GLOBAL ECONOMY & DEVELOPMENT
WORKING PAPER 104 | JUNE 2017

Global Economy and Development at BROOKINGS

UNEQUAL HOPES AND LIVES IN THE U.S.

OPTIMISM (OR LACK THEREOF), RACE, AND PREMATURE MORTALITY

Carol Graham
Sergio Pinto

B | Global Economy and Development
at BROOKINGS

Carol Graham is the Leo Pasvolsky Senior Fellow at the Brookings Institution and College Park Professor at the School of Public Policy at the University of Maryland.

Sergio Pinto is a Ph.D. student at the University of Maryland.

Acknowledgments:

The Brookings Institution is a nonprofit organization devoted to independent research and policy solutions. Its mission is to conduct high-quality, independent research and, based on that research, to provide innovative, practical recommendations for policymakers and the public. The conclusions and recommendations of any Brookings publication are solely those of its author(s), and do not reflect the views of the Institution, its management, or its other scholars.

Brookings gratefully acknowledges the support provided by the Robert Wood Johnson Foundation.

Brookings recognizes that the value it provides is in its absolute commitment to quality, independence and impact. Activities supported by its donors reflect this commitment and the analysis and recommendations are not determined or influenced by any donation. A full list of contributors to the Brookings Institution can be found in the Annual Report at https://www.brookings.edu/about-us/annual-report/.

Authors' Note:

This paper extends earlier research on the topic in Happiness for All: Unequal Hopes and Lives in Pursuit of the American Dream (Princeton University Press, 2017) and delves into greater detail on the mortality rate trends and particulars about place. We thank Andrew Oswald as well as Alice Rivlin, Alan Blinder, Belle Sawhill, Bill Galston, Mike O'Hanlon, Bradley Hardy and other participants at a Brookings "restoring the middle class" seminar for very helpful comments, and acknowledge the generous support for this work from a pioneer award from the Robert Wood Johnson Foundation.

Abstract:

The 2016 election highlighted deep social and political divisions in the United States, and related unhappiness and frustration among poor and uneducated whites. We find large heterogeneities in optimism across race groups. After controlling for individual characteristics, African Americans are by far the most optimistic, while whites and Asian Americans are the least optimistic, and these differences are largest among low-income groups. When adding a rural/urban dimension, we found that poor rural whites are the least hopeful among the poor. African Americans and Hispanics also display higher life satisfaction and lower stress incidence than do poor whites. The gaps between African Americans and whites tend to be at their peak in middle age (45-54 and 55-64 year olds). We also explored the association between our detailed data on subjective well-being with the Centers for Disease Control and Prevention mortality rate data at the Metropolitan Statistical Area (MSA) level. Our results suggest that the absence of hope, which relates to fears about downward mobility among poor and middle-class whites, matches the trends in premature mortality among 45-54 year olds of the same cohorts and in the same places. MSAs with a higher percentage of African-American respondents, which are typically urban and ethnically diverse, tend to be healthier, happier, and more optimistic about the future. We also discuss the mediating effects of reported pain, reliance on disability insurance, and differential levels of resilience across blacks, Hispanics, and whites. These trends constitute a social crisis of proportions that we do not fully understand. We highlight the importance of documenting the extent of the crisis and exploring its causes as a step toward finding solutions in the safety net, health, education, and well-being arenas.

CONTENTS

FIGURES

TABLES

UNEQUAL HOPES AND LIVES IN THE U.S.

OPTIMISM (OR LACK THERE-OF), RACE, AND PREMATURE MORTALITY

Carol Graham
Sergio Pinto

INTRODUCTION

Over the past several years, stark disparities in well-being have emerged among less educated segments of the U.S. population, revealing pockets of extreme desperation and despair. Most notably, minorities, who have traditionally faced discrimination, are much happier and less frustrated than are poor and uneducated whites who live primarily in suburban and rural areas in the heartland. Rising mortality among uneducated whites is the starkest marker of this desperation and is driven by preventable deaths such as suicides and opioid poisoning. No surprise, then, that the 2016 U.S. presidential election exposed deep societal divisions across America.

These trends reflect a social crisis with multiple and complex causes, not all of which we fully understand. An important first step is to document the extent of the crisis and to seek a deeper understanding of its causes. We hope that the results of our research, reported in this paper and based on metrics of well-being, such as life satisfaction and hope for the future on the one hand, and stress, worry, and pain on the other, can contribute to that effort.

Our metrics highlight the high costs of being poor in the land of the American Dream, where the focus is on opportunity and individual success, with little consensus around society's collective responsibility to care for those who fall behind. Our metrics uncover costs that are less in the form of the material deprivation more typical of poverty in poor countries, and more in the form of stress, insecurity, poor health, and lack of hope.[1] These costs manifest themselves differently across race and place, and show up among poor and uneducated whites in the form of deep desperation.

Their situation is characterized by lack of hope and aspirations for the future, high levels of unemployment, stark markers of poor health, such as diabetes, obesity, and drug and alcohol addiction, and rising mortality rates driven by preventable deaths from causes such as suicide and opioid poisoning—particularly (but not only) among the middle aged. These trends stand in sharp contrast to high levels of optimism and psychological resilience, gradually improving health indicators, and a closing of the gap in mortality rates among their poor black and Hispanic counterparts.

What explains these surprising trends, which are, at least among wealthy countries, unique to the U.S.? A number of studies have focused on differential trends in mobility (and especially fear of downward mobility, Cherlin 2016); differential health behaviors across place (Chetty et al., 2016); inequality of opportunity (Chetty et al 2014); and structural economic trends. The latter include the bottoming out of

manufacturing in many regions and a related increase in dropouts from the labor market (Krueger, 2016), among other explanations.[2]

The unhappiness and lack of hope related to these trends, meanwhile, has potential linkages to longevity in general. Happier people tend to be healthier and more productive (Graham, 2008; Graham, Eggers, and Sukhtankar, 2004; deNeve et al. 2013).[3] And individuals with a greater sense of purpose—described as eudemonic well-being by some economists and psychologists, and as "flourishing" by others—also tend to live longer (Steptoe, Deaton, and Stone, 2015; Keyes et al., 2012).[4]

Steptoe, Deaton, and Stone use the English Longitudinal Study of Aging (ELSA) and standard measures of eudemonia, such as autonomy, sense of control, and purpose in life and found that the mortality rate over eight years was 30 percent in the lowest quartile of well-being, but only 9 percent in the highest quartile. Keyes et al. use the U.S. Midlife Development in the U.S. (MIDUS) data from 1995 through 2010, and found that individuals with positive scores on 6 out of 11 (similar) eudemonic questions in that survey have lower adjusted risk of all-cause mortality. The same respondents were less likely to use tobacco and more likely to be physically active.

In November 2015, Anne Case and Angus Deaton published a path-breaking study showing a marked increase in the all-cause mortality of high school (and below) educated white middle-aged non-Hispanic men and women between 1999 and 2013.[5] The change reversed decades of progress in mortality; it is unique to the United States and to non-Hispanic whites in particular. Drug and alcohol poisoning, suicide, chronic liver diseases, and cirrhosis were the major factors in the mortality rate increase. Those respondents with the least education saw the greatest increases in these diseases. Self-reported health, mental health, and ability to conduct activities of daily living in this group also saw a marked decrease, also suggestive of growing stress.

Case and Deaton published an updated study in March of 2017, which suggests that the trends in mortality encompass a broader range of ages for these same cohorts, and the same cohorts experienced a stalling of progress against heart disease and cancer due to obesity and smoking, among other things.[6] They also found that the trends pertained not only to rural areas but also to smaller cities and suburban areas, with the exception of the largest coastal cities.

Neither blacks nor Hispanics experienced an increase in death rates during the same period and, indeed, continued a gradual narrowing of their relative gaps in life expectancy to whites. Servin Assari, M.D., and colleagues (2016) found that while black Americans have worse health indicators than white Americans on average, they (and minority groups in general) are better off in terms of mental health. Depression, anxiety, and suicide are all more common among whites than African Americans.[7]

A new paper by Shiels et al. (2017), meanwhile, shows the preventable death increases occurring at an earlier age (25-30) for white men and women, as well as for Native Indian and Alaskan Native men and women, in addition to the increases in the 30-49 age group for these same cohorts. The increase in suicides and accidental deaths underlying these increases stand in sharp contrast to the flat or decreasing trends for these kinds of deaths for the same age groups of blacks and Hispanics (as well as the same decrease in mortality rates for these groups noted above).[8]

Building on the Case and Deaton research, Justin Pierce and Peter Schott (2016) found that U.S. counties that were more exposed to trade liberalization beyond national borders had an increase in suicide deaths following such moves as the enactment of permanent Normal Trade Relations with China in 2000. The relative increases in these kinds of deaths were concentrated among whites, a group with disproportionately high employment in manufacturing, the sector most directly affected by the change in trade policy.[9]

There are also some differences in the kinds of premature mortality rates across regions. Dwyer-Lindgren et al. (2017) found that cardiovascular disease mortality tended to be highest along the southern half of the Mississippi River, while mortality rates from self-harm and interpersonal violence were elevated in southwestern counties, and mortality rates from chronic respiratory disease were highest in counties in eastern Kentucky and western West Virginia.[10] The authors found that deaths from self-harm declined in the past decade in California, Texas, and other coastal areas, but increased in the Midwest and in parts of New England. Our primary focus was on the increase in premature deaths due to self-harm—the so-called "deaths of despair"—and the extent to which reflect the patterns in deep desperation that we found in our data.

We used well-being metrics to document differential trends in hope and desperation, which we believe play an important role in the current U.S. story. The trends in our well-being data mimic those in health, unemployment, mortality—and certain traits pertaining to place—and highlight stark differences in life satisfaction, stress, and hope for the future across poor whites, blacks, and Hispanics. Indeed, at the same time that Case and Deaton released their study, our ongoing research, based on extensive Gallup data for over 770,000 respondents across U.S. metropolitan statistical areas (MSAs), exposed some trends that complement the mortality story.

We found marked differences in life satisfaction, hope for the future, and stress across poor blacks, Hispanics, and whites, with the latter cohort demonstrating signs of deep desperation and the former two much happier, more optimistic, and less stressed.[11] Since then, we have been exploring the extent of robust associations between the patterns in mortality and in well-being by matching our individual and local well-being data with statistics on mortality rates.

We hope that, by documenting the high toll incurred from being poor via the lens of well-being metrics—and such costs to objective indicators such as premature deaths—can help explain the deep divisions in American society and point to some potential solutions. In addition, if well-being metrics link closely to objective markers of poor health, they could serve as leading indicators in monitoring the health and well-being of different cohorts in society going forward.

DATA AND EMPIRICAL SPECIFICATION

The main data source of our paper is the Gallup Healthways (GH) survey, collected daily for adult individuals all across the U.S. In addition to covering a wide range of demographic details and economic and self-reported health conditions of the respondents, GH fields a series of questions on subjective well-being—as measured by emotional experiences and conditions. In some specifications, we complement the GH with data from the American Community Survey (ACS) and the Centers for Disease Control and Prevention (CDC) Detailed Mortality database. These two data sources allow us to compute MSA-level variables: the former accounts for household income and inequality data, while we use the latter for obtaining mortality rates.

In our main specification, using only GH's individual-level data, we focus on the 2010-15 period.[12] While our interest is in the whole U.S. adult population, data availability imposes some constraints. Firstly, we are only able to consider those living in MSAs. As of 2015, according to United States Census Bureau (USCB) estimates,[13] the 381 MSAs[14] in U.S. territory accounted for 85.6 percent of the population.[15] Secondly, GH only computes MSA-level sampling weights for the MSAs where more than 300 individuals are surveyed in a given year. As a result, only between 188 and 190 of the 381 MSAs can be used for 2010-12(representing between 88.9 percent and 89.3 percent of the population living in MSAs), and only between 105 and 108 can be used for the 2013-15 period (between 78.6 percent and 79.2 percent of the population living in MSAs). Because the number and definition of MSAs changed in 2013, a total of 196 MSAs appear in at least one year, and 103 are present in every year between 2010 and 2015 (between 77.9 percent and 78.2 percent of the population living in MSAs belongs to this later group). In very broad terms, the 196 MSAs tend to correspond to those above 300,000 people and the more restricted group of 103 to those above 500,000 people.[16]

For the 2010-15 period, GH provides us with a repeated cross section of approximately 1.6 million U.S. adults, of which close to 1.32 million live in MSAs, with the remaining 0.3 million living in "micropolitan" statistical areas or in smaller counties whose urban core population is below the threshold to become a micropolitan statistical area.[17] Over 1 million live in MSAs that have enough surveyed individuals for Gallup to compute survey weights. Finally, from these, approximately 0.8 million have data for both the dependent variables under analysis and the controls. This group will be the focus of our analysis, although we also have some analysis based on the smaller micropolitan areas and counties.

The GH provides extensive individual-level data, although in some cases we had to make some additional adjustments. The income variable collected on GH does not give a precise income value, instead assigning respondents to a 0-10 scale for the household's pretax income, with 0 being the lowest value (below $720 per year) and 10 the highest (above $120,000 per year). That prevents us from directly applying the poverty thresholds as defined by the U.S. Census Bureau.[18]

Instead, we divided respondents into three categories: poor, middle-income, and rich. Respondents in the top income bracket defined by GH, those with a pretax household income of over $120,000/year identified as "rich" (roughly 18 percent of total respondents). We assigned those in the bottom five categories, whose pretax income is below $22,000 per household—corresponding roughly to the official poverty line for a family of four—to the "poor" category (roughly 17 percent of the respondents).[19] We classified those in the remaining five income categories as middle income. For race, GH assigns the respondent to one of five categories (Asian, Black, Hispanic, Other Race, and White) and no adjustments are required. For age, our only adjustment was to exclude anyone above 98 (less than 0.1 percent of respondents).

Equation 1) below describes the empirical specification for the race-income heterogeneities we are trying to explore:

$$(1)\ WB_{ijt} = \beta_0 + \beta_1*(poorhh_{ijt}) + \beta_2*(richhh_{ijt}) + \beta_3*(black_{ijt}) + \beta_4*(hispanic_{ijt}) + \beta_5*(asian_{ijt}) + \beta_6*(other\ race_{ijt}) + \beta_7*(poorhh_{ijt})*(black_{ijt}) + \beta_8*(poorhh_{ijt})*(hispanic_{ijt}) + \beta_9*(poorhh_{ijt})*(asian_{ijt}) + \beta_{10}*(poorhh_{ijt})*(other\ race_{ijt}) + \beta_1*(richhh_{ijt})*(black_{ijt}) + \beta_{12}*(richhh_{ijt})*(hispanic_{ijt}) + \beta_{13}*(richhh_{ijt})*(asian_{ijt}) + \beta_{14}*(richhh_{ijt})*(other\ race_{ijt}) + \beta_{15}*(Z_{ijt})+(MSA\ dummies_j)+(year\ dummies_t) + \varepsilon ijt$$

WB represents one of the well- or ill-being markers under consideration for individual *i*, in MSA *j*, for time *t*. The markers we consider are: (i) reported life satisfaction today, (ii) expected life satisfaction in 5 years (proxy for optimism), (iii) experienced stress yesterday, (iv) experienced worry yesterday, (v) satisfied with the city or place of residence, (vi) experienced anger the previous day, and (vii) has a social support network that can be relied on in times of need. The first two questions are measured on a 0-10 scale, while the remaining ones are binary variables, i.e., measured on a 0-1 scale (both life satisfaction variables are measured by questions in the Gallup poll, which ask respondents how their current (and future) life satisfaction compares to the best possible life they can imagine, on a 0-10 scale). We estimate the life satisfaction (current and expected in 5 years) specifications using an ordinal logistic model and the remaining ones using a logistic model.

Poorhh and *richhh* are dummy variables identifying if the respondent belongs to a poor or a rich household, respectively. *Black, Asian, Hispanic,* and *Other race* are all dummy variables identifying the race of the respondent. These dummies are interacted with those for income level (*poorhh* and *richhh*), in order to explore race-income heterogeneities. The left out category for income corresponds to middle-income respondents, while that for race corresponds to whites.

Z is a vector of socio-demographic controls at the individual level. These include the following dummy variables: age groups[20] (18-24, 25-34, 35-44, 45-54, 55-64, 65+); body mass index (BMI)-based categories (underweight, normal range, overweight, obese); gender; educational level (high school dropout, high school graduate, technical/vocational school, college dropout, college graduate, post-graduate); and employment status (employed full-time, employed part-time, self-employed, employed part-time but wanting full-time, unemployed, and not in the workforce). We also included dummy variables for: experiencing pain the previous day; having (self-reported) health problems that prevent "normal" activities (age adjusted); marital status (single, married or in a domestic partnership, divorced or separated, and widowed); and religious preference (having a stated preference versus. having no preference or being an atheist). Finally, we controlled for reporting lack of money for food (over the previous 12 months) and lack of money for healthcare (over the previous 12 months).

We included dummies for year and for MSA. As an additional control within our baseline specifications, we have two specifications where the dependent variable is the expected future life satisfaction. In the first, we follow equation (1) precisely, while in the second one we include current life satisfaction as an independent variable. The logic is that individuals may anchor their beliefs about future life satisfaction on their own answer about their current life satisfaction. As a result, if a certain group (e.g., low-income respondents) tends to have lower life satisfaction, they may also report lower future expected life satisfaction, although that might only be a reflex of their low starting point, rather than an indication of unusually low optimism. This specification would then account for such a possibility.

Our use of nonlinear models makes direct interpretations of the estimated coefficients difficult, as they express log odds rather than linear effects. Additionally, our main parameters of interest include the coefficients for race and income variables, as well as the corresponding interaction terms. The latter coefficients make the computation of odds ratios more complex, as they depend on the value of the components of

the interaction term. Therefore, the tables in sections 3 and 4 include coefficients expressed in log odds terms, which illustrate the directionality of the associations we find, but do not readily reflect absolute magnitudes. Two other aspects, however, mitigate this: (i) all the independent variables are binary, so that the associated coefficients reflect relative magnitudes (to the omitted category) that can be compared, even though they do not reflect absolute magnitudes; (ii) in the cases of some of the main coefficients of interest, we report odds ratios comparing some of the main groups and give concrete examples of some of the absolute magnitudes involved (Sections 3) and 4)).

BASELINE RESULTS AND INTERPRETATION

Results

We first used a simple specification exploring the race-income interactions without any additional individual-level socioeconomic controls (Table 1).[21] Our purpose in doing so was to see how sensitive the results were to inclusion of the above-mentioned controls. Indeed, we found that they are remarkably similar to the specification that includes the full battery of controls (whose results are displayed in Table 2). The main result, which is referred to above and discussed in detail below, is that poor blacks are significantly more optimistic about their future life satisfaction and both less stressed and less worried than poor whites (Table 1, columns (2) to (5)). The black-white optimism difference holds across income levels, meanwhile, although it tends to diminish—though never disappear—as incomes go up. Hispanics demonstrate a similar trend, with poor Hispanics also more optimistic than poor whites, but the gap in general is less stark than between blacks and whites, and there is no trend in the Hispanic-white gap across income categories (Table 1). Heterogeneities across races are also visible in life satisfaction and in incidence of stress and worry, in particular among the poor, where whites fare clearly worse than other race groups (Table 1, columns (1), (4), and (5)).

When we control for socio-demographic factors, *within* poor respondents, blacks are again *by far* the most optimistic cohort, and are close to three times more likely to be higher up on the optimism scale than poor whites (Table 2, columns (2) and (3); Figure 1).[22] Blacks in general have higher scores on both life satisfaction and expected life satisfaction in the future compared whites, but the gaps decreased as one moves from lower to higher income classes. Among rich individuals, African Americans are only 1.78 times more likely than whites to be on a given optimism level, relative to the levels below. Poor Hispanics also fared better than poor whites, although the differences are less marked and do not decrease with income. There are modest differences in the results based on the specification that controls for current life satisfaction, but they did not alter our main findings.

The inclusion of individual socio-economic controls accentuates the heterogeneities across race groups for life satisfaction, worry, and stress (column (1), (4), and (5), Tables 1 and 2), particularly between black and white respondents. Nevertheless, blacks in general reported lower levels of satisfaction with their cities or place of residence (column (6)) and lower levels of social support (column (8)).[23] This discrepancy at the least suggests that the findings are not simply a "Polyanna" effect, but rather that blacks are distinguishing between their circumstances and challenges today and where their future is going. Along these same lines, our results on anger are also noteworthy. Poor blacks and poor Hispanics are more likely to experience anger the previous day than are poor whites, even though they are more optimistic about the future at the same time. Reported pain, meanwhile, had a higher positive correlation with stress, worry, and anger than any other control variable, and a negative (although not the most negative) correlation with current and future life satisfaction.

Additionally, we attempted to address some potential concerns regarding the robustness of our race-income heterogeneity results on life satisfaction, optimism, and stress. We started by re-estimating Equation (1) using several household size adjustments to the income variable. We then built on these and incorporated the Census Bureau poverty measure. Finally, we checked the possibility that MSAs with a very small number of African American respondents drove the results. The results are in Tables A1 through A5 in Appendix 1. As detailed there, the results reported in Section 3 are robust to all these measures.

Table 2 also displays the coefficients for the socio-economic controls, so we briefly discuss some of the main ones here. We observe that males tend to have lower levels of life

Table 1. No individual-level controls (2010-2015)

Variables	(1) Ord Logit: bpl No individual-level controls (196 MSAs)	(2) Ord Logit: bpla No individual-level controls (196 MSAs)	(3) Ord Logit: bpla With bpl control (196 MSAs)	(4) Logit: worry No individual-level controls (196 MSAs)	(5) Logit: stress No individual-level controls (196 MSAs)	(6) Logit: citysat No individual-level controls (196 MSAs)	(7) Logit: anger No individual-level controls (196 MSAs)	(8) Logit: Social support No individual-level controls (200 MSAs)
Reported life satisfaction today (0-10)			0.617*** (0.0065)					
Poor household	-0.787*** (0.0147)	-0.335*** (0.0120)	0.096*** (0.0131)	0.583*** (0.0160)	0.381*** (0.0149)	-0.530*** (0.0192)	0.409*** (0.0191)	-0.626*** (0.0202)
Rich household	0.614*** (0.0078)	0.371*** (0.0080)	0.077*** (0.0076)	-0.172*** (0.0117)	0.008 (0.0130)	0.406*** (0.0178)	-0.155*** (0.0196)	0.315*** (0.0198)
Black	-0.011 (0.0143)	0.906*** (0.0127)	1.071*** (0.0139)	-0.293*** (0.0204)	-0.368*** (0.0221)	-0.548*** (0.0431)	0.081*** (0.0246)	-0.301*** (0.0327)
Hispanic	0.127*** (0.0169)	0.627*** (0.0191)	0.672*** (0.0260)	0.006 (0.0211)	-0.128*** (0.0199)	-0.186*** (0.0375)	0.170*** (0.0272)	-0.256*** (0.0407)
Asian	-0.008 (0.0221)	0.258*** (0.0256)	0.313*** (0.0226)	-0.010 (0.0280)	-0.028 (0.0205)	0.018 (0.0374)	-0.008 (0.0386)	0.005 (0.0695)
Other race	-0.067*** (0.0251)	0.476*** (0.0295)	0.592*** (0.0324)	0.077*** (0.0276)	0.014 (0.0268)	-0.431*** (0.0417)	0.289*** (0.0396)	-0.398*** (0.0468)
(Rich household)* (Black)	-0.155*** (0.0266)	-0.277*** (0.0323)	-0.237*** (0.0303)	-0.014 (0.0429)	-0.067** (0.0325)	0.038 (0.0430)	-0.014 (0.0530)	-0.138* (0.0835)
(Rich household)* (Hispanic)	-0.110*** (0.0261)	-0.189*** (0.0238)	-0.150*** (0.0280)	0.112*** (0.0402)	0.126*** (0.0274)	0.010 (0.0584)	0.129* (0.0667)	0.095 (0.0728)
(Rich household)* (Asian)	-0.147*** (0.0347)	-0.185*** (0.0313)	-0.142*** (0.0290)	0.039 (0.0413)	0.028 (0.0406)	0.046 (0.0610)	0.063 (0.0655)	-0.357*** (0.0873)
(Rich household)* (Other race)	-0.047 (0.0465)	-0.215*** (0.0515)	-0.211*** (0.0533)	0.011 (0.0701)	-0.026 (0.0624)	-0.080 (0.0902)	0.098 (0.0836)	-0.181* (0.1100)
(Poor household)* (Black)	0.383*** (0.0228)	0.231*** (0.0241)	0.056** (0.0271)	-0.022 (0.0237)	-0.033* (0.0191)	0.025 (0.0318)	0.034 (0.0327)	-0.044 (0.0455)
(Poor household)* (Hispanic)	0.435*** (0.0259)	-0.134*** (0.0327)	-0.400*** (0.0366)	-0.099*** (0.0251)	-0.180*** (0.0281)	0.287*** (0.0347)	0.042 (0.0347)	-0.117** (0.0476)
(Poor household)* (Asian)	0.465*** (0.0400)	0.249*** (0.0382)	0.016 (0.0395)	-0.198*** (0.0538)	-0.104* (0.0529)	0.019 (0.0669)	-0.101 (0.0805)	0.214* (0.1205)
(Poor household)* (Other race)	0.220*** (0.0581)	0.079 (0.0573)	-0.034 (0.0560)	-0.044 (0.0531)	0.006 (0.0515)	0.023 (0.0618)	0.058 (0.0679)	-0.080 (0.0783)
Observations	770,899	770,899	770,899	770,899	770,899	770,899	608,787	347,080
MSA dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Clustered standard errors (at MSA-level) in parentheses.
*** p<0.01; ** p<0.05; * p<0.1
Note: (1) These regressions include the 196 MSAs for which sampling weights were available at least in one year, except for Social support, where 200 MSAs were available. All specifications use the 2010-2015 period, except for anger (2010-2013) and social support (2008-2012). The individual-level controls from Table 2 were included but are not displayed (except those related to race and income). (2) blp = best possible life; bpla = best possible life in the future.

Table 2. With individual-level controls (2010-2015)

Variables	(1) Ord Logit: bpl Full set of controls (196 MSAs)	(2) Ord Logit: bpla Full set of controls (196 MSAs)	(3) Ord Logit: bpla Full set of controls + bpl control (196 MSAs)	(4) Logit: worry Full set of controls (196 MSAs)	(5) Logit: stress Full set of controls (196 MSAs)	(6) Logit: citysat Full set of controls (196 MSAs)	(7) Logit: anger Full set of controls (196 MSAs)	(8) Logit: Social support Full set of controls (200 MSAs)
Poor household	-0.325*** (0.0107)	-0.138*** (0.0102)	0.051*** (0.0105)	0.141*** (0.0129)	0.085*** (0.0126)	-0.157*** (0.0172)	0.000 (0.0181)	-0.206*** (0.0214)
Rich household	0.446*** (0.0071)	0.270*** (0.0076)	0.055*** (0.0079)	-0.033*** (0.0109)	0.071*** (0.0108)	0.231*** (0.0182)	0.014 (0.0183)	0.107*** (0.0213)
Black	0.160*** (0.0135)	0.786*** (0.0186)	0.829*** (0.0180)	-0.455*** (0.0204)	-0.626*** (0.0200)	-0.400*** (0.0427)	-0.037 (0.0254)	-0.279*** (0.0337)
Hispanic	0.273*** (0.0144)	0.363*** (0.0173)	0.270*** (0.0218)	-0.104*** (0.0248)	-0.390*** (0.0204)	0.017 (0.0322)	-0.031 (0.0238)	-0.194*** (0.0379)
Asian	-0.082*** (0.0210)	-0.158*** (0.0326)	-0.122*** (0.0291)	-0.011 (0.0320)	-0.253*** (0.0239)	0.101** (0.0399)	-0.055 (0.0418)	-0.376*** (0.0741)
Other race	0.117*** (0.0250)	0.294*** (0.0242)	0.272*** (0.0271)	-0.102*** (0.0274)	-0.279*** (0.0289)	-0.216*** (0.0416)	0.075* (0.0407)	-0.347*** (0.0498)
(Rich household)* (Black)	-0.210*** (0.0267)	-0.210*** (0.0321)	-0.121*** (0.0314)	0.015 (0.0412)	0.004 (0.0328)	0.031 (0.0413)	-0.020 (0.0543)	-0.112 (0.0796)
(Rich household)* (Hispanic)	-0.154*** (0.0258)	-0.115*** (0.0245)	-0.036 (0.0263)	0.133*** (0.0400)	0.196*** (0.0321)	-0.002 (0.0561)	0.157** (0.0621)	0.031 (0.0731)
(Rich household)* (Asian)	-0.124*** (0.0361)	-0.055 (0.0353)	0.002 (0.0311)	-0.015 (0.0456)	0.044 (0.0441)	0.046 (0.0594)	0.033 (0.0677)	-0.232** (0.0921)
(Rich household)* (Other race)	-0.084* (0.0468)	-0.148*** (0.0480)	-0.106** (0.0490)	0.045 (0.0710)	0.055 (0.0632)	-0.097 (0.0928)	0.109 (0.0848)	-0.184 (0.1137)
(Poor household)* (Black)	0.416*** (0.0245)	0.247*** (0.0244)	0.039 (0.0255)	-0.026 (0.0281)	-0.038* (0.0200)	-0.007 (0.0325)	0.061* (0.0340)	-0.029 (0.0433)
(Poor household)* (Hispanic)	0.301*** (0.0210)	-0.160*** (0.0261)	-0.368*** (0.0302)	-0.001 (0.0243)	-0.108*** (0.0266)	0.151*** (0.0341)	0.169*** (0.0368)	-0.159*** (0.0497)
(Poor household)* (Asian)	0.214*** (0.0381)	0.054 (0.0388)	-0.071* (0.0404)	0.035 (0.0578)	0.067 (0.0564)	-0.113* (0.0670)	0.064 (0.0835)	0.028 (0.1125)
(Poor household)* (Other race)	0.180*** (0.0551)	0.054 (0.0552)	-0.037 (0.0557)	-0.007 (0.0519)	0.029 (0.0519)	-0.047 (0.0620)	0.122* (0.0680)	-0.087 (0.0811)
Lacked money for food (past 12m)	-0.717*** (0.0131)	-0.182*** (0.0116)	0.266*** (0.0099)	0.686*** (0.0127)	0.614*** (0.0120)	-0.451*** (0.0140)	0.466*** (0.0168)	-0.778*** (0.0194)
Lacked money for healthcare (past 12m)	-0.552*** (0.0105)	-0.276*** (0.0087)	0.041*** (0.0110)	0.566*** (0.0126)	0.503*** (0.0101)	-0.333*** (0.0128)	0.338*** (0.0136)	-0.744*** (0.0175)
Age 25-34	-0.216*** (0.0143)	-0.169*** (0.0133)	-0.069*** (0.0142)	0.042*** (0.0161)	-0.139*** (0.0154)	-0.072*** (0.0178)	-0.048** (0.0209)	-0.408*** (0.0385)
Age 35-44	-0.302*** (0.0159)	-0.523*** (0.0151)	-0.439*** (0.0154)	0.100*** (0.0180)	-0.258*** (0.0148)	0.064*** (0.0246)	-0.062*** (0.0217)	-0.781*** (0.0391)
Age 45-54	-0.343*** (0.0170)	-0.799*** (0.0158)	-0.739*** (0.0158)	0.079*** (0.0196)	-0.454*** (0.0157)	0.211*** (0.0242)	-0.251*** (0.0239)	-1.054*** (0.0383)
Age 55-64	-0.250*** (0.0165)	-1.168*** (0.0152)	-1.235*** (0.0175)	-0.119*** (0.0174)	-0.769*** (0.0165)	0.335*** (0.0282)	-0.457*** (0.0254)	-1.124*** (0.0377)

Table 2 continued

Variables	(1) Ord Logit: bpl Full set of controls (196 MSAs)	(2) Ord Logit: bpla Full set of controls (196 MSAs)	(3) Ord Logit: bpla Full set of controls + bpl control (196 MSAs)	(4) Logit: worry Full set of controls (196 MSAs)	(5) Logit: stress Full set of controls (196 MSAs)	(6) Logit: citysat Full set of controls (196 MSAs)	(7) Logit: anger Full set of controls (196 MSAs)	(8) Logit: Social support Full set of controls (200 MSAs)
Age 65+	0.073*** (0.0158)	-1.542*** (0.0176)	-1.822*** (0.0171)	-0.574*** (0.0197)	-1.356*** (0.0207)	0.668*** (0.0263)	-0.748*** (0.0304)	-0.851*** (0.0428)
Male	-0.309*** (0.0082)	-0.366*** (0.0066)	-0.234*** (0.0053)	-0.145*** (0.0095)	-0.222*** (0.0074)	-0.064*** (0.0148)	0.109*** (0.0099)	-0.084*** (0.0150)
Single	-0.244*** (0.0086)	-0.077*** (0.0084)	0.065*** (0.0075)	-0.003 (0.0108)	-0.015* (0.0086)	-0.093*** (0.0130)	0.012 (0.0140)	0.255*** (0.0205)
Divorced/ separated	-0.333*** (0.0090)	-0.007 (0.0107)	0.199*** (0.0111)	0.105*** (0.0104)	0.093*** (0.0096)	-0.163*** (0.0156)	0.041** (0.0164)	0.138*** (0.0177)
Widowed	-0.202*** (0.0135)	-0.210*** (0.0137)	-0.103*** (0.0127)	-0.020 (0.0179)	-0.090*** (0.0144)	0.143*** (0.0252)	-0.226*** (0.0266)	0.508*** (0.0309)
Underweight	-0.130*** (0.0273)	-0.122*** (0.0223)	-0.059** (0.0232)	0.090*** (0.0249)	0.017 (0.0245)	-0.096*** (0.0355)	-0.017 (0.0429)	-0.101** (0.0515)
Overweight	-0.074*** (0.0066)	-0.016*** (0.0058)	0.023*** (0.0054)	-0.050*** (0.0077)	-0.001 (0.0074)	-0.039*** (0.0116)	0.025** (0.0121)	-0.086*** (0.0157)
Obese	-0.176*** (0.0082)	-0.062*** (0.0077)	0.032*** (0.0068)	-0.110*** (0.0085)	-0.023*** (0.0084)	-0.055*** (0.0148)	0.040*** (0.0141)	-0.157*** (0.0178)
Health problems	-0.397*** (0.0095)	-0.342*** (0.0078)	-0.157*** (0.0078)	0.388*** (0.0090)	0.405*** (0.0103)	-0.217*** (0.0132)	0.147*** (0.0132)	-0.184*** (0.0174)
Experienced physical pain	-0.361*** (0.0077)	-0.273*** (0.0081)	-0.103*** (0.0072)	0.847*** (0.0106)	0.838*** (0.0090)	-0.308*** (0.0119)	0.830*** (0.0126)	-0.310*** (0.0163)
Smokes	-0.297*** (0.0083)	0.027*** (0.0089)	0.213*** (0.0089)	0.149*** (0.0093)	0.202*** (0.0087)	-0.276*** (0.0112)	0.260*** (0.0135)	-0.222*** (0.0175)
Exercises at least once over last 7 days	0.257*** (0.0060)	0.224*** (0.0088)	0.106*** (0.0081)	-0.195*** (0.0076)	-0.168*** (0.0069)	0.072*** (0.0091)	-0.140*** (0.0121)	0.066*** (0.0132)
Religious preference (vs. atheist)	0.108*** (0.0064)	0.145*** (0.0074)	0.105*** (0.0081)	0.006 (0.0091)	-0.018** (0.0083)	0.133*** (0.0156)	-0.054*** (0.0147)	0.185*** (0.0200)
Less than HS	0.002 (0.0188)	-0.205*** (0.0242)	-0.209*** (0.0243)	-0.183*** (0.0187)	-0.337*** (0.0226)	-0.078*** (0.0219)	0.112*** (0.0233)	-0.452*** (0.0313)
HS graduate	-0.062*** (0.0081)	-0.048*** (0.0088)	-0.012 (0.0087)	-0.240*** (0.0129)	-0.361*** (0.0125)	-0.069*** (0.0180)	0.003 (0.0146)	-0.233*** (0.0231)
Technical/ vocational school	-0.152*** (0.0125)	-0.015 (0.0145)	0.073*** (0.0128)	-0.161*** (0.0154)	-0.241*** (0.0149)	-0.167*** (0.0203)	0.027 (0.0212)	-0.265*** (0.0273)
Some college	-0.118*** (0.0063)	-0.004 (0.0061)	0.069*** (0.0056)	-0.098*** (0.0127)	-0.120*** (0.0094)	-0.162*** (0.0137)	0.017 (0.0129)	-0.183*** (0.0200)
Post-graduate	0.147*** (0.0071)	0.080*** (0.0071)	0.003 (0.0064)	0.060*** (0.0098)	0.109*** (0.0085)	0.039*** (0.0137)	-0.021 (0.0158)	0.047** (0.0213)
Self Employed	0.035*** (0.0124)	0.291*** (0.0117)	0.334*** (0.0125)	0.246*** (0.0186)	0.123*** (0.0165)	-0.064*** (0.0247)	0.124*** (0.0257)	
Employed PT	0.273*** (0.0113)	0.103*** (0.0112)	-0.042*** (0.0099)	-0.088*** (0.0216)	-0.267*** (0.0166)	0.112*** (0.0263)	-0.119*** (0.0261)	
Underemployed	-0.276*** (0.0124)	-0.005 (0.0108)	0.182*** (0.0111)	0.266*** (0.0152)	0.030** (0.0147)	-0.163*** (0.0191)	0.113*** (0.0210)	

Table 2 continued

Variables	(1) Ord Logit: bpl Full set of controls (196 MSAs)	(2) Ord Logit: bpla Full set of controls (196 MSAs)	(3) Ord Logit: bpla Full set of controls + bpl control (196 MSAs)	(4) Logit: worry Full set of controls (196 MSAs)	(5) Logit: stress Full set of controls (196 MSAs)	(6) Logit: citysat Full set of controls (196 MSAs)	(7) Logit: anger Full set of controls (196 MSAs)	(8) Logit: Social support Full set of controls (200 MSAs)
Unemployed	-0.490*** (0.0160)	0.094*** (0.0145)	0.466*** (0.0171)	0.450*** (0.0161)	0.111*** (0.0185)	-0.240*** (0.0210)	0.173*** (0.0199)	
Not in workforce	0.171*** (0.0076)	-0.032*** (0.0076)	-0.121*** (0.0073)	-0.011 (0.0094)	-0.272*** (0.0100)	0.015 (0.0123)	-0.019 (0.0159)	
Observations	770,899	770,899	770,899	770,899	770,899	770,899	608,787	347,080
MSA dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Clustered standard errors (at MSA-level) in parentheses.
*** p<0.01; ** p<0.05; * p<0.1
Note: These regressions include the 196 MSAs for which sampling weights were available at least in one year, except for Social support, where 200 MSAs were available. All specifications use the 2010-2015 period, except for anger (2010-2013) and social support (2008-2012).

Figure 1. Odds of being on a higher level of optimism, by race group (relative to white), within each income group

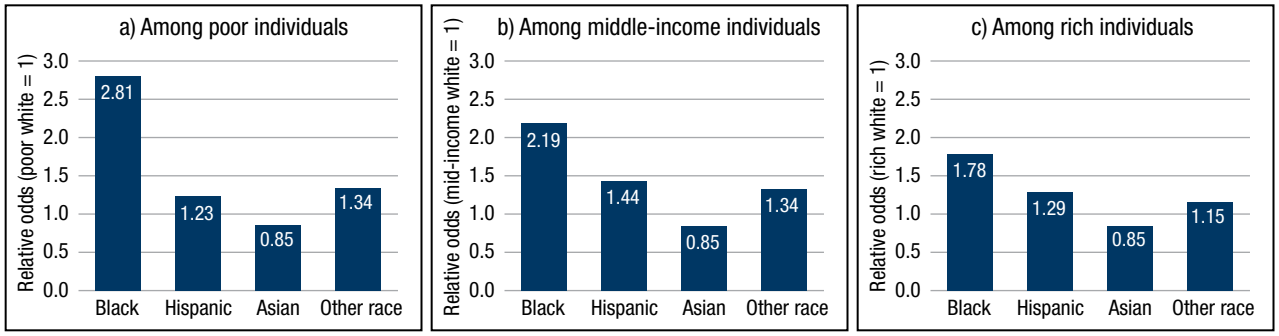
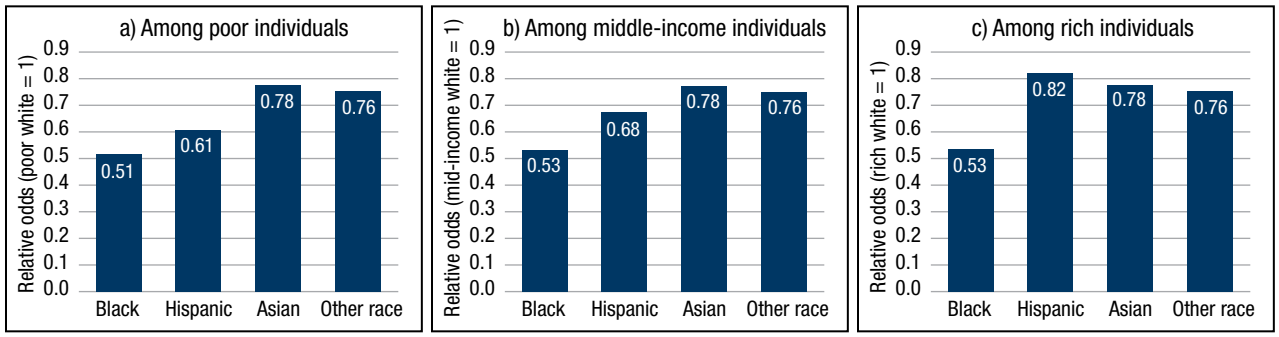


Figure 2. Odds of experiencing stress, by race group (relative to white), within each income group



satisfaction, optimism, lower likelihood of being satisfied with the place of living and of having social support networks, and higher likelihood of reporting feelings of anger; at the same time, they also report lower incidence of stress and worry. Reporting health problems has the effects one would intuitively expect: less life satisfaction, optimism, satisfaction with place of living, social support networks, and more stress, worry, and anger; on the other hand, exercising during the previous week is associated with precisely the opposite effects. We observe that the results associated with labor market status variables are also relevant, particularly when it comes to unemployment, which has large negative effects on life satisfaction and highly increases the incidence of feelings of worry.

The coefficients for each of the age categories are of particular interest, given their magnitude. Looking at column (1), we observe the previously established age-life satisfaction U curve [1]. When looking at optimism, however, we observe a different pattern, as it seems to decrease with age, with particularly large negative effects on middle and old age. We observe a similar pattern, although with less pronounced magnitudes, for all the remaining dependent variables (columns (4) to (8) in Table 2). Given that we use a multivariate regression framework to obtain the results in Table 2, the variables for age groups represent the associations between our dependent variables and different age groups across all races. Yet as we find major difference across age groups, we also assessed if the heterogeneities among races also change with age.

We estimated an analogous specification to that outlined in Equation (1), but interacting race with age groups, instead of income. Table 3 below displays the results. For conciseness—and because we find the largest optimism gap between African Americans and whites, we display only the coefficients for black, age groups, and black-age interactions, although we also included all the other race variables, race-age group interactions, and individual-level controls in the estimation.

As in Table 2, the coefficients for the age groups are very large. Our main focus here is on the coefficient for “black” and for the interaction terms. Through those, we see that the black-white gaps in life satisfaction and optimism (columns (1) to (3)) are larger for those between 35 and 64, and peak for the 45-54 year old group (i.e., this is the group where black optimism is highest, relative to whites). The gap in worry incidence is also highest for that age group, although the gap in stress incidence seems constant through young and middle age, and declines at older ages. Anger and social support constitute interesting cases, in that among younger age groups African Americans are more likely to report anger and lower social support. This trend reverses for anger after age 35, as older whites are increasingly more likely to report feelings of anger than their black counterparts are. The gap on social support also decreases with age up to the 55-64 group, where whites are actually less likely to report being able to rely on such networks.

In order to assess that possibility, we estimate an analogous specification to that outlined in Equation (1), but interacting race with age groups, instead of income. Table 3 below displays the results. For conciseness and because the optimism gap was mainly found between African Americans and whites, we display only the coefficients for black, age groups, and black-age interactions, although all the other race variables, race-age group interactions, and individual-level controls were also included in the estimation.

Discussion

There are many potential explanations for these findings. One is gradual, hard-fought progress by minorities, accepting that challenges remain. Meanwhile, poor whites have fallen in status in relative terms, as competition for low-skilled jobs has intensified. Blacks in general have improved their status and well-being, and wage and education gaps have narrowed. Black males earned 69 percent of the median wage for white males in 1970 and 75 percent by

Table 3. Race-age interactions, other individual-level controls not displayed (2010-2015)

Variables	(1) Ord Logit: bpl Full set of controls (196 MSAs)	(2) Ord Logit: bpla Full set of controls (196 MSAs)	(3) Ord Logit: bpla Full set of controls + bpl control (196 MSAs)	(4) Logit: worry Full set of controls (196 MSAs)	(5) Logit: stress Full set of controls (196 MSAs)	(6) Logit: citysat Full set of controls (196 MSAs)	(7) Logit: anger Full set of controls (196 MSAs)	(8) Logit: Social support Full set of controls (200 MSAs)
Black	-0.031 (0.0275)	0.654*** (0.0310)	0.801*** (0.0317)	-0.349*** (0.0306)	-0.665*** (0.0318)	-0.484*** (0.0422)	0.266*** (0.0421)	-0.753*** (0.0771)
Age 25-34	-0.271*** (0.0136)	-0.192*** (0.0154)	-0.059*** (0.0168)	0.049** (0.0206)	-0.110*** (0.0205)	-0.107*** (0.0231)	-0.003 (0.0253)	-0.416*** (0.0480)
Age 35-44	-0.388*** (0.0137)	-0.558*** (0.0161)	-0.428*** (0.0176)	0.124*** (0.0219)	-0.231*** (0.0175)	0.042 (0.0297)	0.019 (0.0244)	-0.878*** (0.0516)
Age 45-54	-0.454*** (0.0163)	-0.839*** (0.0165)	-0.717*** (0.0189)	0.118*** (0.0228)	-0.443*** (0.0189)	0.146*** (0.0294)	-0.164*** (0.0253)	-1.226*** (0.0511)
Age 55-64	-0.344*** (0.0162)	-1.192*** (0.0172)	-1.206*** (0.0204)	-0.091*** (0.0204)	-0.779*** (0.0185)	0.267*** (0.0331)	-0.377*** (0.0278)	-1.320*** (0.0496)
Age 65+	-0.008 (0.0164)	-1.555*** (0.0200)	-1.791*** (0.0209)	-0.574*** (0.0222)	-1.381*** (0.0209)	0.629*** (0.0307)	-0.667*** (0.0293)	-0.992*** (0.0540)
(Black)* (Age 25-34)	0.096*** (0.0317)	0.116*** (0.0348)	0.064* (0.0346)	0.032 (0.0388)	-0.002 (0.0340)	0.012 (0.0393)	-0.181*** (0.0479)	0.080 (0.0945)
(Black)* (Age 35-44)	0.222*** (0.0346)	0.249*** (0.0365)	0.148*** (0.0358)	-0.072* (0.0385)	0.032 (0.0332)	0.006 (0.0431)	-0.320*** (0.0496)	0.383*** (0.0867)
(Black)* (Age 45-54)	0.534*** (0.0317)	0.350*** (0.0352)	0.079** (0.0362)	-0.273*** (0.0372)	-0.002 (0.0332)	0.165*** (0.0486)	-0.426*** (0.0530)	0.657*** (0.0811)
(Black)* (Age 55-64)	0.488*** (0.0341)	0.274*** (0.0322)	0.009 (0.0324)	-0.256*** (0.0382)	0.077** (0.0359)	0.258*** (0.0492)	-0.455*** (0.0607)	0.844*** (0.0914)
(Black)* (Age 65+)	0.430*** (0.0432)	0.052 (0.0382)	-0.196*** (0.0357)	-0.178*** (0.0448)	0.190*** (0.0446)	0.131** (0.0567)	-0.572*** (0.0739)	0.448*** (0.0995)
Observations	770,899	770,899	770,899	770,899	770,899	770,899	608,787	347,080
MSA dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Clustered standard errors (at MSA-level) in parentheses.
*** p<0.01; ** p<0.05; * p<0.1
Note: These regressions include the 196 MSAs for which sampling weights were available at least in one year, except for Social support, where 200 MSAs were available. All specifications use the 2010-2015 period, except for anger (2010-2013) and social support (2008-2012). All the individual-level controls from Table 2 were included but are not displayed.

2013.[24] While the gaps in educational achievement and proficiency have widened across *income* groups, they have narrowed between blacks (and Hispanics) and whites at the same time. Fifty years ago, the black-white proficiency gap was one and a half to two times as large as the gap between a child from a family at the top 90th percentile of the income distribution and a child from a family at the 10th percentile. Today the proficiency gap between the poor and the rich is nearly twice as large as that between black and white children (Porter, 2015; Riordan and Portilla, 2015).[25]

Gaps in health status and life expectancy between blacks and whites, while still significant, have also narrowed. The gap in life expectancy between whites and blacks was seven

years in 1990 (69.1 years for blacks versus 76.1 years for whites); by 2014 it had narrowed to three years (75.6 versus 79.0 years).[26] Servin Assari, M.D., and colleagues (2016) show that, while black Americans have worse health indicators than white Americans *on average*, they (and minority groups in general) are better off in terms of mental health. Depression, anxiety, and suicide are all more common among whites than African Americans.[27] As early as 2004, meanwhile, Blanchflower and Oswald showed the close in the historical black-white happiness gap. In later work, Oswald and Wu (2011), based on data for the mid-2000s, found that blacks reported fewer bad mental health days than whites.[28] These findings can help explain the large gaps in optimism that we found between blacks and whites.

Assari et al. highlight higher levels of resilience among blacks and other minorities as an explanation. Resilience—defined as maintaining health in spite of a range of psychosocial risk factors——may be higher among blacks and minorities as they have had more experience with adversity. Community and religious factors may also be at play; a simple cross tabulation of our data shows that blacks are the most likely of all racial groups to report that religion is important in their lives. A number of accounts of the role of religion and community in African Americans' lives (Jackson, 2015; Ryff, 2015) corroborate this.[29] We control for religion in our analysis to ensure that it is not driving the optimism scores of our respondents. Yet it is likely that religion affects the lives—and optimism—of African Americans in ways that we cannot observe in the data.

Another sign of differential levels of resilience is the optimism of older blacks versus those of other respondents. In earlier work (see Graham, 2017, Chapter 4), we found that, not surprisingly, older respondents (e.g., over age 50) in general were less optimistic about their future life satisfaction, which makes objective sense if respondents are predicting health and other troubles to increase with age. Yet older blacks, in contrast, were much more optimistic about their future life satisfaction than were all other groups. Indeed, the positive coefficient on the interaction between black and age (>50) was three times larger than the negative coefficient for the average over 50 respondent. In work based on panel data, meanwhile, Hannes Schwandt found that younger respondents in general tend to over-estimate their future life satisfaction, while older ones under-estimate it. In reality, later life satisfaction levels yield the opposite trend.[30] Older blacks in America, though, seem to diverge from this trend and expect to be happier even into older age. This is yet another example of the large overall gap in optimism between black respondents and the average.

These trends contrast sharply with the experiences of whites in general. Paul Krugman (2015) noted that the economic setbacks of this group have been particularly bad because they expected better: "We're looking at people who were raised to believe in the American Dream, and are coping badly with its failure to come true." A recent study by Andrew Cherlin (2016) found that poor and middle-class blacks are more likely to compare themselves to parents who were worse off than they are when they are assessing their status. In contrast, poor and blue-collar whites, on average, have more precarious lives and employment stature than their parents did.[31] A historical look at this by Nancy Isenberg (2016), meanwhile, highlighted inferior health outcomes in the face of adversity among poor whites compared to their African-American (then enslaved) counterparts, and the trajectory of a white "underclass," which has for the most part been ignored since then.[32]

Raj Chetty and colleagues (2016) found that there are strong geographic markers associated with these trends.[33] Mortality rates and the associated behaviors are particularly prevalent in rural areas in the Midwest and much less in cities. In part, this is due to healthier behaviors associated with living in cities, such as more walking, and in part, it is due to the combination of social isolation and economic stagnation that characterizes many of these rural locales. Krugman

(2015) also noted the regional dimension to these trends: life expectancy is high and rising in the Northeast and California, where social benefits are highest and traditional values weakest, while low and stagnant life expectancy is concentrated in the Bible Belt (where economies are more stagnant as well).

MSA-level averages

We also looked at average traits across MSAs—in other words average levels of life satisfaction (today and in the future), stress, worry, anger, and social support, on the one hand, and percent of respondents in particular age, income, and employment brackets on the other. We also looked at percentage of respondents of particular races, and of those with particular health conditions like obesity and health behaviors such as exercising and smoking. With this specification, we were able to include MSA level fixed effects and therefore control for traits and idiosyncrasies that were particular to specific places (Table 4).

Not surprisingly, aggregating our individual level variables up to the MSA level limited the degrees of freedom in our analysis, and thus it did not yield as many robust results. Still, many of the main results hold, and we found some others that were specific to places. Our central finding on higher levels of optimism for the future among black respondents remains significant and robust. Based on the coefficient on percentage of black respondents, we found that MSAs with a 10-percentage point increase in African American respondents are associated with a 0.06 points increase in future life satisfaction (defined on a 0-10 scale). Along the same lines, MSAs with a higher percentage of African American respondents also had lower levels of stress, on average. Rather interestingly, a higher percentage of male respondents (not race specific) was also associated with lower levels of life satisfaction.

A higher percentage of respondents who exercise was associated with higher levels of life satisfaction and future life satisfaction, lower levels of stress and worry, and higher levels of city satisfaction. A higher percentage of respondents with reported health problems was associated with lower levels of life satisfaction and higher levels of stress, and those with more respondents reporting pain, not surprisingly, had lower life satisfaction and future life satisfaction and higher levels of stress and anger. Finally—and relevant to the broader crisis of despair, a higher percentage of respondents out of the labor force was associated with lower levels of future life satisfaction.

Alternative Specifications across race and rural areas

We next explored whether there were differences in our race and optimism findings among poor individuals in rural versus urban areas. To do this, we no longer restricted our sample to respondents living in MSAs and included those living in counties belonging to micropolitan areas and those living in counties that are not part of any core-based statistical area. As we focused only on poor individuals, we no longer used race-income interactions, and instead used race by urban/rural status interactions. Table 5 shows that rural blacks are modestly less optimistic than their urban counter-parts. but the significant gap between the races remains large.

We then focused only on whites and explored income-urban/rural status interactions. Table 6 shows that poor rural whites are even less likely to be optimistic about the future than are their poor white counterparts in urban areas. Rural respondents in general are less likely to experience worry, stress, and anger than urban ones (although they are still less optimistic about the future). This is in keeping with the general story of desperation (and coinciding trends in mortality) being most prevalent in the rural heartland, although it is surely not confined to it.

Table 4. Regressions with MSA Averages and Fixed Effects (FE)

Variables	(1) OLS FE: bpl 196 MSAs (with weights for any year)	(2) OLS FE: bpla 196 MSAs (with weights for any year)	(3) OLS FE: bpla w/ bpl control 196 MSAs (with weights for any year)	(4) OLS FE: worry 196 MSAs (with weights for any year)	(5) OLS FE: stress 196 MSAs (with weights for any year)	(6) OLS FE: citysat 196 MSAs (with weights for any year)	(7) OLS FE: anger 196 MSAs (with weights for any year)	(8) OLS FE: socnet 196 MSAs (with weights for any year)
Poor households (0-100%)	0.001	-0.000	-0.001	0.023	0.052	-0.091**	0.012	-0.147***
	(0.0024)	(0.0025)	(0.0020)	(0.0454)	(0.0469)	(0.0443)	(0.0523)	(0.0410)
Rich households (0-100%)	-0.002	-0.002	-0.000	0.056	-0.022	-0.074	0.034	0.066
	(0.0024)	(0.0028)	(0.0025)	(0.0633)	(0.0743)	(0.0605)	(0.0779)	(0.0490)
Black (0-100%)	0.001	0.006***	0.005***	-0.044	-0.196***	-0.041	0.047	0.001
	(0.0013)	(0.0016)	(0.0015)	(0.0378)	(0.0471)	(0.0333)	(0.0505)	(0.0331)
Hispanic (0-100%)	-0.000	0.004	0.004	-0.128*	-0.181**	0.045	-0.087	-0.170***
	(0.0026)	(0.0028)	(0.0024)	(0.0678)	(0.0759)	(0.0751)	(0.0785)	(0.0578)
Asian (0-100%)	-0.001	0.006	0.007	0.004	-0.223**	0.054	-0.105	0.124
	(0.0052)	(0.0048)	(0.0045)	(0.0972)	(0.1093)	(0.0947)	(0.0847)	(0.1130)
Other race (0-100%)	-0.003	0.005	0.006**	-0.112	-0.114	0.064	-0.033	-0.011
	(0.0034)	(0.0035)	(0.0032)	(0.0860)	(0.0944)	(0.0737)	(0.0754)	(0.0620)
Lacked money for food in past 12m (0-100%)	-0.007***	-0.008***	-0.004	0.146**	0.074	-0.074*	0.089*	-0.073**
	(0.0020)	(0.0024)	(0.0021)	(0.0605)	(0.0590)	(0.0448)	(0.0513)	(0.0360)
Lacked money for healthcare in past 12m (0-100%)	-0.007***	-0.005**	-0.001	0.103*	0.130**	-0.068	-0.020	-0.195***
	(0.0020)	(0.0025)	(0.0023)	(0.0585)	(0.0580)	(0.0421)	(0.0536)	(0.0420)
Age 25-34 (0-100%)	0.003	-0.003	-0.005	0.143	0.047	-0.089	-0.088	-0.064
	(0.0042)	(0.0042)	(0.0037)	(0.0879)	(0.0944)	(0.0869)	(0.0860)	(0.0570)
Age 35-44 (0-100%)	0.006	-0.006	-0.009**	0.132	-0.045	-0.052	0.079	-0.097*
	(0.0041)	(0.0042)	(0.0039)	(0.0954)	(0.1059)	(0.0913)	(0.0831)	(0.0579)
Age 45-54 (0-100%)	0.001	-0.011**	-0.011***	0.130	-0.052	0.058	0.076	-0.150**
	(0.0044)	(0.0046)	(0.0040)	(0.0897)	(0.0948)	(0.0959)	(0.0951)	(0.0599)
Age 55-64 (0-100%)	0.006	-0.008	-0.011**	-0.090	-0.285**	-0.102	-0.090	-0.162**
	(0.0050)	(0.0056)	(0.0051)	(0.1151)	(0.1178)	(0.1108)	(0.1031)	(0.0639)
Age 65+ (0-100%)	0.006	-0.015**	-0.019***	-0.154	-0.315**	-0.099	-0.169	-0.138*
	(0.0052)	(0.0063)	(0.0055)	(0.1207)	(0.1357)	(0.1176)	(0.1049)	(0.0751)
Male (0-100%)	-0.008***	-0.007***	-0.003	-0.045	-0.024	-0.022	-0.033	-0.055*
	(0.0024)	(0.0026)	(0.0022)	(0.0556)	(0.0642)	(0.0556)	(0.0613)	(0.0305)
Single (0-100%)	-0.003	-0.001	0.000	0.038	0.044	-0.067	-0.001	0.045
	(0.0021)	(0.0026)	(0.0022)	(0.0510)	(0.0541)	(0.0512)	(0.0455)	(0.0386)
Divorced/ separated (0-100%)	-0.008***	-0.004	0.001	0.154**	0.040	-0.079	0.040	0.073
	(0.0028)	(0.0028)	(0.0023)	(0.0605)	(0.0632)	(0.0628)	(0.0695)	(0.0446)
Widowed (0-100%)	-0.010**	-0.008	-0.002	0.032	-0.029	0.022	-0.124	0.077
	(0.0046)	(0.0052)	(0.0040)	(0.1049)	(0.1110)	(0.0835)	(0.1103)	(0.0823)
Underweight (0-100%)	0.012**	0.008	0.001	0.005	-0.055	-0.124	0.187	-0.108
	(0.0056)	(0.0063)	(0.0055)	(0.1591)	(0.1705)	(0.1208)	(0.1640)	(0.1392)
Overweight (0-100%)	0.000	0.001	0.001	0.023	-0.030	-0.086**	0.032	-0.025
	(0.0022)	(0.0022)	(0.0018)	(0.0557)	(0.0546)	(0.0397)	(0.0635)	(0.0326)
Obese (0-100%)	0.002	0.002	0.001	0.017	0.038	-0.061	0.020	-0.050
	(0.0022)	(0.0026)	(0.0021)	(0.0569)	(0.0559)	(0.0418)	(0.0597)	(0.0400)

Variables	(1) OLS FE: bpl 196 MSAs (with weights for any year)	(2) OLS FE: bpla 196 MSAs (with weights for any year)	(3) OLS FE: bpla w/ bpl control 196 MSAs (with weights for any year)	(4) OLS FE: worry 196 MSAs (with weights for any year)	(5) OLS FE: stress 196 MSAs (with weights for any year)	(6) OLS FE: citysat 196 MSAs (with weights for any year)	(7) OLS FE: anger 196 MSAs (with weights for any year)	(8) OLS FE: socnet 196 MSAs (with weights for any year)
Health problems (0-100%)	-0.008*** (0.0027)	-0.001 (0.0029)	0.004 (0.0025)	0.140** (0.0543)	0.136** (0.0599)	-0.071 (0.0565)	0.055 (0.0632)	-0.009 (0.0424)
Experienced physical pain the previous day (0-100%)	-0.004** (0.0020)	-0.004* (0.0026)	-0.002 (0.0023)	0.233*** (0.0511)	0.205*** (0.0482)	-0.011 (0.0413)	0.167*** (0.0517)	-0.001 (0.0363)
Smoke (0-100%)	-0.001 (0.0019)	0.002 (0.0022)	0.002 (0.0019)	-0.100** (0.0506)	0.019 (0.0482)	0.033 (0.0426)	-0.015 (0.0537)	-0.011 (0.0335)
Exercise at least once over past 7 days (0-100%)	0.004** (0.0018)	0.006*** (0.0019)	0.004** (0.0018)	-0.116*** (0.0434)	-0.089** (0.0433)	0.086** (0.0332)	-0.035 (0.0462)	0.006 (0.0326)
Religious preference (vs. atheism) (0-100%)	0.001 (0.0020)	0.004 (0.0024)	0.003 (0.0021)	-0.027 (0.0466)	-0.024 (0.0517)	-0.039 (0.0384)	-0.011 (0.0464)	0.022 (0.0362)
HS dropout (0-100%)	-0.009** (0.0039)	-0.009** (0.0042)	-0.004 (0.0035)	-0.029 (0.0850)	-0.026 (0.1009)	-0.130 (0.0926)	-0.006 (0.0970)	-0.017 (0.0712)
HS graduate (0-100%)	-0.009** (0.0041)	-0.006 (0.0043)	-0.001 (0.0035)	-0.087 (0.0714)	-0.141 (0.0919)	-0.176** (0.0861)	-0.013 (0.0884)	-0.019 (0.0563)
Technical/ vocational school (0-100%)	-0.014*** (0.0048)	-0.005 (0.0053)	0.003 (0.0045)	-0.100 (0.1101)	0.012 (0.1274)	-0.170 (0.1105)	-0.062 (0.1073)	0.021 (0.0732)
College dropout (0-100%)	-0.014*** (0.0037)	-0.003 (0.0039)	0.005 (0.0034)	0.054 (0.0913)	0.088 (0.0977)	-0.136 (0.0952)	0.038 (0.0911)	-0.033 (0.0582)
Post-graduate (0-100%)	0.000 (0.0043)	0.007 (0.0045)	0.007* (0.0038)	-0.003 (0.0847)	-0.052 (0.1054)	0.011 (0.0760)	-0.015 (0.0847)	-0.088 (0.0730)
Self Employed (0-100%)	0.000 (0.0037)	0.005 (0.0039)	0.005* (0.0030)	0.108 (0.1003)	0.068 (0.1079)	-0.062 (0.0719)	0.079 (0.1127)	
Employed PT (0-100%)	0.003 (0.0032)	-0.003 (0.0039)	-0.005 (0.0034)	-0.063 (0.0966)	-0.109 (0.0998)	0.039 (0.0749)	-0.083 (0.0856)	
Underemployed (0-100%)	0.004 (0.0031)	0.006* (0.0031)	0.004 (0.0027)	0.062 (0.0709)	0.098 (0.0792)	-0.136* (0.0729)	0.040 (0.0646)	
Unemployed (0-100%)	-0.002 (0.0031)	0.002 (0.0031)	0.003 (0.0025)	-0.001 (0.0743)	0.094 (0.0772)	-0.104 (0.0752)	0.041 (0.0797)	
Not in workforce (0-100%)	-0.000 (0.0023)	-0.008*** (0.0027)	-0.008*** (0.0024)	0.008 (0.0604)	-0.075 (0.0590)	0.102** (0.0483)	0.025 (0.0532)	
Observations	887	887	887	887	887	887	674	938
R-squared	0.323	0.307	0.487	0.282	0.247	0.180	0.159	0.285
Number of MSAs	196	196	196	196	196	196	196	200
MSA dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Clustered standard errors in parentheses
*** p<0.01; ** p<0.05; * p<0.1
Note: OLS = level of life satisfaction; bpl = best possible lif; bpla = best possible life in the future.

Table 5. Regressions exploring urban-rural dimension, using only poor individuals (2010-2015)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Ord Logit: bpl	Ord Logit: bpla	Ord Logit: bpla	Logit: worry	Logit: stress	Logit: citysat	Logit: anger	Logit: Social support
Variables	Full set of controls	Full set of controls	Full set of controls + bpl control	Full set of controls	Full set of controls	Full set of controls	Full set of controls	Full set of controls
Rural	-0.011	-0.092***	-0.097***	-0.050***	-0.085***	-0.076***	-0.081***	0.055*
	(0.0132)	(0.0121)	(0.0130)	(0.0173)	(0.0203)	(0.0294)	(0.0190)	(0.0287)
Black	0.393***	0.763***	0.670***	-0.437***	-0.637***	-0.456***	0.066***	-0.323***
	(0.0207)	(0.0208)	(0.0226)	(0.0285)	(0.0239)	(0.0344)	(0.0232)	(0.0390)
Hispanic	0.410***	0.099***	-0.101**	-0.005	-0.408***	0.099***	0.148***	-0.388***
	(0.0133)	(0.0346)	(0.0417)	(0.0285)	(0.0197)	(0.0366)	(0.0305)	(0.0559)
Asian	0.102***	-0.160***	-0.224***	0.073	-0.116***	0.015	-0.026	-0.236***
	(0.0265)	(0.0321)	(0.0337)	(0.0589)	(0.0446)	(0.0543)	(0.0634)	(0.0863)
Other race	0.226***	0.189***	0.108***	-0.065*	-0.269***	-0.247***	0.146***	-0.440***
	(0.0363)	(0.0329)	(0.0357)	(0.0380)	(0.0317)	(0.0718)	(0.0485)	(0.0741)
(Rural)* (Black)	0.137***	-0.040	-0.117***	-0.000	0.053	-0.046	0.002	0.008
	(0.0424)	(0.0449)	(0.0413)	(0.0483)	(0.0553)	(0.0396)	(0.0664)	(0.0772)
(Rural)* (Hispanic)	-0.077*	0.070	0.103*	-0.017	0.019	0.052	0.013	0.162
	(0.0457)	(0.0446)	(0.0609)	(0.0497)	(0.0562)	(0.0649)	(0.0545)	(0.0985)
(Rural)* (Asian)	0.214	0.385***	0.307***	-0.222	-0.037	-0.181	0.224	-0.007
	(0.1522)	(0.1158)	(0.0898)	(0.1879)	(0.1593)	(0.2298)	(0.2492)	(0.3396)
(Rural)* (Other race)	-0.076	-0.014	0.032	0.013	0.015	-0.102	0.031	0.272**
	(0.0766)	(0.0612)	(0.0516)	(0.0979)	(0.0740)	(0.0814)	(0.0786)	(0.1144)
Observations	225,576	225,576	225,576	225,576	225,576	225,576	177,294	104,326
State dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Clustered standard errors (at the state level) in parentheses.
*** p<0.01; ** p<0.05; * p<0.1
Note: These regressions include only poor individuals. The remaining individual-level controls that were used for Table 2 were also used, but are not displayed.

Table 6. Regressions using only white individuals (2010-2015)

Variables	(1) Ord Logit: bpl Full set of controls	(2) Ord Logit: bpla Full set of controls	(3) Ord Logit: bpla Full set of controls + bpl control	(4) Logit: worry Full set of controls	(5) Logit: stress Full set of controls	(6) Logit: citysat Full set of controls	(7) Logit: anger Full set of controls	(8) Logit: Social support Full set of controls
Rural	0.058*** (0.0076)	-0.028*** (0.0078)	-0.067*** (0.0083)	-0.082*** (0.0116)	-0.098*** (0.0107)	-0.093*** (0.0231)	-0.117*** (0.0154)	0.043*** (0.0158)
Poor household	-0.283*** (0.0135)	-0.120*** (0.0114)	0.057*** (0.0121)	0.144*** (0.0111)	0.102*** (0.0107)	-0.141*** (0.0124)	0.039*** (0.0143)	-0.158*** (0.0210)
Rich household	0.423*** (0.0062)	0.260*** (0.0053)	0.047*** (0.0065)	-0.013* (0.0082)	0.078*** (0.0098)	0.266*** (0.0183)	0.004 (0.0165)	0.085*** (0.0156)
(Rural)* (Poor household)	-0.054*** (0.0169)	-0.098*** (0.0172)	-0.077*** (0.0182)	0.041** (0.0198)	0.020 (0.0226)	0.014 (0.0187)	0.047** (0.0232)	0.029 (0.0344)
(Rural)* (Rich household)	0.008 (0.0181)	0.069*** (0.0195)	0.079*** (0.0207)	-0.003 (0.0235)	-0.056** (0.0258)	-0.236*** (0.0340)	0.069 (0.0450)	-0.120*** (0.0431)
Observations	926,901	926,901	926,901	926,901	926,901	926,901	721,240	408,110
State dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Clustered standard errors (at the state level) in parentheses.
*** p<0.01; ** p<0.05; * p<0.1
Note: These regressions include only white non-hispanic individuals. The remaining individual-level controls that were used for Table 2 were also used, but are not displayed.

Table 7. Regressions using only white individuals, with MSA-level income, inequality, and mortality (2010-2015)

Variables	(1) Ord Logit: bpl Full set of controls (194 MSAs)	(2) Ord Logit: bpla Full set of controls (194 MSAs)	(3) Ord Logit: bpla Full set of controls + bpl control (194 MSAs)	(4) Logit: worry Full set of controls (194 MSAs)	(5) Logit: stress Full set of controls (194 MSAs)	(6) Logit: citysat Full set of controls (194 MSAs)	(7) Logit: anger Full set of controls (194 MSAs)
Log (Gini Index)	-0.149 (0.2590)	0.179 (0.2861)	0.331 (0.2603)	0.139 (0.3558)	-0.086 (0.3301)	-0.692 (0.4926)	-0.261 (0.5562)
Log(mean MSA household income)	0.131 (0.1985)	0.182 (0.2017)	0.055 (0.1885)	0.385 (0.2343)	0.063 (0.2335)	-0.722* (0.3994)	0.197 (0.4275)
Log(MSA white death rate (per 100,000 whites), 45-54 years old)	-0.004 (0.0659)	-0.111* (0.0647)	-0.110* (0.0615)	0.051 (0.0919)	-0.063 (0.0830)	-0.074 (0.1324)	-0.065 (0.1438)
Poor household	-0.299*** (0.0124)	-0.137*** (0.0106)	0.045*** (0.0105)	0.151*** (0.0130)	0.115*** (0.0125)	-0.165*** (0.0175)	0.033* (0.0185)
Rich household	0.455*** (0.0076)	0.269*** (0.0078)	0.042*** (0.0080)	-0.041*** (0.0110)	0.061*** (0.0106)	0.241*** (0.0164)	-0.006 (0.0181)
Observations	595,613	595,613	595,613	595,613	595,613	595,613	475,720
MSA dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Clustered standard errors (at MSA-level) in parentheses.
*** p<0.01; ** p<0.05; * p<0.1
Note: These regressions include the 194 MSAs for which sampling weights and death rates were available at least in one year, but the sample is now restricted only to whites. The individual-level controls from Table 2 were included (except those related to race and race-income interactions) but are not displayed.

DO DESPERATION AND PREMATURE MORTALITY GO TOGETHER? AN INITIAL EXPLORATION

The mortality data and our well-being metrics highlight a paradox of higher well-being and improving health among minorities juxtaposed against the opposite trend among uneducated whites. We have begun to explore the extent to which our markers of well and ill-being have a statistically robust association with the trends in mortality. We matched our metrics of well-being from the Gallup Healthways data with mortality data (at the MSA level) from the CDC. Our results above (Table 3) suggest that, in addition to the differences across races, there are also important differences across *place*, which show up in differences in racial diversity and in health behaviors such as exercising and smoking.

For our mortality rate data, we rely on the publicly available data from the CDC Compressed Mortality File.[34] From that data, we compute a MSA-level all-cause death rate for white non-Hispanic 45-54 year olds, for every year from 2010 to 2015

However, it is important to highlight the substantial limitations that come from using only the publicly available data.[35] With the full data (which we just received), we will compute a composite mortality measure using the set of causes of death that Case and Deaton (2015) identified as being the key drivers of the change in the mortality rate trends. We will use the classifications as defined by the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD10) codes. With the publicly available data, this would only have been possible for the "*intentional self-harm*" (ICD10 codes X60-X84), as their other measures all involve a higher level of disaggregation. As a result, we chose to use the all-cause death rate for white non-Hispanic 45-54 year olds instead—and every subsequent reference to mortality rates in this section refers to this measure.

Another limitation is that the public data does not provide the number of deaths (due to confidentiality concerns) whenever a county has less than 10 deaths. Thus, the analysis excludes some counties—though in general only very small ones. Yet this would have been a substantially larger problem if we had attempted to use specific causes of death or smaller subgroups. Using the same individual response level specification as above, but adding in this variable, we explored the potential association between individual level well-being markers and mortality rates.

Additionally, we also use data from the ACS to obtain MSA-level measures for mean household income and inequality (as measured by the Gini coefficient). Adding these variables is also a way to account for the possible correlations between income, inequality, and mortality. This allows us to make sure that any effects captured by the mortality variable are not simply due to income or inequality effects. For instance, if higher mortality MSAs are also those with lowest average incomes and/or higher inequality levels, then our mortality variable might simply be capturing the effects of low income or inequality.

We again focused on whites, which includes the group (poor whites) reported particularly lower levels of life satisfaction and optimism (Section 2). We found that MSA-level mortality rates for 45-54 year olds are significantly and negatively associated with future expected life satisfaction (Table 7): the coefficient of the (logged) mortality rate on individual future life satisfaction is -0.111. To provide an example, if the mortality rate increases by 25 percent (as in from 400 to 500 deaths per 100,000 people), the odds of being at a certain future life satisfaction level would decrease by approximately 2.5 percentage points.[36]

These are associations, of course, and we cannot assume causality. Indeed, one can imagine dual directions. Having less hope about the future could increase one's likelihood of premature death (e.g., via under-investment in one's health)

and, at the same time, living with a great deal of premature death in one's locale could certainly dampen hope and increase frustration.

In thinking about the orders of magnitude or implications of these findings, a note of caution is in order. Mortality rates vary a great deal across MSAs. The rate tends to be higher in smaller MSAs than in larger ones, varying from 182 to 766 deaths per 100,000 people. The mean death rate per MSA in the entire sample is 382 deaths per 100,000 people. The Albuquerque, New Mexico MSA, for example, had a 45-54 year old white non-Hispanic population of only 50 thousand in 2015, and approximately 214 deaths per year (e.g., 417 deaths per 100,000 people in 2015). In contrast, the Chicago-Naperville-Joliet MSA, with a 45-54 year old white non-Hispanic population of over 770 thousand in 2015, has about 2405 such deaths per year (or 311 deaths per 100,000 people).

In the next stage of this work, for which we will use the full Compressed Mortality File data from CDC, we will explore all these trends at the disaggregated, county level, and hope to find more robust associations and variation across places.

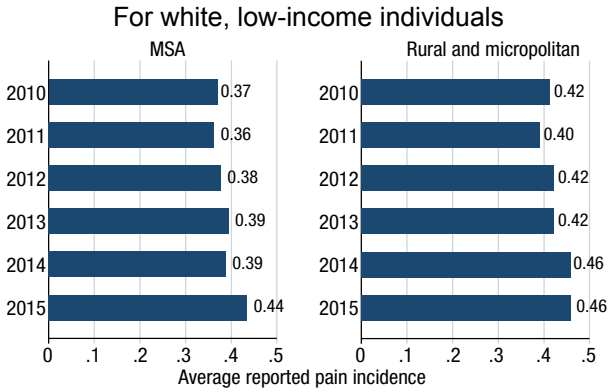
INTERRELATED TRENDS AND EXPLANATIONS

There are several other trends in the data that suggest a pattern of interrelated explanations for what is going on. Our baseline regressions (in Section 3) include a variable measuring reported pain, which Case and Deaton found correlates with suicide rates at the state and county level.[37] Pain is, not surprisingly, positively correlated with stress and worry. Reported pain is also highest in the middle-aged years, precisely when life satisfaction is lowest (and where the mortality rate increases among uneducated whites are highest). Given the coefficient of pain on future life satisfaction in our baseline specification (Table 2), which is -0.27, those individuals who experience pain are 0.76 times as likely to be at a certain level of future life satisfaction compared to those without pain. The magnitudes on stress, worry, and anger are larger, with coefficients of .83 and above. Thus those individuals that experience pain are at least 2.3 times more likely to report stress, worry, and anger.

Not coincidentally, reported pain for poor whites is higher in rural areas than in MSAs. To explore this we extended beyond from the group of MSAs that we use for our more robust analysis, which includes only MSAs for which we have weighted variables and repeated observations, and compared reported pain in MSAs with non-MSA areas (rural and micropolitan areas in the Gallup data). Below is a simple cross-tabulation of the results comparing white low-income individuals only (Figure 3) (And reported pain is also higher on average among poor whites than poor blacks).

In addition to pain, another trend is the significant increase in reliance on disability insurance in the past two decades, rising from just under 3 percent of the working age population to almost 5 percent for men, and from roughly 1.3 percent to 4.5 percent for women.[38] While it is particularly concentrated in former coal mining regions, it extends well-beyond them and roughly patterns reported pain and

Figure 3. Pain incidence by rural status (2008-2015)



Source: Author calculations; Gallup Healthways.

the concentrations of prime age men out of the labor force. While disability insurance provides an important and often life-long safety net for many workers and their families, it also introduces additional barriers to labor force participation. Potential recipients cannot participate in the labor force during the wait time for approval for disability, a period that can last up to two years.[39] Long-term unemployment is one of the conditions that is most strongly associated with unhappiness and is a condition that most individuals do not adapt to and recover their well-being.[40]

Other features related to reliance on disability may also play a role in ill-being, such as via the loss of identity that workers can no longer can participate in the jobs—and daily interactions—they have held over much of their life course. Our maps, for example, show patterns across the places (states here) with the highest rates (and increases in rates) of reliance on disability insurance and average levels of stress, anger, and worry. Related to the disability issue is the secular trend of prime age (25-54 year old) males dropping out of the labor force; Nicholas Eberstadt (2016) projects 25 percent of that cohort will no longer be in the labor force by mid-century.[41]

Yet another issue is how feasible it for people to move to new places to seek out new jobs. Moving rates declined significantly in the years surrounding the financial crisis, and a common explanation was the decline in the housing market. Demyank et al. (2017) examined moving rates among those individuals with home equity. They found that those that are unemployed *and* that have negative equity are more likely to move than those with positive equity and/or employment. Yet this finding hinges on their ability to foreclose on their mortgages and on being in a position to find jobs elsewhere. In these cases, these individuals have more to gain by moving than they have by losing their homes. The common traits of prime age blue-collar workers who have dropped out of the labor force—such as having pain and/or being on disability—are not associated with a strong possibility of finding new employment in another location.[42] Not surprisingly, older workers are much less likely to move.

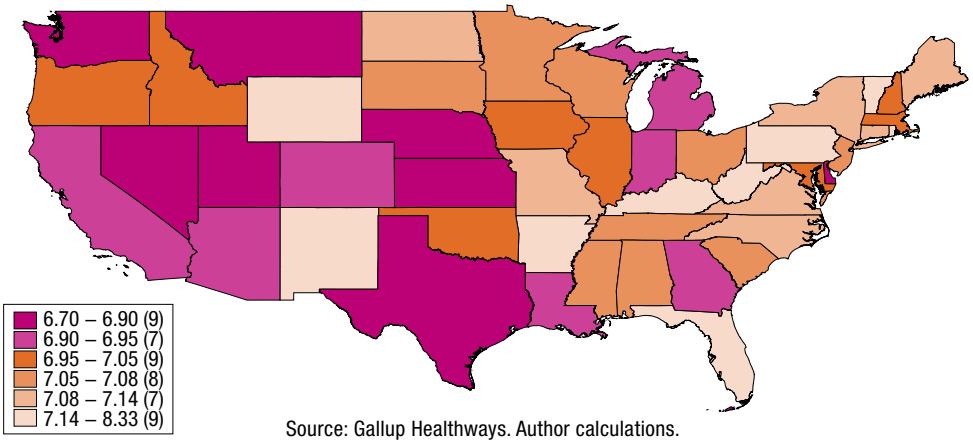
A potentially reinforcing factor in this cycle is that these same cohorts, who are disproportionately in remote rural areas, are less likely to have a range of social connections outside their locales or even broadband internet (as noted above). In general, social interactions are more common in densely populated diverse urban places than in remote rural ones where distance, among other factors, plays a role. Indeed, a recent study found that the majority of rural youth live in "Civic Deserts," which are defined as places characterized by a dearth of opportunities for civic and political learning and engagement, and without institutions that provide opportunities like youth programming, culture and arts organizations, and religious congregations. These same areas are also far less likely than urban ones to have access to broadband internet, which not only limits social connections but also information about jobs outside their immediate area.[43]

The maps below (Figure 4a-f) highlight these potentially reinforcing patterns across key variables and places. The maps report the average levels of the following variables for 2010-15 by state. These are, respectively: future life satisfaction for poor whites (a); stress incidence for poor whites (b); anger incidence for poor whites (c); pain incidence for poor whites (d); prevalence of disability insurance for adults over age 20 (e); and the all-cause mortality rate for whites aged 45-54 years old (f). While not a perfect matching, there are clear patterns across most of the variables at the state level.

Our research is still in progress, and we are exploring more fine-grained county and zip code level data going forward. Yet even at this level of analysis, our data links to patterns in mortality rates, in addition to our findings on poor black and Hispanic optimism juxtaposed against poor white desperation. It is not just a question of race and income, but also about place. Those places that are more racially diverse and where respondents are engaged in healthier behaviors are also happier, more optimistic, and less stressed. These are all of markers of longevity and productivity in the many places where well-being has been studied (Graham, 2008; Graham, Eggers, and Sukhtankar, 2004). As is clear from the above maps, these places are primarily large coastal cities—e.g., the most populated MSA's—as opposed to the smaller metropolitan areas, suburbs, and rural areas. Yet despite suggestive patterns, there is still much more to understand about these trends and the broader crisis of social ill-being.

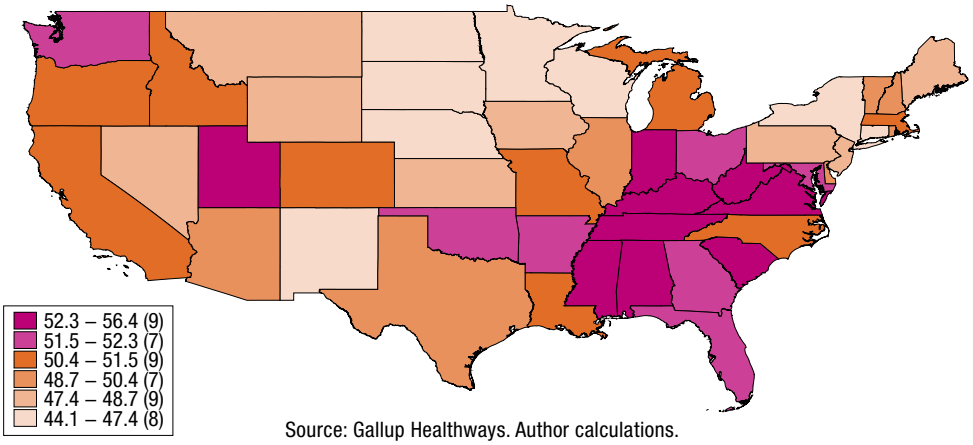
Figures 4a-c

4a. Average bpla (0–10) by state, for poor whites (2010–15 average)



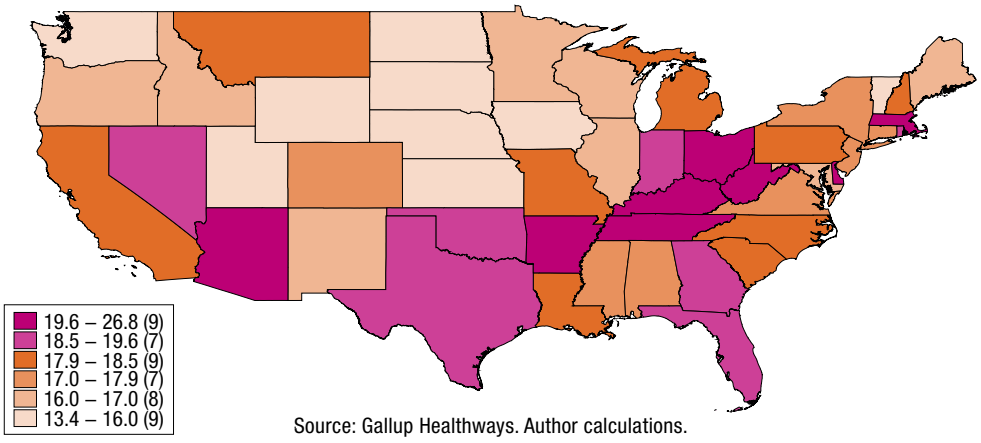
Source: Gallup Healthways. Author calculations.

4b. Average stress incidence (%) by state, for poor whites (2010–15 average)



Source: Gallup Healthways. Author calculations.

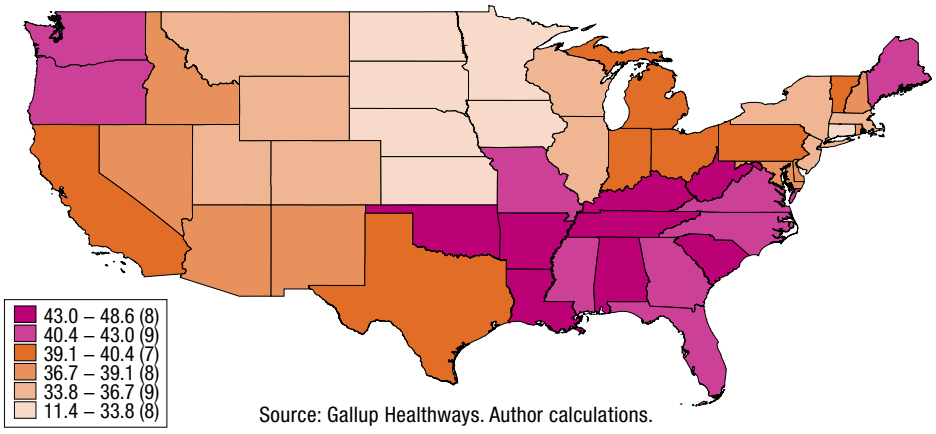
4c. Average anger incidence (%) by state, for poor whites (2010–15 average)



Source: Gallup Healthways. Author calculations.

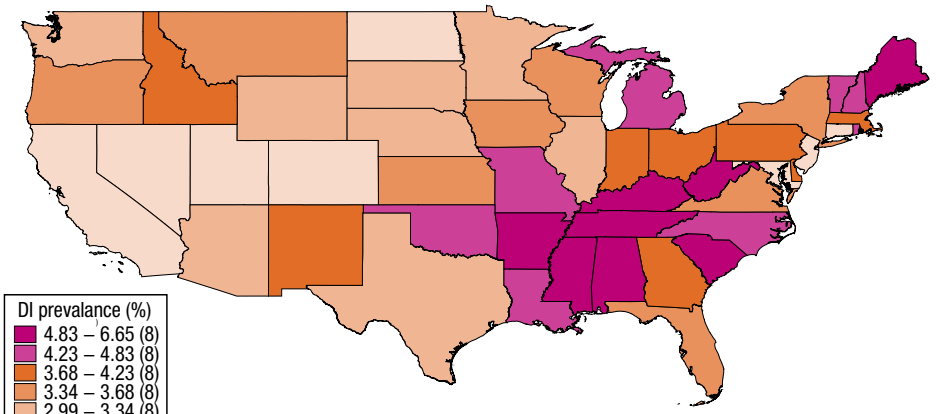
Figures 4d-f

4d. Average pain incidence (%) by state, for poor whites (2010–15 average)



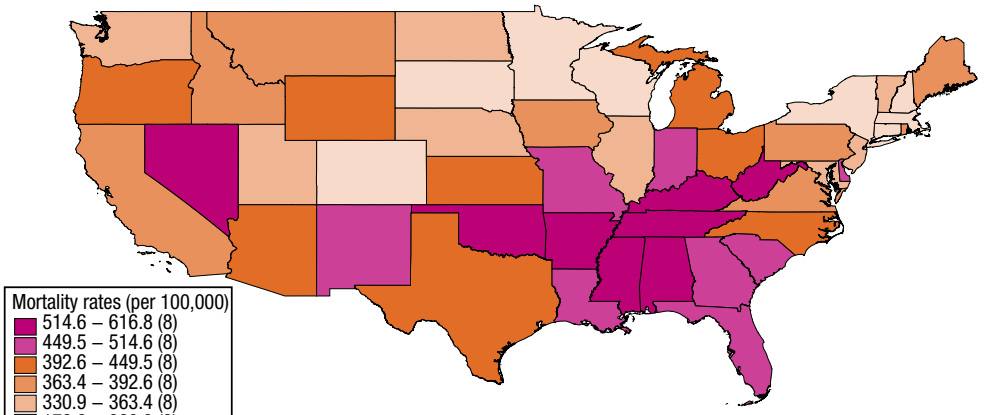
Source: Gallup Healthways. Author calculations.

4e. Disability Insurance prevalence by state (% per adults aged 20+, 2010–15 average)



Source: SSA. Author calculations.

4f. Mortality rate (all–cause) by state, for whites aged 45–54 years old (per 100,000 people, 2010–2015 average



Source: CDC WONDER. Author calculations.

CONCLUSIONS AND POTENTIAL POLICIES

Our findings identified linkages between markers of reported ill-being, such as lack of hope, high levels of stress, and reported pain, and the rising rates of mortality among uneducated whites in particular. These markers of ill-being stand in sharp contrast to much higher levels of life satisfaction and hope for the future, as well as lower levels of stress, among poor blacks and Hispanics, who are continuing to make progress, albeit gradual, in narrowing gaps in life expectancy with whites. We cannot claim that our findings are causal; they are simply associations. Yet the patterns suggest that well-being metrics could play a role in signaling the pockets of ill-being where preventable deaths are more likely to be a problem.

Our findings also suggest an important role for place and for trends in mobility and opportunity. Places that are more racially homogenous (white), rural, and which have a combination of social isolation and precarious manufacturing employment, are more likely to have higher mortality rates. They also tend to have worse health behaviors, such as smoking prevalence and a lack of physical activity. Respondents in these areas are also more likely to report pain, which is a channel to suicide. The combination of fear of or actual downward mobility, weak safety nets, and weaker social cohesion may be contributing to the high levels of desperation that we have found.

While our results suggest a need to restore hope and sense of purpose to places characterized by desperation and premature death, it is not obvious how to do so. The solution will be multi-faceted and should include a major effort to introduce healthier behaviors, focusing attention on premature mortality within those places. One part of this will entail taking on the manner in which the wide availability of opioids is in part a result of prescription practices.[44] We also need to re-visit the nature and reach of our safety nets. It is notable that when comparing the U.S. to other rich countries, those at the median and top of the U.S. distribution score higher in terms of absolute income, but the poor score worse than the poor in other rich countries.[45] Importantly, while the starkest trends in terms of lack of hope and mortality incidence are among poor whites, policies directed at improving opportunities and well-being should focus equally on poor minorities, whose disadvantages are very real, despite their higher levels of resilience.

There has been some progress in recent years. The 2016 Census data showed that median incomes rose by 5 percent on average across the country and that poverty rates fell. Safety net programs such as the Earned Income Tax Credit (EITC) played an important role on the latter front (Trisi, 2016).[46] While the EITC is effective for working families, it is less so in isolated areas where employment opportunities have hollowed out, in the deepest pockets of desperation. The research of others have found that these same places tend to have low rates of internet access, precisely at a time that the internet is an increasingly important means for accessing safety net programs. This is an additional barrier for those who live in remote areas far from program administrative locales.

The reach of safety net programs across states is highly uneven and, with the exception of disability insurance, are particularly weak for those out of the labor force. While EITC has grown in importance in past decades, Temporary Assistance for Needy Families (TANF), which provides cash assistance to needy families, has been cut in many states, particularly Republican ones (Trisi, 2016a, 2016b). Meanwhile, continued reliance on SNAP (Supplemental Nutrition Assistance Program, formerly the Food Stamp Program) as a means to assist the poor, while providing material assistance, is of questionable effectiveness on other fronts. On one hand, it stigmatizes the poor, while on the other hand, obesity rates are higher among SNAP recipients than among non-SNAP recipients (Carroll, 2016).[47]

This stands in sharp contrast to the progress many countries in Latin America have made in reducing poverty and improving health indicators with conditional cash transfer programs. These provide the poor with cash transfers on condition that they send their children to school and to the health post (Lustig et al. 2013).[48] In contrast, much of the U.S. political dialogue stigmatizes recipients of welfare assistance and the bureaucracies are particularly difficult to navigate. Not by coincidence, the efficient bureaucracies that administer universal programs like social security and Medicare are distinctly different.

There are, no doubt, many other possible solutions, many of which are complex and long-term in nature. These include improvements in public education, vocational training, and incentives to relocate for some cohorts. The trend of prime age males dropping out of the labor force, which is projected to reach an astonishing 25 percent of that cohort by 2025, merits particular attention in the context of desperation and premature mortality. It is in large part driven by the shrinking pool of low-skilled jobs and technology driven growth. Encouraging healthier behaviors also has a role in this context, with drug use and availability an important issue among this particular cohort.

A first step is to get a better handle on the causes of the problem. This must entail listening to what desperate people themselves have to say, as well as learning from those who have shown more resilience when coping with crisis. Well-being metrics can play a role, for example by undertaking regular polling to gauge life satisfaction, optimism, pain, stress, and worry across people and places. Countries such as the U.K. are already collecting these metrics annually. Reporting on the patterns and trends more regularly in public and policy discussions would be a simple and inexpensive way to monitor the well-being and ill-being of our society. It certainly seems a better path than waiting for mortality rates to sound the alarm bells.

APPENDIX 1 – ROBUSTNESS CHECKS

Household size adjustments

One concern that may exist regarding the results displayed in Table 2 relates to the fact that we assigned respondents to income groups based on total household income. In the GH data, household size correlates positively to household income,[49] which would introduce a bias in the estimated coefficients for the income and interaction terms that form our set of variables of interest. In our baseline specification, we did not adjust for household size, for two main reasons. One is the high share of missing observations for underlying variables that we would need to use in order to construct a household size variable; doing so would force us to discard 25 percent of the observations used in our baseline specifications. A second reason is that, as mentioned in Section 3, the income variable in GH is not continuous and instead assigns respondents to one of eleven income brackets. Adjusting the reported household income to the household size would therefore require assigning respondents an income value, based on the bracket they report. This problem is further compounded by the fact that, with a categorical income variable, incomes are inevitably top-coded, which demands further assumptions regarding how to assign income to the households in the top bracket.

We attempted to address this concern by using three different strategies. In the first case, we consider only the cases of one-person households, where no adjustment is necessary. In the second alternative, we exclude those in the top income bracket (i.e., respondents reporting pre-tax household income above $120.000/year), assign every other respondent the midpoint of the income bracket they reported, and adjust reported income by household size, on a per capita basis. In the final alternative, we do not exclude any respondent. For those not in the top income bracket, we applied the adjustment described in the previous alternative. We assigned those in the top income bracket a value based on data from the American Community Survey, obtained through IPUMS (Ruggles et al. 2015).[50]

Table A1 displays the results we obtained when following the first alternative. The magnitude of the indicator variables for income groups among white respondents increases slightly (see rows for “Poor household” and “Rich household”). Nevertheless, the racial heterogeneities remained very stark. For instance, poor African Americans are now 2.72 times more likely than poor whites to be at a certain level of optimism (relative to being at the ones below) and are only 0.53 times as likely to have experienced stress the previous day (see rows for “Black” and “(Poor household)*(Black)”).

As mentioned above, the second and third alternatives adjust the reported pretax income for household size. This, however, required some additional assumptions. We assigned those in income brackets below the top one the midpoint. We assigned those in the top income bracket the average of households whose total pretax income exceeds $120.000/year, based on estimates using data from Ruggles et al. (2015). For every year in the 2008-2015 period, we identified households who reported pretax income above the $120.000/year threshold, and we computed the average income of that group. We then assigned this yearly amount to the respondents in the top bracket. We then converted all incomes are into per capita amounts, by dividing the total household income by the household size.[51] Finally, we reassigned the three income categories to reflect this new per capita income variable. We specified thresholds such that we would again obtain approximately 20 percent of observation in the rich group, another 20 percent in the poor, and the remaining in the middle-income group.[52] This resulted in thresholds of $12,499 per person for the poor group and of $54,000 per person for the rich group.

The second alternative differs from the third only in the choice to exclude those assigned to the top income bracket in the GH data, which substantially reduces the number of respondents in the rich group. Table A2 displays the estimates obtained when using this alternative. As before, the

Table A1. Only 1 person households (2010-2015)

Variables	(1) Ord Logit: bpl Full set of controls (196 MSAs)	(2) Ord Logit: bpla Full set of controls (196 MSAs)	(3) Ord Logit: bpla Full set of controls + bpl control (196 MSAs)	(4) Logit: worry Full set of controls (196 MSAs)	(5) Logit: stress Full set of controls (196 MSAs)	(6) Logit: citysat Full set of controls (196 MSAs)	(7) Logit: anger Full set of controls (196 MSAs)	(8) Logit: Social support Full set of controls (198 MSAs)
Reported life satisfaction today (0-10)			0.650*** (0.0068)					
Poor household	-0.378*** (0.0164)	-0.234*** (0.0178)	-0.025 (0.0172)	0.209*** (0.0238)	0.126*** (0.0224)	-0.182*** (0.0326)	0.014 (0.0389)	-0.222*** (0.0445)
Rich household	0.326*** (0.0232)	0.237*** (0.0232)	0.095*** (0.0208)	0.047 (0.0338)	0.126*** (0.0303)	0.142** (0.0579)	0.064 (0.0533)	-0.014 (0.0803)
Black	0.230*** (0.0276)	0.673*** (0.0344)	0.654*** (0.0313)	-0.448*** (0.0434)	-0.637*** (0.0371)	-0.373*** (0.0567)	-0.202*** (0.0671)	-0.298*** (0.0781)
Hispanic	0.205*** (0.0473)	0.399*** (0.0400)	0.338*** (0.0395)	0.019 (0.0658)	-0.214*** (0.0657)	-0.097 (0.0709)	0.132 (0.0996)	0.130 (0.1360)
Asian	0.009 (0.0437)	-0.158*** (0.0475)	-0.164*** (0.0499)	-0.009 (0.0728)	-0.179** (0.0839)	0.111 (0.1193)	-0.424*** (0.1308)	0.641** (0.2927)
Other race	0.065 (0.0724)	0.269*** (0.0747)	0.262*** (0.0741)	-0.256*** (0.0976)	-0.076 (0.1074)	-0.473*** (0.1200)	0.222 (0.1505)	-0.458*** (0.1567)
(Rich household)* (Black)	-0.118 (0.0823)	-0.153 (0.0939)	-0.120 (0.0853)	-0.169 (0.1229)	-0.063 (0.1206)	0.345** (0.1408)	-0.224 (0.2088)	0.019 (0.3311)
(Rich household)* (Hispanic)	0.195* (0.1072)	0.039 (0.1180)	-0.087 (0.1154)	0.036 (0.1554)	0.127 (0.1823)	0.041 (0.2053)	0.330 (0.2772)	-0.176 (0.4049)
(Rich household)* (Asian)	-0.053 (0.0984)	-0.106 (0.1120)	-0.156 (0.1051)	-0.091 (0.1295)	-0.099 (0.1894)	-0.227 (0.1725)	0.250 (0.4023)	-1.151** (0.4572)
(Rich household)* (Other race)	-0.081 (0.1694)	-0.129 (0.2034)	-0.119 (0.2163)	-0.103 (0.2460)	-0.369 (0.2511)	-0.176 (0.3200)	-0.180 (0.3882)	0.074 (0.3927)
(Poor household)* (Black)	0.521*** (0.0541)	0.327*** (0.0459)	0.087** (0.0443)	-0.089* (0.0529)	0.042 (0.0494)	0.076 (0.0618)	0.109 (0.0990)	0.051 (0.1146)
(Poor household)* (Hispanic)	0.333*** (0.0620)	-0.127 (0.0904)	-0.303*** (0.0915)	0.067 (0.0829)	0.069 (0.0956)	0.140 (0.0879)	-0.147 (0.1132)	-0.372*** (0.1409)
(Poor household)* (Asian)	0.143 (0.1087)	0.298*** (0.0941)	0.228** (0.0920)	0.079 (0.1607)	0.165 (0.1510)	-0.223 (0.1988)	0.165 (0.3479)	-0.806* (0.4397)
(Poor household)* (Other race)	0.194 (0.1326)	0.097 (0.1159)	-0.005 (0.1216)	0.116 (0.1383)	-0.073 (0.1479)	0.103 (0.1635)	-0.166 (0.1712)	0.212 (0.2209)
Observations	145,631	145,631	145,631	145,631	145,631	145,631	109,285	50,627
MSA dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Clustered standard errors (at MSA-level) in parentheses.
*** p<0.01; ** p<0.05; * p<0.1
Note: These regressions include only the respondents who reported living in a 1-person household.
They also include the 196 MSAs for which sampling weights were available at least in one year, except for Social support, where 198 MSAs were available.
All specifications use the 2010-2015 period, except for anger (2010-2013) and social support (2008-2012).

Table A2. Income adjusted by household size (excludes respondents in the top income bracket)

Variables	(1) Ord Logit: bpl Full set of controls (196 MSAs)	(2) Ord Logit: bpla Full set of controls (196 MSAs)	(3) Ord Logit: bpla Full set of controls + bpl control (196 MSAs)	(4) Logit: worry Full set of controls (196 MSAs)	(5) Logit: stress Full set of controls (196 MSAs)	(6) Logit: citysat Full set of controls (196 MSAs)	(7) Logit: anger Full set of controls (196 MSAs)	(8) Logit: Social support Full set of controls (199 MSAs)
Reported life satisfaction today (0-10)			0.678*** (0.0087)					
Poor household	-0.273*** (0.0109)	-0.044*** (0.0097)	0.121*** (0.0092)	0.143*** (0.0118)	0.137*** (0.0122)	-0.155*** (0.0180)	0.064*** (0.0206)	-0.200*** (0.0290)
Rich household	0.262*** (0.0133)	0.150*** (0.0127)	0.007 (0.0118)	-0.156*** (0.0192)	-0.114*** (0.0217)	0.088*** (0.0291)	0.009 (0.0336)	0.047 (0.0484)
Black	0.194*** (0.0174)	0.755*** (0.0199)	0.769*** (0.0178)	-0.462*** (0.0238)	-0.599*** (0.0241)	-0.351*** (0.0365)	-0.070** (0.0304)	-0.232*** (0.0515)
Hispanic	0.252*** (0.0157)	0.386*** (0.0154)	0.316*** (0.0176)	-0.033 (0.0276)	-0.275*** (0.0278)	-0.034 (0.0337)	-0.042 (0.0404)	-0.207*** (0.0615)
Asian	-0.095*** (0.0223)	-0.163*** (0.0314)	-0.127*** (0.0311)	0.053 (0.0469)	-0.193*** (0.0304)	0.176*** (0.0492)	-0.062 (0.0673)	-0.483*** (0.1039)
Other race	0.073** (0.0294)	0.249*** (0.0345)	0.250*** (0.0351)	-0.194*** (0.0414)	-0.259*** (0.0395)	-0.256*** (0.0475)	0.003 (0.0664)	-0.311*** (0.0686)
(Rich household)* (Black)	0.025 (0.0392)	-0.080* (0.0434)	-0.104** (0.0488)	-0.031 (0.0700)	-0.008 (0.0667)	0.013 (0.0597)	-0.288** (0.1164)	-0.004 (0.1180)
(Rich household)* (Hispanic)	-0.080 (0.0591)	0.045 (0.0694)	0.077 (0.0715)	0.120 (0.1074)	0.078 (0.0823)	-0.195* (0.1021)	0.369*** (0.1288)	0.270 (0.2166)
(Rich household)* (Asian)	-0.056 (0.0650)	-0.093 (0.0599)	-0.070 (0.0563)	0.127 (0.0825)	0.080 (0.0989)	0.130 (0.1354)	-0.477*** (0.1524)	1.057*** (0.4100)
(Rich household)* (Other race)	-0.098 (0.0998)	0.046 (0.1127)	0.096 (0.1094)	0.154 (0.1403)	0.358*** (0.1212)	-0.532*** (0.1649)	0.515** (0.2134)	-0.350 (0.2391)
(Poor household)* (Black)	0.267*** (0.0215)	0.151*** (0.0245)	0.034 (0.0287)	-0.034 (0.0353)	-0.091*** (0.0226)	-0.079*** (0.0298)	0.070* (0.0426)	-0.024 (0.0593)
(Poor household)* (Hispanic)	0.279*** (0.0269)	-0.154*** (0.0304)	-0.360*** (0.0337)	-0.129*** (0.0327)	-0.292*** (0.0312)	0.244*** (0.0347)	0.061 (0.0484)	-0.140* (0.0840)
(Poor household)* (Asian)	0.156*** (0.0448)	-0.038 (0.0438)	-0.135*** (0.0480)	-0.146** (0.0602)	-0.189*** (0.0588)	0.017 (0.0828)	0.058 (0.0874)	0.025 (0.1316)
(Poor household)* (Other race)	0.166*** (0.0505)	0.087 (0.0569)	0.011 (0.0575)	0.052 (0.0606)	-0.097 (0.0746)	0.011 (0.0668)	0.104 (0.0906)	-0.067 (0.1080)
Observations	466,854	466,854	466,854	466,854	466,854	466,854	340,010	148,145
MSA dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Clustered standard errors (at MSA-level) in parentheses.
*** p<0.01; ** p<0.05; * p<0.1
Note: These regressions include all respondents, except those who reported being in the top income category.
They also include the 196 MSAs for which sampling weights were available at least in one year, except for Social support, where 199 MSAs were available.
All specifications use the 2010-2015 period, except for anger (2010-2013) and social support (2008-2012).

race-income heterogeneities remain quantitatively large despite a slight decrease in the optimism gap: poor African Americans are now 2.47 times more likely than poor whites to be at a certain level of optimism.

Table A3 displays the estimates obtained when using the third alternative, which includes the respondents in the top income bracket. As in the previous cases, there are no substantive differences in the race-income heterogeneities between African Americans and whites.

Alternative measure of poverty following U.S. Census Bureau

Two possible objections to the robustness checks conducted in the previous subsection are that the thresholds chosen are relatively arbitrary and that the definition of poverty used implicitly ignores any type of equivalence scale. Regarding the latter aspect, it means that the income needed for a household to be above the poverty threshold is always linearly proportional to the household size, ignoring any aspect related to its composition or the age of its members. An alternative to address both issues, then, is to use the poverty thresholds that the U.S. Census defines every year[53] and correspondingly classify respondents as poor.[54] Table A4 displays the results for this specification. As before, there are no meaningful differences in the race-income heterogeneities, relative to the results obtained in the base specification.

Exclude MSAs with smaller numbers of poor African American respondents

Another concern about the base specification results is that the results could be driven by the within-MSA variation in MSAs with very few African Americans, particularly those within the low-income group. Table A5 displays the results obtained when running the base specification under different thresholds for the minimum number of low-income African Americans per MSA, per year. As Panel A to Panel C below illustrate, there are again no substantively meaningful differences in terms of magnitudes and significance levels across the different thresholds.

Table A3. Income adjusted by household size (respondents in the top income bracket are included)

Variables	(1) Ord Logit: bpl Full set of controls (196 MSAs)	(2) Ord Logit: bpla Full set of controls (196 MSAs)	(3) Ord Logit: bpla Full set of controls + bpl control (196 MSAs)	(4) Logit: worry Full set of controls (196 MSAs)	(5) Logit: stress Full set of controls (196 MSAs)	(6) Logit: citysat Full set of controls (196 MSAs)	(7) Logit: anger Full set of controls (196 MSAs)	(8) Logit: Social support Full set of controls (200 MSAs)
Reported life satisfaction today (0-10)			0.717*** (0.0082)					
Poor household	-0.302*** (0.0106)	-0.047*** (0.0100)	0.141*** (0.0097)	0.141*** (0.0115)	0.132*** (0.0121)	-0.173*** (0.0177)	0.053*** (0.0197)	-0.209*** (0.0290)
Rich household	0.363*** (0.0081)	0.265*** (0.0088)	0.088*** (0.0083)	-0.108*** (0.0101)	-0.044*** (0.0104)	0.122*** (0.0174)	-0.035 (0.0234)	0.063** (0.0296)
Black	0.173*** (0.0181)	0.774*** (0.0200)	0.807*** (0.0172)	-0.460*** (0.0221)	-0.611*** (0.0228)	-0.367*** (0.0397)	-0.063** (0.0297)	-0.276*** (0.0487)
Hispanic	0.252*** (0.0147)	0.397*** (0.0167)	0.331*** (0.0193)	-0.050* (0.0292)	-0.291*** (0.0267)	-0.039 (0.0363)	-0.042 (0.0383)	-0.211*** (0.0579)
Asian	-0.088*** (0.0213)	-0.140*** (0.0310)	-0.103*** (0.0286)	0.046 (0.0365)	-0.210*** (0.0268)	0.176*** (0.0442)	-0.064 (0.0659)	-0.559*** (0.1009)
Other race	0.079*** (0.0278)	0.243*** (0.0310)	0.244*** (0.0329)	-0.192*** (0.0433)	-0.269*** (0.0385)	-0.249*** (0.0452)	0.009 (0.0595)	-0.390*** (0.0685)
(Rich household)* (Black)	-0.110*** (0.0326)	-0.185*** (0.0291)	-0.150*** (0.0269)	-0.069 (0.0452)	-0.044 (0.0386)	0.042 (0.0466)	-0.216*** (0.0729)	0.055 (0.0951)
(Rich household)* (Hispanic)	-0.156*** (0.0369)	-0.108*** (0.0409)	-0.045 (0.0404)	0.118** (0.0567)	0.151*** (0.0443)	-0.066 (0.0659)	0.414*** (0.0682)	0.075 (0.1199)
(Rich household)* (Asian)	-0.152*** (0.0366)	-0.149*** (0.0350)	-0.082*** (0.0309)	-0.008 (0.0552)	0.038 (0.0684)	0.198* (0.1023)	-0.182* (0.0975)	0.055 (0.1607)
(Rich household)* (Other race)	-0.094 (0.0582)	-0.083 (0.0604)	-0.031 (0.0608)	0.160 (0.1072)	0.216** (0.0907)	-0.368*** (0.0997)	0.328*** (0.1123)	-0.203 (0.1591)
(Poor household)* (Black)	0.311*** (0.0208)	0.176*** (0.0247)	0.031 (0.0294)	-0.038 (0.0341)	-0.079*** (0.0212)	-0.060** (0.0302)	0.063 (0.0413)	0.013 (0.0565)
(Poor household)* (Hispanic)	0.288*** (0.0274)	-0.156*** (0.0296)	-0.377*** (0.0330)	-0.123*** (0.0325)	-0.297*** (0.0289)	0.236*** (0.0327)	0.056 (0.0503)	-0.145* (0.0799)
(Poor household)* (Asian)	0.133*** (0.0447)	-0.065 (0.0425)	-0.154*** (0.0462)	-0.150** (0.0584)	-0.189*** (0.0574)	-0.005 (0.0745)	0.060 (0.0916)	0.085 (0.1332)
(Poor household)* (Other race)	0.171*** (0.0510)	0.113** (0.0574)	0.030 (0.0569)	0.049 (0.0617)	-0.091 (0.0733)	0.002 (0.0679)	0.099 (0.0897)	0.009 (0.1059)
Observations	574,914	574,914	574,914	574,914	574,914	574,914	413,705	179,705
MSA dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Clustered standard errors (at MSA-level) in parentheses.
*** p<0.01; ** p<0.05; * p<0.1
Note: These regressions include the 196 MSAs for which sampling weights were available at least in one year, except for Social support, where 199 MSAs were available.
All specifications use the 2010-2015 period, except for anger (2010-2013) and social support (2008-2012).
The individual-level controls from Table 2 were included but are not displayed, except those related to race and income.

Table A4. Income adjusted by household size; poverty thresholds as defined by the Census Bureau

Variables	(1) Ord Logit: bpl Full set of controls (196 MSAs)	(2) Ord Logit: bpla Full set of controls (196 MSAs)	(3) Ord Logit: bpla Full set of controls + bpl control (196 MSAs)	(4) Logit: worry Full set of controls (196 MSAs)	(5) Logit: stress Full set of controls (196 MSAs)	(6) Logit: citysat Full set of controls (196 MSAs)	(7) Logit: anger Full set of controls (196 MSAs)	(8) Logit: Social support Full set of controls (200 MSAs)
Reported life satisfaction today (0-10)			0.716*** (0.0082)					
Poor household	-0.285*** (0.0181)	0.002 (0.0197)	0.190*** (0.0195)	0.157*** (0.0182)	0.174*** (0.0194)	-0.156*** (0.0214)	0.102*** (0.0263)	-0.257*** (0.0332)
Rich household	0.459*** (0.0080)	0.288*** (0.0083)	0.064*** (0.0080)	-0.039*** (0.0108)	0.074*** (0.0103)	0.261*** (0.0205)	-0.001 (0.0207)	0.139*** (0.0256)
Black	0.227*** (0.0184)	0.809*** (0.0167)	0.820*** (0.0146)	-0.465*** (0.0216)	-0.613*** (0.0229)	-0.373*** (0.0373)	-0.050* (0.0275)	-0.263*** (0.0447)
Hispanic	0.301*** (0.0150)	0.380*** (0.0177)	0.276*** (0.0231)	-0.084*** (0.0267)	-0.370*** (0.0256)	0.022 (0.0375)	-0.028 (0.0331)	-0.233*** (0.0651)
Asian	-0.078*** (0.0225)	-0.152*** (0.0314)	-0.118*** (0.0303)	0.011 (0.0457)	-0.244*** (0.0248)	0.205*** (0.0406)	-0.026 (0.0634)	-0.455*** (0.0909)
Other race	0.093*** (0.0283)	0.277*** (0.0320)	0.276*** (0.0329)	-0.143*** (0.0334)	-0.268*** (0.0315)	-0.289*** (0.0453)	0.042 (0.0575)	-0.368*** (0.0590)
(Rich household)* (Black)	-0.270*** (0.0338)	-0.238*** (0.0331)	-0.118*** (0.0310)	0.008 (0.0419)	-0.018 (0.0465)	-0.008 (0.0557)	-0.034 (0.0705)	-0.171 (0.1116)
(Rich household)* (Hispanic)	-0.159*** (0.0327)	-0.113*** (0.0288)	-0.032 (0.0274)	0.068* (0.0409)	0.175*** (0.0382)	-0.018 (0.0630)	0.224*** (0.0723)	0.032 (0.1021)
(Rich household)* (Asian)	-0.147*** (0.0304)	-0.091** (0.0357)	-0.027 (0.0339)	0.021 (0.0646)	0.027 (0.0433)	0.063 (0.0885)	-0.093 (0.1028)	-0.308** (0.1257)
(Rich household)* (Other race)	-0.060 (0.0627)	-0.199*** (0.0613)	-0.174*** (0.0629)	0.057 (0.0790)	0.071 (0.0672)	-0.074 (0.1179)	0.108 (0.1328)	-0.391*** (0.1407)
(Poor household)* (Black)	0.401*** (0.0353)	0.182*** (0.0326)	-0.019 (0.0369)	-0.049 (0.0374)	-0.108*** (0.0310)	-0.064 (0.0391)	0.016 (0.0506)	0.050 (0.0683)
(Poor household)* (Hispanic)	0.356*** (0.0312)	-0.218*** (0.0384)	-0.485*** (0.0432)	-0.076** (0.0350)	-0.249*** (0.0328)	0.220*** (0.0514)	0.061 (0.0477)	-0.173** (0.0796)
(Poor household)* (Asian)	0.172*** (0.0630)	-0.136** (0.0562)	-0.281*** (0.0650)	-0.029 (0.0808)	-0.073 (0.0835)	-0.156 (0.1021)	-0.161 (0.1580)	0.008 (0.1803)
(Poor household)* (Other race)	0.218*** (0.0744)	0.131 (0.0838)	0.008 (0.0847)	-0.054 (0.0721)	-0.079 (0.0894)	0.045 (0.0865)	0.108 (0.1093)	0.033 (0.1345)
Observations	574,914	574,914	574,914	574,914	574,914	574,914	413,705	179,705
MSA dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Clustered standard errors (at MSA-level) in parentheses.
*** p<0.01; ** p<0.05; * p<0.1
Note: These regressions include the 196 MSAs for which sampling weights were available at least in one year, except for Social support, where 199 MSAs were available.
All specifications use the 2010-2015 period, except for anger (2010-2013) and social support (2008-2012).
The individual-level controls from Table 2 were included but are not displayed, except those related to race and income.

Table A5. Base specification, using thresholds for minimum number of Poor African Americans by MSA

	(1) Ord Logit: bpl	(2) Ord Logit: bpla	(3) Ord Logit: bpla w/ bpl control	(4) Logit: worry	(5) Logit: stress	(6) Logit: citysat	(7) Logit: anger
Panel A: MSAs with more than 30 (Poor Household)*(Black) observations							
Black	0.188***	0.820***	0.850***	-0.495***	-0.688***	-0.401***	-0.047
	(0.015)	(0.023)	(0.022)	(0.023)	(0.020)	(0.058)	(0.031)
(Rich household)* (Black)	-0.224***	-0.220***	-0.126***	0.060	0.057	0.011	0.005
	(0.031)	(0.037)	(0.036)	(0.046)	(0.038)	(0.043)	(0.062)
(Poor household)* (Black)	0.407***	0.222***	0.017	-0.022	-0.003	-0.024	0.101**
	(0.029)	(0.032)	(0.034)	(0.037)	(0.026)	(0.042)	(0.041)
Panel B: MSAs with more than 50 (Poor Household)*(Black) observations							
Black	0.195***	0.820***	0.844***	-0.500***	-0.695***	-0.403***	-0.084**
	(0.019)	(0.029)	(0.027)	(0.024)	(0.019)	(0.072)	(0.036)
(Rich household)* (Black)	-0.242***	-0.226***	-0.128***	0.067	0.078*	0.054	0.015
	(0.033)	(0.039)	(0.038)	(0.052)	(0.043)	(0.045)	(0.067)
(Poor household)* (Black)	0.380***	0.213***	0.021	-0.035	-0.009	-0.025	0.100**
	(0.032)	(0.039)	(0.039)	(0.043)	(0.028)	(0.048)	(0.044)
Panel C: MSAs with more than 100 (Poor Household)*(Black) observations							
Black	0.208***	0.815***	0.831***	-0.538***	-0.700***	-0.407***	-0.088*
	(0.026)	(0.032)	(0.026)	(0.026)	(0.023)	(0.093)	(0.048)
(Rich household)* (Black)	-0.254***	-0.230***	-0.133***	0.061	0.031	-0.005	-0.001
	(0.033)	(0.050)	(0.048)	(0.054)	(0.041)	(0.056)	(0.070)
(Poor household)* (Black)	0.381***	0.259***	0.079*	0.019	-0.008	0.003	0.148***
	(0.041)	(0.050)	(0.044)	(0.063)	(0.042)	(0.055)	(0.048)

Clustered standard (at the MSA level) errors in parentheses

*** p<0.01; ** p<0.05; * p<0.1

Note: This table displays only the coefficients for Black, (Black)*(Poor household) and (Black)*(Rich household), but all the other individual-level controls from Table 2 were included in the regressions (but are not displayed).

ENDNOTES

1. The high material costs of being poor in Latin America in the 1970's, which included paying as much as 18 times more per unit of water (bought from trucks) and electricity (using candles and kerosene in the absence of access), with related inferior outcomes in the health arena, were documented by Graham's late father. See: Adrianzen, B., and Graham, G. G., "The High Costs of Being Poor", *Archives of Environmental Health* 28 (6): 312–315.
2. Cherlin, A. (2016). "Why Are White Death Rates Rising?" *New York Times*, February 22;Chetty, R., Hendren, N., Kline, P., and Saez, E. 2014. "Where Is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States." *Quarterly Journal of Economics* 129 (4): 1553–1623. Chetty, R., Stepner, M., Abraham, S., Lin, S., Scuderi, B., Turner, N., Bergeron, A., and Cutler, D. 2016. "The Association between Income and Life Expectancy in the United States, 2001–2014." *Journal of the American Medical Association*. Vol. 315(16):1750-1766; Krueger, A. (2016). "Where Have All the Workers Gone?", Paper presented to 60th Economics Conference, Federal Reserve Bank of Boston, October.
3. Graham, C. 2008. "Happiness and Health: Lessons – and Questions – for Policy", *Health Affairs*, Vol. 27 (2); 72-87; Graham, C., Eggers, A., and Sukhtankar, S. 2004. "Does Happiness Pay? An Initial Exploration Based on Panel Data from Russia." *Journal of Economic Behavior and Organization* 55: 319–342; deNEve et al. (2013) in Helliwell, J., Layard, R., and Sachs, J. (2013), *World Happiness Report, 2013* (New York: Earth Institute Press).
4. Steptoe, A., Deaton, A., and Stone, A. (2015). "Subjective Well-Being, Health, and Ageing", *The Lancet*, Vol. 385: 640-48; Keyes, C., Simoes, E. (2012). "To Flourish or Not: Positive Mental Health and All-Cause Mortality", *American Journal of Public Health*, Vol. 102, (11), 2164-72.
5. Case, A. and Deaton, A. (2015). "Rising Morbidity and Mortality in Midlife among White Non-Hispanic Americans in the 21st Century." *Proceedings of the National Academy of Sciences* Vol. 112 (49); 15078-83. Some recent work by Gelman and Auerbach suggests that these trends are driven in part by aggregation bias at the older ages of the 45-54 cohort, driven by the baby boomers, and that they are mainly driven by white women. See Gelman, A. and Auerbach, J. (2016). "Age Aggregation Bias in Mortality Trends", *Proceedings of the National Academy of Sciences*, Vol. 113 (7), E816-E817. Case and Deaton's response suggests that the age trends may play a role but are not the underlying explanation.
6. Case, A. and Deaton, A. (2017). "Mortality and Morbidity in the 21st Century", *Brookings Papers on Economic Activity*, March.
7. Assari S, Lankarani M. 2016. "Depressive Symptoms Are Associated with More Hopelessness among White than Black Older Adults", *Frontiers in Public Health*: April 4:82.
8. Meredith Shiels et al. (2017). "Trends in premature mortality in the USA by sex, race, and ethnicity from 1999 to 2014: an analysis of death certificate data", *The Lancet*: dx.doi.org/10.1016/50140-6736 (17)30187-3 (January 25).
9. Justin R. Pierce and Peter K. Schott (2016). "Trade Liberalization and Mortality: Evidence from U.S. Counties", *Finance and Economics Discussion Series*, Federal Reserve Board, Washington, D.C.
10. Dwyer-Lindgren, L. et al. (2017). "U.S. County-Level Trends in Mortality Rates for Major Causes of Death, 1980-2014", Journal of the American Medical Association, doi: jamanetwork.com/pdfaccess.ashx?url=/data/journals/jama/935924/ on 01/22/2017, January 22.
11. These initial findings are in Graham (2016), *Happiness for All? Unequal Hopes and Lives in Pursuit of the American Dream* (Princeton University Press, 2017). Graham is an academic advisor to Gallup and, as such, has access to the data. Our measure of optimism is a question that asks respondents where on a 0-10 scale ladder they think their life satisfaction will be in five years.
12. The pre-2010 GH data is missing some key variables of interest, so we were unable to use it. For instance, the variable relating to the respondents' employment situation is binary (i.e., divided between being at work and not being at work). Additionally, life satisfaction data (current and future) is mostly unavailable for the 2008-2009 period.

13. Source: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=PEP_2015_PEPANNRES&src=pt.
14. GH does not cover MSAs in Puerto Rico.
15. This proportion has increased very slightly since over time: 85.0 percent, 85.1 percent, 85.3 percent, 85.4 percent, and 85.5 percent, for 2010, 2011, 2012, 2013, and 2014, respectively.
16. The decrease in the number of MSAs with sampling weights from 2013 on is due to the fact that GH halved the target number of daily individual interviews from 1000 to 500.
17. The threshold is 10,000 inhabitants for a county to be the core of a micropolitan statistical area and 50,000 to be the core county of a MSA.
18. In Appendix 1, we employ alternative definitions for poor, middle-income, and rich individuals, including that from the Census Bureau. The results we obtain are quantitatively similar to those in our main specification. See Appendix 1 for additional details.
19. This percentage and the previous ones do not use Gallup's survey weights. The corresponding shares of weighted respondents are 15 percent and 24 percent, respectively.
20. Our age dummies have ranges that contain a similar number of observations and generally match the age brackets present in the other databases that we used, such as the CDC WONDER Online Database.
21. We include both year and MSA dummies in every specification (see Table 1).
22. We computed Figure 1 using the coefficients from column (2), i.e., the BPLA regression that does not use BPL as a control. If we used the coefficients from column (3), i.e., those where we use current BPL as a control, we got slightly lower gaps between poor black and poor whites. We also did not observe as much of a decrease in the gap as income increases—that is, within the rich, the gap between blacks and whites is almost as large as the gap within the poor.
23. The social support regressions displayed in Tables 1 and 2 constitute the only cases where the period used did not start in 2010. Because Gallup discontinued the question in 2013 and because the bulk of the respondents came from the pre-2010 era, we used 2008-2012 instead. Unfortunately, that also meant that the employment-related control variables could not be used (that variable's current detailed format was only introduced in 2010). The question about experiencing anger was discontinued after 2013 and, as a result, the specifications using it as a dependent variable include only the period 2010-2013.
24. A notable caveat is that most of the gains occurred in the earlier decades. U.S. Census Bureau (2014).
25. Porter, E. (2015). "Education Gap Widens between Rich and Poor." *New York Times*, September 23, B1. Reardon, S., and Portilla, X. 2015. "Recent Trends in Socioeconomic and Racial School Readiness Gaps at Kindergarten Entry." Center for Education Policy Analysis Working Papers, No. 15-02, Stanford University.
26. Tavernise, S. (2016). "Black Americans See Gains in Life Expectancy", *The New York Times*, May 8; Case and Deaton (2017).
27. Assari S, Lankarani M. 2016. "Depressive Symptoms Are Associated with More Hopelessness among White than Black Older Adults", *Frontiers in Public Health 2016*: April 4:82.
28. Blanchflower, D. and Oswald, A. (2004). "Well-being over Time in the U.S.A. and Britain*", Journal of Public Economics*, 88 (*2004*) 1359–1386; Oswald, A. and Wu, S. (2011). "Well-being Across America", *Review of Economics and Statistics*, Vol. 93, No. 4, Pages: 1118-1134.
29. Jackson, J. (2015). "The Role of Well-Being Measures in Minority Aging Research." Presentation to National Institutes of Aging Conference on Well-Being and Aging, Orlando, November 18; Ryff, C. (2015) "Varieties of Well-Being and Their Links to Health." Presentation to National Institutes of Aging Conference on Well-Being and Aging, Orlando, November 18.
30. Scwhandt, H. (2016). "Unmet Aspirations and an Explanation for the Age-U Shape in Well-Being", *Journal of Economic Behavior and Organization*, Volume 122, Pages 75–87.
31. Krugman, P. (2015). "Despair, American Style." *New York Times*, November 9, A19; and Cherlin, A. (2016).

32. See Isenberg, N. (2016). *White Trash: The 400-Year Untold History of Class in America* (New York: Viking Press).
33. Chetty et al. (2016).
34. Centers for Disease Control and Prevention, National Center for Health Statistics. Compressed Mortality File 1999-2015 on CDC WONDER Online Database, released December 2016. Data are from the Compressed Mortality File 1999-2015 Series 20 No. 2U, 2016, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. The data was downloaded from http://wonder.cdc.gov/cmf-icd10.html on January 2017.
35. In the next iteration of this paper, we will be able to use the full Compressed Mortality File data from CDC, which we just received.
36. The calculation would be: This log represents a 25 percent increase and is equal to 0.223144, and the product equals -0.0248, which represents the change in log odds (of being at a certain level of future life satisfaction, relative to being at lower levels). Then, taking the exponent of this result, we obtain the final change in odds: ..
37. Case, A. and Deaton, A. (2015). "Suicide, Age, and Wellbeing: An Empirical Investigation", Center for Health and Wellbeing, Princeton University (June); http://www.nber.org/papers/w21279.
38. Details on SSDI are from Social Security Advisory Board data, available at: http://www.ssab.gov/Disability-Chart-Book. These are the raw (i.e., not age-adjusted) numbers.
39. We thank Henry Aaron for raising this point.
40. Clark, A. and Oswald, A. (1994). "Unhappiness and Unemployment", *The Economic Journal*, Vol. 104, No. 424 (May), pp. 648-659; and Clark, A. (2006). "A Note on Unhappiness and Unemployment Duration", *IZA Discussion Papers*, No. 2406, October.
41. Eberstadt, N. (2016). *Men Without Work: America's Invisible Crisis* (W.C. Pennsylvania: Templeton Press).
42. Krueger (2016).
43. Tisch College Study summarized in Kei-Kawashima-Ginsberg and Felicia Sullivan (2017), "Sixty Percent of Rural Millennials Lack Access to a Political Life", *The Conversation*, March 27. For the distribution of broadband internet, see: https://www.broadbandmap.gov/technology.
44. The United States has the highest per capita consumption of opioids in the world, with consumption trends increasing dramatically as of the late 1990's. See the University of Wisconsin Pain and Policy Studies Group website: http://www.painpolicy.wisc.edu/country/profile/united-states-america.
45. Piketty, T., Saez, E., and Zucman, G. (2016), "Distributional National Accounts: Methods and Estimates for the United States", *NBER Working Paper 22945*, http://www.nber.org/papers/w22945.
46. D. Trisi (2016), "Safety Net Cut Poverty Nearly in Half Last Year", *Center on Budget and Policy Priorities Blogs*, September 14; and D. Trisi (2016), PhD Dissertation, University of Maryland, College Park.
47. Carroll, A. (2016). "Limiting Food Stamps Choices May Help Fight Obesity", *The New York Times – The Upshot*, September 27.
48. Lustig, Nora, and Carola Pessino and John Scott. 2013. The Impact of Taxes and Social Spending on Inequality and Poverty in Argentina, Bolivia, Brazil, Mexico, Peru and Uruguay: An Overview. CEQ Working Paper No. 13, Center for Inter-American Policy and Research and Department of Economics, Tulane University and Inter-American Dialogue, August.
49. When regressing the household size variable on income group (recall that Gallup's income variable assigns respondents to income brackets, coded from 0 to 10), a coefficient of 0.080 is obtained. This would mean that, on average and imposing a linear progression, an increase of 1 in the income group is associated with an increase of 0.08 in the household size.
50. Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek. *Integrated Public Use Microdata Series: Version 6.0* [dataset]. Minneapolis, MN: University of Minnesota, 2015.
51. Respondents whose reported household size is larger than 10 are dropped from the analysis (951 observations).
52. More precisely, 19 percent and 20 percent of the (unweighted) observations corresponded to the poor and

to the rich groups, respectively. Upon application of the sampling weights, these percentages changed to 27 percent and 14 percent, respectively.

53. See, for example: https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html.

54. Under this specification, rich respondents are defined in the same way as in third alternative of Section 4a. The results do not meaningfully change if the rich are classified under the criterion used for the base specification (i.e., the rich group corresponds to the respondents whose reported household income is above $120,000/year; these results are not displayed but are available from the authors, upon request).

BROOKINGS
1775 Massachusetts Avenue, NW
Washington, DC 20036
202-797-6000
www.brookings.edu/global