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CHAPTER 11

White Wealth and Black People: the Distribution of Wealth in Washington, D.C., in 1967

James D. Smith
Pennsylvania State University

I. INTRODUCTION

U.S. estimates of the distribution of wealth are scarce. Contemporary estimates using sound statistical methods, but limited data bases, have been made by Mendershausen (1944), Lampman (1953), Smith (1958, 1962, 1965, and 1969), and Projector and Weiss.[1] Beginning around the turn of the cen-

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Thanks are due Mary Hosterman for yeoman labor in abstracting and coding the original data and preparing the initial computer files. Mark Soskin, John Gregor, and Gretchen Kline contributed to the resolution of various substantive problems.

[1] Horst Mendershausen, "The Pattern of Estate Tax Wealth," in Raymond W. Goldsmith, ed., *A Study of Savings in the United States,* Vol. III (Princeton: Princeton University Press, 1956). Robert J. Lampman, *The Share of Top Wealth-Holders in National Wealth, 1922-56*, (New York: National Bureau of Economic Research, 1962). James D. Smith, *The Income and Wealth of Top Wealth-Holders in the United States, 1958* (Doctoral dissertation, University of Oklahoma, 1966). James D. Smith, "The Concentration of Personal Wealth in America, 1969," *Review of Income and Wealth,* Series 20, No. 2, June 1974. James D. Smith and Stephen D. Franklin, "The Concentration of Personal Wealth, 1922-69," *American Economic Review* 64 (May 1974):162-67. James D. Smith, Stephen D. Franklin, and Douglas A. Wion, "The Distribution of Financial Assets," in Fred R. Harris, ed., *In the Pockets of a Few: The Distribution of Wealth in America* (New York: Grossman, 1974). James D. Smith, Stephen D. Franklin, and Guy H. Orcutt, "The Intergenerational Transmission of Wealth: A Simulation Experiment,"

tury and continuing up to 1937, there were occasional attempts to estimate U.S. wealth distributions, but the only attempts were, for the most part, weak on statistics and short on data.[2] It is of little surprise then to find that there are no wealth distributions available for modern U.S. cities.[3] The reasons for the scarcity of estimates at all levels are believed to be the high cost of collecting original data and the bureaucratization of public information.[4] This paper presents the first findings from a study of the distribution of

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forthcoming in Vol. 41, Studies in Income and Wealth, NBER. Dorothy Projector and Gertrude Weiss, *Survey of Economic Characteristics of Consumers* (Washington, D.C.: Board of Governors of the Federal Reserve System, 1966). *Statistics of Income . . . Personal Wealth* (Washington, D.C.: U.S. Treasury Dept., 1967).

[2] See, for instance, G. K. Holmes, "The Concentration of Wealth," *Political Science Quarterly* 3 (1893): 589-600; C. B. Spahr, *The Present Distribution of Wealth in the United States* (New York: Crowell, 1896); W. I. King, *Wealth and Income of the People of the United States* (New York: Macmillan, 1915); Federal Trade Commission, *National Wealth and Income,* Senate Document 126, 69th Congress, 1st Session (Washington, D.C., 1962); R. R. Doane, "Summary of the Evidence on National Wealth and Its Increasing Diffusion," *Analyst* (July 26, 1935): 115-18; Maxine Yaple, "The Burden of Direct Taxes Paid by Income Classes," *American Economic Revue* 26 (December 1936): 691-710; Fritz Lehmann, "The Distribution of Wealth," in Max Ascoli and Fritz Lehmann, *Political and Economic Democracy* (New York: W. W. Norton, 1937).

[3] There has been one estimate of the distribution of assets at the state level. See Richard French, "Estate Multiplier Estimates of Personal Wealth," *American Journal of Economics and Sociology* 29 (April 1970): 150-61. Also, see Daniel A. McGowan, "The Measurement of Personal Wealth in Centre County, Pennsylvania" (Doctoral dissertation, Pennsylvania State University, 1972).

[4] To its credit, the Board of Governors of the Federal Reserve System released the microdata from the Projector and Weiss study so that researchers could analyze the findings. The same credit can be given to the Office of Economic Opportunity (OEO) which insisted that the Surveys of Economic Opportunity belonged to the public and not only released them for research use, but has maintained a continuing interest in their updating. These examples are in sharp contrast to the general position taken by government agencies. Bureaucrats have often defended their denial of researcher access to public microdata (with names and street addresses deleted) on the grounds that by combining data in complex but unstated ways, the identity of respondents could be determined and thus their privacy violated. It appears, however, that an overwhelming case is emerging that government secrecy is for the benefit of those who govern and to the detriment of the governed.

wealth in Washington, D.C. Washington was selected because it offered an exploitable data base and because local administrators were receptive to the scientific use of administrative records.[5]

With three-quarters of a million inhabitants, Washington is the ninth largest city in the United States. It is 71 percent black, and the proportion and absolute number of blacks has increased monotonically from at least 1950, when the number stood at 280,000 and represented 35 percent of the total population.

The estimates presented here were generated by the estate multiplier technique. The methodology has been elaborated upon elsewhere (see Lampman,[6] Mendershausen,[7] and Smith and Calvert[8]). The broad outlines of the technique are mentioned below, and the section on methodology covers special modification peculiar to this application. Basically, it is assumed that death draws randomly within population strata defined by age, sex, and perhaps social class. Unbiased estimates of population parameters can be made from the observed characteristics of decedents by weighting decedents by the reciprocals of the mortality rate applicable to each sample strata. In most past uses of the method, age-sex-specific mortality rates have been "social-class adjusted" to account for the more favorable mortality experience enjoyed by

[5] In contrast to what many researchers have found the attitude of the federal bureaucracy to be toward the scientific use of public information, the research reported here was aided at almost every step by persons in various administrative posts below the federal level. Particular thanks are due to William Mason, the Director of the Washington, D.C., Inheritance and Estate Tax Section at the time the study was designed. Our work was assisted after Mason's retirement by Alfred R. Rector, who replaced him. John Crandall, Chief of the Vital Records Division of the District of Columbia, was indispensable to our understanding and use of vital statistics. Vernon Randall of the Office of Vital Statistics, State of Maryland, and Betty Rodger of the Health Department, State of Maryland, provided valuable assistance in the use of vital statistics information for District of Columbia residents dying in the state of Maryland. Albert Mindlin, Chief Statistician of the City of Washington, D.C., lent us his ear and his statistical insights as we moved toward closure in these estimates. He, of course, bears no responsibility for our errors.

[6] Lampman, *Share of Top Wealth-Holders.*

[7] Mendershausen, *Pattern of Estate Tax Wealth.*

[8] James D. Smith and Staunton Calvert, "Estimating the Wealth of Top Wealth-Holders from Estate Tax Returns," *Proceedings of the Business and Economics Section, American Statistical Association,* Philadelphia, 1965.

upper socioeconomic groups. However, weighting in U.S. estimates has failed to utilize available knowledge about mortality differentials fully, because the IRS has refused to release relevant though innocuous information from tax returns. In this study, an unusually rich body of data permits taking account of age, sex, race, and marital status, as well as social class.

Two major and several less important sources of data were utilized to make the estimates. The major sources were (a) estate tax returns filed in the District of Columbia for decedents who died in 1967; and (b) death certificates filed for the same decedents. Washington has its own estate tax. Unlike the federal tax with its relatively high filing exemption of $60,000, estates of residents with gross assets of $1,000 or more must file a District of Columbia estate tax return. The return used by the city requires itemized assets, including joint interests of the decedent and personal information about the decedent's age, occupation, and marital status.

Regardless of their domicile, a death certificate is required for all persons who die in the District of Columbia. Similarly, District residents who die outside the District cause a death certificate to be filed in the jurisdiction in which they die. For all residents dying in the District, death certificate information about their race, marital status, place of birth, and usual occupation was obtained from the registrar's office. For District of Columbia residents dying in the state of Maryland, assistance was received from the Maryland Office of Vital Statistics. For District of Columbia residents dying in other jurisdictions, use was made of a death-certificate tape file from the National Center for Health Statistics. The file contained information for all District of Columbia residents who died in any registration district of the United States.

Wealth in this paper is the sum of real estate, stocks and bonds, mortgages, notes, time deposits, checking account balances, currency, coin, consumer durables, works of art, automobiles, boats, personal clothing and jewelry, lifetime transfers at less than fair value, powers of appointment, and the present value of annuities and vested rights to retirement funds. The only assets conceptually excluded from the estimates are cash surrender value of life insurance policies and real estate owned by District of Columbia residents but located outside of the city.

II. METHODOLOGY

A. The Estate Multiplier Technique

Death is an intriguing phenomenon, not only to the philosopher and mystic who see it as a door to something beyond, but to scientists who see it as a mirror reflecting life unexaminable in process. Pathologists can trace backward the events that led to a human system's ultimate demise. Anthropologists enter the graves of the dead and emerge into the culture of another society, comfortable in their ability to infer from the bones and artifacts interred with its members not only the ritual and art but the physical and intellectual characteristics of a society long dead.

Economists were slow to appreciate the uses of death, though some, like Malthus, were aware of its economic implications. About the turn of the century, a number of American economists realized the transfer of property at death might provide a means of estimating the distribution of wealth, but it took nearly a century before they found the statistical bridge between the estates of the dead and the wealth of the living.[9] The bridge is that death draws a stratified sample of the living population whose weights are, as with any sample, the reciprocals of the sampling rates—in the case of death, mortality rates. Since the mortality rate for a population is the ratio of the number of deaths to living persons in the population,

$$R = \frac{M}{V},$$

where R is the mortality rate and M and V are the number of deaths and living persons respectively. It follows algebraically that the living population is

$$V = \frac{1}{R}(M).$$

To estimate a set of characteristics, C_k, for a living population

[9] The first published recognition that estates did not provide a direct estimation of the wealth of a society was by Sir. T. A. Coughlin in the *Journal of the Royal Statistical Society* 44, (1906) p. 736. For a review of early attempts to use probate records to estimate wealth, see G. H. Knibbs, *The Private Wealth of Australia and Its Growth* (Melbourne: McCarron, Bird, 1918).

from characteristics of decedents, using age-sex-specific mortality rates, the estimate would be:

$$C_k = \sum_{i=j}^{n} \sum_{j=1}^{2} C_k^{ij} \frac{1}{R_{ij}},$$

where C_k^{ij} is the value of the kth characteristic associated with decedents of the ith age and jth sex. R_{ij} is a set of age-sex-specific mortality rates. Mortality rates may, of course, be conditional on variables in addition to age and sex. Indeed the mortality rate stratification should encompass any variable which is to be estimated, and which at the same time is a determinant of mortality.

Actuaries, biologists, and demographers have invested a substantial amount of intellectual capital in the refinement of mortality statistics, and specific rates for various personal characteristics are available for the United States. In the Washington, D.C., estimates, we have employed rates based on age, sex, race, and marital status. The decision to use a complex set of rates follows from the fact that many variables have been shown to affect mortality rates.

Mortality rates by age, sex, and race are generally available on an annual basis. The most recent rates which combine marital status with age, sex, and race are for the three-year period 1959-61. The importance of marital differentials are pointed out in studies by Moriyama,[10] Shurtleff,[11] and Klebba.[12] They have shown that married men and women have at every age a substantially greater life expectancy than do single, widowed, or divorced persons of the same sex. Using age-standardized populations, Klebba found for the three-year period 1959-61 that single and widowed white males had a mortality rate 1.5 times that for married white males, and that divorced men had a rate twice that of married ones. The marital status differentials for nonwhite men follow the same pattern as for whites, but the absolute rates are higher than for whites. Marital status differentials are smaller for women, but nevertheless important.

[10] I. M. Moriyama, "Deaths from Selected Causes by Marital Status, by Age and Sex: United States, 1940," *Vital Statistics–Special Reports* 23 (November 1945):118-65.

[11] D. Shurtleff, "Mortality Among the Married," *Journal of the American Geriatrics Society* 4(7) (July 1956):654-55.

[12] A. Joan Klebba, "Mortality from Selected Causes by Marital Status," *Vital and Health Statistics*, Series 20, Nos. 8a and 8b, 1970.

Tables 1 and 2 show mortality rates by age, sex, race, and marital status for the period 1959-61 from Klebba. To derive marital-status-adjusted rates for 1967, the percent that each marital-status mortality rate within each age-race-sex group represented of the overall age and sex group was computed from the rates in Tables 1 and 2. These percentages were then applied to age-sex-race mortality rates in 1967 to generate the 1967 marital-status-adjusted rates. The derived rates were then converted to weights by calculating their reciprocals. The age-sex-race-marital status weights are shown in Tables 3 and 4.

Social class is a nebulous concept. It generally is used in reference to a life style for which education, income, and occupation are proxies. As is well known, these variables are correlated and the link between them and mortality is indirect, but they appear to affect life style in a way that changes the probability of death at given points in life. Houser and Kitagawa, as well as others, have measured with some success the association of these variables with mortality rates.[13]

In estate multiplier estimates for the United States, social-class mortality adjustments have been employed. Mendershausen used a "select" set of rates based upon the Metropolitan Life Insurance Company experience with a preferred-risk population. Lampman and Smith used age-sex-specific mortality rates with differentials which split the difference between high-status-occupation mortality rates and rates for holders of large insurance policies up to age 65, and between the large-policy-holder rate and white rates after age 65. The IRS, in its 1962 estimate, used rates based entirely on life insurance experience.

In past national wealth estimates for persons with gross assets of

[13] See Evelyn Kitagawa and Phillip Houser, "Methods Used in a Current Study of Social and Economic Differentials in Mortality," in *Emerging Techniques in Population Research* (New York: Milbank Memorial Fund, 1963), and "Educational Differentials in Mortality by Cause of Death, United States, 1960," *Demography* 5(1) (1968):315-53; Evelyn Kitagawa, "Social and Economic Differentials in Mortality in the United States, 1960," *Proceedings of the General Assembly and Conference of the International Union for Scientific Study of Population,* London, 1969; I. M. Moriyama and L. Guralnick, "Occupational and Social Class Differentials in Mortality" (New York: Milbank Memorial Fund, 1956); Lillian Guralnick, "Mortality by Occupation and Industry Among Men 20-64 Years of Age: United States, 1950," *Vital Statistics–Special Reports* 53 (September 1962).

TABLE 1 Mortality Rates by Age, Sex, Race, and Marital Status, 1959-61

(deaths per 100,000 population)

	White							
	Females				*Male*			
Age	*Single*	*Married*	*Widow*	*Divorced*	*Single*	*Married*	*Widower*	*Divorced*
15-19	48.0	53.5	283.2	117.0	121.5	122.7	390.6	189.1
20-24	77.4	50.3	213.4	137.2	205.6	115.8	626.1	359.5
25-34	153.9	74.3	188.6	196.0	276.4	128.7	498.9	516.0
35-44	312.1	167.0	318.7	355.5	614.7	276.6	797.0	1,110.2
45-54	571.8	412.1	625.4	652.0	1,419.0	793.2	1,741.5	2,473.1
55-59	839.0	744.0	959.6	1,053.8	2,315.2	1,545.6	2,742.0	3,948.6
60-64	1,379.3	1,228.7	1,538.8	1,627.6	3,653.5	2,445.1	3,907.5	5,436.4
65-69	2,072.5	1,967.0	2,405.7	2,450.8	5,303.5	3,623.5	5,529.6	7,256.3
70-74	3,429.9	3,252.0	3,857.5	3,970.2	7,509.0	5,245.0	7,311.7	9,315.9
75 and over	10,247.8	6,891.2	10,920.0	9,574.4	13,889.8	10,133.2	15,670.1	16,031.6
15 and over	591.4	533.9	4,487.6	971.9	752.0	1,274.7	8,847.9	3,155.9

SOURCES: A. Joan Klebba, "Mortality from Selected Causes by Marital Status," in *Vital and Health Statistics*, Series 20, Nos. 8a and 8b, December 1970.

TABLE 2 Mortality Rates by Age, Sex, Race, and Marital Status, 1959-61

(deaths per 100,000 population)

	Nonwhite							
	Female				*Male*			
Age	*Single*	*Married*	*Widow*	*Divorced*	*Single*	*Married*	*Widower*	*Divorced*
15-19	78.3	100.3	245.9	121.8	157.3	209.5	396.8	60.1
20-24	165.9	118.4	329.0	192.3	314.1	208.8	737.2	455.8
25-34	392.6	212.5	531.0	323.5	627.7	286.8	1,113.3	747.1
35-44	836.5	451.5	934.9	710.4	1,357.3	554.8	1,740.4	1,543.4
45-54	1,351.4	909.2	1,795.8	1,245.9	2,285.3	1,205.5	3,251.2	3,012.8
55-59	1,851.3	1,439.6	2,666.4	1,934.5	3,049.5	1,990.1	4,537.9	4,185.7
60-64	2,769.5	2,122.3	3,879.7	2,740.3	4,658.1	3,214.8	6,418.4	6,334.9
65-69	3,015.9	2,436.4	4,147.1	3,413.6	5,496.4	4,134.0	7,467.4	7,951.9
70-74	4,186.5	3,237.7	5,315.3	4,322.0	7,223.6	5,128.0	8,734.8	9,146.9
75 and over	7,243.2	5,143.6	8,498.6	6,346.7	10,284.5	7,103.0	12,474.7	10,840.7
15 and over	405.4	684.4	3,893.1	1,072.4	743.6	1,335.9	7,004.8	2,972.4

SOURCES: A. Joan Klebba, "Mortality from Selected Causes by Marital Status," in *Vital and Health Statistics*, Series 20, Nos. 8a and 8b, December 1970.

TABLE 3 Reciprocals of White Age-Race-Sex-Marital-Status-Specific Mortality Rates (1967)

	Female				*Male*			
Age	*Single*	*Married*	*Widow*	*Divorced*	*Single*	*Married*	*Widower*	*Divorced*
15-19	1,855.3	1,666.7	315.3	762.2	734.8	724.6	228.5	470.8
20-24	1,213.6	1,876.2	439.2	682.6	456.2	809.7	150.1	261.3
25-34	644.7	1,331.6	525.8	505.8	358.4	768.6	198.3	191.7
35-44	311.0	579.0	306.0	274.7	158.8	351.7	122.2	87.7
45-54	180.1	248.9	164.1	157.2	72.5	129.9	59.0	41.6
55-59	119.2	133.6	104.7	94.5	43.3	64.6	36.5	25.3
60-64	74.9	84.8	68.0	63.8	28.5	42.7	26.6	19.1
65-69	50.5	52.9	43.5	42.4	19.6	28.9	18.9	14.4
70-74	29.7	31.3	26.5	25.9	13.7	19.5	14.0	11.0
75 and over	10.5	15.7	9.9	11.2	7.7	10.6	6.8	6.7

TABLE 4 Reciprocals of Nonwhite Age-Race-Sex-Marital-Status-Specific Mortality Rates (1967)

	Female				*Male*			
Age	*Single*	*Married*	*Widowed*	*Divorced*	*Single*	*Married*	*Widowed*	*Divorced*
15-19	1,190.5	937.2	380.5	772.8	594.9	446.2	236.5	1,562.5
20-24	546.4	766.9	276.7	470.1	289.6	432.9	123.2	199.6
25-34	233.5	428.1	172.2	282.5	145.6	317.4	82.1	122.3
35-44	115.1	213.8	103.2	136.0	70.9	174.0	55.4	62.6
45-54	77.6	114.2	57.9	83.5	45.7	86.3	32.1	34.7
55-59	55.4	71.0	38.2	52.8	33.4	104.3	22.5	24.4
60-64	42.4	55.0	30.2	42.4	25.0	36.4	18.2	18.4
65-69	28.6	35.6	20.7	25.4	15.7	20.9	11.5	10.8
70-74	22.3	28.9	17.4	21.5	12.9	18.2	10.7	10.2
75 and over	16.2	22.8	13.9	18.5	11.5	16.6	9.5	10.9

$60,000 or more, the assumption has been made that social-class differentials in mortality apply uniformly to all such individuals.

Some uneasiness is occasioned by this procedure. It is partly because the category assets of $60,000 and over includes persons with zero and negative net worth. Moreover, the $60,000 figure is also a point figure; it reveals little about the mortality-related conditions of life in the years prior to current financial status. Accumulated wealth is a function of income, time, and the propensity to consume. The same level of wealth may be generated by low income and low propensity to consume or by high income and high propensity to consume, time held constant. If out of a given income, lower propensities to consume mean foregoing health services, the $60,000 limit may be misleading.

It is also apparent from other studies of social-class mortality that differentials converge with age. Unlike the national estimates, which look only at the rich, this study estimates the entire wealth distribution. We are forced, therefore, to consider differential mortality rates over a much greater socioeconomic range than the national estimate handles.

The only measure of socioeconomic status on the death certificate is occupation. We, of course, have wealth from the tax records, but there are no available studies which relate wealth and mortality. An attempt by Kitagawa and Houser to use income as an independent variable proved only moderately successful because of data deficiencies.[14]

Lampman, in the most important study of U.S. wealth distribution, *The Share of Top Wealth-Holders in U.S. Wealth,* reviewed most of the social-class mortality literature up to 1962. Since the publication of his work, there have been a few additions, but they support the earlier literature rather than provide a significant quantitative refinement. In the most important of the new studies, Kitagawa and Houser[15] matched about 260,000 death certificates for persons dying in May, June, July, and August of 1960 with their 1960 Census records. The death certificates provided information on cause of death, marital status, place of birth, age and race, and usual occupation during life. The Census records, in addition to some of the above variables, provided information on occupation, work experience, income, and educa-

[14] Kitagawa and Houser, "Social and Economic Differentials."
[15] Ibid.

tion. Kitagawa and Houser's findings published to date show mortality rates to be inversely related to income, education, and occupational status. For purposes of this study, only occupational mortality differentials are of direct interest, inasmuch as income and education are not identifiable in our data. In Table 5, some of the Kitagawa–Houser findings for occupations are presented in the form of a mortality differential index. The base for the index is the overall age-adjusted mortality rate for white males age 25 to 64 or age 65 to 74, depending upon which age group one is examining. Within the age 25 to 64 group, there appears to be a reasonably smooth progression of the index value from high- to low-status occupations. The smooth relationship disolves, however, in the 65 to 74 age group. In order to determine if there was a dichotomous relationship between age, occupation, and mortality groups which disappeared when retirement was reached, or if the relationship followed a gradually weakening pattern, resort was made to the Moriyama-Guralnick data, which was older, but which contained occupational grouping by several age classes below 65.[16]

[16] Moriyama and Guralnick, "Occupational and Social Class Differentials."

TABLE 5 Occupation Mortality Differentials for Males With Work Experience Since 1950, May-August, 1960

Occupation Class	*Nonwhite*	*White*	
	25-64 Years	*25-64 Years*	*65-74 Years*
Worked since 1950	1.00	1.00	1.00
White collar workers[a]	.93	.92	.98
Blue collar workers[b]	.95	1.07	1.02
Craftsmen and operatives[c]	.91	1.01	1.02
Service workers and laborers[d]	.98	1.28	1.04
Agricultural workers[e]		.76	.90

SOURCE: Evelyn M. Kitagawa, "Social and Economic Differentials in Mortality in the United States, 1960," *Proceedings, General Assembly and Conference of International Union for Scientific Study of Population*, London, September, 1969.

[a] Census Occupational Groups 1-3.
[b] Census Occupational Groups 4-9.
[c] Census Occupational Groups 4-5.
[d] Census Occupational Groups 6-7.
[e] Census Occupational Groups 8-9.

Moriyama-Guralnick grouped occupations into five categories:

1. Professional workers
2. Technical, administrative, and managerial workers
3. Proprietors, clerical, sales, and skilled workers
4. Semiskilled workers
5. Laborers, except farm and mine

Agricultural workers were excluded from the five categories, but farm owners and farm managers were included in category 2.

In Table 6, the Moriyama-Guralnick data have been cast into a set of mortality indexes by age group. The base of the index is the mortality rate for class 1 occupations within each age group. It is apparent that the impact of occupation on mortality depends upon age group. For men of all ages, there is an increase in mortality associated with decreased occupational status, but the strength of the association diminishes with age. For instance, for men aged 20-24, the mortality rate for those in the occupational class 5 is 388 percent of the rate for occupational class 1; but for the men 60-64, the occupational class 5 rate is only 133 percent of the class 1 rate. The decay of the relationship can be seen quite sharply in the lines of Chart 1. The mortality index tends to flatten out along the abscissa as age increases.

The social-class adjustments used on the estimates which follow are based entirely on occupation. The procedure used to make the adjustments to age-sex-race-marital-status-specific rates was as follows:

Decedents whose occupations fell within the *Dictionary of Occupational Titles*[17] codes 001 through 399 were assigned the average relative mortality differentials by which white male professional, technical, administrative, and managerial workers differed from all white males, age-class by age-class, as found by Moriyama and Guralnick.

Decedents whose occupations fell within the *Dictionary of Occupational Titles* codes 400 through 899 and housewives were assumed to enjoy average mortality and no adjustment was made to the age-sex-race-marital-status rates already assigned to them.

[17] U.S., Department of Labor, *Dictionary of Occupational Titles*, 3rd ed. (Washington, D.C., 1965).

TABLE 6 Occupational Mortality Rate Differential Shifts by Age-Class for Males of All Races, 1950

Age	*Mortality Rate Occupation Class 1 (Deaths per 100,000)*	*Ratio of Occupational Class Mortality to Occupation Class 1 Mortality (Percent)*				
		Class 1	*Class 2*	*Class 3*	*Class 4*	*Class 5*
20-24	95.9	100	153	146	184	388
25-29	92.6	100	153	156	205	473
30-34	135.1	100	125	136	179	426
35-44	288.9	100	115	131	156	330
45-54	946.9	100	99	109	118	205
55-59	1,922.3	100	99	108	105	156
60-64	2,886.0	100	99	109	101	133

SOURCE: The basic data from which the table was constructed are from I. M. Moriyama and L. Guralnick, *Trends and Differentials in Mortality, Proceeding, 1955 Annual Conference*, Milbank Memorial Fund, New York, p. 66.

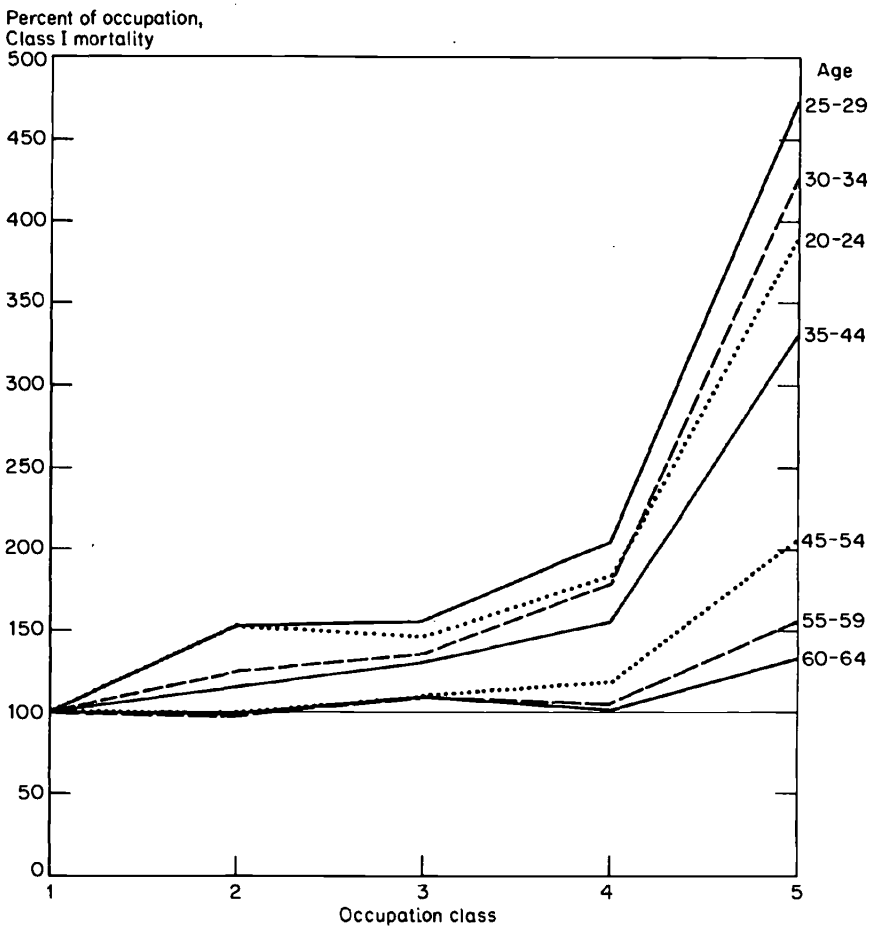

CHART 1: Occupation Class Mortality as a Percent of Occupational Class I Mortality by Age

The occupations represented in this group include skilled and semiskilled and production and structural workers.[18]

Decedents whose occupations were listed as codes 900 or above in the *Dictionary of Occupational Titles* were assigned the average relative differential for male black laborers from all black males, age-class by age-class. The adjustment factors for the three classes are shown in Table 7.

[18] *The Dictionary of Occupational Titles* includes farmers within the code range 400 to 899, but none of the decedents was found to have had farming as his usual lifetime occupation, an occupation with particularly high mortality rates.

TABLE 7 Social-Class Adjustment Factors for Age-Sex-Race-Marital-Specific Mortality Rates

Occupation Class	*Age*					
	25–29	*30–34*	*35–44*	*45–54*	*55–59*	*60–64*
I	.71	.68	.81	.96	1.00	1.00
II	1.00	1.00	1.00	1.00	1.00	1.00
III	1.64	1.65	1.68	1.50	1.48	1.38

Where occupation was missing from the death certificate or where a death certificate could not be located, the mean mortality rate after social-class adjustments for cases with complete occupation information was assigned to deficient cases within age-sex-race-marital-status classes.

B. Data and Its Sources

Two major and several ancillary data sources were used for the estimates. Most important and first in order of use was the 1967 District of Columbia estate tax return (FR-19). The second source was the death certificates filed for persons dying in the District of Columbia; and the third, the death certificates filed in the State of Maryland for residents of the District of Columbia dying there. Finally, a National Institute of Health (NIH) file of all District of Columbia residents dying in any state was used.

In outline, the data was assembled as follows:

1. All (3,303) estate tax returns filed for decedents who died in 1967 were examined and abstracted. The year 1967 was selected so that large estates which can take several years to settle would be in the closed files. Excellent cooperation was received from the District of Columbia Finance and Revenue Division.

2. Abstract sheets containing tax return information were matched with decedent's death certificates filed in the District of Columbia. The purpose of the match was to obtain additional information about the characteristics of decedents. The most important additional variables were race, place of birth, marital status, usual occupation during life, and death certificate number.

Because death certificates are filed in the political jurisdiction where death occurs, all District of Columbia taxpayers who died in

the District presumably had a death certificate filed there. For 545 decedents who filed tax returns, no death certificate was located in the District of Columbia Vital Statistics Office. These decedents were then presumed to have died elsewhere.

3. Arrangements were made with the State of Maryland to purchase a card listing of all District of Columbia residents who died in Maryland (except in the city of Baltimore, which is an independent filing district). Of the 545 certificates not located in the District of Columbia files, 239 were found in the Maryland file.

4. A tape containing information for all District of Columbia residents who died anywhere and nonresidents who died in the District of Columbia in 1967 was purchased from the National Office for Health Statistics.

The tape was used in two ways:

(a) The death certificate contains information on cause of death which was desired for studies of differential mortality and to test hypothesis about sampling bias in the sample drawn by death. The certificate number coded from the death certificates in the Washington Vital Statistics Office and from the Maryland file was used to merge the wealth file with the NIH tape.

(b) For the remaining 329 decedents not dying in the District or the state of Maryland, excluding Baltimore City, no information was at hand on race, marital status, place of birth, or usual occupation, because a death certificate had not been found for these decedents. Therefore, a synthetic match was made on characteristics of decedents which were available both on our own file and the NIH file.

Common items were:

i. Age
ii. Date of death[19]
iii. Sex
iv. Partial information on marital status
v. Place of death (partial)

The match procedure was as follows. All cases which had been matched exactly on death certificates were removed from the

[19] The date of death included the day, month, and year for deaths up to July 15, 1967; after that date only the month and year were included on the tape file.

working file of the NIH tape. The remaining cases, about 8,000 records, were sorted by date of death and sex. A listing of the file was then produced and a manual match was made on the full set of characteristics. When a perfect or near-perfect match was achieved, the death certificate number was entered into the wealth file and a computer merge was used to transfer the desired information. The quality of the match is believed to be very high. The probability of finding more than one person in 8,000 with the same date of death, sex, and age is not in itself very high, and in addition, 7,000 of the 8,000 records in the NIH file were for persons dying in the District and could be generally excluded from consideration because the certificates themselves had been searched. Further, in about a fifth of the cases the tax returns carried information on the place of death, which coupled with age and sex completely identified many persons dying outside the District. From tax information, it was known if a person left assets to a spouse, which permitted a further reduction in mismatches by testing for marital status on certificates. Where assets were not left to a spouse but to children, matches were ruled out by death certificate marital status: "never married."

For decedents who died after July 15, 1967, the date of death was limited to month of death. This resulted in a diminished ability to separate decedents into separate cells by a factor of 30 (360/12). In the end, 60 cases were assigned a random match from one or more certificates, which on the basis of limited information were plausible mates. These records were flagged for future attention. It is hoped that to reduce matching errors further the state of Virginia and the city of Baltimore will be able to provide assistance at a later time similar to that provided by Maryland.

5. Addresses of decedents were converted to 1970 Census tract codes. In nearly all cases, the address information supplied on the tax return and death certificate combined permitted a precise assignment of Census tract. In about 100 cases, the quadrant (NW, SW, NE, or SW) or some other part of the address was not available and the record could have fallen into more than one tract. The Bell system permitted use of their library facilities to identify the correct tracts. Where a phone listing for one person with the decedent's name appeared at a specific address in the 1966 or 1967 directory, that quadrant of that address was used to assign the tract. Where more than one phone listing for a person with the name of the decedent appeared and the listing appeared

in different tracts, it was determined if one name disappeared from the 1968 or 1969 listing. If it did, it was taken as prima facie evidence that that was the correct match for the decedent.

Although the concept of wealth is quite broad, estimates by type of asset are limited to those classes which are recorded as line items on the District of Columbia estate tax return. They are as follows:

1. *Real estate.* Real estate is limited to that situated in the District of Columbia. It is shown at its market value. Mortgages and debts against real estate are shown separately. In the case of rental real estate, accrued rents are included in the value.

2. *Stocks and bonds.* Included together are corporate issues of common and preferred stocks and corporate bonds, as well as bonds of all levels of government—foreign and domestic.

3. *Mortgages, notes, cash, deposits and other intangible property.* The category includes time and demand deposits, the present value of notes and mortgages, and interest accrued on any of them. It also includes less common items, such as tax sale certificates, refund coupons, and similar intangible wealth.

4. *Miscellaneous property.* Included are the net values of sole proprietorships and shares of partnership interests, interests in the estates of other decedents, currency and coins, works of art, personal effects, automobiles, consumer durables, and other real property not elsewhere included.

5. *Transfers during life.* Included are transfers of property at less than full money's worth during life in any of the following ways:

(a) to take effect at the death of the decedent;

(b) with the right retained by the decedent to enjoy the property during his lifetime;

(c) made in contemplation of death. (All transfers at less than money's worth within two years of death must be listed whether or not beneficiaries or agents of the estate consider the transfer in contemplation of death.)

6. *Powers of appointment.* A power of appointment is a set of rights with respect to an asset one does not own. Powers of appointment often come about because A wishes to permit B to transfer A's assets to a party to be designated at a later time by B.[20]

[20] The power may come about in the creation of a trust, the income of which was to be used to support an elderly parent until his death, then the

7. *Annuities and retirement funds.* Included here are the present market values of annuities or retirement funds which can be realized by the holder. Right to nonvested retirement funds or to Social Security benefits are not included, since those rights cannot be sold to another.

III. THE ESTIMATES

It is estimated that residents of the District of Columbia had a collective net worth of 5.5 billion dollars in 1967. This amounts to $7,200 for every man, woman, and child—a figure considerably below our rough estimate of $19,000 for the United States as a whole. The great difference is explainable by the low wealth position of blacks who made up about 67 percent of the District's population in 1967. The nonblack average net worth of District of Columbia residents, $19,300, compares favorably with the national figure, while the black average, $1,000, falls far below it.

The estimates of total wealth were made by fitting log-normal functions to estate multiplier estimates for persons with net worth of $5,000 or more and extrapolating them into the lower tail of the distribution. The process was applied separately for blacks and nonblacks. The tax data included persons with assets as low as $1,000 gross, but there is reason to believe that near the filing threshold, the quality of the data deteriorates because estates recognizing that they have zero tax liability opt not to file, though legally required to do so. Also, valuing small estates which consist largely of personal effects is likely to be imprecise, and it is suspected that executors may tend to err on the low side and not file.

Quite apart from the usefulness of the log-normal distribution

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corpus to be distributed to such surviving relatives and friends of the grantor as the trustee deemed appropriate. When a trustee is free to appoint without constraint the persons to receive the corpus, the power of appointment is said to be general; if there are restrictions upon whom may be appointed, the power is special. In both property doctrine and tax law the distinction between general and special powers of appointment has become clouded. The use of the concept here follows its application in tax law which looks to the financial benefit which may potentially rebound to the person who has the power to appoint. Clearly, if one has the power to appoint himself as a beneficiary, whether he does so or not, he has wealth at his disposal. We have not made our own interpretation of the instruments which grant the power or determined their value but have used the interpretations of the tax officials and the courts as found in the records.

in filling in the wealth at the bottom of the distribution, it provides a succinct view of the overall distribution. In Chart 2 the separate functions for blacks and nonblacks have been plotted. The abscissa shows income levels on a log scale, while the ordinate is scaled to linearize a normal distribution. The points along the functions relate the percentages of the populations which have wealth equal to or less than specified amounts. The function for blacks shows that over 96 percent of the District's black population had net wealth of under $5,000 compared to 70 percent of the white population. A test of the reasonableness of the functions may be made by looking at points very near the intercepts and comparing the estimates with a common-sense notion of reality and external data. For instance, it could be agreed that, with rare exceptions, young children, say, under 15, have a net worth of zero. Indeed, it would not strain our credulity to accept a mean net worth of near zero for persons under 18 or 20. At the points of ordinate intercepts, the functions show that 52 percent of the black population had net worth of $100 or less and 16 percent of the white population was similarly situated. Using population estimates of 500,000 blacks and 259,000 whites

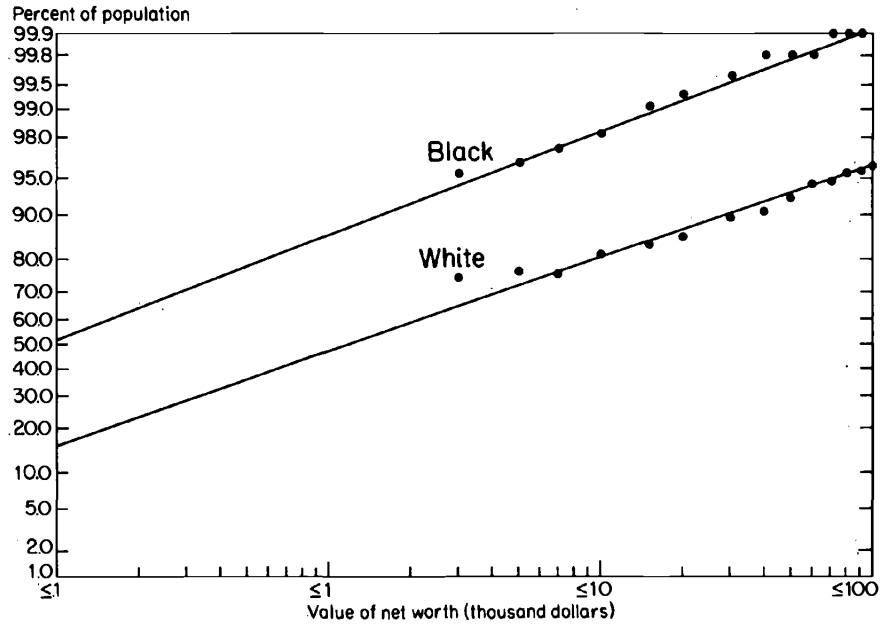

CHART 2: Logarithmic-Normal Distributions of Net Worth of White and Black Populations, Washington, D.C., 1967

in 1967, converts these percents to 260,000 blacks and 33,000 nonblacks with net worth of under $100. In 1970, there were about 225,000 persons under 18 in the District.[21] There were another 36,000 persons not under 18 in poverty families one might include as probably having a net worth under $100. That makes a total of 261,000 persons, and it is not unreasonable to believe that there were another thirty to forty thousand individuals over 18 with net wealth of $100 or less in nonproverty families.

For the city's residents as a group, stocks and bonds were preferred assets. About 2.7 billion dollars of them were held; and they accounted for more than half of the city's personal net worth. Real estate (located in the District) was a weak second choice, accounting for about a fifth of resident's wealth and valued at 1.2 billion dollars. Checking and saving accounts, notes and mortgages, and cash taken together also made up about a fifth of the city's collective personal wealth. District of Columbia residents were in debt .5 billion dollars, an amount equal to about 10 percent of their net worth.

As wealth increases, financial assets—such as stocks and bonds—increase in importance, and real estate decreases in the share it represents of total personal wealth. Stocks and bonds were about 8 percent of the net worth of persons with net assets of $1,000 to $5,000, but 66 percent of the wealth of persons with $100,000 or more. Real estate, which was 63 percent of the lower group's assets, was only 12 percent of the richer group's net worth. In Table 8, asset holdings are shown by size of net worth for persons with net worth of $1,000 or more. The $1,000 net worth cutoff is used because asset composition cannot be satisfactorily estimated below that level with our data. Consequently, the total net worth figure in the table comes to a little less than the 5.5 billion dollar figure noted above.

Portfolios also change with age. Real estate increases as a proportion of net worth up to ages 35 to 40 and then declines. Stocks and bonds are a minor proportion of net worth at younger ages but increase in importance rather steadily with age. (See Table 9.)

Washington is 71 percent black. Following the Supreme Court's decision in 1954, steps were taken to end discrimination in

[21] U.S., Department of Commerce, Bureau of the Census, *U.S. Census of Population: 1970, General Social and Economic Characteristics*, Final Report PC(1)-C10.

TABLE 8 Asset Holdings by Type of Asset and Level of Net Worth for All Persons With Net Worth of $1,000 or More in Washington, D.C., 1967

(thousands of dollars)

Net Worth ($000)	*Real Estate*	*Stocks and Bonds*	*Notes and Mortgages*	*Miscellaneous*
Total over 1	1,189,305	2,745,300	1,111,969	434,679
1 < 5	63,913	8,265	41,580	35,431
5 < 10	101,770	8,353	46.250	12,684
10 < 15	113,709	11,762	33,665	9,701
15 < 20	59,471	15,145	51,662	7,667
20 < 25	43,900	23,190	52,505	4,116
25 < 30	73,812	20,630	47,279	4,582
30 < 35	55,561	28,899	63,280	4,352
35 < 40	31,764	32,216	31,199	4,303
40 < 45	29,254	41,961	38,859	4,693
45 < 50	26,632	16,237	31,251	2,738
50 < 55	21,083	19,907	26,908	3,099
55 < 60	29,110	20,150	21,060	3,938
60 < 70	60,005	34,698	26,891	11,905
70 < 80	28,915	40,293	39,268	13,833
80 < 90	25,720	22,163	14,885	2,698
90 < 100	18,003	36,989	29,568	6,503
100 < 125	66,407	85,062	51,144	48,383
125 < 150	37,116	109,392	94,054	19,610
150 < 200	118,740	162,931	42,078	48,561
200 < 250	39,496	124,983	27,113	23,741
250 < 500	82,479	557,516	109,891	44,452
500 < 750	21,574	155,402	19,842	35,175
750 < 1,000	11,343	102,728	19,249	56,828
1,000 or more	29,540	1,006,663	152,652	25,746

federal hiring practices. Although there was less than complete compliance by agencies, the process moved rapidly compared to the results in many other large cities. To what extent the improved opportunities have been realized and have benefited blacks is of interest. The classification black includes all persons designated black or Negro on death certificates. All other persons are classified as nonblack.

In Tables 10 and 11, estimates of the mean and total value of assets held by blacks and nonblacks whose net worth was greater

TABLE 8 *(Continued)*

Net Worth ($000)	*Life Transfers*	*Pensions*	*Powers of Appointment*	*Gross Assets*
Total over 1	181,610	131,323	15,186	5,809,363
1 < 5	60	4,390	30	153,666
5 < 10	1,101	12,795	20	182,973
10 < 15	798	6,086	a	175,720
15 < 20	1,970	8,669	2	144,587
20 < 25	191	9,617	a	133,520
25 < 30	1,345	6,858	a	154,506
30 < 35	524	8,925	748	162,287
35 < 40	183	3,827	a	103,491
40 < 45	1,018	11,456	a	127,241
45 < 50	542	3,623	a	81,025
50 < 55	1,444	3,733	a	76,176
55 < 60	633	1,132	a	76,025
60 < 70	699	592	a	134,790
70 < 80	822	4,854	a	127,984
80 < 90	2,804	7,550	a	75,820
90 < 100	550	1,320	a	92,934
100 < 125	42,292	12,018	2,625	307,931
125 < 150	3,977	3,776	168	268,095
150 < 200	11,283	1,915	520	386,027
200 < 250	8,715	1,710	a	225,758
250 < 500	22,686	11,280	a	828,306
500 < 750	849	3,072	a	235,914
750 < 1,000	22,394	1,183	a	273,724
1,000 or more	54,784	937	11,801	1,280,996

than or equal to $1,000 in 1967 are shown. Nonblacks, whether they were male or female, held a much smaller proportion of their wealth in real estate and a much larger portion in stocks and bonds than blacks (see Table 11). These findings for the District are similar to estimates for the nation made by Terrell using Survey of Economic Opportunity (SEO) data.[22] He found that 67.7 percent of black wealth was held in real estate and 2.3 percent in stocks and bonds. The corresponding figures for the District of Columbia population are 84.9 and 5.2 percent (see Table 12). For the

[22] Henry S. Terrell, "Wealth Accumulation of Black and White Families: The Empirical Evidence," *Journal of Finance* 26 (May 1971):363-77.

TABLE 8 *(Concluded)*

Net Worth ($000)	*Debts*	*Net Worth*	*Life Insurance*[b]	*Joint Property Holdings*[b]
Total over 1	563,694	5,245,681	627,517	1,167,582
1 < 5	52,181	101,481	76,728	65,473
5 < 10	34,675	148,299	72,203	93,250
10 < 15	47,614	128,105	27,374	97,317
15 < 20	15,290	129,297	22,786	48,354
20 < 25	9,319	124,201	15,023	49,440
25 < 30	4,021	150,485	32,113	88,291
30 < 35	10,201	152,087	29,836	64,457
35 < 40	22,136	81,355	6,419	35,668
40 < 45	6,770	120,471	31,763	33,599
45 < 50	5,085	75,941	5,612	30,597
50 < 55	1,772	74,404	7,268	27,425
55 < 60	2,075	73,949	2,449	35,301
60 < 70	26,274	108,525	19,601	67,583
70 < 80	2,215	125,769	10,318	42,278
80 < 90	920	74,899	5,971	16,448
90 < 100	2,308	90,625	2,876	20,025
100 < 125	20,929	287,002	76,409	68,960
125 < 150	15,405	252,690	7,003	47,892
150 < 200	56,509	329,518	127,714	88,467
200 < 250	11,321	214,437	7,264	39,848
250 < 500	40,015	788,290	26,540	66,147
500 < 750	1,703	234,211	5,322	9,536
750 < 1,000	27,379	246,346	4,128	15,879
1,000 or more	147,557	1,133,418	4,783	15,329

[a] Less than 5 cases.

[b] Life insurance and joint property holdings are shown here as information items. Life insurance is excluded from gross assets and net worth, but jointly owned assets have been included by type in their appropriate category.

nonblack population, the percentages are 18.2 and 34.7 respectively. Black debts represent a greater proportion (28.9 percent) of net worth than do nonblack debts (9.4 percent). The same is true of life insurance. Blacks held life insurance policies which amounted to 26.1 percent of their total net worth, while nonblacks held life insurance equal to only 10.9 percent of their net worth. To a large extent, the difference in portfolio

TABLE 9 Asset Holdings by Type of Asset and Age for All Persons with Net Worth of $1,000 or More in Washington, D.C., 1967 (thousands of dollars)

Age	*Real Estate*	*Stocks and Bonds*	*Notes and Mortgages*	*Miscellaneous*	*Life Transfers*	*Pensions*
All ages	1,189,305	2,745,299	1,111,967	434,671	181,612	131,337
<25	4,921	3,112	9,079	6,436	[a]	4,392
25 < 30	6,295	2,003	10,748	10,588	[a]	985
30 < 35	52,038	959	12,197	3,514	[a]	3,693
35 < 45	192,280	66,436	46,742	78,832	50,078	9,946
45 < 55	273,545	318,119	215,655	57,180	0	34,304
55 < 60	178,987	363,455	112,000	103,315	3,629	39,655
60 < 65	112,763	214,194	116,957	35,531	3,302	16,131
65 < 70	129,817	244,763	132,328	70,354	20,318	14,175
70 < 75	88,890	866,371	258,036	33,303	5,922	5,474
75 < 80	68,249	264,849	68,394	15,304	73,429	993
80 < 85	32,751	136,636	54,962	11,250	6,006	575
85 < 90	31,617	150,206	40,814	4,607	5,309	178
⩾90	17,819	114,151	34,032	4,733	13,615	813

TABLE 9 *(Concluded)*

Age	*Powers of Appointment*	*Gross Assets*	*Debts*	*Net Worth*	*Life Insurance*[b]	*Joint Property Holdings*[b]
All ages	15,187	5,809,337	563,699	5,245,638	627,522	1,167,580
<25	[a]	27,940	2,755	25,186	15,359	510
25 < 30	[a]	30,619	9,892	20,728	3,921	6,896
30 < 35	[a]	72,400	12,228	60,172	66,809	52,468
35 < 45	[a]	444,316	108,165	336,510	201,462	119,013
45 < 55	[a]	898,802	114,672	784,132	136,515	299,834
55 < 60	[a]	801,038	76,753	724,287	94,239	172,928
60 < 65	18	458,900	29,126	469,773	41,728	154,751
65 < 70	29	611,783	23,842	587,941	27,549	149,622
70 < 75	749	1,258,743	153,944	1,104,750	20,978	95,977
75 < 80	7,712	498,658	26,372	472,331	11,732	47,614
80 < 85	5,580	247,087	2,267	244,820	4,369	35,402
85 < 90	927	233,657	2,641	231,016	1,810	17,024
⩾90	168	185,331	1,028	184,303	1,057	15,531

[a] Less than 5 cases.

[b] Life insurance and joint property are not included in the concept of net worth, but are shown as information items.

TABLE 10 Mean and Total Value of Selected Assets by Sex for All Nonblack Persons With Net Worth of $1,000 or More in Washington, D.C., 1967

(means in dollars, totals in thousands of dollars)

	Male		*Female*	
Asset	*Mean*	*Total*	*Mean*	*Total*
Real estate	9,099	377,729	11,869	507,164
Stocks and bonds	37,968	1,576,102	26,905	1,149,610
Notes, cash, mortgages	11,864	492,470	12,419	530,635
Miscellaneous	6,354	263,777	2,979	127,308
Pension funds	2,058	85,442	733	31,303
Powers of appointment	5	220	350	14,963
Lifetime transfers	2,697	111,975	1,387	59,255
Gross assets	70,047	2,907,713	56,642	2,420,212
Debts	8,291	344,164	2,614	111,674
Net worth	61,756	2,563,541	54,029	2,308,538
Life Insurance[a]	10,483	435,147	2,224	95,017
Joint property[a]	11,326	470,133	11,695	499,725

NOTE: The estimates are based on the total number of persons with net worth of $1,000 or more, including those with zero holdings of specific assets.

[a] Not included in gross assets or net worth.

composition reflects the different economic status of the two groups.

The estimates reported here are for individuals, not consumer units or families. The marital status of decedents in the sample are known, however, and it is possible to estimate the distribution of wealth by marital status.

The social and legal customs surrounding the process of marriage and its dissolution bear on the distribution of wealth by the manner in which legal rights to assets devolve. In the case of marriage, there is a tendency in custom and in law for spouses to share in each other's wealth, thus reducing the asset level of the richer partner and increasing that of the poorer. Death benefits the surviving partner in every case, except where the cost of the decedent's interment exceeds his net worth, or where his net worth was negative prior to death. Divorce and separation almost always will result in a diminution of both partners' wealth, since settlements presumably are intended to attain in dissolution the

TABLE 11 Mean and Total Value of Selected Assets by Sex for All Black Persons With Net Worth of $1,000 or More in Washington, D.C., 1967

(means in dollars, totals in thousands of dollars)

	Male		*Female*	
Asset	*Mean*	*Total*	*Mean*	*Total*
Real estate	8,195	189,301	7,759	115,102
Stocks and bonds	348	8,050	773	11,469
Notes, cash, mortgages	2,149	49,640	2,642	39,187
Miscellaneous	1,470	33,956	649	9,635
Pension funds	416	9,618	334	4,953
Powers of appointment	–	–	–	–
Lifetime transfers	383	8,847	103	1,529
Gross assets	12,962	299,412	12,260	181,877
Debts	3,308	76,405	2,119	31,443
Net worth	9,654	223,009	10,141	150,434
Life insurance[a]	3,796	87,676	653	9,680
Joint property[a]	5,777	133,448	4,330	54,243

NOTE: The estimates are based on the total number of persons with net worth of $1,000 or more, including those with zero holdings of specific assets.

[a] Not included in gross assets or net worth.

economic rights one had in marriage, and the legal costs of separation are positive. Outright desertion may benefit either partner and it is difficult to determine a priori whether on the average the deserter or the deserted benefits (see Tables 13 and 14).

The data for nonblacks supports the contention that outliving one's spouse is the route to increased riches. Widows and widowers had the largest mean net worths of all marital classes. Widowers held, on the average, 11.3 percent more wealth than married men, the next highest marital group, and widows held 63.0 percent more than married women, the next highest marital group for women. The lowest net worth was found for never-married males. Surprisingly, they did less well than never-married females, who, one would suppose, suffered from low wage levels.

Among blacks, the marital-status differences in wealth nearly disappear. Ignoring the "other" category, all of the marital groups except divorced males have means around $10,000. Again the

TABLE 12 Composition of Wealth by Sex for Blacks and Nonblacks With $1,000 or More Net Worth in Washington, D.C., 1967

(percentages of net worth)

	All Racial Groups			*Blacks*			*Nonblacks*		
Asset	*Total*	*Male*	*Female*	*Total*	*Male*	*Female*	*Total*	*Male*	*Female*
Real estate	22.7	20.3	25.3	81.5	84.9	76.5	18.2	14.7	22.0
Stocks and bonds	32.6	56.8	5.1	5.2	3.6	7.6	34.7	61.5	5.0
Notes, mortgages, cash and deposits	20.7	19.5	22.1	23.8	22.3	26.2	20.4	19.2	21.8
Miscellaneous	8.3	10.7	5.6	11.7	15.1	6.4	8.0	10.3	5.5
Pension funds	2.5	3.4	1.5	3.9	4.3	3.3	2.4	3.3	1.4
Power of appointment	0.3	[a]	0.6	[a]	[a]	[a]	0.3	[a]	0.6
Lifetime transfers	3.5	4.3	2.5	2.8	4.0	1.0	3.5	4.4	2.6
Gross assets	110.7	115.1	105.8	128.9	134.3	120.9	109.4	113.4	104.8
Debts	10.7	15.1	5.8	28.9	34.3	20.9	9.4	13.4	4.8
Net worth	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Life insurance[b]	11.9	18.1	4.3	26.1	39.3	6.4	12.0	17.0	4.1
Joint property[b]	14.1	6.5	22.9	52.9	59.8	42.7	19.9	18.3	21.6

[a] Rounds to less than 0.1 percent.

[b] Life insurance and joint property are not included in the concept of net worth, but are shown here as information items.

TABLE 13 Mean and Total Net Worth and Number of Persons by Sex and Marital Status for All Black Persons With Net Worth of $1,000 or More in Washington, D.C., 1967

(mean net worth in dollars, total net worth in thousands of dollars)

Sex and Marital Status	*Mean Net Worth*	*Number of Wealth Holders*	*Total Net Worth*
All individuals	9,845	37,934	374,978
Male	9,654	23,099	222,998
Never married	6,181	2,934	18,135
Married	10,241	19,600	200,723
Widowed	9,480	878	8,323
Divorced	7,331	256	1,877
Other	[a]	[a]	[a]
Female	10,140	14,835	150,427
Never married	10,515	1,670	17,560
Married	10,033	9,276	93,066
Widowed	11,252	3,025	34,037
Divorced	11,349	622	7,059
Other	16,902	242	4,090

[a] Sample size less than 5.

correlation between age and marital status and wealth is reflected in the means for marital status.

To measure the simultaneous impact of all the demographic variables on the level of net worth, a multiple regression was fitted:

$$\textit{Log Net Worth} = f(\textit{Age, Sex, Race, Marital Status, Occupation, Birthplace})$$

Dummy variables were used for all independent variables. The R^2 was .26 and most dummies are significant. In Table 15, the statistics of the estimation are presented.

It was initially hypothesized that age and net worth would move together up to some postretirement point as savings accrued from income. It was thought that beyond that point, net worth would decline as individuals dissaved. The estimates do not support such a life-cycle hypothesis. The regression coefficients

TABLE 14 Mean and Total Net Worth and Number of Persons by Sex and Marital Status for All Nonblack Persons With Net Worth of $1,000 or More in Washington, D.C., 1967

(mean net worth in dollars, total net worth in thousands of dollars)

Sex and Marital Status	*Mean Net Worth*	*Number of Wealth Holders*	*Total Net Worth*
All individuals	57,836	84,240	4,872,105
Male	61,756	41,511	2,563,553
Never married	19,930	7,635	152,158
Married	72,036	31,359	2,258,977
Widowed	80,203	1,478	118,540
Divorced	32,716	1,029	33,664
Other	[a]	[a]	[a]
Female	54,029	42,728	2,308,551
Never married	35,179	10,945	385,034
Married	53,780	20,939	1,126,099
Widowed	87,641	8,124	711,995
Divorced	31,552	2,678	84,496
Other	22,125	42	929

[a] Sample size less than 5.

increase rather steadily with age; only a slight dip occurs in the range from 60 to 70 years of age.

Being black, as was apparent from the descriptive tabulations, is an important negative factor in wealth holding, lowering the expected value of net worth $3,330.

In conjunction with all other variables, sex is not important nor significant in predicting net worth. Marital status is important, but has mixed significance scores. Widowhood showed up in the tabulated data as being associated with high net worth among whites, but in the multiple regression, where all other factors are at play, it turns out to have minor importance and little significance.

Occupation codes used in the regression are three-digit *Dictionary of Occupational Titles* (DOT) codes for civilian employees and special codes for housewives and military personnel. Although most of the occupation dummies proved significant and impor-

TABLE 15 Statistics From Multiple Regression of Log of Net Worth on Age, Sex, Race, Marital Status, Occupation, and Place of Birth

(log of net worth in thousands of dollars)

Variable	*Regression Coefficient*	*Standard Error*	*F*
Age:			
0 = < 35			
1 = 35 < 40	.277	.146	3.60
2 = 40 < 45	.335	.060	6.42
3 = 45 < 50	.530	.113	21.88
4 = 50 < 55	.538	.109	24.30
5 = 55 < 60	.670	.102	43.24
6 = 60 < 65	.620	.101	37.93
7 = 65 < 70	.640	.100	41.31
8 = 70 < 75	.735	.099	57.92
9 = 75 < 80	.791	.099	63.39
10 = ⩾ 80	.839	.098	73.16
Race:			
1 = Nonblack			
2 = Black	−.522	.030	304.66
Sex:			
1 = Male			
2 = Female	.039	.032	1.51
Marital status:			
1 = Never married			
2 = Married	.123	.037	11.12
3 = Widowed	.012	.039	.09
4 = Divorced	−.236	.062	14.46
5 = Other	−.147	.206	.51
Occupation:			
0 = First digit DOT[a]			
1 = First digit DOT[a]	.105	.050	4.48
2 = First digit DOT[a]	−.064	.051	1.56
3 = First digit DOT[a]	−.235	.054	18.48
4 = First digit DOT[a]	−.528	.249	4.50
5 = First digit DOT[a]	−.188	.177	1.12
6 = First digit DOT[a]	−.316	.107	8.74
7 = First digit DOT[a]	−.303	.113	7.12
8 = First digit DOT[a]	−.334	.095	12.44
9 = First digit DOT[a]	−.336	.068	24.15
10 = Housewives	.039	.041	.92

TABLE 15 *(Concluded)*

Variable	*Regression Coefficient*	*Standard Error*	*F*
Age:			
11 = High-rank military	.554	.249	4.92
12 = Middle-rank military	−.898	.607	2.19
13 = Low-rank military	.033	.019	.85
14 = Officer of unspecified rank	.377	.138	7.47
Birthplace:			
1 = Inside U.S.			
2 = Outside U.S.	−.059	.045	1.73
Constant = .62403			
R^2 = .26			
N = 2,585			

[a] U.S., Department of Labor, *Dictionary of Occupational Titles,* 3rd ed. (Washington, D.C., 1965).

tant, it is apparent from work in progress that the DOT coding scheme is not the most satisfactory one for clustering occupations to predict wealth. The created occupation "housewife" was not important nor significant. Military status turned out to be important. Officers of high rank have an expected net worth $3,500 higher than civilian professionals in the highest DOT classification.

DISCUSSION: WHITE WEALTH AND BLACK PEOPLE: THE DISTRIBUTION OF WEALTH IN WASHINGTON, D.C., IN 1967

Vito Natrella
Internal Revenue Service

Washington, D.C. has several distinguishing characteristics. Its population is nearly three-quarters black. The federal government is the largest employer, with large numbers of residents employed in government-related trade and service industries. Very few residents of the District are engaged in manufacturing and virtually none are engaged in agriculture.

These and other factors make Washington an interesting but unique city. Therefore, while the techniques Smith used can be adapted to other large urban centers, the applicability of the results elsewhere is open to question. The main and considerable advantage of Washington was, of course, the ready availability of a very rich data base.

Smith used the estate multiplier technique, which, as he explained, has proven useful in previous work. The paper contains some innovations, resulting, as Smith indicated, from a unique set of data including both estate tax returns and death certificates.

ESTATE MULTIPLIER TECHNIQUE

The only readily available administrative source of information on wealth is the estate tax return. The estate multiplier technique has been applied to federal estate tax returns. In this case, we have a very special group of people. The federal filing requirement for estate tax returns is gross assets of $60,000 or more. We are, therefore, dealing with the wealthiest 4 or 5 percent of the population. If we were to use average mortality rates for the U.S. population to compute the weighting factors, we would obtain lower limit estimates of wealth for the top wealthholders. However, it is reasonable to assume that the mortality rates for the wealthy are more favorable than for the general population. Without going into detail, the mortality rates selected for the

Internal Revenue Service's (IRS) 1962 Personal Wealth report[1] were 11 percent to 31 percent less than the average, depending on age group. These differentials are based on experience for individuals with preferred risk life insurance policies of $5,000 or more. In selecting such mortality rates, we feel that we have succeeded in eliminating the unfavorable mortality rates of the poor, rather than successfully determining the mortality rate of the wealthy.

For our 1969 Personal Wealth[2] estimates, mortality rates were based on the Metropolitan Life Insurance Company's experience for individuals with preferred risk life insurance policies of $25,000 or more. These rates ranged from about 10 percent to 43 percent more favorable than the average 1969 rates. We feel that the "$25,000 or more" rates, which were not available for the 1962 report, are more appropriate. However, estimates for 1969 based on the mortality rates for individuals with preferred risk life insurance policies of $5,000 or more as in the 1962 report, are also presented. Whichever of the two sets of rates is employed, there is the weakness that all those with assets of $60,000 or more are assigned the same mortality rates. We plan to do further research in this field and are considering the possibility of using a sliding scale according to size of estate.

In computing the weights for his District of Columbia estimates, Smith starts with national mortality rates by age, sex, and race. To these mortality rates, two adjustments are made—an adjustment for marital status and an adjustment for social class as measured by occupation. The importance of the marital status adjustment is demonstrated by the fact that two-thirds of the District wealth holders were married, while one-fifth were never married. A social-class adjustment is particularly important in working with federal estate returns because of the high filing threshold. But even in working with District estate returns it is

[1] U.S., Treasury Department, Internal Revenue Service, *Statistics of Income—1962, Personal Wealth Estimated from Estate Tax Returns,* Publication No. 482 (7-67) (Washington, D.C., 1967). This report is available from the Government Printing Office, Washington, D.C. 20402, for $.65.

[2] U.S., Treasury Department, Internal Revenue Service, *Statistics of Income—1969, Personal Wealth Estimated from Estate Tax Returns,* Publication No. 482 (10-73) (Washington, D.C., 1973). This report is available from the Government Printing Office, Washington, D.C. 20402, for $1.50. Some data are presented in the appendix.

important, since only 16 percent of the population held wealth of $1,000 or more.

Using the marital-status adjustment does make a significant improvement. Smith applied 1959–61 differentials to the 1967 mortality rates. Klebba presents marital status mortality rates for 1940, 1950–51, and 1959–61. In reviewing the rates for these periods, it is apparent that there is a significant change in mortality by marital status over time. This being the case, perhaps some adjustment for trend could have been employed in extrapolating to 1967.

In general, I would agree that there is a strong correlation between occupation and social class. However, mortality rates by occupation have probably changed significantly over the years with a tendency toward increased job safety and increased consideration to the long-range health aspects of various jobs. Also, occupational differentials for an urban population may be significantly different from national occupational differentials.

Therefore, I would like to raise the question of the appropriateness of using Moriyama and Guralnick occupational differentials for 1950 to represent social-class differentials in 1967. This procedure relies on the assumption that there were no significant shifts in mortality rate by occupation over the seventeen-year period.

Smith went from the five-class Moriyama-Guralnick differentials presented in Table 6 to the three occupational differentials actually used, shown in Table 7. As the number of groups are reduced, each group becomes less homogeneous, so that with only three groups, lawyers, physicians, and business executives are included with waiters, porters, policemen, and janitors.

ESTIMATES OF DISTRICT OF COLUMBIA WEALTH

I was confronted with some problems concerning internal consistency, since most of the tabulations did not provide frequencies. I also tried to make some rough comparisons with estimates made for the District of Columbia for 1962.

Using information in the text, along with the few frequencies provided and Chart 2, it was possible to approximate frequencies by size of net worth. The chart indicates that 86 percent of the black population had net worth of less than $1,000. Based on these figures, and the 1967 population estimates, 70,000 blacks

had net worth of $1,000 or more in 1967, but the number of black wealth holders (Table 13) is esimated to be about 38,000. The chart indicates the total number of wealth holders to be 210,000, while the estimated number from Tables 13 and 14 is 122,000. This problem of inconsistency develops, I believe, because the chart was plotted from the population with net worth of $5,000 or more and extended to the population for which no data were available, whereas the tables show estate multiplier estimates.

COMPARISONS WITH OTHER ESTIMATES

The only other recent estimates of wealth for the District of Columbia are those for 1962 published by the Internal Revenue Service. These estimates cover all top wealth holders with $60,000 or more of gross assets. Unfortunately, similar estimates are not available for 1969, since District residents are included with Maryland residents in the IRS report covering that year.

In order to make Smith's 1967 estimates as comparable as possible with the 1962 estimates, it was necessary to make certain adjustments and assumptions. Net worth of $50,000 or more in Smith's distribution was considered equivalent to gross assets of $60,000 or more, although we recognized that this will overstate the case. An adjustment was made by adding cash surrender value of life insurance to Smith's 1967 estimates of net worth. This was done by deflating face value of life insurance by an interpolated average factor developed by IRS for its own wealth estimates. Another adjustment consisted of excluding all real estate from both estimates. This was done because Smith's estimates did not include real estate located outside the District of Columbia, whereas the IRS estimates include all real estate.

Generally speaking, Smith's 1967 figures did not show the increases from 1962 that one would expect; the number of top wealth holders remained about the same over the five-year period, as did holdings of cash, notes, and mortgages. Holdings of securities showed an 8 percent rise, while total assets other than real estate rose by 6 percent.

In comparison, the Federal Reserve Board shows nationwide increases in individual's holdings of comparable assets in the neighborhood of 50 to 60 percent over the same period. IRS estimates of net worth other than real estate for the District of

Columbia and Maryland combined show it to have more than doubled from 1962 to 1969.

These comparisons point out the possibility that Smith's estimates for 1967 might be low. However, an explanation which appears reasonable could be made on the basis of out-migration to the suburbs of more affluent whites, coupled with in-migration of less affluent blacks. Population figures for the District show a rise of 77,000 for nonwhites and a decline of 71,000 whites over the 1962–67 period.

ALTERNATIVE METHOD FOR DETERMINING WEALTH

In his work, in addition to having the District estate tax return data, Smith also had the death certificates for all decedents for 1967. It seems to me that with this information, Smith can provide an almost independent check on his wealth estimates without making any assumptions as to mortality rates. The only additional information needed is population estimates for 1967 by age, sex, and race. It should be possible to develop these from Census information with little trouble.

For each age, sex, and race group, the weighting factor can be determined by dividing the number of deaths into the population. For those deaths not covered by estate returns, one can, perhaps, assign some reasonable values, by age, up to $1,000. The amounts assigned to these records can be varied in successive tabulations, providing a test of upper and lower limits.

Using this weighting procedure, differences in social class, marital status, and even urban environment are automatically taken into account. The frequencies will match the known population, and it will be possible to compare the asset composition amounts with those computed under the estate multiplier method. In addition, it will provide a measure of the effects of using the marital status and occupational adjustments. It might also be possible with this type of estimate to develop implied differentials in mortality rates due to wealth.

REGRESSION ANALYSIS

In his regression analyses, Smith has made interesting use of dummy variables. The approach appears to be valid in this type of analysis. By and large, Smith's conclusions as to significance of the

various variables appear to be supportable by the data provided. However, I might take mild issue as to the standards used for significance. A slightly different conclusion might be reached if a somewhat more rigorous definition of significance were used. If, for instance, the three-standard-error level of significance were used for the regression coefficient confidence limit, it would be found that only four occupation classes out of fourteen appear to be significant. This would indicate results that are more mixed than for marital status. From this analysis, it would appear that only age and race are really significant variables; while to a lesser extent, marital status could also be considered significant.

From his multiple regression, Smith obtained an R^2 of .26, which we agree is significant. The question might be asked: How can the other three-fourths of the variance be explained? I would think that the really significant determinants, which, of course, cannot be measured at this time, would be prior income, inherited wealth, and the propensity to save.

CONCLUSIONS

Smith has made a valuable contribution to the estate multiplier technique. He has shown that marital status can be used to refine the multipliers, and I feel that further work in this field should make use of them. I would, however, be more comfortable if adjustment factors could be based on more recent data, since I feel that there may have been some recent trends in these differentials.

Smith does mention problems which arise when using the occupational classification approach to social-class differentials. In view of this, as well as of the mixed results obtained in terms of significances, I feel that at least at this stage of development, it might be better not to use occupation. Smith has explored the subject thoroughly and has given us a better understanding of what to expect from this approach. However, I feel that further research is needed in order to develop measures of social-class differentials.

In addition to the methodology and technical developments presented by Smith, he has given us some new information on the distribution of wealth with particular emphasis on racial differences.

As regards the paper itself, I think an attempt should be made to clarify the definitions of the occupational differentials, since, as

presented by Smith, this is rather difficult to understand. It also appears to me that some improvement in the method of estimating wealth of the under-$5,000 group is needed. In any case, only one set of data should be used, either the extrapolated values or the estate multiplier estimates. Another possibility, and certainly an easier one, would be to exclude the under-$5,000 group at this time.

APPENDIX

TABLE A.1 Number of Top Wealth Holders and Net Worth, by Size of Net Worth, 1962 and 1969

(numbers in thousands, money amounts in billions of dollars)

	Top Wealth holders				*Net Worth*			
	1962		*1969*		*1962*		*1969*	
Size of Net Worth	*Number*	*Percent of Total*	*Number*	*Percent of Total*	*Amount*	*Percent of Total*	*Amount*	*Percent of Total*
Negative net worth	25	0.6	71	0.8	−1.5	−0.2	−3.8	−0.3
0 under $50,000	584	14.1	1,744	19.3	18.0	2.7	48.4	3.5
$50,000 under $70,000	732	17.7	1,475	16.4	45.1	6.7	90.4	6.6
$70,000 under $100,000	991	24.0	2,022	22.4	82.8	12.4	168.6	12.2
$100,000 under $150,000	799	19.3	1,639	18.2	96.6	14.4	198.5	14.4
$150,000 under $300,000	626	15.1	1,298	14.4	128.5	19.2	265.0	19.2
$300,000 under $1,000,000	314	7.6	643	7.1	155.2	23.2	313.7	22.8
$1,000,000 under $5,000,000	56	1.4	111	1.2	100.2	15.0	192.6	14.0
$5,000,000 or more	4	0.1	9	0.1	44.2	6.6	103.5	7.5
Total	4,132	100.0	9,013	100.0	669.3	100.0	1,376.9	100.0

NOTE: All figures are estimates based on estate tax returns samples. Components may not add to totals due to rounding.

SOURCES: U.S., Treasury Department, Internal Revenue Service, *Statistics of Income–1962, Personal Wealth Estimated from Estate Tax Returns* (Washington, D.C., 1967). U.S., Treasury Department, Internal Revenue Service, *Statistics of Income–1969, Personal Wealth Estimated from Estate Tax Returns* (Washington, D.C., 1973).

TABLE A.2 Number of Top Wealth Holders and Net Worth, by Age Group, 1962 and 1969

(numbers in thousands, money amounts in billions of dollars)

	Top Weath Holders				*Net Worth*			
	1962		*1969*		*1962*		*1969*	
Age Group	*Number*	*Percent of Total*	*Number*	*Percent of Total*	*Amount*	*Percent of Total*	*Amount*	*Percent of Total*
Under 40 years	653	15.8	1,454	16.1	76.3	11.4	129.6	9.4
40 under 50	807	19.5	2,035	22.6	108.8	16.2	272.6	19.8
50 under 55	485	11.7	1,107	12.3	74.6	11.1	162.4	11.8
55 under 60	541	13.1	1,052	11.7	94.6	14.1	168.0	12.2
60 under 65	475	11.5	981	10.9	86.5	12.9	169.2	12.3
65 under 70	430	10.4	819	9.1	80.8	12.0	199.1	14.5
70 under 75	281	6.8	634	7.0	53.2	7.9	126.2	9.2
75 under 80	194	4.7	392	4.3	40.1	6.0	35.0	2.5
80 under 85	110	2.7	221	2.4	23.9	3.6	46.4	3.4
85 or more	68	1.6	146	1.6	17.2	2.6	35.1	2.5
Age unknown	87	2.1	172	1.9	13.1	2.0	33.3	2.4
Total	4,132	100.0	9,013	100.0	669.3	100.0	1,376.9	100.0

NOTE: All figures are estimates based on estate tax returns samples. Components may not add to totals due to rounding.

SOURCES: U.S., Treasury Department, Internal Revenue Service, *Statistics of Income–1962, Personal Wealth Estimated from Estate Tax Returns* (Washington, D.C., 1967). U.S., Treasury Department, Internal Revenue Service, *Statistics of Income–1969, Personal Wealth Estimated from Estate Tax Returns* (Washington, D.C., 1973).

TABLE A.3 Distribution of Assets for All Top Wealth Holders, by Size of Net Worth, 1969

(billions of dollars)

Size of Net Worth	*Corporate Stock*	*Real Estate*	*Bonds*	*Cash and Deposits*	*Notes and Mortgages*	*Life Insurance*	*All Other Assets*	*Total Assets*	*Debts*	*Net Worth*
Negative net worth	0.8	2.5	0.0	0.4	0.4	0.5	1.3	5.8	9.7	−3.8
0 under $50,000	8.9	48.7	0.8	8.0	1.8	7.4	13.2	88.7	40.2	48.4
$50,000 under $70,000	16.7	47.4	3.1	18.8	4.0	4.1	16.9	111.0	20.5	90.4
$70,000 under $100,000	39.0	71.5	7.8	36.6	7.9	4.6	23.4	190.8	22.2	168.6
$100,000 under $150,000	56.0	76.6	8.6	38.1	9.7	4.6	28.5	222.1	23.6	198.5
$150,000 under $300,000	97.8	83.5	13.0	41.2	14.5	4.9	39.0	293.9	28.9	265.0
$300,000 under $1,000,000	151.4	70.0	22.1	33.7	15.1	3.6	49.3	345.3	31.6	313.7
$1,000,000 under $5,000,000	119.8	22.6	17.2	10.4	5.1	1.1	36.0	212.0	19.3	192.6
$5,000,000 or more	60.9	5.3	12.7	2.5	1.0	0.2	28.5	111.1	7.6	103.5
Total	551.4	428.0	85.4	189.7	59.4	30.9	235.7	1,580.6	203.6	1,376.9

NOTE: All figures are estimates based on estate tax returns samples. Components may not add to totals due to rounding.

SOURCES: U.S., Treasury Department, Internal Revenue Service, *Statistics of Income–1962, Personal Wealth Estimated from Estate Tax Returns* (Washington, D.C., 1967). U.S., Treasury Department, Internal Revenue Service, *Statistics of Income–1969, Personal Wealth Estimated from Estate Tax Returns* (Washington, D.C., 1973).