INEQUALITY IN MEN'S MORTALITY:
THE INFLUENCE OF CHILDHOOD SES & YOUNG ADULT NEIGHBORHOOD & FAMILY FACTORS

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I. INTRODUCTION

Socioeconomic inequalities in adult mortality are vast and remain stubbornly large in the US, despite overall increases in life expectancy. African Americans, in particular, experience alarming rates of premature aging and excess mortality. A stark example of the health problems of blacks in areas of concentrated poverty is that male residents of Harlem are less likely than males in Bangladesh to survive past age 40 (McCord and Freeman, 1990; Sen, 1998). Research evidence suggests that excess mortality of residents from impoverished neighborhoods in most areas is not driven primarily by homicide, drug abuse, or AIDS, but rather key culprits are unrelenting stress and cardiovascular disease (Geronimus et al., 1996).

In the US, more generally, blacks can expect to live six fewer years than whites, and can expect to live more years with chronic health problems (Hayward and Heron, 1999). Most of the black-white difference in life expectancy stems from racial differences in mortality rates prior to age 65. Thus, understanding sources of racial health disparities requires the investigation of exposures to socioeconomic conditions and risk factors earlier in the life cycle. Identifying sources of race differences in adult mortality that stem from childhood and young adulthood conditions may shed light on extant inequalities in life chances. Despite an abundance of cross-sectional studies of socioeconomic disparities in health, there is a shortage of studies that incorporate earlier life socioeconomic conditions in analyses of adult mortality. The life-course conditions and exposures of individuals born into socioeconomically disadvantaged families and neighborhoods may differ by birth cohort. Differentials in the likelihood of reaching old age are important in understanding the health differences observed in old age.

This paper takes a life course perspective to investigate the sources of racial and socioeconomic differences in men's mortality in mid-to-late-life. Adult mortality is the long-run outcome of childhood experiences and conditions, beginning *in utero*, combined with cumulative exposures to living conditions in adulthood. Advantaged neighborhood and disadvantaged neighborhood exposures both accumulate and beget future exposures due to the socioeconomic mobility process. Substantial racial differences in the incidence and persistence of exposure to high poverty neighborhoods in childhood and adulthood provide an important backdrop and motivation for this study (Johnson, 2008). Stressful neighborhood conditions due to high poverty rates, crime, violence, weaker sources of social support, may lead to increased mortality risks. There are well-known differences across neighborhoods in the amount of perceived safety, availability and quality of public spaces, recreational and health care facilities, tobacco advertising, liquor stores, availability and cost of nutritious foods. This study analyzes whether differences across neighborhoods in adult mortality, do in fact reflect causal processes operating over the life course.

In this paper I track the mortality of a nationally-representative cohort born between 1920 and 1939, using data from the Panel Study of Income Dynamics (PSID) spanning almost four decades. This paper analyzes the influence of neighborhood and family socioeconomic conditions experienced during young adulthood on men's subsequent mortality risks. For the U.S. cohort born between 1920 and 1939, I produce nationally-representative estimates of the cumulative mortality hazard by race/ethnicity and young adult socioeconomic status. The selected sample consists of men who were in their 30s and 40s when the study began in 1968 who have been followed up to 2005. The

initial PSID sample in 1968 was highly clustered with most PSID families having several other sample families living on the same block. This unique survey design allows one to compare the similarity in longevity of unrelated individuals who were living in the same narrowly defined neighborhood during their early-to-mid adulthood years, to gauge the importance of young adult neighborhood conditions on subsequent mortality risks. The findings are based on the estimation of hierarchical random effects hazard models of mortality.

I present nationally-representative estimates of mortality hazard rates in mid-to-late life by childhood poverty and young adulthood income, parental education and own educational attainment, young adult neighborhood poverty and crime, race and residential segregation, young adult smoking and health insurance coverage, and young adult neighborhood housing quality. The results show that black men have a 79 percent higher mortality hazard in mid-to-late-life, relative to white men. The black-white gap in mortality risk is cut by more than half after inclusion of controls for childhood and young adult family socioeconomic factors, including income, educational attainment, health insurance coverage, and to a lesser extent health behaviors. Furthermore, the study finds that racial differences in longevity can be fully accounted for by childhood SES and young adult family and neighborhood socioeconomic factors, particularly neighborhood poverty and crime. The results highlight the significant role of neighborhood poverty in shaping adult mortality risks. I find that living in a high poverty neighborhood during young adulthood increases subsequent mortality risks by 56 percent, relative to living in a low poverty neighborhood (independent of individual and family-level characteristics).

The paper investigated differential effects of socioeconomic conditions over the life course on men's mortality risks and provides evidence that dimensions of neighborhood disadvantage that occur earlier in life are more predictive of mortality during mid-to-late life than are contemporaneous neighborhood measures. Future work on the health of elderly Americans should give greater attention to the ways in which differentials in the likelihood of reaching old age are important in understanding the health differences observed in old age.

Table 1. Cumulative Mortality Hazard, by Race & Childhood & Young Adult Socioeconomic Status

Men born b/w 1920-1939, Data: PSID*

	Proportion who died by age:				
	60	65	70	75	80
By Race					
Black, non-Hispanic	0.1506	0.3174	0.4242	0.5445	0.9058
White, non-Hispanic	0.1056	0.1671	0.2403	0.4078	0.5662
By Childhood Poverty Status					
Poverty	0.1099	0.1797	0.2683	0.4780	0.6807
Non-poor	0.1005	0.1637	0.2335	0.3590	0.4939
By Father's Education					
High school dropout	0.1199	0.2030	0.2740	0.4462	0.6261
High school graduate	0.0990	0.1235	0.2247	0.3834	0.4732
College educated	0.0643	0.0825	0.1735	0.2971	0.4149
By Mother's Education					
High school dropout	0.1327	0.2153	0.2963	0.4787	0.6868
High school graduate	0.0767	0.1260	0.2001	0.3497	0.4265
College educated	0.0732	0.0957	0.1689	0.2792	0.3938
By Own Education					
High school dropout	0.1423	0.2363	0.3579	0.4847	0.6822
High school graduate	0.1032	0.1615	0.2259	0.4525	0.6373
College graduate	0.0744	0.1241	0.1743	0.2494	0.3302
By Young Adult Poverty Status					
Poverty	0.1283	0.2786	0.4187	0.5380	0.9020
Non-poor	0.1017	0.1612	0.2259	0.3787	0.5263
By Young Adult Neighborhood Poverty					
High poverty neighborhood	0.3074	0.4026	0.4730	0.5705	1.0000
Medium poverty neighborhood	0.1209	0.2552	0.4006	0.6214	0.7005
Low poverty neighborhood	0.1027	0.1653	0.2326	0.3983	0.5416
By Young Adult Neighborhood Crime					
High crime neighborhood	0.1096	0.2137	0.3634	0.4929	0.6918
Low crime neighborhood	0.0817	0.1438	0.2124	0.3659	0.5376
By Young Adult Health Insurance Status					
No health insurance	0.1587	0.3126	0.5041	0.6157	0.9747
Health insurance	0.1053	0.1664	0.2367	0.4018	0.5610
By Young Adult Smoking Status					
Smoker	0.1286	0.2000	0.2860	0.4623	0.6746
Non-smoker	0.0603	0.1155	0.1721	0.3102	0.3737

*The sample consists of original sample PSID men who were in their 30s and 40s in 1968 and followed in any wave of the survey between 1968 and 2005.

Note: Sampling weights are used to provide nationally-representative estimates.

Table 2. Race & SES Differences in Mortality Hazard in Mid-to-Late-life: Importance of Young Adult Neighborhood & Family Background

Data: PSID, Men in 30s and 40s in 1968 followed up to 2005
2-Level Hierarchical Random Effects Hazard Regression Model (Logit

	Uncond'l model	Raw race gap	Controls for Childhood SES	Controls for Childhood SES + Young Adult Family	Controls for Childhood SES + Young Adult Nhood + Fam bckgrd
Childhood factors	(1)	(2)	(3)	(4)	(5)
Black		0.5822***	0.4745***	0.2517***	0.0209
Non-Hispanic white (reference category)		(0.0467)	(0.0477)	(0.0498)	(0.0578)
Childhood poverty			0.2379***	0.1869***	0.1873***
Non-poor (reference category)			(0.0304)	(0.0307)	(0.0305)
Mother's education:					
High school dropout			0.3686***	0.3220***	0.3067***
High school graduate (reference category)			(0.0349)	(0.0350)	(0.0352)
College educated			-0.0531	-0.0115	-0.0048
			(0.0668)	(0.0668)	(0.0673)
Father's education:					
High school dropout			-0.0922	-0.0850	-0.1025**
High school graduate (reference category)			(0.0622)	(0.0621)	(0.0426)
College educated			-0.3326***	-0.2006***	-0.2809***
			(0.0702)	(0.0694)	(0.0701)
Young Adulthood factors					
Family income-to needs ratio (avg during 1967-1972), spline:					
Income-to-needs ratio is 0 to 3				0.1465***	0.1656***
Income-to-needs ratio > 3 (reference category)				(0.0323)	(0.0327)
(Income-to-needs ratio - 2)*ratio is 0 to 3				-0.2143***	-0.1810***
				(0.0352)	(0.0356)
Own Educational attainment:					
High school dropout				-0.0143	-0.0233
High school graduate (reference category)				(0.0344)	(0.0347)
College graduate or higher				-0.3709***	-0.3940***
				(0.0438)	(0.0444)
No health insurance coverage, 1968-1972				0.3740***	0.4263***
Private health insurance coverage (reference category)				(0.0529)	(0.0533)
Public health insurance coverage				0.0248	-0.0390
				(0.0721)	(0.0731)
Smoked cigarettes at some point, 1968-1972				0.4138***	0.4227***
				(0.0349)	(0.0350)
Annual cigarette expenditures (in $100's),				0.0267***	0.0259***
5-year average 1968-1972				(0.0025)	(0.0025)
Annual alcohol expenditures (in $100's),				0.0255***	0.0256***
5-year average 1968-1972				(0.0020)	(0.0020)
Young Adult Neighborhood factors					
Medium poverty neighborhood, 1970					0.2264***
Low poverty neighborhood (reference category)					(0.0519)
High poverty neighborhood					0.4472***
					(0.0932)
Residential segregation isolation index, 1970 (MSA)					0.0026
					(0.1401)
Residential segregation isolation index*black					-2.2474***
					(0.3702)
Neighborhood incarceration rate, 1970					0.0432**
					(0.0212)
Neighborhood burglary/robbery problem (self-reports)					0.2409***
					(0.0412)
Rat/roach problems					0.1926*
					(0.1129)
Housing insulation problems					0.3979***
					(0.0627)
Neighborhood crowding problem					0.0609
					(0.0596)
(Age - 60)	0.0931***	0.0930***	0.0941***	0.0984***	0.0989***
	(0.0025)	(0.0025)	(0.0025)	(0.0025)	(0.0025)
Random Effects, Unmeasured (Std Dev)					
Young Adult Neighborhood component	0.6806***	0.6506***	0.6587***	0.5544***	0.4719***
	(0.0412)	(0.0411)	(0.0421)	(0.0419)	(0.0456)
Log-likelihood	-32593.81	-32517.377	-32363.271	-31966.556	-31745.802
Number of counties	98	98	98	98	98
Number of neighborhoods	1,155	1,155	1,155	1,155	1,155
Number of individuals	1,590	1,590	1,590	1,590	1,590
Number of person-year observations	34,683	34,683	34,683	34,683	34,683

*** p<0.01, ** p<0.05, * p<0.10

Note: All models include a constant and controls for age squared, age cubed, year of birth, and columns (3)-(5) include controls for birth order and indices intended to capture long-term planning horizon (coefficients suppressed to conserve space). Sampling weights applied at the neighborhood level are used to provide nationally-representative estimates in all regression models.