

RACE AND OLDER AGE-MORTALITY: EVIDENCE FROM UNION ARMY VETERANS

by

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Table 1: Differential Ten Year Mortality Rates by Race and Cohort Among the Native-born Age 50-79

Census Years:	1870-80	1900-20	1940-2000	
Birth Years:	1791-1810	1821-1860	1861-1900	1901-1940
Linear specification				
Coefficient on black	0.001	0.123 [‡]	0.050 [†]	0.031
Standard error	(0.020)	(0.013)	(0.025)	(0.023)
Adjusted R^2	0.938	0.962	0.851	0.777
Log specification				
Coefficient on black	0.002	0.365 [‡]	0.164*	0.270*
Standard error	(0.062)	(0.037)	(0.093)	(0.157)
Adjusted R^2	0.929	0.964	0.808	0.675
Observations	36	72	108	104
Mean 10 year mortality rates	0.420	0.482	0.409	0.257

Estimated from the Integrated Public Use Census Samples. Each observation is an age group, sex, cohort, region (border, southern, and other), and race cell. The dependent variable is the 10 year mortality rate of each cell (or its logarithm). Additional controls include dummies for age 60-69 and age 70-79, female, region, and birth cohort. The ordinary least squares regression is weighted by cell size. The symbols [‡] and * indicate that the coefficient is statistically significantly different from zero at the 1 and 10 percent level, respectively.

Table 2: Differential Ten Year Mortality Rates at Ages 50-79 by Race and Cohort Among the Native Born 1821-1860 Cohorts

	Linear Specification		Logarithmic Specification	
	Coef- icient	Std. Err.	Coef- icient	Std. Err.
Black	0.011	0.041	0.004	0.106
b.1821-1830				
b.1831-1840	0.007	0.018	0.005	0.047
b.1841-1850	0.012	0.022	0.010	0.056
b.1851-1860	0.015	0.023	0.014	0.061
Black \times b.1831-1840	0.059	0.046	0.146	0.120
Black \times b.1841-1850	0.124 [‡]	0.043	0.398 [‡]	0.113
Black \times b.1851-1860	0.154 [‡]	0.044	0.534 [‡]	0.116
Adjusted R^2	0.970		0.969	

Estimated from the Integrated Public Use Census Samples. Each observation is an age group, sex, cohort, region (border, southern, and other), and race cell. 72 observations. The dependent variable is the 10 year mortality rate of each cell (or its logarithm). The mean ten year mortality rate was 0.482. Additional controls include dummies for age 60-69 and age 70-79, female, region, and birth cohort. The ordinary least squares regression is weighted by cell size. The symbols [‡] and * indicate that the coefficient is statistically significantly different from zero at the 1 and 10 percent level, respectively.

Table 3: Adult Heights at Enlistment by Cohort and Race

Cohort	White		Black	
	Height (cm)	N	Height (cm)	N
b.1821-1830	174.04	3631	170.72	354
b.1831-1840	173.86	8599	170.04	856
b.1841-1850	172.54	639	168.60	111

All heights are for men age 23-49 only.

Table 4: Causes of Death by Race and Cohort

	White			Black	
	b.1821	b.1831	b.1841	b.1831	b.1841
Heart disease	23.49	29.76	33.70	30.50	30.24
Cerebrovascular disease	6.76	10.99	13.14	7.80	7.80
Bronchitis, pneumonia, and influenza	10.32	9.75	8.89	13.48	14.63
Infectious and parasitic	11.03	6.38	4.28	4.96	4.88
Genito-urinary	7.30	11.25	12.36	12.06	15.12
Chronic respiratory	1.96	2.18	1.22	2.13	1.46
Violence	4.63	2.38	2.90	0.71	1.95
Diabetes	1.07	0.83	1.10	0.00	1.46
Cancer	3.56	4.56	6.16	2.13	2.44
Stomach	4.45	4.51	2.90	2.84	1.46
Paralysis	5.87	3.21	3.02	2.84	3.41
Other	19.57	14.20	10.32	20.57	15.12

The samples were restricted to men who were alive and on the pension rolls at age 60. No figures are given for the 1821 black cohort because the sample size is too small.

Table 5: Effect of Race and Cohort on All Cause Mortality

	Age 50-74 in 1900		Age 60	
	Haz Rat	Std Err	Haz Rat	Std Err
Dummy=1 if black	1.340 [‡]	0.064	0.730*	0.129
Dummy=1 if born				
1821-30				
1831-40			0.880 [‡]	0.031
1841-52			0.887 [‡]	0.031
Black ×				
born 1831-40			1.630 [‡]	0.305
born 1841-52			2.106 [‡]	0.388
γ	0.084 [‡]	0.001	0.087 [‡]	0.001
Log Likelihood	-10509.757		-10320.763	
Observations	10,132		10,484	

All regressions are Gompertz hazard models. The first two columns use a sample of men who were age 50-74 in 1900. Additional control variables include a dummy equal to one if the soldier enlisted in a city of 50,000 or more inhabitants in 1860, a dummy equal to one if the veteran lived in one of the top 13 cities in the US in 1900, dummies indicating occupation at enlistment (farmer, artisan, laborer, and professional or proprietor), dummies indicating occupation circa 1900 (farmer, artisan, laborer, and professional or proprietor), dummies indicating region of residence circa 1900 (east, midwest or west, border, and south), dummies indicating whether the soldier ever was a POW and whether the soldier ever had specific medical conditions while in service (tuberculosis, stomach, rheumatic fever, respiratory, diarrhea, typhoid, malaria, fever, and wound), age dummies, and dummies indicating missing occupation or size of city of residence or enlistment. The second two columns use a sample of men who were alive and on the pension rolls at age 60. Additional control variables include a dummy equal to one if the soldier enlisted in a city of 50,000 or more inhabitants in 1860, dummies indicating occupation at enlistment, and dummies indicating whether the soldier was ever a POW and whether the soldiers ever had specific medical conditions while in the service. The symbols [‡], [†], and * indicate that the coefficient is significantly different from 0 at the 1, 5, and 10 percent level respectively.

Table 6: Effect of City of Enlistment, Slave Status, and Cohort on Black All Cause Mortality

	Age 50-74 in 1900		Age 60	
	Haz	Std	Haz	Std
	Rat	Err	Rat	Err
Dummy=1 if				
Slave and enlisted in small city/rural area				
Slave and enlisted in large city	0.831	0.133	0.950	0.165
Free and enlisted in large city	1.694 [‡]	0.347	1.857 [‡]	0.408
Free and enlisted in small city/rural area	1.233	0.159	1.338 [†]	0.180
Dummy=1 if born				
1821-30				
1831-40			1.593 [†]	0.327
1841-52			2.241 [‡]	0.459
γ	0.722 [‡]	0.004	0.084 [‡]	0.005
Log Likelihood	-1129.413		-867.777	
Observations	953		824	

All regressions are Gompertz hazard models and include regiment fixed effects. The first two columns use a sample of men who were age 50-74 in 1900. a dummy equal to one if the veteran lived in one of the top 13 cities in the US in 1900, dummies indicating occupation at enlistment (farmer, artisan, laborer, and professional or proprietor), dummies indicating occupation circa 1900 (farmer, artisan, laborer, and professional or proprietor), a dummy indicating whether the veteran could write, dummies indicating region of residence circa 1900 (east, midwest or west, border, and south), dummies indicating whether the soldier ever was a POW and whether the soldier ever had specific medical conditions while in service (tuberculosis, stomach, rheumatic fever, respiratory, diarrhea, typhoid, malaria, fever, and wound), age dummies, and dummies indicating missing occupation or size of city of residence or enlistment. The second two columns use a sample of men who were alive and on the pension rolls at age 60. Additional control variables include a dummy equal to one if the soldier could write, dummies indicating occupation at enlistment, and dummies indicating whether the soldier was ever a POW and whether the soldiers ever had specific medical conditions while in the service. The symbols [‡], [†], and * indicate that the coefficient is significantly different from 0 at the 1, 5, and 10 percent level respectively.

Table 7: Effect of Race and Cohort on Time Until Death From Specific Causes

	Infectious/Parasitic/ Bronchitis		Genito-Urinary		Cerebrovascular and Heart	
	Haz	Std	Haz	Std	Haz	Std
	Rat	Err	Rat	Err	Rat	Err
Dummy=1 if black	1.170	0.219	0.985	0.243	0.833	0.114
Dummy=1 if born before 1841						
Dummy=1 if born 1841-52	0.717 [‡]	0.054	1.083	0.093	1.110 [†]	0.049
Black × b.1841-52	1.780 [†]	0.444	1.694 [*]	0.524	1.290	0.231
γ	0.067 [‡]	0.004	0.090 [‡]	0.005	0.093 [‡]	0.002
Log-Likelihood	-2496.661		-1830.873		-3854.649	

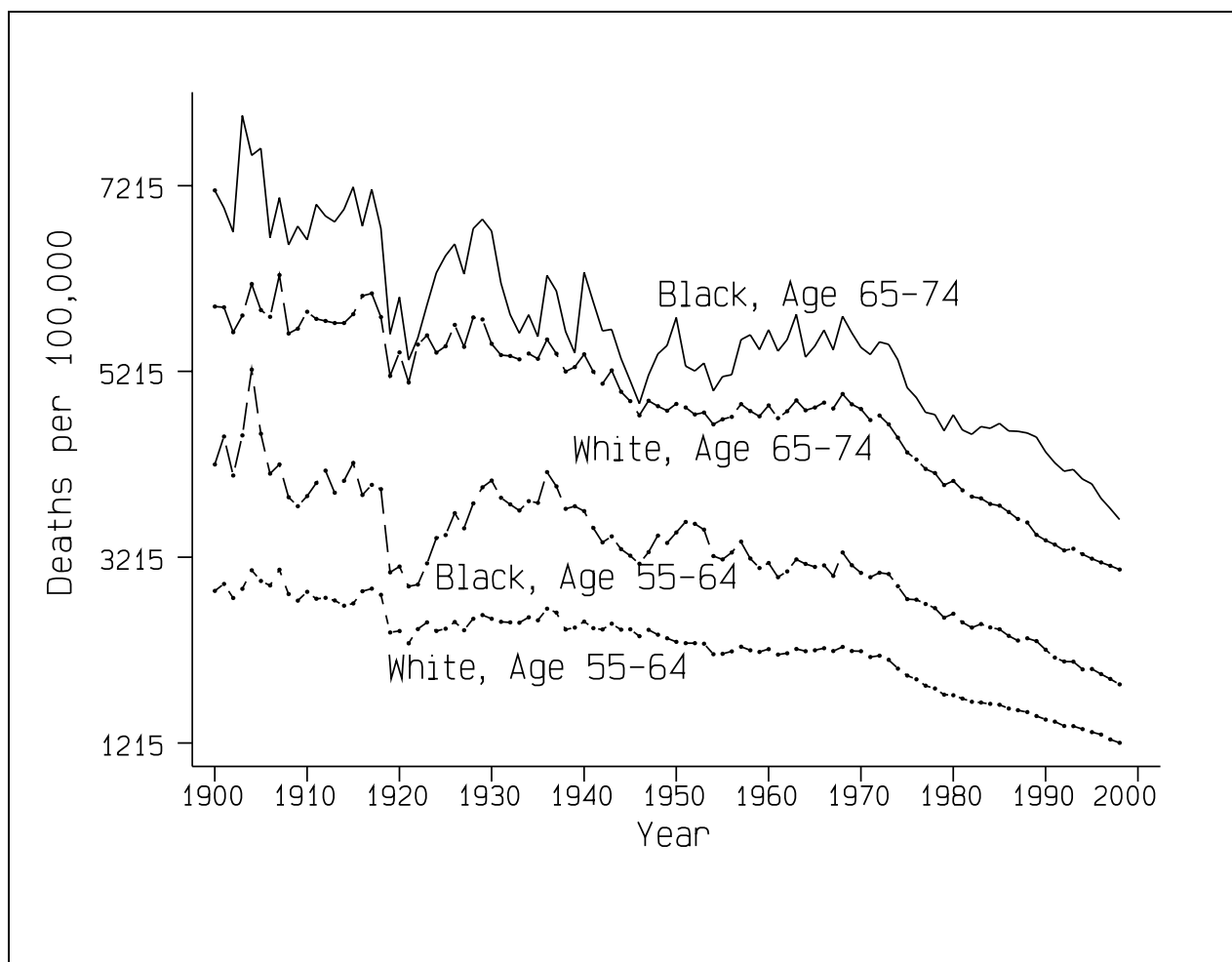
5305 observations. The sample consists of men who were alive and on the pensions rolls at age 60. All regressions are Gompertz hazard models. Other causes of death are censored and assume independent competing risks. Additional control variables include a dummy equal to one if the soldier could write, dummies indicating occupation at enlistment, and dummies indicating whether the soldier was ever a POW and whether the soldiers ever had specific medical conditions while in the service. The symbols [‡], [†], and ^{*} indicate that the coefficient is significantly different from 0 at the 1, 5, and 10 percent level respectively.

Table 8: Effect of Race and Large City Residence in 1900 on Time Until Death From All and Specific Causes

	All Causes		Infectious/ Parasitic/ Bronchitis		Genito- urinary		Cerebro- vascular and Heart	
	Haz Rat	Std Err	Haz Rat	Std Err	Haz Rat	Std Err	Haz	Std
Dummy=1 if black	1.282‡	0.066	1.489‡	0.253	1.024	0.220	0.937	0.121
Dummy=1 if lives in one of 100 largest cities in 1900	1.030	0.044	1.023	0.148	0.901	0.140	1.095	0.087
Black × 100 largest city	1.231†	0.112	1.307	0.366	1.967†	0.624	1.528†	0.294
γ	0.084‡	0.001	0.063‡	0.004	0.086‡	0.005	0.096‡	0.002
Log-Likelihood	-10505.617		-2412.713		-1849.735		-3553.942	

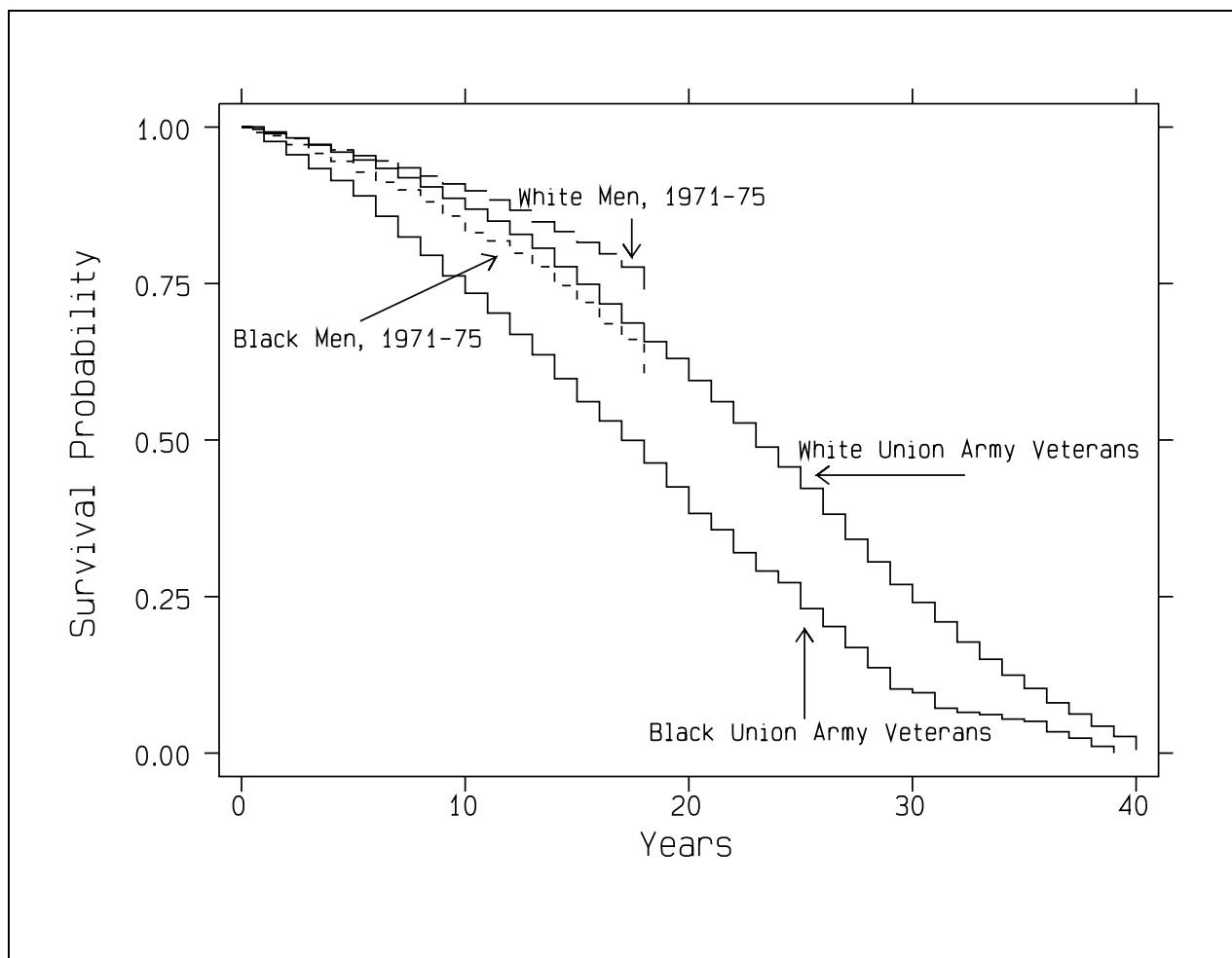
All regressions are Gompertz hazard models. The sample consists of who were age 50-74 and on the pension rolls in 1900. Additional control variables include dummies indicating occupation at enlistment (farmer, artisan, laborer, and professional or proprietor), dummies indicating occupation circa 1900 (farmer, artisan, laborer, and professional or proprietor), a dummy indicating whether the veteran could write, dummies indicating region of residence circa 1900 (east, midwest or west, border, and south), dummies indicating whether the soldier ever was a POW and whether the soldier ever had specific medical conditions while in service (tuberculosis, stomach, rheumatic fever, respiratory, diarrhea, typhoid, malaria, fever, and wound), age dummies, and dummies indicating missing occupation or size of city of residence or enlistment. The symbols ‡, †, and * indicate that the coefficient is significantly different from 0 at the 1, 5, and 10 percent level respectively.

Figure 1: Death Rates at Older Ages by Race, 1900-1998



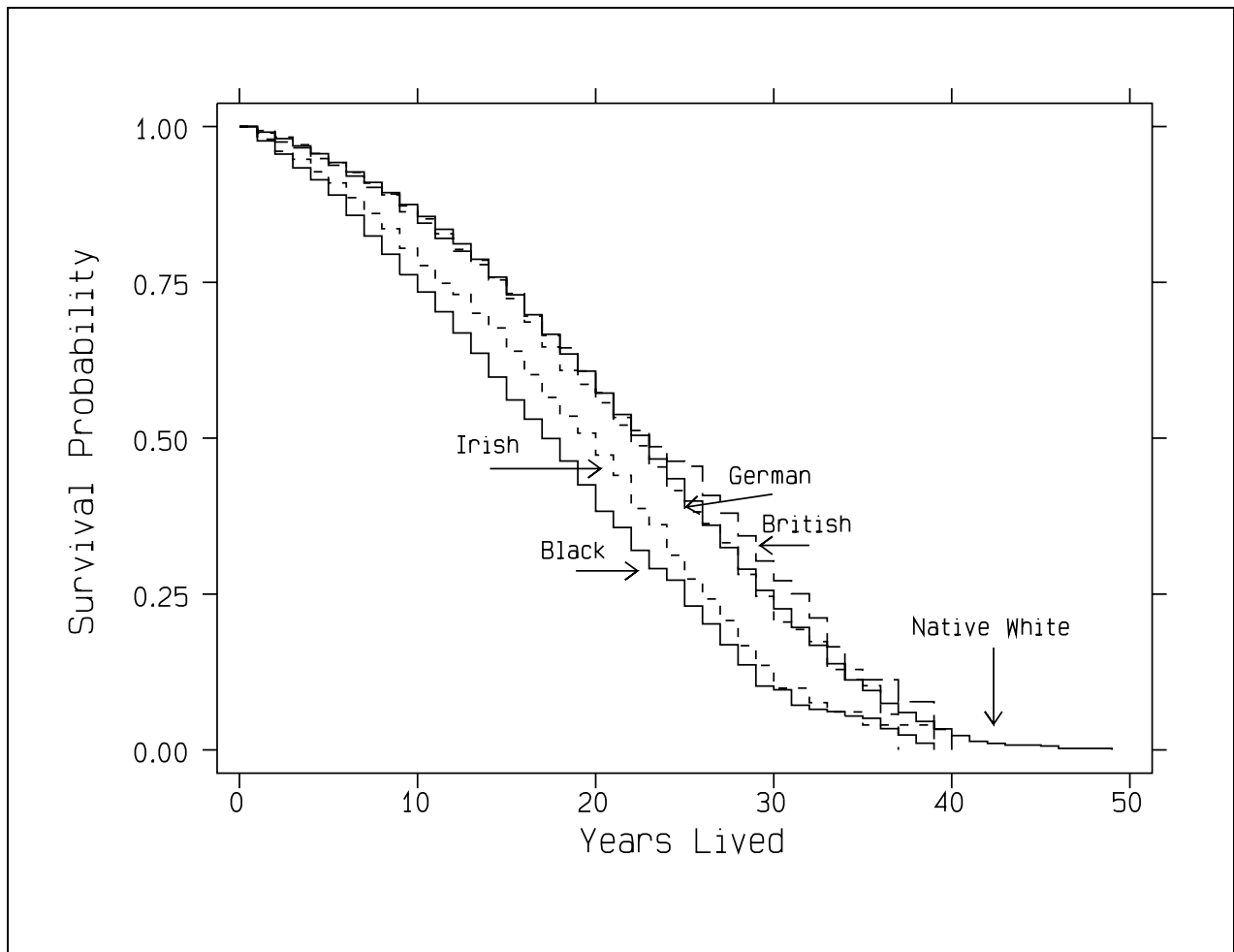
Source: *Vital Statistics of the United States*, various issues. Deaths are for the death registration states only.

Figure 2: Survival Probabilities by Race, Union Army Veterans and Men in NHANES I, Age 50-74



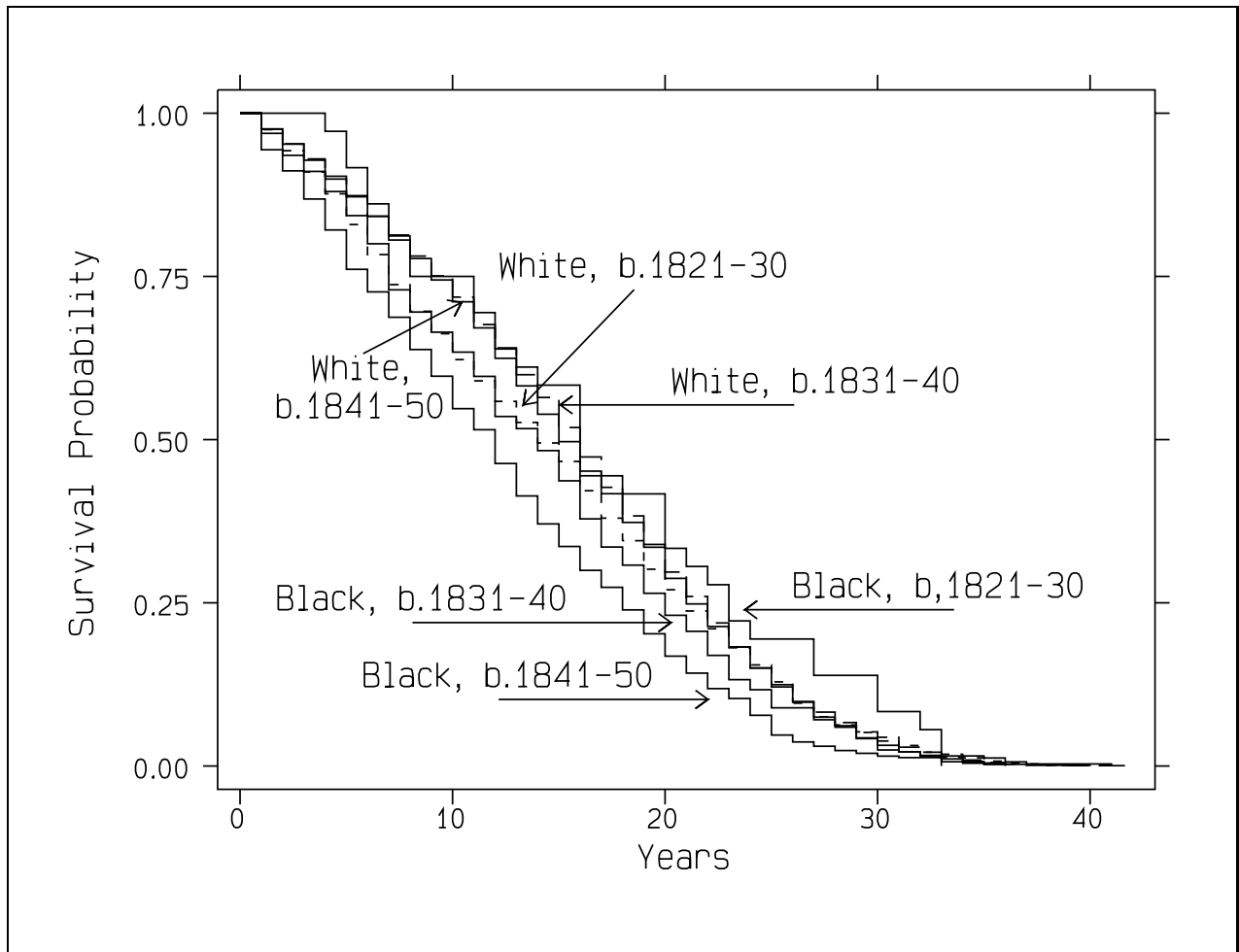
The Union Army sample is restricted to the native-born, those alive in 1900, and those on the pension rolls by 1900. All men are aged 50-74 at the time of observation. Survival curves are adjusted for age. 984 black Union Army veterans. 9,605 white Union Army veterans.

Figure 3: Survival Probabilities by Race and Birthplace, Union Army Veterans



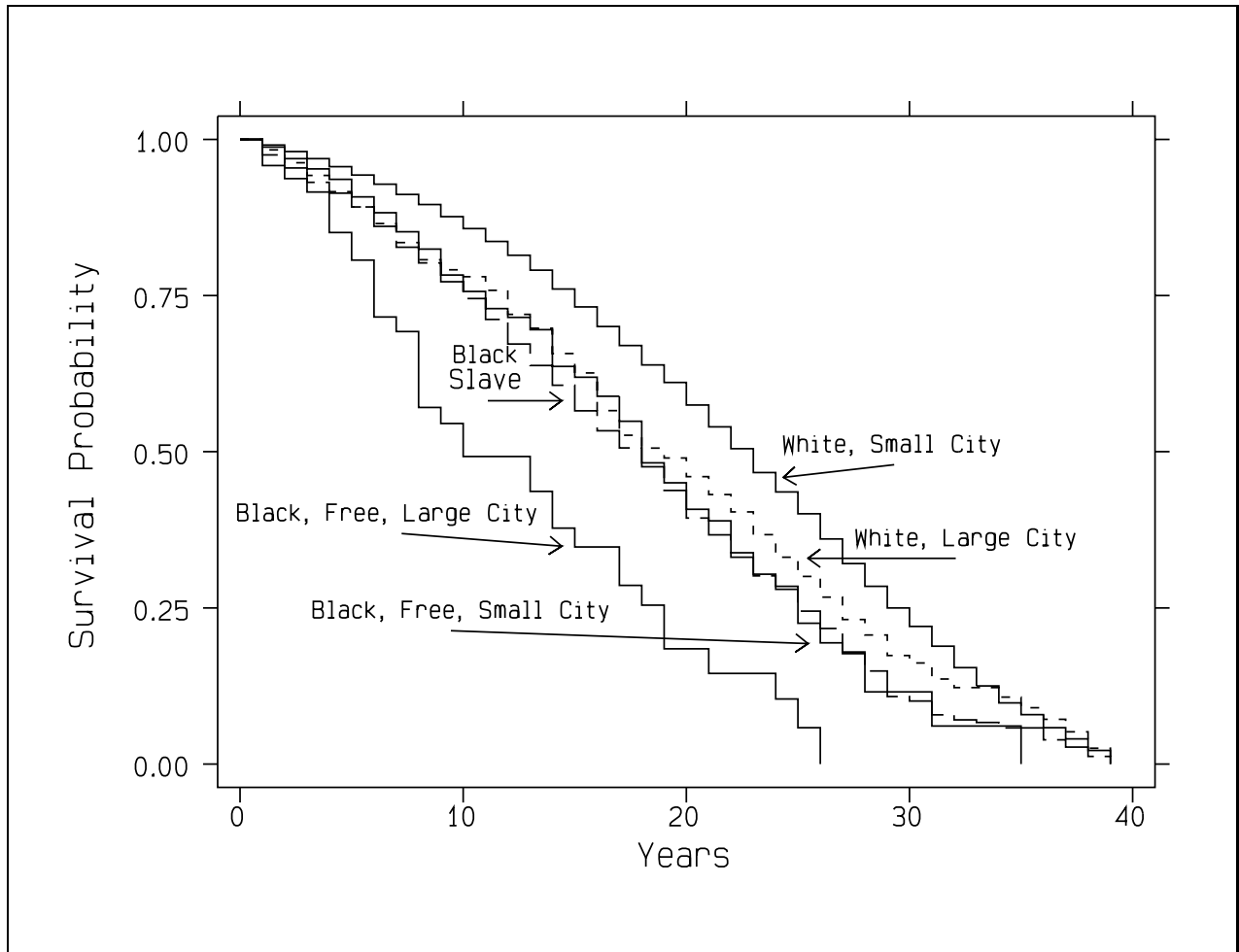
The Union Army sample is restricted to those alive in 1900 and to those on the pension rolls by 1900. All men are aged 50-74 at the time of observation. Survival curves are adjusted for age. 894 blacks and 12,951 whites.

Figure 4: Survival Probabilities by Race and Cohort, Union Army Veterans



The Union Army sample is restricted to the native-born, those on the pension rolls by 1910, and those observed alive and on the pension rolls by age 60. Years is years from death at age 60. 825 black Union Army veterans. 9,750 white Union Army veterans.

Figure 5: Survival Probabilities by Race and Size City of Enlistment, Union Army Veterans



The Union Army sample is restricted to the native-born, to those alive in 1900, and to those on the pension rolls by 1900. All men are aged 50-74 at the time of observation. Survival curves are adjusted for age. City size is city at enlistment. A large city is defined as one with 50,000 or more people. 894 blacks and 9,605 whites.