

Online Appendix for

Mortality Inequality: The Good News from a County-Level Approach

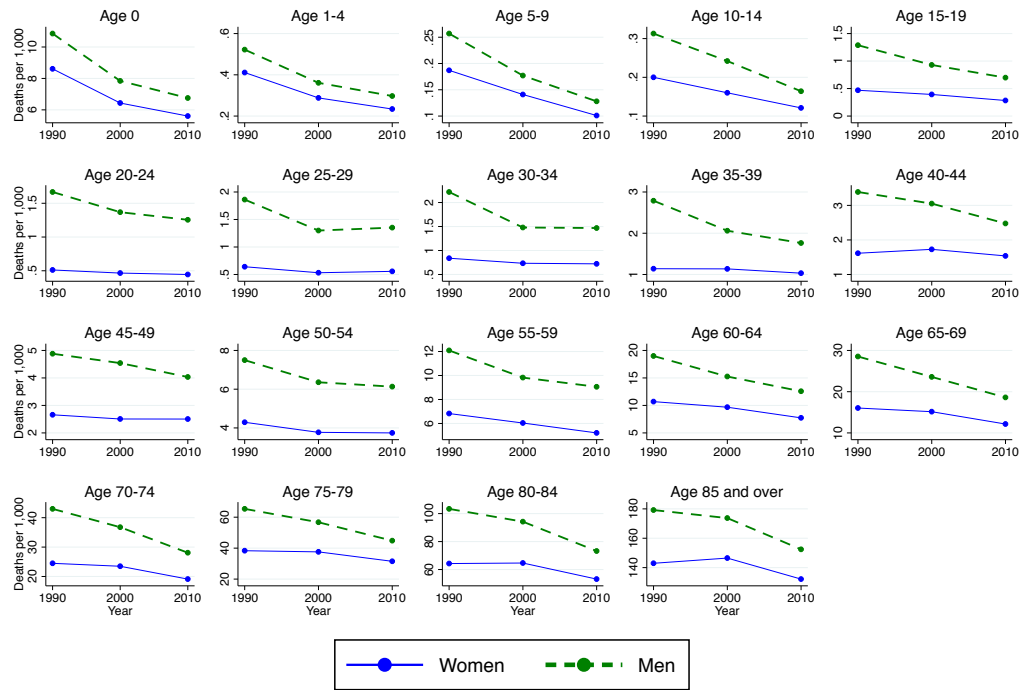
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This online Appendix includes:

Figs. A1-A8

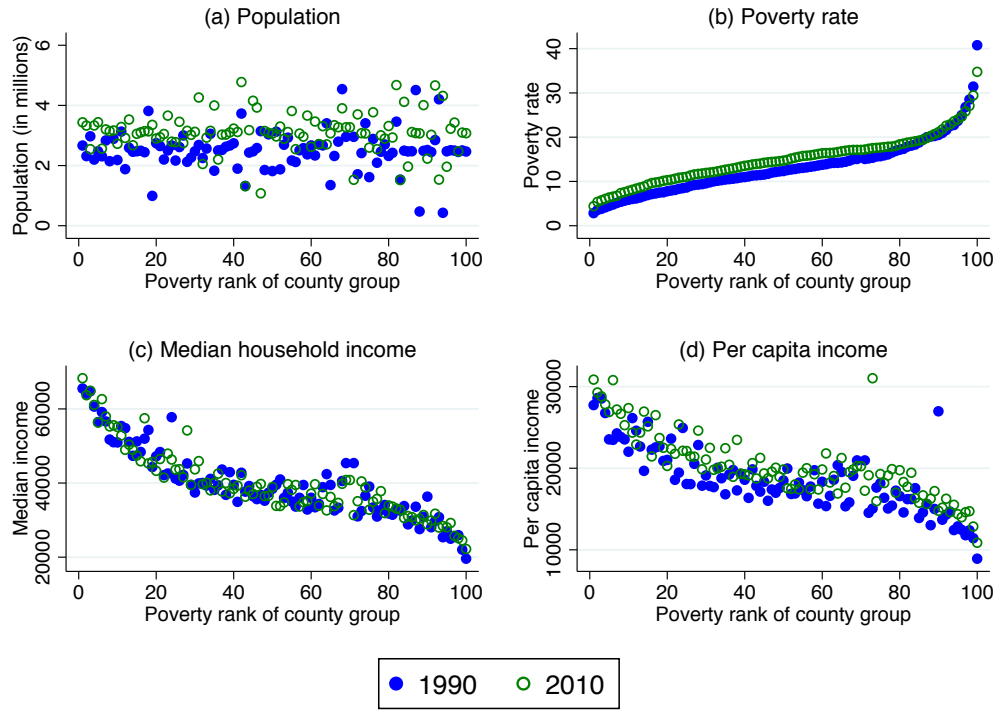
Table A1-A3

Figure A1: 1-year mortality rates by age, overall U.S. 1990-2010



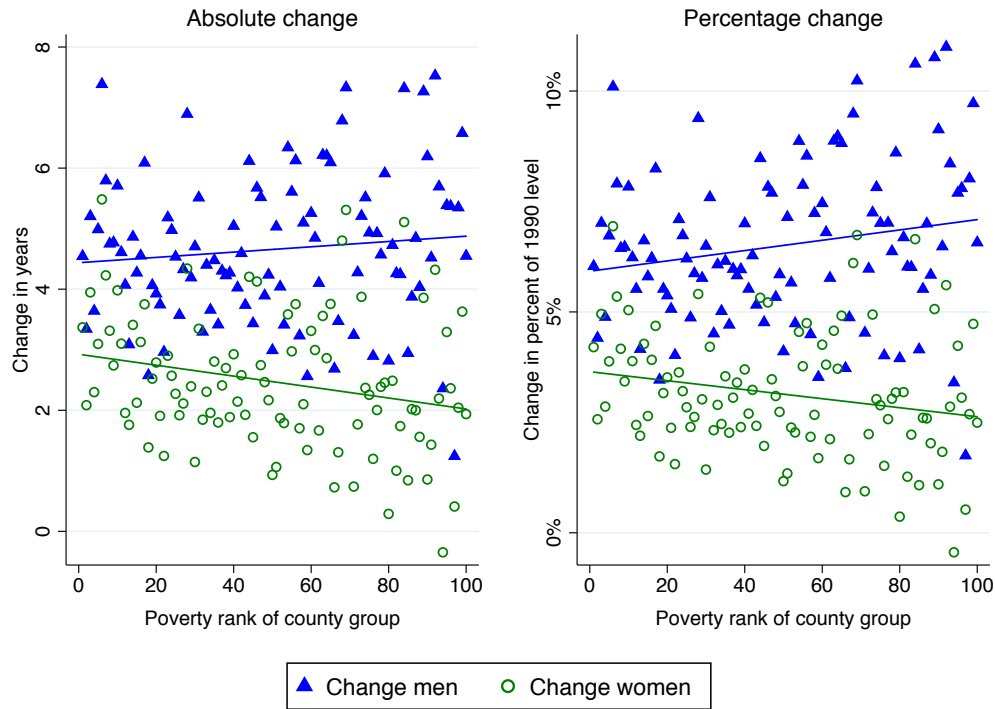
Notes: 1-year age-specific mortality rates are plotted for the overall U.S., unlike other figures in this paper which focus on 3-year mortality rates across county groups. Data source is HMD (2015).

Figure A2: County group characteristics



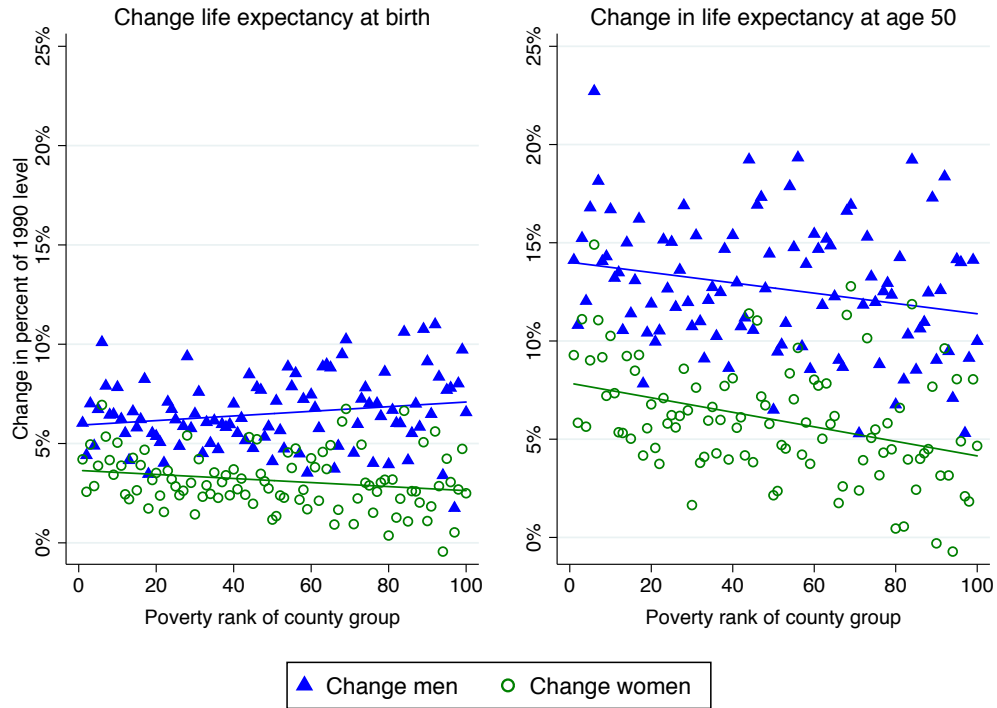
Notes: Median and per capita income are adjusted for inflation and reported in constant 1999 dollars. Median income refers to counties' median income averaged across counties in each county group, weighted by counties' population size. The outliers in panel (d) are driven by New York County, NY, a big county with both a high poverty rate and high per capita income.

Figure A3: 2010-1990 change in life expectancy at birth, in years and in percent of 1990 level



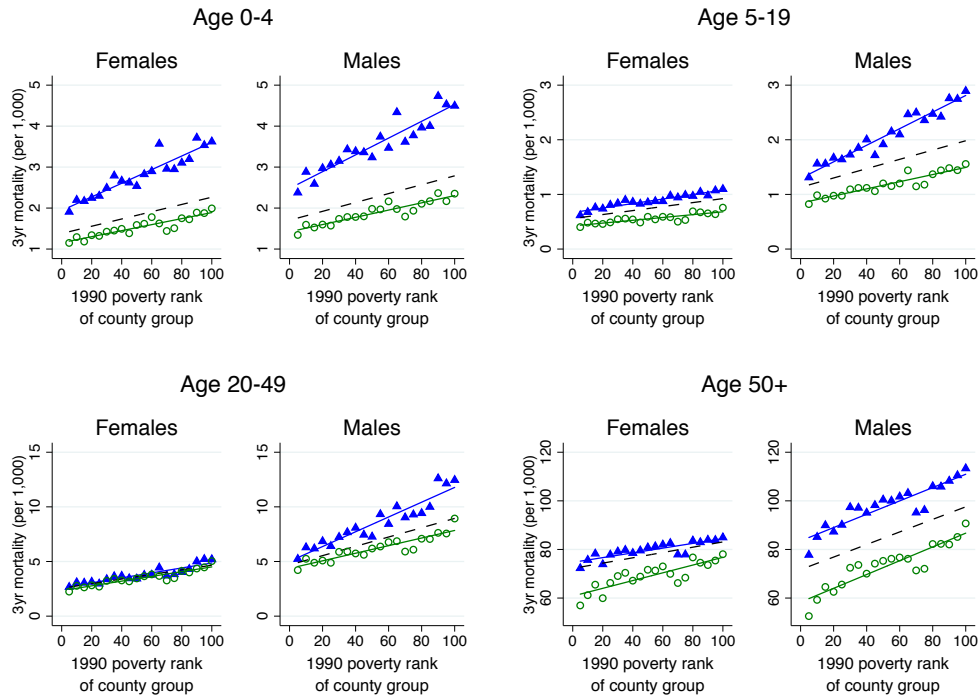
Notes: The left panel plots the change in life expectancy at birth between 2010 and 1990 for county groups ranked by their poverty rate (for the levels in 1990 and 2010 see Fig. 2). The right panel shows the same changes, as percent of the 1990 level. Lines are fitted using OLS regression. The fitted line in the left panel has a slope of 0.004 (SE=0.004, $p=0.314$) for men and for women a slope of -0.009 (SE=0.004, $p=0.02$). The slope in the right figure is 0.012 (SE=0.006, $p=0.065$) for men and -0.01 (SE=0.005, $p=0.04$) for women. For further explanations, see the notes below Fig. 2.

Figure A4: 2010-1990 change in life expectancy across poverty percentiles at birth and at age 50



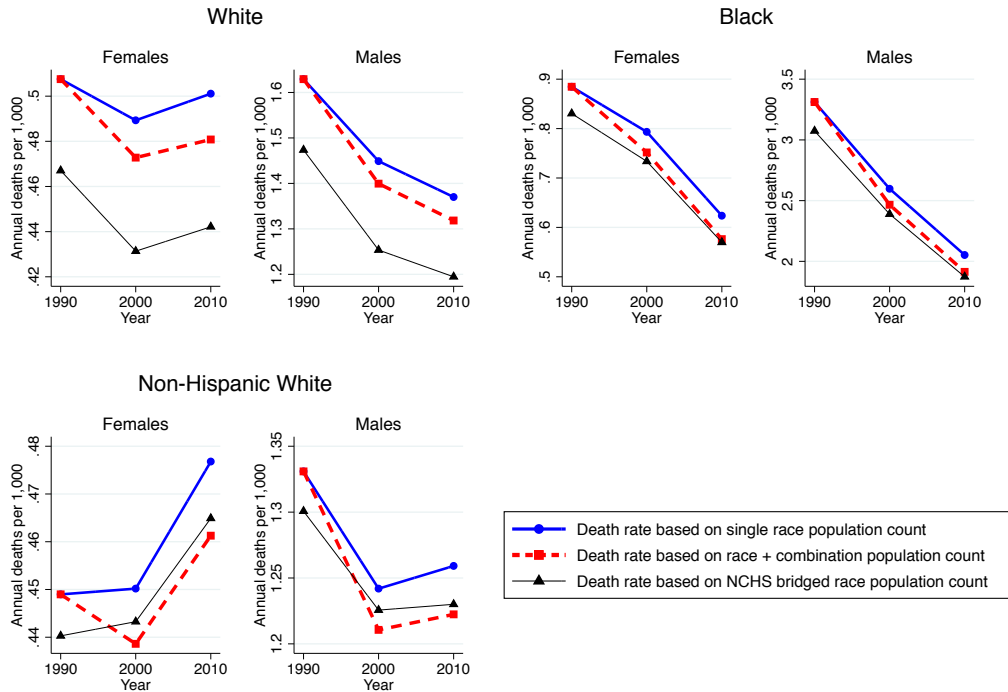
Notes: The left panel plots the county group-specific change in life expectancy between 2010 and 1990 as a percent of the 1990 level (as in Fig. A3). The right panel shows the same percentage changes for life expectancy at age 50. Lines are fitted using OLS regression. For further explanations, see the notes below Fig. 2.

Figure A5: 3-year mortality rates across groups of counties ranked by their poverty rate in 1990



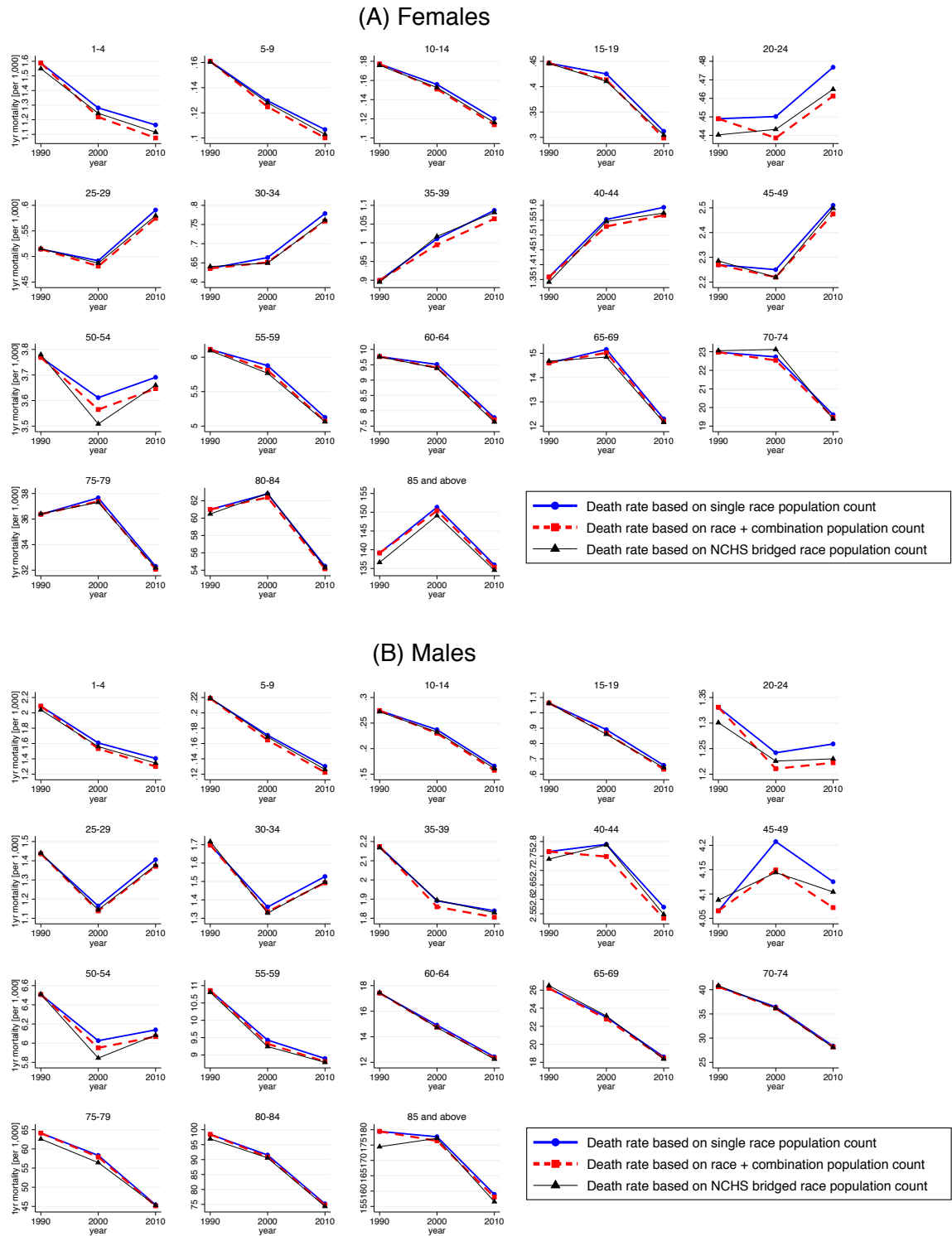
Notes: This figure replicates Fig. 4, holding the 1990 poverty rank of county groups fixed. Counties are ranked and divided into groups in 1990, and these groups are followed over time without reordering until 2010. For further explanations, see comments below Fig. 4.

Figure A6: 1-year mortality rates at age 20-24, by race, based on different population counts



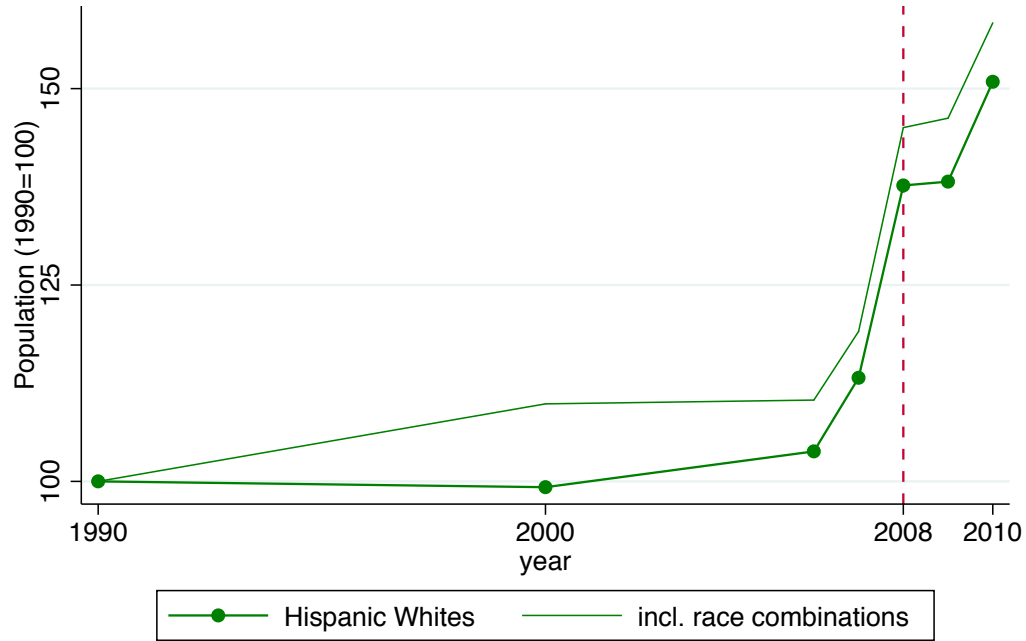
Notes: These figures show race and gender-specific mortality rates (death counts divided by population counts) at age 20 to 24, based on same death counts but using different population counts. For the blue dots, these death counts are divided by single race population counts. The red squares, on the other hand, are based on population counts that include multiple race reports in 2000 and 2010. This results in a larger population denominator and thereby in a lower mortality rate. The black triangles, instead, use bridged population estimates provided by the National Center for Health Statistics (NCHS). These bridged estimates divide the entire population into four race categories (white, black, native American, and Asian), with the majority of multiple race or “other race” reports being assigned to Hispanic white. This inflates the white population denominator and attenuates the white mortality rate.

Figure A7: 1-year mortality rates for non-Hispanic whites, based on different population counts



Notes: These figures show death rates for non-Hispanic white females and males across age groups, based on different population counts. For further comments see the notes below the previous figure.

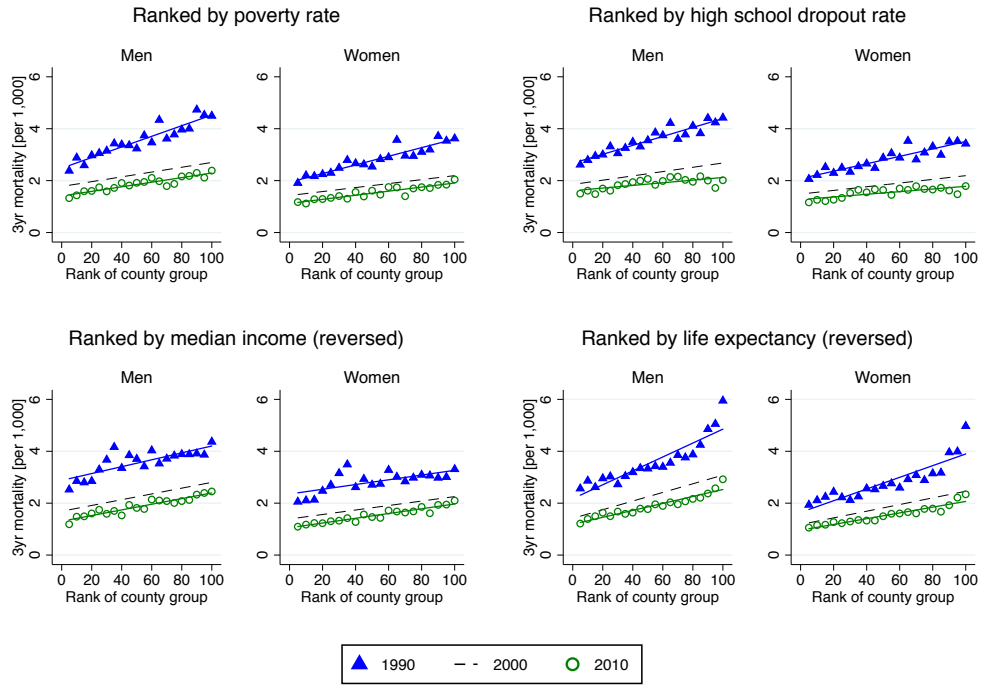
Figure A8: Size of U.S.-born Hispanic white birth cohorts born 1969-1971 (1990=100)



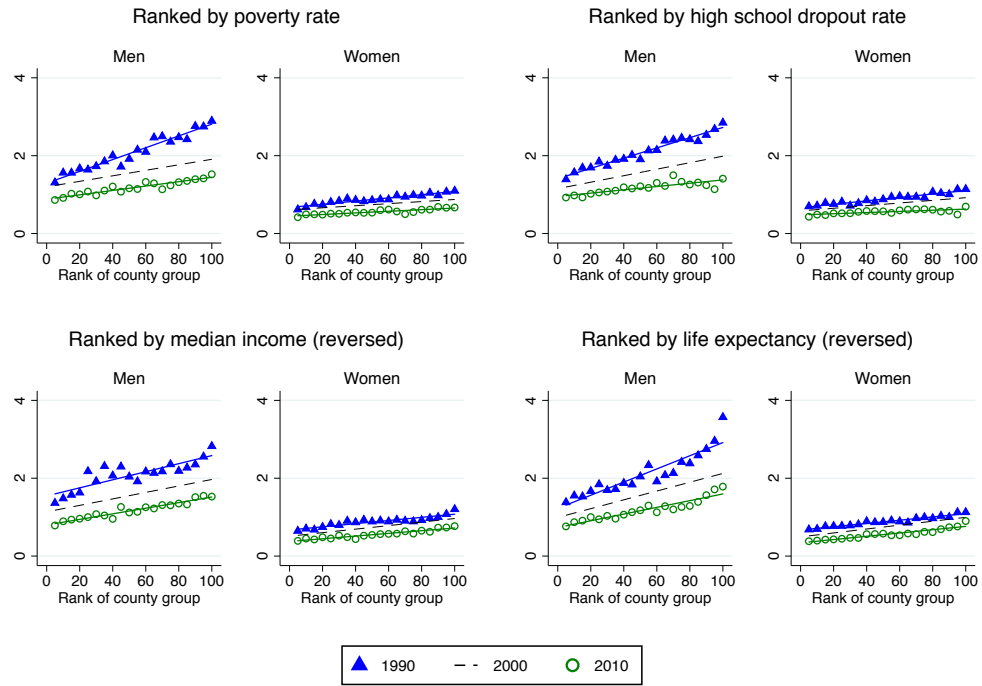
Notes: The sample consists of Hispanic whites born in the U.S. between 1969--1971. The population size is plotted relative to 1990. The size of this group should shrink over time, as people die and as more people might leave the country than return (after having left beforehand). Data sources are the 1990/2000 Census and the 2006-2010 ACS. In 2008, the question regarding Hispanic origin was changed, likely extending the measure to U.S.-born Hispanics who had not identified as Hispanics before. A comparison with the 2010 Census is not possible, since information about the respondent's birth place is not available in the short form used for that Census wave.

Figure A9: 3-year mortality rates ranked using alternative county characteristics

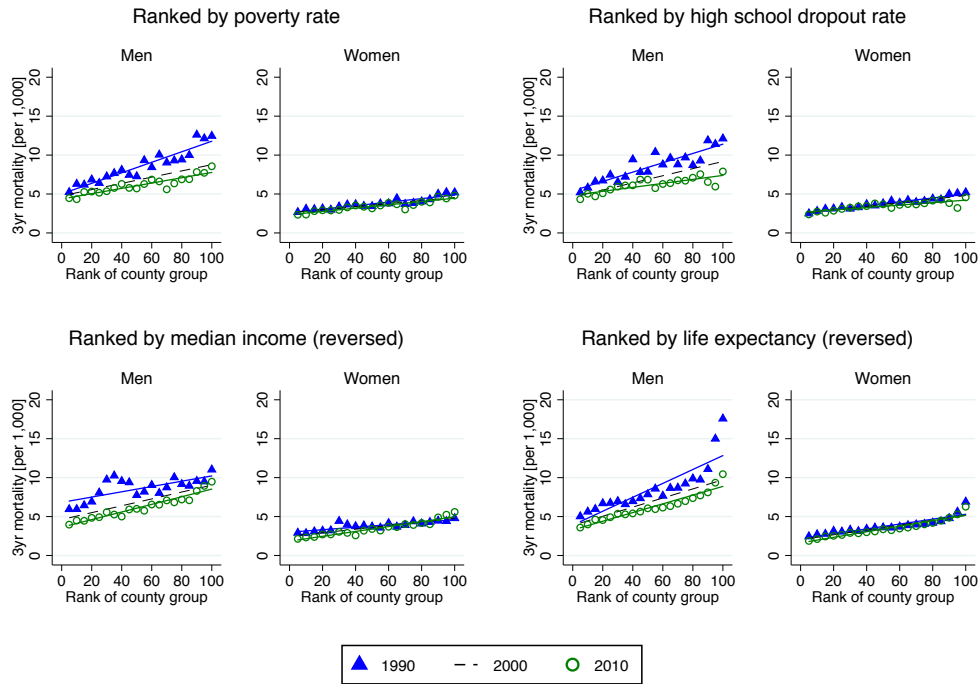
(A) Age 0-4



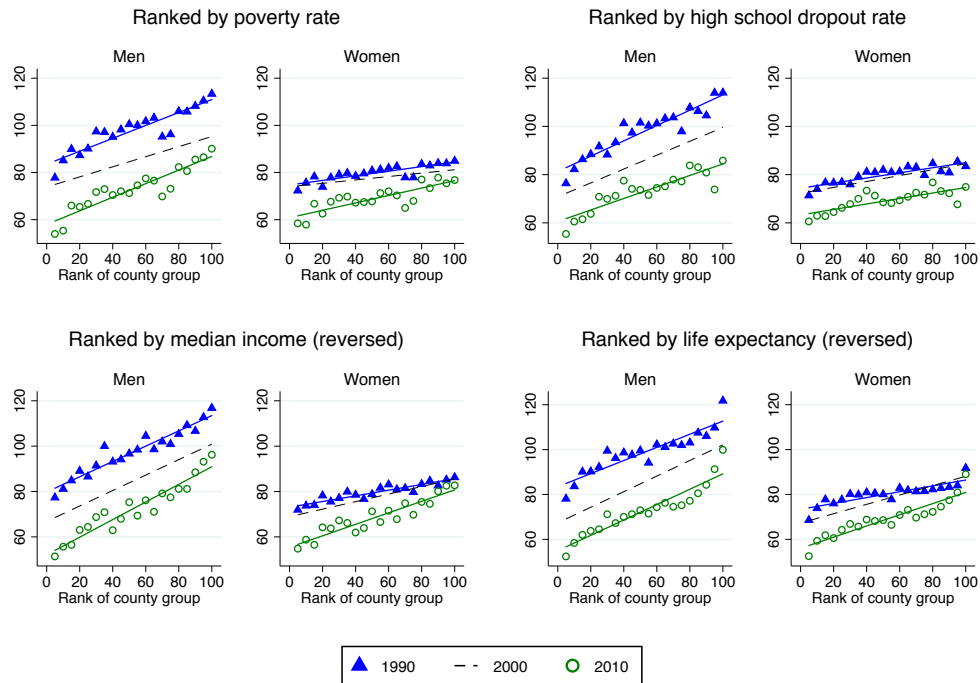
(B) Age 5-9



(C) Age 40-49



(D) Age 50+



Notes: These figures replicate the age-specific mortality rates across county groups shown in Figure 3, using alternative characteristics to rank counties. The rankings for median income and life expectancy are reversed, such that a higher ranking refers to a lower value (to facilitate the comparison with the other rankings). The ranking by life expectancy requires life expectancy estimates at the county level, which are

provided by IHME (2013). Mortality rates in 2000 and 2010 are age-adjusted using the 1990 population, i.e. they account for changes in the age structure within age, gender, and county groups since 1990.

Table A1: Changes in life expectancy and population share by education and individual counties

A. By education groups (following Olshansky et al. 2012)

White non-Hispanic females, age 25-84	<12 years of education	16+ years of Education
Change in life expectancy at birth, 1990-2008 ^(*)	-3.94	4.12
Population share in 1990	7.10%	9.75%
Population share in 2010	2.42%	10.90%
Percentage change in population share	-65.97%	11.71%

^(*) Reported by Olshansky et al. (2012)

B. By counties ranked in terms of life expectancy change (following Wang et al. 2013)

	20 counties with strongest decrease	20 counties with strongest increase
	in female life expectancy from 1985 to 2010	
Change in female life expectancy at birth, 1985-2010 ^(**)	-2.68	6.16
Combined population share in 1985	0.18%	4.50%
Average population growth, 1985-2010	-6.15%	101.39%
Population weighted population growth, 1985-2010	-1.51%	44.68%
US population growth, 1985-2010	30.39%	

^(**) Reported by Wang et al. (2013)

Notes: This table shows life expectancy and population changes for different subgroups defined by education and location that were used in Olshansky et al. (2012), Wang et al. (2013), and Singh and Siahpush (2006). The time periods, over which the population changes are computed, are adjusted to match those in the respective study.

Table A2: Life expectancy for selected county groups and slope of regression lines, 1990 vs. 2010

Life expectancy at birth across gender, years, and county groups								
	Males				Females			
	1990		2010		1990		2010	
	value	std. err.	value	std. err.	value	std. err.	value	std. err.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>(a) LE at birth by poverty ranking of county group</u>								
1	75.32	0.13	79.86	0.11	80.20	0.13	83.57	0.10
25	73.07	0.15	77.60	0.12	79.96	0.14	82.23	0.11
50	72.88	0.17	75.87	0.12	79.81	0.16	80.74	0.12
75	70.36	0.19	75.29	0.14	78.11	0.18	80.37	0.13
100	69.23	0.16	73.78	0.13	77.65	0.14	79.59	0.12
<u>(b) Slope of fitted regression line</u>								
	Slope 1990		Slope 2010		Slope 1990		Slope 2010	
	-0.0570		-0.0518		-0.0301		-0.0383	
<u>(c) p-value of test Slope1990=Slope2010</u>								
	0.2749				0.0445			

Notes: Panel (a) shows life expectancy along with standard errors for the counties in the 1st, 25th, 50th, 75th and 100th poverty percentile, as plotted in Fig. 2. Panel (b) reports the slopes of the fitted regression lines plotted in Figure 2. Panel (c) reports the p-value of the difference between the two slopes.

Table A3: Age-specific mortality in the richest and poorest county groups and slope of regression lines, 1990 vs. 2010

	3-year mortality (per 1,000) in 5% of the population living in								Slope of fitted regression line		
	counties with <i>lowest</i> poverty rate				counties with <i>highest</i> poverty rate						
	1990		2010		1990		2010		1990	2010	p-value of difference
	rate	std. err.	rate	std. err.	rate	std. err.	rate	std. err.	(9)	(10)	(11)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)			
<u>Males</u>											
Age 0-4	2.38	0.07	1.33	0.05	4.49	0.09	2.39	0.07	0.020	0.009	<0.001
Age 5-19	1.31	0.03	0.86	0.03	2.89	0.04	1.52	0.03	0.015	0.006	<0.001
Age 20-49	5.23	0.04	4.46	0.04	12.45	0.07	8.56	0.06	0.068	0.034	<0.001
Age 50+	77.74	0.23	53.93	0.19	113.33	0.27	90.09	0.25	0.274	0.286	0.773
Age 65+	154.96	0.50	108.26	0.43	185.84	0.49	147.17	0.45	0.247	0.324	0.098
<u>Females</u>											
Age 0-4	1.91	0.07	1.17	0.05	3.62	0.09	2.04	0.07	0.017	0.008	<0.001
Age 5-19	0.62	0.02	0.42	0.02	1.10	0.03	0.67	0.02	0.004	0.002	<0.001
Age 20-49	2.66	0.03	2.34	0.03	5.19	0.04	4.80	0.04	0.023	0.021	0.705
Age 50+	72.27	0.20	58.43	0.18	84.91	0.21	76.78	0.20	0.098	0.158	0.032
Age 65+	132.35	0.39	109.46	0.35	136.36	0.35	124.08	0.34	0.052	0.155	0.007

Notes: Columns (1) to (8) show mortality rates for the bottom and top ventile of county groups, as plotted in Fig. 3 (age group 65+ is added), along with standard errors. Columns (9) and (10) report the slope of the fitted regression lines for 1990 and 2010 in Fig. 3, and (11) reports the p-value of the difference between the two slopes.