

lower incomes where leisure is high. This pattern seems to emerge in a test of thirty-two major cities.¹¹ The test, however, is not based on a direct measure of leisure but assumes that the higher the physician-population ratio the greater the amount of leisure available to physicians. For the cities tested, high physician incomes are correlated with low physician-population ratios (low leisure) and lower physician incomes with higher ratios (more leisure).

If, on the other hand, leisure does not increase with higher physician-population ratios, low incomes are not compensated by more leisure. This would most likely indicate a lack of concern with leisure and would make lack of mobility a significant factor in the distributive pattern. In this instance lack of mobility makes the distribution more uneven than it would have been under income maximization. If physicians tried to maximize income, there would be a redistribution from the low income (high ratio) areas in favor of the areas with higher incomes and fewer doctors.

An investigation of data on physician visits in eight major cities supports the hypothesis that lack of mobility rather than desire for more leisure is the major factor in the distribution of physicians among cities.¹²

¹¹ This test uses 1949 income data for physicians and 1950 data on physician distribution. The regression on physician income (y) of the physician-population ratio (x) can be expressed by the equation: $y = 22.106 - .556x$, where y is expressed in terms of thousands of dollars per year and x is the number of physicians per hundred thousand population. The coefficient of correlation is .808, and is significant at the .05 level. Income data are from W. Weinfeld, "Income of Physicians, 1929-1949," *Survey of Current Business*, July 1951, pp. 9-26. Physician data are from *Health Manpower Source Book*, Section 4.

¹² The test is concerned only with physician visits outside of hospitals, for a period extending from July 1957 to June 1959. If we omit Boston (which is very unusual in that its ratio of physicians not in private practice to total physicians is by far the highest of the eight cities), the relationship between per capita visits (x) and the physician-population ratio (y) may be expressed by the regression equation: $y = -4.57 + 28.83x$. The coefficient of correlation is .963. Data on visits are from U. S. Public Health Service, *Health*

Physicians in those cities having the higher physician-population ratios do not appear to have more leisure than physicians in other cities. Hence, in the case of the 32 cities considered above, it was probably not a desire for greater leisure but some obstacle to mobility that kept physicians from moving to towns where there were fewer doctors.

A careful examination of the available data leaves a clear impression that desire for leisure is not a strong motivating force in the physicians' choice of location. Their low valuation of leisure is reflected in the fact that they tend not to reduce the length of their workweek as their income increases. The percentage of doctors working 49 hours or more per week is about the same at all income levels and ranges between 70 and 85.¹³ It might be, of course, that physicians at higher income levels take longer and more frequent vacations.

When we compare physician incomes among communities of greatly differing sizes it becomes extremely difficult to deduce a rational behavior pattern. We find the lowest physician incomes in the smallest and largest size communities, those with under 2,500 and over 1,000,000 population. These are the areas where physician-population ratios tend to be the lowest and the highest respectively. We must invoke special kinds of immobility to account for the fact that physicians in very small communities tend to have less income and probably also less leisure than their colleagues elsewhere. Perhaps those in the profession who are least qualified tend to locate there. The high concentration of physicians in very large cities, despite lower incomes, may be partly explainable by cultural and professional

Statistics, Series C, No. 6, p. 25. The high apparent correlation may be partly spurious in view of the presence of the population factor in the denominators of both the dependent and the independent variables. However, the statistical issue raised by this kind of ratio correlation remains unsettled at present. See J. R. Meyer and E. Kuh, "Correlation and Regression Estimates when the Data are Ratios," *Econometrica*, October 1955, pp. 400-416.

¹³ *Health Manpower Source Book*, Section 5, pp. 79-81.