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Appendix F

SOURCES AND METHODS: MORTALITY ANALYSIS

The purpose of this appendix is to discuss the sources and definitions of the variables used in the regression analysis for states of the United States. All variables except average hourly earnings of paramedical personnel and the price of cigarettes pertain to whites only.

(1) *State population distributions by age and sex*, 1960: U.S. Department of Commerce, Bureau of the Census, *1960 Census of Population*, Volume I: *Characteristics of the Population*, Summary Volume, Table 59 and State Volumes, Table 94. Hereafter cited as COP.

(2) *Expected death rate*: Let $\bar{d}_j$ be the expected death rate in the jth state, F_j be the population of that state, and F_{isj} be the number of people in an age-sex cell in that state. Also let d_{isUS} be a U.S. age-sex specific death rate. Then

$$\bar{d}_j = \sum_{i=1}^{11} \sum_{s=1}^{2} d_{isUS} F_{isj} / F_j .$$

The eleven age cells used in this computation are :<1, 1–4, 5–14, 15–24, 25–34, 35–44, 45–54, 55–64, 65–74, 75–84, and 85+.

(3) *Crude death rate*: U.S. Department of Health, Education and Welfare, Public Health Service, National Vital Statistics Division, *Vital Statistics of the United States*, Volume II: *Mortality, 1959–61*, selected tables. The crude death rate is defined as a three-year average of death rates for the years 1959, 1960, and 1961.

(4) *Median income of families and unrelated individuals*, 1959: COP, State Volumes, Table 65.

(5) *Earnings*, 1959: COP, State Volumes, Table 130. Median earnings are available separately for males and females, but data without a sex break are not available. Instead of combining the two distributions of earnings and calculating a median for the entire labor force, I weighted median earnings of males and females by the proportion of each group in the experienced civilian labor force. Sample calculations indicate that this method yields almost the same results as the first. Observe that earnings and income were not adjusted for variations in weeks worked because the number of weeks worked is practically constant across states. Observe

also that these two variables were not adjusted for net earnings lost due to work-loss because there are no data that measure this variable for states.

(6) *Education*, 1960: COP, State Volumes, Table 47. Education is defined as the median number of years of formal schooling completed by the population 25 years of age and above.

(7) *Price of paramedical personnel*, 1959: Richard D. Auster, Irving Leveson, and Deborah Sarachek, "The Production of Health, an Exploratory Study," *Journal of Human Resources*, 4, No. 4 (Fall 1969), and reprinted as Chapter 8 in Victor R. Fuchs (ed.), *Essays in the Economics of Health and Medical Care*, New York, NBER, 1972, Table G-1. This variable is defined as the ratio of actual to expected hourly earnings as shown in the 1/1,000 sample.[1] Since persons in the sample were not classified by state, Auster, Leveson, and Sarachek computed this variable for two occupations (professional nurses and all other paramedical personnel) by region (Northeast, North Central, South, and West) and by residence (inside SMSA and outside SMSA). State estimates by occupation were obtained by classifying the states according to region and then averaging the region's ratio of actual to expected earnings using as weights the proportion of paramedical employment in each occupation.

(8) *Price of cigarettes*: Tobacco Tax Council, *The Tax Burden on Tobacco: Historical Compilation* (1966), Table 13. The price used is an average for the years 1959–61. Federal and state cigarette taxes are included in this price, but municipal taxes are excluded.

[1] The expected hourly earnings of a given person is that earnings figure that would be predicted if the person had the same earnings as all U.S. nonagricultural employed individuals with the same age, sex, color, and education characteristics. For a complete description, see Victor R. Fuchs, *Differentials in Hourly Earnings by Region and City Size, 1959*, New York, NBER, Occasional Paper 101, 1967.