SOCIO-ECONOMIC DIFFERENTIALS IN MORTALITY IN MARYLAND 1959-61 and 1969-71.

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I. Introduction

This report presents preliminary results of the third sub-study of a larger study of socio-economic differentials in mortality.1/ It presents mortality data for Maryland for 1959-61 and 1969-71 made available by the Maryland Center for Health Statistics.2/ Counties and State Economic Areas are the units of analysis.

The primary question to which both the larger study and this sub-study address themselves is, did socio-economic differentials in mortality, overall by age and cause of death, and in infant mortality change during the decade of the 1960s? As background: 1) The overall mortality rate declined significantly in Maryland as a whole from 1959-61 to 1969-71, continuing a trend of earlier years; 2) Some evidence exists to indicate that socio-economic differentials in mortality (as measured by methods used in the current investigation) were narrowing during the 1950s and probably earlier, and by 1960 these differentials were low, both in Maryland and in the U.S. as a whole; 3) Income in Maryland as a whole rose significantly between 1960 and 1970; and 4) During the decade social programs were in operation, in Maryland as elsewhere, to narrow existing socio-economic differentials in mortality as well as in other aspects of health status. The expectation of the investigators was that narrowing had probably continued in Maryland during the decade, with the differentials perhaps disappearing completely.

II. Methods

For the present study, Maryland's 24 counties (actually 23 plus Baltimore City as a separate unit) and its seven State Economic Areas were used as units of analysis. Median family income was used as an indicator of socio-economic status, and counties were grouped into twelve with highest and twelve with lowest median family incomes, ranked on the basis of the average for each county of its medians for 1959 and 1969. The upper-income twelve, with 88.6 percent of the state's population in 1969 and 90.4 in 1970, included the large population aggregates of Baltimore City (905,759 in 1970), Prince Georges (660,567), Baltimore County (621,077), Montgomery (522,809), and Anne Arundel (297,539).

State Economic Areas in Maryland, ranked in order of median family income, are: 1) Metropolitan Washington—Montgomery and Prince Georges; 2) South Central Maryland—Carroll and Howard; 3) Metropolitan Baltimore—Baltimore City, Anne Arundel, and Baltimore County; 4) North Central Maryland—Frederick, Harford, and Washington; 5) Southern Maryland—Calvert, Charles, and St. Marys; 6) Western Maryland—Allegany and Garrett; and 7) Eastern Shore—Caroline, Cecil, Dorchester, Kent, Queen Annes,

Somerset, Talbot, Wicomico, and Worcester. When split by income (as above), the upper consist largely of counties in Metropolitan Washington, South Central Maryland, Metropolitan Baltimore, and North Central Maryland, while the lower are largely in Southern and Western Maryland and on the Eastern Shore.

Mortality rates were age adjusted by direct standardization (Shryock et al, 1971: 419-421), using the U.S. population of 1940 as standard. Deaths in 1959-61 were allocated to cause in accordance with the Seventh Revision of the International List of Diseases and Causes of Death, 1955, while 1969-71 deaths were allocated by the Eighth Revision, 1965, and adjusted for comparability to the Seventh.

III. Maryland's Population Characteristics

Maryland's population increased substantially between 1960 and 1970, from 3,100,689 to 3,922,399, or by 26.5 percent.3/ The majority of its growth was due to natural increase, but nearly one-half (12.4 percent) was due to net in-migration. Within the state itself, 20 of the 24 counties gained population during the decade; the exceptions were Baltimore City (net loss of 3.5 percent) and Allegany, Dorchester, and Somerset. (The latter three are classified in the present analysis as among the lower-income counties). However, the increases in population were far greater in the upper-income counties than in the lower, both percentage-wise and in absolute numbers, despite the large net loss in numbers in Baltimore City. Eight lower-income counties, including two Western Maryland and six Eastern Shore, experienced a net-outmigration of population, as did only Baltimore City and Cecil among the upper.

The state's already largely urban population in 1960 became more urban during the decade, rising from 72.7 to 76.6 percent urban. Large increases were registered in the percent urban among some upper-income counties, most notably Howard (because of the new city of Columbia), Harford, Anne Arundel, Prince Georges, Charles, and Cecil; in contrast, the percent urban declined for about one-half the lower-income counties. The upper-income counties included large population aggregations in the Baltimore and Washington Metropolitan Areas, e.g., Baltimore City (100 percent urban in 1970), Baltimore County (88.6), Prince Georges (92.3), and Montgomery (89.2), while four lower-income counties were wholly rural and contained no urban population whatever (Calvert, Queen Annes, Caroline, and Garrett).

Income rose in Maryland as a whole during the decade; thus median family income went from $6,309 in 1959 to $11,057 in 1969, an increase of 75.3 percent. By county, the percent increase was not quite as great in the upper-income counties

as in the lower, so that the relative difference narrowed somewhat. Thus the weighted average for the upper-income counties rose from $6628 in 1959 to $11,702 in 1969 or 77 percent, in the lower from $4,341 to $7,983 or 84 percent. The excess of upper over lower dropped from 53 to 47 percent (even though in absolute numbers it increased from $2,287 to $3,719). The coefficient of variation of the income distribution for all counties dropped from 27.0 to 25.7 percent, i.e., the distribution converged slightly.

The state's educational attainment also increased: median school years completed among persons 25 and over rose from 10.4 to 12.1, percent with fewer than five years of schooling dropped from 7.7 to 4.5, and percent completing high school or beyond rose from 40.0 to 52.3. By county, the weighted average of median school years completed for the high-income counties in 1960 (10.4 years) exceeded the low (9.1) and although both groups of counties improved over the decade (to 11.7 and 10.9, respectively), this pattern persisted. However, both the absolute and relative excess narrowed; thus it was 13.9 percent in 1960 but only 7.5 in 1970, 1.3 years in 1960 but only 0.8 in 1970. The coefficient of variation declined from 13.5 to 9.2 percent; as with income, educational attainment converged to some degree.

Finally, the state's percent Negro rose from 16.7 to 17.8, while its percent "foreign stock" declined from 11.9 to 11.6. The proportion of its labor force engaged in manufacturing declined somewhat, while the proportion engaged in white-collar occupations increased.

IV. Mortality in Maryland as a Whole

As the top line of Table 1 shows, the age-adjusted death rate for Maryland as a whole decreased between 1959-61 and 1969-71, from 834.0 per 100,000 to 756.8, or by 9.3 percent. This continued a decline of many years; thus in 1940 Maryland's death rate was 1,218.4 per 100,000, by 1950 it had dropped to 952.4, and by 1960 it was 883.0.4/ (Grove and Hetzel, undated:664.)

By age (top tier of Table 2), mortality declined for all age-groups except 15-24 where there was actually a substantial increase (37.4 percent). The declines were sharpest at the younger ages—under 1 (32.3 percent) and 1-4 (30.0); however, they were substantial also (between 8.5 and 11.3 percent) at all other ages except 25-44, where there was only a small decrease (3.2 percent).

The top tier of Table 3 shows data for five major groups of leading causes of death: diseases of the heart, cerebrovascular diseases, malignant neoplasms, influenza and pneumonia, and accidents. When age-adjusted, they accounted for 73.1 percent of deaths due to all causes in 1959-61 and 70.6 percent in 1969-71. Mortality declined in the state as a whole for four of the five causes shown, especially (in relative terms) for influenza and pneumonia (22.4 percent); only for malignant neoplasms was there actually a slight increase (0.44 percent). In absolute terms, the most pronounced decline was easily for diseases of the heart, 51.3 deaths; this accounted for two-thirds of total decline.

V. Mortality in High and Low-Income Counties

Again in Table 1, mortality in both high and low-income counties decreased over the decade, but the decrease was larger for the high-income than for the low, i.e., 65.4 per 100,000 against 34.5, 8.1 percent against 4.1. In 1959-61 mortality in the low-income counties exceeded the high by 4.2 percent, but by 1969-71 rates for the two groups of counties diverged and the relative excess rose to 8.7 percent.5/ The coefficient of variation for the distribution as a whole increased (unlike its decrease for income and education) from 10.6 percent to 12.7 percent; thus the distribution became more dispersed, and a parallel increase in dispersion was evident for both mini-distributions (12 counties each) separately.

Although the income distribution by county converged over the decade while mortality diverged, their degree of inverse association changed little, with the coefficient of correlation at —.615 in the earlier period and —.611 in the later. However, because of the discrepant trends in dispersion of income and mortality, the slope of their regression line became steeper, changing from —.289 to —.320. Thus, an increase of $1,000 on the regression line for 1959 income was associated with a decrease in 1959-61 mortality of 28.9 deaths per 100,000 (age-adjusted rates), while a comparable increase in 1969 income was associated with a decrease of 32.0 deaths in 1969-71.

By age

As the bottom tier of Table 2 shows, during 1959-61 mortality in the low-income counties exceeded the high for all age-groups except 55-64 and 65-74, where the differences were small (1 and 5 percent, respectively), while in 1969-71 the low-income counties exceeded the high at all ages without exception. However the gap widened relatively only at under 1 and 45-54 and above; at 1-4 thru 25-44, the gap actually narrowed. The narrowing was particularly substantial at 15-24, where a sharp increase (46 percent) took place for the high-income counties, not matched by the low. The widening was most substantial at under 1, where a sharp decrease (34 percent) took place in high income again not matched by low, and at 65-74, where mortality in the high declined while it increased in the low.

By cause of death

The bottom tier of Table 3 shows that in 1959-61 the largest differential between the counties was for accidents, where low-income rates exceeded high by 64 percent, followed by cerebrovascular diseases (20 percent). For diseases of the heart, malignant neoplasms, and influenza and pneumonia mortality in the high-income counties exceeded the low.

By 1969-71, however, for each of the five causes alike, the high-income counties had gained relatively at the expense of the low, and mortality in the low-income counties now exceeded the high for all five causes. The relative gain was greatest for influenza and pneumonia, where the ratio of low to high increased by 31 percent; even for accidents, however, where it was already high, it rose to 69 percent.

However, the absolute gain for high-income counties over low was greatest for the two leading causes of death, diseases of the heart and malignant neoplasms. For diseases of the heart, mortality in the high-income counties dropped from 338.9 to 282.6, or by 56.3, while in the low the drop was only 8.9. Also, the direction of the differential was reversed, i.e., where in 1959-61 heart disease mortality was higher in the high-income counties by 27.7 deaths, in 1969-71 it was lower by 19.7. Considering the 24 counties as a whole, there was a slight negative correlation of mortality with income in the earlier period, —.176, but it increased substantially without changing direction by the later to —.350.

For malignant neoplasms, in 1959-61 mortality in the high-income counties was substantially above the low (22.2 deaths), but in 1969-71 it was actually less than in the low, by 1.1. This reversal took place because of the substantial increase in malignant neoplasms for the low-income counties not matched by an increase for the high. The change in direction of the excess mortality ratio was matched by a change in direction of the correlation coefficient; it went from +.200 to —.305.

VI. Mortality by State Economic Areas

Table 4 shows mortality by State Economic Areas ranked according to income. Much the same pattern is evident here, i.e., rates in the high-income Economic Areas were lower than those in the low in both periods. The most substantial improvements took place in North Central Maryland (Frederick, Harford, and Washington), South Central Maryland (Carroll and Howard), Western Maryland (Allegany and Garrett), and Metropolitan Washington (Montgomery and Prince Georges).

VII. Infant Mortality

The infant mortality rate for Maryland as a whole declined from 1959-61 to 1969-71, from 27.0 to 19.0 or by 29.6 percent (see Table 5). The decline was most evident for the high-income counties and the relative excess of low-income over high widened, from 13.1 to 26.6 percent. This trend parallels the widening in mortality at all ages combined and at 0-1. However, unlike the situation for overall mortality, the coefficient of variation for the entire distribution decreased from 20.0 to 18.7 percent, and a parallel decrease occurred for both mini-distributions (12 counties each) separately. Thus, although the differential between upper and lower-income counties widened substantially, the relative dispersion actually narrowed.

The negative correlation between income and infant mortality increased significantly, from —.483 to —.616. The slope of the regression line, however, decreased slightly, from —.164 to —.158. Thus an increase of $1,000 on the regression line for 1959 income was associated with a decrease in 1959-61 infant mortality of 1.64 deaths per 1,000 live births, while a comparable increase in 1969 income was associated with a decrease of 1.58 deaths in 1969-71.

Table 6 shows infant mortality rates by color. In both 1959-61 and 1969-71, and for whites and nonwhites alike, infant mortality rates in the low-income counties exceeded the high. The relative excess was greater for nonwhites than whites in both periods (12.9 percent for non-whites and 0.4 for whites in 1959-61, and 7.48 and 11.7, respectively, in 1969-71). The decline for nonwhites was substantial in the high-income counties, from 42.7 to 25.4 or by 40.5 percent, but only minimal in the low, from 48.2 to 44.4 or by 7.9 percent. In 1969-71 the non-white rate exceeded white by 57 percent in the high-income counties and by 145 percent in the low.

VIII. Discussion

The rise in excess mortality among low-income counties over high reverses an earlier decline of at least a decade. From the data shown, it was concentrated at infancy, mid-life, and the older ages, and among deaths from heart disease and malignant neoplasms. At 15-24 the earlier narrowing continued.

To some unknown degree, the widening may reflect these factors:

1) By 1970, deaths due to communicable diseases with a significant inverse socio-economic gradient —tuberculosis and other infectious and parasitic diseases, influenza and pneumonia, and certain diseases of early infancy—had dropped to low levels (11.4 percent of all deaths in 1950, 10.1 in 1960, 6.6 in 1970). Their influence in the socio-economic differential for all causes was correspondingly lessened.

2) The benefits of the notable medical and surgical advances of the 1960s against heart disease and malignant neoplasms were likely to be more readily available in the metropolitan areas, even to the urban poor, than in the more isolated rural areas.

3) In general, migration has been from poorer to more affluent (and healthier) metropolitan areas; healthier migrants may have contributed measurably to lower mortality in the latter. In the present data, the correlation between net in-migration during the decade with percent decline in mortality was +.375.

The widening in mortality by no means indicates that the decade's social programs were unsuccessful. Perhaps without them it would have been greater; also, the programs may have most affected those aspects of health status unrelated to mortality.

Further analysis is indicated to determine whether the narrowing in mortality differentials at 15-24 was concentrated in either sex or race or in any cause of death, perhaps homicide and accidents. The increase in mortality at 15-24 was not restricted to Baltimore City, occurring among 10 upper and eight lower-income counties.

Finally, using counties as units of analysis imputes, perhaps unjustifiedly where populations are too heterogeneous, averages of aggregate characteristics to smaller units and even to each individual. Baltimore City has here been used as a single unit; in further analyses it will be disaggregated, where possible, into clusters of census tracts.

1/ The preliminary results of the first sub-study (using states as units of analysis) have been submitted for publication in Medical Care as M. Lerner and R.N. Stutz, "Narrowing the Gaps in Health Status, 1960 to 1970. I. Mortality", while preliminary results for the second, using census tracts in Baltimore City as units of analysis, has been published as: M. Lerner and R.N. Stutz, "Mortality Differentials Among Socio-Economic Strata in Baltimore, 1960 and 1973". Proceedings of the Social Statistics Section, American Statistical Association, 1975, pp. 517-522.

2/ Grateful acknowledgement for supplying these data is hereby extended to Dr. Jean Warthen, Director, Maryland Center for Health Statistics.

3/ Data on Maryland's population characteristics are derived from U.S. Bureau of the Census, County and City Data Book, 1967 and 1972, U.S. G.P.O., 1967 and 1973, respectively.

4/ The discrepancy between this 1960 rate (883.0) and the rate given earlier for 1959-61 (834.0) may result from the former being for a single year only, while the latter is for the average of three years; from the use of different age-groups in standardizing; or because these numbers are from different sources.

5/ Because of arbitrariness in using 12 counties each to represent upper and lower-income, the same comparison was also made for (separately) the top and bottom 11, 10, 9, 8, 7, and 6 counties. As with groups of 12, in each case the rates for higher and lower-income diverged between 1959-61 and 1969-71, with a resultant widening in excess, although its extent varied. In addition, the same comparisons were made using the rank ordering by income of the counties in 1960 alone as the basis for grouping counties. Again, separate comparisons were made of the top and bottom 12 through 6, and here also divergence appeared in all comparisons.

BIBLIOGRAPHY

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TABLE 1.

Age-Adjusted Mortality Rates per 100,000 Population* by County
Twelve Highest and Twelve Lowest Median Family Income Counties**
Maryland, 1959-61 and 1969-71.

County	1959-61 (1)	1969-71 (2)	Percent Change (3)
Maryland	834.0	756.8	-9.26
High-Income Counties			
Montgomery	658.9	572.1	-13.17
Prince Georges	740.7	696.6	-5.95
Howard	800.5	671.9	-16.06
Baltimore	661.5	662.8	+.20
Anne Arundel	771.8	735.9	-4.65
Harford	799.9	683.3	-14.58
Charles	943.5	849.0	-10.02
Carroll	663.2	611.2	-7.84
Frederick	818.9	727.1	-11.21
Baltimore City	954.6	950.7	-2.55
Cecil	764.7	779.8	+1.97
Washington	805.0+	703.3	-12.63
Weighted Average***	810.0	744.6	-8.07++
Mean Average	784.4	721.1	-8.07++
Standard Deviation	96.1	99.3	—
Low-Income Counties			
Wicomico	790.0	804.1	+1.78
Calvert	798.2	793.1	-.64
Allegany	849.9	785.6	-7.57
St. Marys	800.0	811.3	+1.41
Talbot	864.6	781.3	-9.63
Queen Annes	867.9	737.2	-15.06
Kent	926.9	840.7	-9.30
Dorchester	845.1	931.8	+10.26
Caroline	894.0	826.5	-7.55
Worcester	833.3	863.7	+6.05
Garrett	795.2	658.1	-17.24
Somerset	980.7	891.2	-9.13
Weighted Average***	843.9	809.4	-4.09++
Mean Average	853.8	812.1	-4.88++
Standard Deviation	55.8	69.6	—
Ratio: Low to High-Income Counties (Weighted Averages)	1.042	1.087	—

*Rates were adjusted by the direct standardization method (Shryock et.al., 1971:419-421), using the U.S Population of 1940 as the standard.

**Counties are ranked in accordance with the mean of the median family incomes for 1959 and 1969.

***Weighted in accordance with population with figures derived from the U.S. Census of Population for 1960 and 1970, respectively.

+ Based on an average of 1959 and 1961 deaths.

++ Computed from the figures in columns (1) and (2), rather than by averaging the percent change figures for individual counties.

Source of basic data:
Mortality: Unpublished data of the Maryland Center for Health Statistics.
Population Denominators: Various reports of the U.S. Bureau of the Census.
Median Family Income: U.S. Bureau of the Census, County and City Data Book, 1967 and 1972 editions, and Maryland Department of State Planning, Maryland 1970 Social Indicators Series, Volume III: Income Characteristics, April, 1974.

TABLE 2.

Mortality Rates per 100,000 Population by Age
Twelve Highest and Twelve Lowest Median Family Income Counties[††]
Maryland, 1959-61 and 1969-71

Age Group	1959-61	1969-71	Percent Change
	(1)	(2)	(3)
Maryland			
All ages (adjusted)[†]	834.0	756.8	-9.26
By age-group:			
Under 1	2851.8	1930.4	-32.31
1-4	104.5	73.2	-29.95
5-14	44.2	39.2	-11.31
15-24	90.2	124.0	+37.47
25-44	240.4	232.8	-3.16
45-54	840.5	766.6	-8.79
55-64	1968.9	1786.9	-9.24
65-74	4277.7	3912.6	-8.53
75 and over	11100.0	9949.1	-10.37
High-Income Counties (Weighted Average)[†††]			
All ages (adjusted)[†]	810.0	744.6	-8.07
By age-group:			
Under 1	2837.4	1880.4	-33.75
1-4	102.6	73.8	-28.07
5-14	42.8	37.7	-11.92
15-24	83.2	121.5	+46.03
25-44	239.6	239.3	-.13
45-54	830.8	763.9	-8.05
55-64	1920.1	1739.0	-9.43
65-74	3982.9	3799.0	-4.62
75 and over	10973.9	9797.2	-10.72
Low-Income Counties (Weighted Average)[†††]			
All ages (adjusted)[†]	843.9	809.4	-4.09
By age group:			
Under 1	3199.2	2470.9	-22.77
1-4	131.4	75.9	-42.24
5-14	56.8	47.5	-16.37
15-24	138.9	150.1	+8.06
25-44	294.4	264.7	-10.09
45-54	846.5	852.5	+.71
55-64	1903.2	1823.6	-4.18
65-74	3798.9	4074.6	+7.26
75 and over	11266.5	10325.8	-8.35
Ratio: Low to High-Income Counties			
All ages (adjusted)[†]	1.042	1.087	+4.32
By age-group:			
Under 1	1.128	1.314	+16.49
1-4	1.281	1.028	-19.75
5-14	1.327	1.260	-5.05
15-24	1.669	1.235	-26.00
25-44	1.229	1.106	-10.01
45-54	1.019	1.116	+9.52
55-64	.991	1.049	+5.85
65-74	.954	1.073	+12.47
75 and over	1.027	1.054	+2.63

[†]Same as Table 1.
[††]Same as Table 1.
[†††]Same as Table 1.

Source of basic data: Same as Table 1.

TABLE 3.

Age Adjusted Mortality Rates per 100,000 Population[†] by Cause of Death
Twelve Highest and Twelve Lowest Median Family Income Counties[††]
Maryland, 1959-61 and 1969-71.

Cause of Death[#]	1959-61	1969-71	Percent Change
	(1)	(2)	(3)
Maryland (Weighted Average)[†††]	834.0	756.8	-9.26
Diseases of the Heart	335.8	284.5	-15.28
Cerebrovascular Diseases	67.0	53.8	-19.70
Malignant Neoplasms	137.9	138.5	+.44
Influenza and Pneumonia	24.6	19.1	-22.36
Accidents	44.0	38.7	-12.05
Total, Five Causes	609.3	534.6	-12.26
Percent of all causes	73.06	70.64	—
High-Income Counties (Weighted Average)[†††]			
Diseases of the Heart	338.9	282.6	-16.61
Cerebrovascular Diseases	65.5	52.5	-19.85
Malignant Neoplasms	140.4	138.4	-1.42
Influenza and Pneumonia	24.9	18.8	-24.50
Accidents	41.0	36.3	-11.46
Total, Five Causes	610.7	528.6	-13.44
Percent of all causes	75.40	70.99	—
Low-Income Counties (Weighted Average)[†††]			
Diseases of the Heart	311.2	302.3	-2.86
Cerebrovascular Diseases	78.3	65.9	-15.84
Malignant Neoplasms	118.2	139.5	+18.02
Influenza and Pneumonia	22.5	22.3	-.89
Accidents	67.2	61.4	-8.63
Total, Five Causes	597.4	591.4	-1.00
Percent of all causes	70.79	73.07	—
Ratio: Low to High-Income Counties			
Diseases of the Heart	.918	1.070	+16.56
Cerebrovascular Diseases	1.195	1.255	+5.02
Malignant Neoplasms	.842	1.008	+19.71
Influenza and Pneumonia	.904	1.186	+31.19
Accidents	1.639	1.691	+3.17
Total, Five Causes	.978	1.119	+14.42

[†]Same as Table 1.
[††]Same as Table 1.
[†††]Same as Table 1.

[#]Deaths in 1959-61 were allocated to cause in accordance with the Seventh Revision of the International Lists of Diseases and Causes of Death, 1955 while 1969-71 deaths were allocated in accordance with the Eighth Revision. The 1969-71 rates have been adjusted for comparability, by cause of death, to the Seventh Revision.

	International List Numbers	
Causes of Death	1959-61	1969-71
Diseases of the Heart	400-402, 410-443	390-398, 402, 404, 410-429
Cerebrovascular Diseases	330-334	430-438
Malignant Neoplasms	140-205	140-209
Influenza and Pneumonia	480-493	470-474, 480-486
Accidents	E800-E962	E800-E949

Source of basic data: Same as Table 1.

TABLE 4.

Age-Adjusted Mortality Rates per 100,000 Population[*]

By State Economic Area[**]

Maryland, 1959-61 and 1969-71

State Economic Area	Median Family Income[+]	1959-61 (Weighted Average)[***]	1969-71 (Weighted Average)[***]	Percent Change
	(1)	(2)	(3)	(4)
Metropolitan Washington	11,103	700.8	641.6	−8.45
South Central Maryland	8,589	719.0	639.9	−11.00
Metropolitan Baltimore	8,364	860.6	822.1	−4.47
North Central Maryland	7,492	807.5	702.4	−13.02
Southern Maryland	7,075	853.3	823.6	−3.48
Western Maryland	6,247	839.2	759.6	−9.49
Eastern Shore	6,218	840.2	824.7	−1.84

[*]Same as Table 1.

[**]State economic areas are relatively homogeneous subdivisions of states. They consist of groups of counties which have similar economic and social characteristics. The boundaries of these areas have been drawn in such a way that each state is subdivided into relatively few parts, with each part having certain significant characteristics which distinguish it from adjoining areas.

[***]Same as Table 1.

[+]State Economic Areas are ranked in accordance with the mean of the median family incomes for 1960 and 1970.

Source of basic data: Same as Table 1.

TABLE 5.

Infant Mortality Rates[*] by County

Twelve Highest and Twelve Lowest Median Family Income Counties[**]

Maryland, 1959-61 and 1969-71.

County	1959-61	1969-71	Percent Change
	(1)	(2)	(3)
Maryland	27.0	19.0	−29.63
High-Income Counties			
Montgomery	19.6	14.5	−26.02
Prince Georges	23.8	16.8	−29.41
Howard	32.5	19.1	−41.23
Baltimore	21.9	13.6	−37.90
Anne Arundel	24.6	16.6	−32.52
Harford	22.8	16.4	−28.07
Charles	39.4	22.7	−42.39
Carroll	26.2	16.6	−36.64
Frederick	23.4	16.2	−30.77
Baltimore City	33.3	26.0	−21.92
Cecil	27.2	16.9	−37.87
Washington	25.6	19.4	−24.22
Weighted Average[***]	26.7	18.4	−31.09 [+]
Mean Average	26.7	17.9	−32.96 [+]
Standard Deviation	5.4	3.3	−
Low-Income Counties			
Wicomico	33.9	25.4	−25.07
Calvert	28.5	21.4	−24.91
Allegany	20.1	19.4	− 3.48
St. Marys	29.6	23.3	−21.28
Talbot	33.2	22.5	−32.23
Queen Annes	27.9	18.6	−33.33
Kent	39.7	20.5	−48.36
Dorchester	41.2	29.5	−28.40
Caroline	27.5	18.9	−31.27
Worcester	42.0	34.0	−19.05
Garrett	26.7	23.9	−10.49
Somerset	33.3	25.5	−23.42
Weighted Average[***]	30.2	23.3	−22.85 [+]
Mean Average	32.0	23.6	−26.25 [+]
Standard Deviation	6.3	4.4	−
Ratio: Low to High-Income Counties (Weighted Averages)	1.131	1.266	−

[*] Deaths per 1,000 live births

[**] Same as Table 1.

[***] Same as Table 1.

[+] Computed from the figures in Columns (1) and (2), rather than by averaging the percent change figures for individual counties.

Source of basic data: Same as Table 1.

TABLE 6.

Infant Mortality Rates[v] by Color
Twelve Highest and Twelve Lowest Median Family Income Counties [vv]
Maryland, 1959-61 and 1969-71.

	1959-61			1969-71		
Color	Low-Income Counties (Weighted Average) [vvv]	High-Income Counties (Weighted Average) [vvv]	Ratio: Low to High-Income Counties	Low-Income Counties (Weighted Average) [vvv]	High-Income Counties (Weighted Average) [vvv]	Ratio: Low to High-Income Counties
	(1)	(2)	(3)	(4)	(5)	(6)
White	22.5	22.4	1.004	18.1	16.2	1.117
Nonwhite	48.2	42.7	1.129	44.4	25.4	1.748

[v]Same as Table 5.

[vv]Same as Table 1.

[vvv]Same as Table 1.

Source of basic data: Same as Table 1.