



Research and Statistics Note

Note No. 2000-01

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Earnings of Black and Nonblack Workers Who Died or Became Disabled in 1996 and 1997*

Social Security solvency proposals may affect blacks as a group differently than those of other races because of differences in earnings, mortality, and rates of disability.¹ To provide some background for understanding this issue, this note examines the earnings of workers by age and race, comparing those who recently died or became entitled to Social Security disability benefits with those still alive. It does not analyze any specific proposal for changing benefits.

Findings

Comparing black workers with those of other racial and ethnic backgrounds, we find that:

- Black workers in every age group shown are more likely to die or become eligible for Social Security disability benefits.
- For the most part, black workers in 1996 had lower average lifetime Social Security taxable earnings by age group and vital status, even though they worked a similar number of years.
- Workers in 1996 who had died by the end of 1997 generally had lower average annual earnings per years worked than those still alive. That pattern was more pronounced for black workers under age 50.
- Black workers in 1996 who became entitled to disability benefits in 1997 had somewhat lower average annual earnings than those who did not become entitled. Workers of other racial groups who became entitled to disability benefits had much lower earnings.

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¹ See also Alexa A. Hendley and Natasha F. Bilimoria, "Minorities and Social Security: An Analysis of Racial and Ethnic Differences in the Current Program," *Social Security Bulletin*, vol. 62, no. 2 (1999), pp. 59-64.

Sources of Data

Our analysis is based on an extract file of all workers with Social Security taxable earnings in 1996 taken from the Social Security Administration's (SSA's) 1 percent Continuous Work History Sample (CWHS), a longitudinal sample of earnings, benefit, and demographic data. We updated information on death in our extract file with data from other SSA data files.

Tables 1–8 show the number of workers, average lifetime taxable earnings, average number of years with taxable earnings, and average annual taxable earnings by age, race, and vital status (alive or deceased) at the end of 1997. Because there is more than one way to measure the incidence of disability and death, we tabulated the data in two different manners:

- Tables 1–4 use data for all workers with Social Security taxable earnings in 1996, including retired and disabled workers. Workers classified as deceased as of December 31, 1997, could have died anytime from early 1996 through 1997. Persons receiving Social Security retirement or disability benefits in 1996 are included as long as they had taxable earnings in 1996.
- Tables 5-8 use data for workers with Social Security taxable earnings in 1996, excluding workers who retired, died, or became disabled before January 1, 1997. That narrower selection reduced the number of workers by about 6.8 million.

Our sample is incomplete for workers who became entitled to disability benefits in 1997. The data include benefit awards posted in our file through June 1998, but awards are sometimes not made for several years after filing because of the extended appeals process. We estimate that about half of the workers becoming eligible for disability benefits in 1997 did not make the cutoff for our data. Nevertheless, even though the data are incomplete, they are useful for comparative purposes.

Classification by Race and Age

SSA collects data on race and ethnicity from Form SS-5 (Application for Social Security Card). Responses to the question on race and ethnicity are voluntary. From 1936 to about 1980, SSA limited the racial/ethnic designations to white, black, and other. After that, SSA revised the form to have five racial/ethnic designations in response to Office of Management and Budget (OMB) Directive No. 15 (May 12, 1977), "Race and Ethnic Standards for Federal Statistics and Administrative Reporting." Those designations are white, not of Hispanic origin; black, not of Hispanic origin; Hispanic; Asian or Pacific Islander; and American Indian or Alaska Native. OMB has recently promulgated still another scheme for classifying race and ethnicity.²

² See also Charles G. Scott, "Identifying the Race or Ethnicity of SSI Recipients," *Social Security Bulletin*, vol. 62, no. 4 (1999), pp. 9-20.

Because most of the racial data in SSA's records are based on the pre-1980 reporting scheme, we have combined the data into two groups: black and all other. The "all other" category includes a small number of blacks recorded in SSA's data as Hispanic. We also categorized workers by 10-year age groups: under 30, 30-39, 40-49, 50-59, and 60 or older.

The data show that black workers in each age bracket are more likely to die or become eligible for Social Security disability benefits than are those of other racial groups. For example, of workers aged 50-59 with earnings in 1996, 0.84 percent of blacks but only 0.51 percent of nonblacks had died by the end of 1997 (Table 1). Of workers in the same age bracket who had earnings in 1996 but were not retired, disabled, or deceased at the end of that year, 1.09 percent of blacks but only 0.59 percent of nonblacks started to receive disability benefits in 1997 (Table 5).

Lifetime Earnings

To compute lifetime earnings, we indexed and summed earnings over the 46 years from 1951 to 1996. We did not include earnings from 1937 to 1950 because they are available in the CWSHS only as an aggregate for each individual and are not easily indexed. To put the earnings in 1996 terms, we indexed earnings using the same factors that Social Security uses to index earnings used in calculating benefits.³ Note that the measure of lifetime earnings used in this analysis is not the same as the one used in determining Social Security benefits.

Comparison of lifetime earnings between age groups by race seems straightforward. For the most part, blacks had lower average lifetime Social Security taxable earnings by age group and vital status (alive, nondisabled; deceased; or disabled) than nonblacks (Tables 2 and 6). Caution is needed, however, when making comparisons between alive and deceased persons within age categories.

At first glance, a comparison between 10-year age groups shows higher lifetime earnings for workers who died than for those who were still alive (Tables 2 and 6). That comparison is misleading, however, because the two groups are not of the same age. Within each age bracket, those who die tend to be older than those who survive. The deceased therefore have more years of work and higher lifetime earnings—a result that is most pronounced for the oldest age group (Tables 3 and 7).

Average Annual Earnings

To solve the problem created by the age brackets, we considered using individual years of age, but some of the data cells in the CWSHS would then be too small to produce reliable estimates. Instead, we divided lifetime earnings by the number of years worked

³ See Social Security Administration, *Annual Statistical Supplement to the Social Security Bulletin, 1999*, Table 2.A8.

to produce a measure of average annual earnings (Tables 4 and 8). That measure reduces the impact of the number of years worked within age brackets and allows a better comparison of those who died with those still alive.

Looking at average annual earnings, we see that workers in 1996 who had died by the end of 1997 generally had lower indexed lifetime average annual earnings per years worked than those who were still alive. That finding was more pronounced for black workers under age 50 (Table 4). Also, black workers in 1996 who became entitled to disability benefits in 1997 had somewhat lower indexed lifetime average annual earnings per years worked across age groups than those who did not become entitled (Table 8). Workers of other racial groups who became entitled to disability benefits had much lower average annual earnings.

Table 1.
Number and percentage of all workers with Social Security taxable earnings in 1996

Age in 1996	Total	Alive	Deceased ^a
Number of workers, 1997 status			
<i>All workers</i>			
Total	141,640,900	141,181,300	459,600
Under 30	42,956,300	42,935,500	20,800
30-39	36,881,000	36,832,800	48,200
40-49	32,235,200	32,156,700	78,500
50-59	18,903,900	18,802,000	101,900
60 and older	10,664,500	10,454,300	210,200
<i>Black</i>			
Total	15,972,200	15,912,800	59,400
Under 30	5,467,400	5,461,200	6,200
30-39	4,489,500	4,481,300	8,200
40-49	3,465,500	3,453,300	12,200
50-59	1,675,900	1,661,900	14,000
60 and older	873,900	855,100	18,800
<i>All other</i>			
Total	125,668,700	125,268,500	400,200
Under 30	37,488,900	37,474,300	14,600
30-39	32,391,500	32,351,500	40,000
40-49	28,769,700	28,703,400	66,300
50-59	17,228,000	17,140,100	87,900
60 and older	9,790,600	9,599,200	191,400

(Continued)

Table 1.
Continued

Age in 1996	Total	Alive	Deceased ^a
As a percentage of all workers in category, 1997 status			
<i>All workers</i>			
Total	100.0	99.7	0.32
Under 30	100.0	100.0	0.05
30-39	100.0	99.9	0.13
40-49	100.0	99.8	0.24
50-59	100.0	99.5	0.54
60 and older	100.0	98.0	1.97
<i>Black</i>			
Total	100.0	99.6	0.37
Under 30	100.0	99.9	0.11
30-39	100.0	99.8	0.18
40-49	100.0	99.6	0.35
50-59	100.0	99.2	0.84
60 and older	100.0	97.8	2.15
<i>All other</i>			
Total	100.0	99.7	0.32
Under 30	100.0	100.0	0.04
30-39	100.0	99.9	0.12
40-49	100.0	99.8	0.23
50-59	100.0	99.5	0.51
60 and older	100.0	98.0	1.95

NOTE: Data are from SSA's 1997 1 percent Continuous Work History Sample and have not been adjusted for delinquent postings.

a. Data may be incomplete for deceased workers who never collected a benefit or had no survivors.

Table 2.
Mean indexed lifetime Social Security taxable earnings,
1951-1996, for all workers with Social Security taxable
earnings in 1996 (in 1996 dollars)

Age in 1996	Total	Alive	Deceased ^a
<i>All workers, 1997 status</i>			
Total	353,125	352,061	679,889
Under 30	55,612	55,609	62,022
30-39	266,779	266,820	235,601
40-49	496,496	496,484	501,181
50-59	706,547	706,240	763,213
60 and older	790,272	788,684	869,252
<i>Black, 1997 status</i>			
Total	254,217	253,474	453,226
Under 30	42,108	42,116	35,708
30-39	196,087	196,151	161,614
40-49	403,475	403,571	376,239
50-59	595,770	595,596	616,413
60 and older	632,972	632,673	646,550
<i>All other, 1997 status</i>			
Total	365,696	364,585	713,531
Under 30	57,581	57,575	73,196
30-39	276,577	276,609	250,768
40-49	507,701	507,663	524,172
50-59	717,323	716,968	786,594
60 and older	804,313	802,582	891,127

NOTES: Earnings have been adjusted to 1996 dollars using the wage index that the Social Security Administration uses to calculate benefits (see SSA's Annual Statistical Supplement to the Social Security Bulletin, Table 2.A8). Earnings before 1951 have been excluded because they are only available in aggregated form and are more difficult to index.

Data are from SSA's 1997 1 percent Continuous Work History Sample and have not been adjusted for delinquent postings.

- a. Data may be incomplete for deceased workers who never collected a benefit or had no survivors.

Table 3.
Mean number of years with Social Security taxable earnings, 1951-1996, for all workers with Social Security taxable earnings in 1996

Age in 1996	Total	Alive	Deceased ^a
<i>All workers, 1997 status</i>			
Total	18.2	18.2	31.0
Under 30	6.5	6.5	8.5
30-39	16.0	16.0	16.6
40-49	23.5	23.5	25.2
50-59	30.5	30.5	33.4
60 and older	35.1	35.0	37.4
<i>Black, 1997 status</i>			
Total	16.5	16.4	27.2
Under 30	6.2	6.2	7.7
30-39	15.3	15.3	15.8
40-49	23.2	23.1	24.7
50-59	30.2	30.2	33.0
60 and older	34.4	34.4	36.0
<i>All other, 1997 status</i>			
Total	18.4	18.4	31.5
Under 30	6.6	6.6	8.9
30-39	16.1	16.1	16.7
40-49	23.6	23.6	25.3
50-59	30.5	30.5	33.5
60 and older	35.1	35.1	37.6

NOTES: Earnings have been adjusted to 1996 dollars using the wage index that the Social Security Administration uses to calculate benefits (see SSA's Annual Statistical Supplement to the Social Security Bulletin, Table 2.A8). Earnings before 1951 have been excluded because they are only available in aggregated form and are more difficult to index.

Data are from SSA's 1997 1 percent Continuous Work History Sample and have not been adjusted for delinquent postings.

a. Data may be incomplete for deceased workers who never collected a benefit or had no survivors.

Table 4.
Mean indexed lifetime Social Security taxable earnings,
1951-1996, divided by number of years worked, for all
workers with Social Security taxable earnings in 1996
(in 1996 dollars)

Age in 1996	Total	Alive	Deceased ^a
<i>All workers, 1997 status</i>			
Total	19,402	19,344	21,932
Under 30	8,556	8,555	7,297
30-39	16,674	16,676	14,193
40-49	21,127	21,127	19,888
50-59	23,165	23,155	22,851
60 and older	22,515	22,534	23,242
<i>Black, 1997 status</i>			
Total	15,407	15,456	16,663
Under 30	6,792	6,793	4,637
30-39	12,816	12,820	10,229
40-49	17,391	17,471	15,232
50-59	19,727	19,722	18,679
60 and older	18,400	18,392	17,960
<i>All other, 1997 status</i>			
Total	19,875	19,814	22,652
Under 30	8,724	8,723	8,224
30-39	17,179	17,181	15,016
40-49	21,513	21,511	20,718
50-59	23,519	23,507	23,480
60 and older	22,915	22,866	23,700

NOTES: Earnings have been adjusted to 1996 dollars using the wage index that the Social Security Administration uses to calculate benefits (see SSA's Annual Statistical Supplement to the Social Security Bulletin, Table 2.A8). Earnings before 1951 have been excluded because they are only available in aggregated form and are more difficult to index.

Data are from SSA's 1997 1 percent Continuous Work History Sample and have not been adjusted for delinquent postings.

a. Data may be incomplete for deceased workers who never collected a benefit or had no survivors.

Table 5.
Number and percentage of workers with Social Security taxable earnings in 1996, excluding workers who retired, died, or became disabled before January 1, 1997

Age in 1996	Total	Alive, non-disabled	Deceased ^a	Disabled ^b
Number of workers, 1997 status				
<i>All workers</i>				
Total	134,886,000	134,473,200	130,400	282,400
Under 30	42,832,600	42,799,500	10,300	22,800
30-39	36,621,000	36,560,700	20,200	40,100
40-49	31,921,800	31,815,000	35,800	71,000
50-59	18,568,000	18,407,900	42,400	117,700
60 or older	4,942,600	4,890,100	21,700	30,800
<i>Black</i>				
Total	15,319,800	15,249,200	18,800	51,800
Under 30	5,442,100	5,434,900	2,700	4,500
30-39	4,433,200	4,421,100	3,000	9,100
40-49	3,397,900	3,376,100	5,700	16,100
50-59	1,618,200	1,595,400	5,100	17,700
60 or older	428,400	421,700	2,300	4,400
<i>All other</i>				
Total	119,566,200	119,224,000	111,600	230,600
Under 30	37,390,500	37,364,600	7,600	18,300
30-39	32,187,800	32,139,600	17,200	31,000
40-49	28,523,900	28,438,900	30,100	54,900
50-59	16,949,800	16,812,500	37,300	100,000
60 or older	4,514,200	4,468,400	19,400	26,400

(Continued)

Table 5.
Continued

Age in 1996	Total	Alive non- disabled	Deceased ^a	Disabled ^b
As a percentage of all workers in category, 1997 status				
<i>All workers</i>				
Total	100.0	99.7	0.10	0.21
Under 30	100.0	99.9	0.02	0.05
30-39	100.0	99.8	0.06	0.11
40-49	100.0	99.7	0.11	0.22
50-59	100.0	99.1	0.23	0.63
60 or older	100.0	98.9	0.44	0.62
<i>Black</i>				
Total	100.0	99.5	0.12	0.34
Under 30	100.0	99.9	0.05	0.08
30-39	100.0	99.7	0.07	0.21
40-49	100.0	99.4	0.17	0.47
50-59	100.0	98.6	0.32	1.09
60 or older	100.0	98.4	0.54	1.03
<i>All other</i>				
Total	100.0	99.7	0.09	0.19
Under 30	100.0	99.9	0.02	0.05
30-39	100.0	99.9	0.05	0.10
40-49	100.0	99.7	0.11	0.19
50-59	100.0	99.2	0.22	0.59
60 or older	100.0	99.0	0.43	0.58

NOTE: Data are from SSA's 1997 1 percent Continuous Work History Sample and have not been adjusted for delinquent postings.

- a. Data may be incomplete for deceased workers who never collected a benefit or had no survivors.
- b. Includes workers with 1997 entitlements to disability benefits awarded as of June 1998. Not all eventual 1997 entitlements were awarded by June 1998.

Table 6.
Mean indexed lifetime Social Security taxable earnings,
1951-1996, for workers with Social Security taxable
earnings in 1996, excluding workers who retired, died,
or became disabled before January 1, 1997 (in 1996 dollars)

Age in 1996	Total	Alive, non- disabled	Deceased ^a	Disabled ^b
<i>All workers, 1997 status</i>				
Total	332,784	332,178	581,040	506,892
Under 30	55,651	55,650	60,476	53,939
30-39	267,616	267,690	232,969	217,906
40-49	498,099	498,250	524,172	417,081
50-59	708,174	708,345	760,766	662,568
60 or older	739,347	738,083	894,787	830,569
<i>Black, 1997 status</i>				
Total	242,402	241,631	399,825	412,139
Under 30	42,132	42,124	29,179	59,010
30-39	197,024	197,040	156,027	202,563
40-49	406,126	406,311	375,363	378,339
50-59	598,803	598,813	642,211	585,408
60 or older	611,246	610,661	676,087	633,396
<i>All other, 1997 status</i>				
Total	344,365	343,759	611,567	528,177
Under 30	57,618	57,618	71,595	52,692
30-39	277,338	277,408	246,389	222,409
40-49	509,055	509,165	552,351	428,442
50-59	718,616	718,739	776,976	676,226
60 or older	751,504	750,108	920,715	863,431

NOTES: Earnings have been adjusted to 1996 dollars using the wage index that the Social Security Administration uses to calculate benefits (see SSA's Annual Statistical Supplement to the Social Security Bulletin, Table 2.A8). Earnings before 1951 have been excluded because they are only available in aggregated form and are more difficult to index.

Data are from SSA's 1997 1 percent Continuous Work History Sample and have not been adjusted for delinquent postings.

- a. Data may be incomplete for deceased workers who never collected a benefit or had no survivors.
- b. Includes workers with 1997 entitlements to disability benefits awarded as of June 1998. Not all eventual entitlements were awarded by June 1998.

Table 7.
Mean number of years with Social Security taxable earnings, 1951-1996, for workers with Social Security taxable earnings in 1996, excluding workers who retired, died, or became disabled before January 1, 1997

Age in 1996	Total	Alive, non-disabled	Deceased ^a	Disabled ^b
<i>All workers, 1997 status</i>				
Total	17.4	17.3	26.8	27.2
Under 30	6.5	6.5	8.0	7.9
30-39	16.0	16.0	16.2	17.2
40-49	23.5	23.5	25.3	25.0
50-59	30.5	30.5	33.2	32.9
60 or older	32.5	32.5	35.2	37.6
<i>Black, 1997 status</i>				
Total	15.8	15.8	24.0	25.7
Under 30	6.2	6.2	6.7	8.8
30-39	15.3	15.3	15.3	16.9
40-49	23.2	23.1	24.1	25.2
50-59	30.2	30.2	32.9	32.5
60 or older	32.3	32.2	36.1	36.0
<i>All other, 1997 status</i>				
Total	17.6	17.5	27.2	27.5
Under 30	6.6	6.6	8.5	7.7
30-39	16.1	16.1	16.4	17.3
40-49	23.6	23.6	25.5	25.0
50-59	30.5	30.5	33.2	33.0
60 or older	32.5	32.5	35.1	37.9

NOTES: Earnings have been adjusted to 1996 dollars using the wage index that the Social Security Administration uses to calculate benefits (see SSA's Annual Statistical Supplement to the Social Security Bulletin, Table 2.A8). Earnings before 1951 have been excluded because they are only available in aggregated form and are more difficult to index.

Data are from SSA's 1997 1 percent Continuous Work History Sample and have not been adjusted for delinquent postings.

- a. Data may be incomplete for deceased workers who never collected a benefit or had no survivors.
- b. Includes workers with 1997 entitlements to disability benefits awarded as of June 1998. Not all eventual 1997 entitlements were awarded by June 1998.

Table 8.
Mean indexed lifetime Social Security taxable earnings, 1951-1996, divided by number of years worked, for workers with Social Security taxable earnings in 1996, excluding workers who retired, died, or became disabled before January 1, 1997 (in 1996 dollars)

Age in 1996	Total	Alive, non-disabled	Deceased ^a	Disabled ^b
<i>All workers, 1997 status</i>				
Total	19,126	19,201	21,681	18,636
Under 30	8,562	8,562	7,560	6,828
30-39	16,726	16,731	14,381	12,669
40-49	21,196	21,202	20,718	16,683
50-59	23,219	23,224	22,915	20,139
60 or older	22,749	22,710	25,420	22,090
<i>Black, 1997 status</i>				
Total	15,342	15,293	16,659	16,037
Under 30	6,795	6,794	4,355	6,706
30-39	12,877	12,878	10,198	11,986
40-49	17,505	17,589	15,575	15,013
50-59	19,828	19,828	19,520	18,013
60 or older	18,924	18,965	18,728	17,594
<i>All other, 1997 status</i>				
Total	19,566	19,643	22,484	19,206
Under 30	8,730	8,730	8,423	6,843
30-39	17,226	17,230	15,024	12,856
40-49	21,570	21,575	21,661	17,138
50-59	23,561	23,565	23,403	20,492
60 or older	23,123	23,080	26,231	22,782

NOTES: Earnings have been adjusted to 1996 dollars using the wage index that the Social Security Administration uses to calculate benefits (see SSA's Annual Statistical Supplement to the Social Security Bulletin, Table 2.A8). Earnings before 1951 have been excluded because they are only available in aggregated form and are more difficult to index.

Data are from SSA's 1997 1 percent Continuous Work History Sample and have not been adjusted for delinquent postings.

- a. Data may be incomplete for deceased workers who never collected a benefit or had no survivors.
- b. Includes workers with 1997 entitlements to disability benefits awarded as of June 1998. Not all eventual 1997 entitlements were awarded by June 1998.

Appendix Sampling Variability

The tables in this note present data that are from a 1 percent sample file drawn from the administrative records of the Social Security Administration.

Because of sampling variability, estimates based on sample data may differ from the figures that would have been obtained had we used all of the records rather than specified samples. The standard error is a measure of sampling variability. About 68 percent of all possible probability samples selected with the same specifications will give estimates within one standard error of the figure obtained from the compilation of all records. Similarly, about 95 percent will give estimates within two standard errors, and about 99 percent will give estimates within two and one-half standard errors. The standard error of an estimate depends on the design element, such as the method of sampling, sample size, and the estimation process.

Because of the large number of data cells tabulated from the sample files, it is not practical to calculate the standard error for every possible cell. However, we do estimate standard errors for a large number of cells. We used those estimates to fit regression curves to provide estimates of approximate standard errors associated with tabulated counts and proportions.

Tables A-1 and A-2 show the sampling variability and provide a general order of magnitude for similar estimates from the various sample files. Table A-1 presents approximate standard errors for the estimated number of persons from the 1 percent sample file. The reliability of an estimated percentage depends on the size of both the percentage and the total on which the percentage is based. Data in Table A-2 provide approximations of the standard errors of the estimated percentage of persons in the 1 percent sample file. The standard errors are expressed in percentage points, and the bases shown are expressed in terms of the estimated total population.

Table A-1.
Approximation of standard errors for
estimated number of persons from 1%
sample file

Size of estimate (inflated)	Standard error
500	250
1,000	300
2,500	500
5,000	800
7,500	900
10,000	1,100
25,000	1,700
50,000	2,400
75,000	3,000
100,000	3,400
250,000	5,400
500,000	7,800
750,000	9,600
1,000,000	11,100
5,000,000	25,800
10,000,000	36,900
25,000,000	57,700
50,000,000	76,100
75,000,000	82,900

Table A-2.
Approximation of standard errors of estimated percentage of persons from 1% sample file

Size of base (inflated)	Estimated percentage				
	2 or 98	5 or 95	10 or 90	25 or 75	50
1,000	4.7	7.3	10.1	14.5	16.8
10,000	1.5	2.3	3.2	4.6	5.3
50,000	0.7	1.0	1.4	2.1	2.4
100,000	0.5	0.7	1.0	1.5	1.7
1,000,000	0.1	0.2	0.3	0.5	0.5
5,000,000	0.1	0.1	0.1	0.2	0.2
10,000,000	a	0.1	0.1	0.2	0.2
50,000,000	a	a	a	0.1	0.1
100,000,000	a	a	a	a	a

a. Less than 0.05 percent.