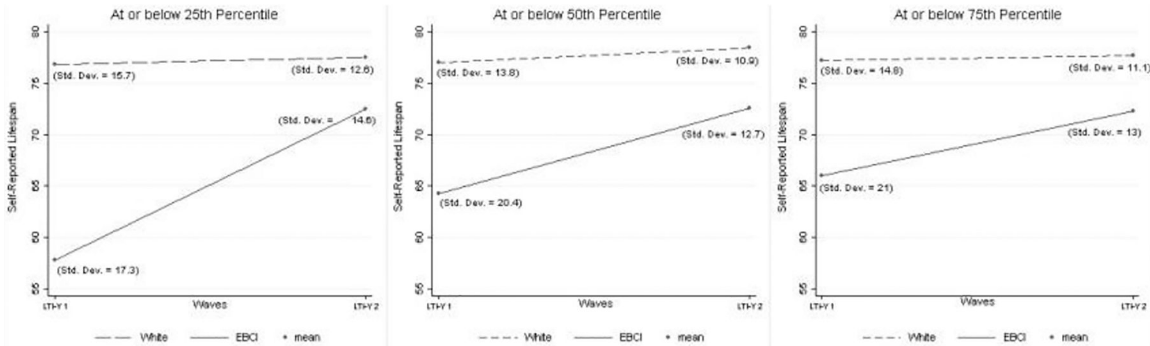

Figure 2:
Change in SRL for men by Subjective Social Status’ (SSS) percentile (Standard Deviation of mean values shown in parentheses)

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Table 1.

Description of continuous variables for EBCI and white participants in the LTI-Y study (N = 294).

Variables	EBCI			Whites		
	Mean	**(SD)**	**Range**	**Mean**	**(SD)**	**Range**
Self-Reported Lifespan at LTI-Y1 (yrs)	75.92	(19.55)	30 to 110	78.48	(12.45)	40 to 110
Self-Reported Lifespan at LTI-Y2 (yrs)	76.41	(13.69)	40 to 99	77.45	(10.92)	40 to 99
Change in Self-Reported Lifespan	1.24	(18.24)	−40 to 60	−0.68	(12.22)	−40 to 60
Subjective Social Status at LTI-Y1	5.65	(1.80)	2 to 10	4.94	(1.57)	1 to 8
Subjective Social Status at LTI-Y2	5.97	(1.81)	2 to 10	5.60	(1.64)	1 to 10
Age at LTI-Y1 (yrs)	19.39	(0.59)	19 to 24	19.20	(0.56)	19 to 24
Age at LTI-Y2 (yrs)	26.10	(1.90)	25 to 29	25.85	(0.85)	25 to 29
Sample Size		114			180	

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Table 2.

Change in Self-reported lifespan score for women as a function of income dividend status, age, and social status at baseline, LTI-Y (difference-in-difference estimates).

Variable	All Women (a)		SSS <= 1st quartile (b)		SSS <= median (c)		SSS <= 3rd quartile (d)	
	Coef.	**(SE)**	**Coef.**	**(SE)**	**Coef.**	**(SE)**	**Coef.**	**(SE)**
Group (EBCI)	1.85	(2.57)	−2.74	(3.86)	2.51	(3.76)	3.16	(2.99)
Age at LTI-Y1	−3.36	(2.84)	−0.82	(5.23)	−0.29	(2.72)	−3.55	(3.23)
SSS at LTI-Y1	0.42	(0.66)	−0.87	(2.36)	1.35	(1.45)	0.57	(1.02)
N	154		46		85		123	
R^2	0.015		0.018		0.020		0.023	

* p value <= 0.1,

** p value < 0.05,

*** p value < 0.01

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Table 3.

Change in Self-reported lifespan score for men as a function of income dividend status, age, and social status at baseline, LTI-Y (difference-in-difference estimates).

Variable	All Men (a)		SSS <= 1st quartile (b)		SSS <= median (c)		SSS <= 3rd quartile (d)	
	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)	Coef.	(SE)
Group (EBCI)	4.41	(2.85)	15.23	(5.39)***	6.82	(4.13)*	6.52	(3.26)**
Age at LTI-Y1	−1.12	(1.44)	−1.79	(2.87)	−2.46	(1.91)	−1.21	(1.66)
SSS at LTI-Y1	−3.24	(0.93)***	−5.96	(4.18)	−3.25	(2.20)	−3.42	(1.62)**
N	140		46		90		114	
R^2	0.121		0.213		0.097		0.096	

* p value <= 0.1,

** p value < 0.05,

*** p value < 0.01