

Migration in the United States

An Analysis of Residence Histories

The high urban-rural ratio of lung cancer risk has led investigators to consider the role of differential rates of cigarette smoking and to speculate upon the role of air pollution in causing cancer. The indecisive nature of earlier, small-scale studies prompted the Biometry Branch, National Cancer Institute, Public Health Service, to undertake a large-scale inquiry into smoking and residence histories for samples of lung cancer deaths. To obtain information on the corresponding population at risk, arrangements were made with the Bureau of the Census to add a set of questions on residence and smoking history to the Current Population Survey for May 1958. The residence history supplement provided information not readily available from other sources on many aspects of migration patterns in the United States. The sample provided representative national estimates of duration of residence, number and distance of moves, life-cycle timing of moves, and sequences of moves, cross-classified by the standard set of social and economic characteristics. These properties make the histories a potential reference source for demographers engaged in the study of migration and for administrators concerned with community planning or the direction of health and social welfare programs, in addition to their use as baseline control data for planning epidemiologic studies. Separate papers have reported on the use of these data in epidemiologic study of cancer of the lung, colon, and rectum. The basic demographic data obtained from the residence history survey is systematically presented in this report.

The residence history schedule was not designed to obtain information on all addresses at which a person ever lived, but on "the places where you have lived 1 year or longer during your lifetime." A place consists of an incorporated city or the aggregate rural part of a coun-

ty. In this report, places are characterized by their size and urbanization as specified in the 1950 census. Working backward from current place, up to three preceding places and the duration of residence at each were enumerated, together with birthplace and age at departure. Only 8.5 percent of the total population age 18 and over surveyed in 1958 reported six or more places of residence, and hence had their histories incompletely recorded.

Public Health Monograph No. 77

Migration in the United States. An Analysis of Residence Histories. By Karl E. Taeuber, Leonard Chiazze, Jr., and William Haenszel. Public Health Monograph No. 77 (PHS Publication No. 1575), 151 pages. U.S. Government Printing Office, Washington, D.C., 1968, price \$1.50.

The accompanying article summarizes the contents of Public Health Monograph No. 77. Dr. Taeuber is professor, department of sociology, University of Wisconsin. Dr. Chiazze is assistant professor, department of community medicine and international health, Georgetown University School of Medicine. Work on this study was initiated while both were staff members of the Biometry Branch, National Cancer Institute, Public Health Service. Mr. Haenszel is chief of the Biometry Branch.

Readers wishing to read the data in full may purchase copies from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Official agencies and others directly concerned may obtain single copies from the Public Inquiries Branch, Office of Information and Publications, Public Health Service, Washington, D.C. 20201. Copies also will be found in the libraries of professional schools and major universities and in selected libraries.

In epidemiologic studies of chronic diseases with long latent periods or in sociological studies of urban and rural populations, classification by current residence carries with it the implicit assumption that residents have experienced long exposure to general environmental or social conditions characteristic of places of varying size and density. A tabulation by duration of residence in current place is helpful in ascertaining the extent to which a classification of persons by current residence adequately portrays their past residential experience. Two-thirds of the adult population have lived in current place for 10 years or more, but one-third for less than 10 years (5 percent for less than 1 year). Short durations are most prevalent among the young adult population. With increasing age, residential stability increases. At ages 25-34, 47 percent report durations of 10 years or more; at ages 75 and over the figure is 82 percent.

Migration data for the United States may be interpreted as documenting high rates of mobility or as demonstrating the prevalence of residential stability. Mobility is emphasized by considering all changes of residence and overlooking the concentration of migration at particular ages in the life cycle. Stability is emphasized by restricting attention to changes of community, ignoring local moves from one house or apartment to another, recognizing that a few persons who move frequently account for a large proportion of all moves, and calling attention to the long period of residential stability typical for many persons during childhood and again during middle and old age.

A study concerned with contrasts between groups with different lengths of stay at current residence would involve indirect selection on other attributes. Normally this is not likely to be a major source of bias, since the items most correlated with duration—age, sex, color, size of place of current residence, and region—are usually controlled in an analysis. If nativity and a crude occupational classification are also taken into account, none of the variations noted between groups varying in duration of residence is likely to introduce a serious source of error into a set of comparisons.

Residential stability may be defined in areal units other than places and in shorter or longer time periods. The relations observed for stabil-

ity in "place" tend to recur for stability defined with respect to other communities—counties or metropolitan areas—although the specific magnitudes of the measures vary with the areal unit and the length of time. Translation of the results for place into measures of stability in larger and less homogeneous areas such as States and regions is less satisfactory. The schedules were insufficiently detailed to allow any assessment of residential stability in small areas such as census tracts or neighborhoods.

The number of places of residence listed in the histories increases from a median of 1.8 at ages 18-24 to 2.2 at ages 25-34 and 2.6 at ages 65 and over. A variety of evidence from the residence histories suggests that this cross-sectional pattern may be used to approximate the experience of a specific cohort as it passes through the life cycle. Apparently, of those who will become frequent migrants (six or more residences), most have made two or more moves by ages 18-24. Persons who make few moves before age 35 are infrequent migrants at later ages.

Distance of moves is assessed indirectly by comparison of the political jurisdictions of place of origin and place of destination: same county, same State, same census division, different division. Of all the moves recorded in the survey, 15 percent were same county; 38 percent, same State; 14 percent, same division; and 33 percent, different division. The low frequency of same-county moves is an artifact of the definition of place. Long-distance moves are not uncommon, and aside from local moves it appears that migration does not fall off sharply with increasing distance. If it is assumed that the mobility of successively older cohorts largely represents the experience of young adults during successively earlier intervals of time, the data suggest there has been little change for many decades in the prevailing distribution of moves among distance types. This corroborates census data from 1850-1950 on stability in the percentage (22 to 26) of the native-white population enumerated in a State other than the one in which they were born.

Younger nonwhite persons have a much greater relative frequency of long-distance moves than do older nonwhite persons. During the rapid urbanization of the Negro population since the onset of World War II, many young

Negroes left the South for cities in the North and West. In broad, historical perspective, this inter-region migration of nonwhite persons represents more a convergence with white mobility patterns than a development of radically distinctive patterns.

A frequent mover does not necessarily obtain a great variety of residential experience, for his successive places of residence may resemble one another. Size of place is treated throughout this monograph as a basic descriptive variable and was used to extract from the residence histories two measures of variety of residential experience. One is the number of population-size residences, based on a classification of places into six size-classes. Second is the number of exposure residences, based on a count of only those population-size residences in which the respondent had accumulated at least 10 years of residence.

Judging by numbers of exposure residences, most adults obtain only a limited variety of residential experience. At ages 18–24, 89 percent have a single exposure residence. With increasing age, the percentages with no exposure residence or one exposure residence decline and the percentage for each other category increases, but even at ages 65 and over one is the modal category and 84 percent have only one or two exposure residences.

Most persons with two residences in their history have two population-size residences but only one exposure residence. Accumulation of more than two residences is accompanied by much slower accumulation of population-size residences and by very little accumulation of exposure residences. Evidently the restrictive aspect of the exposure residence definition is the time requirement rather than simply the grouping of residences into size categories.

With increasing age there is an increase in the number of residences and population-size residences underlying each number of exposure residences. Most of this change apparently occurs between age 18 and age 34. At older ages the principal process appears to be a very slow drift of persons into the three- and four-exposure residence categories.

For most persons, stays at birthplace and at current place account for all or nearly all of their residence histories. Among those whose

birthplace and current place differ in size, the percentage with only one exposure residence tends to be greater the larger the size of birthplace. Only for the farm-born currently living off-farm is the figure below 50 percent.

A series of tabulations relating duration at birthplace, duration at current place, and current age was designed to assess the degree to which migration is concentrated within a narrow age span in early adult life. The tabulations showed that many persons move at least once in childhood or in the later adult years. Despite the high peak in migration rates at the young adult ages, relatively few persons, among those who move at all, move only during that stage of the life cycle.

During the period covered by the residence histories, two principal changes have occurred in the distribution of population by size of place. Foremost has been the movement of population from rural to urban and from nonmetropolitan to metropolitan places. There has also been substantial change in population distribution within metropolitan areas. Suburban communities have gained population much more rapidly than central cities. Several tabulations were designed to document aspects of the migration sequences underlying these population redistributions.

The data demonstrate in a variety of ways the prevalence of migration sequences up the size hierarchy and from large cities to suburbs. Strong empirical support is provided for the basic insight set forth by Ravenstein in his 1885 article on "The Laws of Migration," that complex migration flows underlie net shifts in population distribution. In particular, stage migration and countercurrents are both evident in the residence histories. The stage migration process is one in which the aggregate shift from farms to large cities or suburbs is accomplished not by direct moves but by a series of less drastic moves—from farm to village, from village to town, from town to city, from city to suburb. Many persons participate in these successive displacements, but the typical person manages only one or two stages in his lifetime.

Countercurrents may be observed to each major migration current. Thus there has always been some movement from suburbs to large cities, or from cities to farms. Urban renewal

may provide a stimulus to the former, and depression may have spurred the latter type of movement, but the basic causes must be sought among those general ones that account for the entire process of residential circulation.

A particularly interesting type of counter-current is generated by persons whose residence histories double back. Not all types of circular migration were coded, but a tabulation was made of those histories showing a return to birthplace. Of the adult native population who have moved at least twice, 16 percent have a return to birthplace. Not all migration histories represent a continuous diffusion of the population from place of birth.

More than one-fourth of the adult native population have always lived in the place where they were born. Many others lived for a longer period in their birthplace than in any subsequent place. Hence many investigations might profitably use birthplace as a basic axis of classification, instead of or in addition to cur-

rent place. In fact, many residence histories include only one or two residences and in these instances joint classification by birthplace and current residence completely describes the history. For many others, these two places suffice to describe the principal residential experience as measured, say, by exposure residences. When it is not feasible for an investigator to gather and analyze complete residence histories, a joint classification by birthplace and current residence may be an economical and informative alternative.

The residence history and smoking habits survey produced a unique body of national migration data. The tabulations reported in this monograph represent only a limited exploitation of the many analytic possibilities. Presentation of these results in this format is intended to encourage others to work with residence histories and to stimulate the development of additional techniques and data for the direct analysis of migration.

Thermography in Treating Arthritis

Photographs and temperature maps of infrared rays from arthritic joints may help physicians plot more effective treatment for victims of rheumatoid arthritis.

At the Temple University School of Medicine in Philadelphia a heat-detecting instrument, the thermograph, is undergoing extensive evaluation as it measures and records the body-surface temperatures of a group of patients afflicted with rheumatoid arthritis. The research project is supported by the Health Services and Mental Health Administration, Public Health Service.

Administration medical authorities believe that if thermography is found to compare favorably with current evaluation techniques it will benefit physicians and reduce crippling in two essential ways. Thermographs will allow physician-investigators to evaluate new and current treatments by plotting the subsequent progression or regression of the disease, and it will provide a means of detecting rheumatoid arthritis at its earliest possible stages when crippling is most preventable.

Thermography detects infrared radiation emitted by the body, converts it to light energy, and uses it to expose photographic film. Thermograms, or temperature maps, may then be drawn for medical analysis.