more valid uses of the method because the large number of established relationships, validity cross-checks and "marker variables" [16] eliminates much of the criticism centered on the subjectivity of the rotational process utilized in arriving at a simple, sufficient, and logically tenable factor structure. Since a number of research projects using factor analysis, and in many cases comparable data, have now been completed, a study comparing all the results should enable us to name with greater certitude the basic and essential elements in terms of which variations in the vast complexity of community systems can be explained.

[16] It is *known,* for example, that density, certain occupational types, size, and business and industry are found only in association with urban characteristics. If in the rotational process these would become associated with known rural characteristics, it would be a sign that the rotation which produced this result had not met the criterion of meaningfulness, one of the rotational criteria.

SOCIAL MOBILITY IN DEMOGRAPHIC PERSPECTIVE *

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A realistic conception of the field of demography, based upon the activities of practicing demographers, includes the study of various kinds of "social mobility," generically defined as change in status. A taxonomy of statuses can be constructed, and various types of mobility can be identified. The traditional interest of sociologists in social mobility is primarily (but not exclusively) focussed on one type of change, change in "reversible-achieved" statuses, and stands in need of some redirection. Some demographic contributions to the study of mobility are reviewed here, and attention is called to some relevant work by non-demographers. Finally, social mobility is discussed in an ecological context, in an effort to provide a framework for the analysis of variations in national rates of social mobility.

THE SCOPE OF DEMOGRAPHY

ALTHOUGH its place in demographic analysis is not fully appreciated, the topic of social mobility can be easily shown to lie within the province of demography when the field is realistically defined. All that is required is an awareness of the demographer's interest in population composition. The concept of "population composition" refers to any view of an aggregate that recognizes differences within it. In theory, the criteria and cutting points employed and the categories utilized could cover an unlimited range of quantitative and qualitative characteristics amenable to being distinguished and counted; the fact that they do not do so is a matter of convention.[1]

Failure to recognize the place of social mobility in the field is not surprising, for demography has presented definitional difficulties since the term was coined in 1855.[2] In fact, it appears that there was no clear-cut conception of demography as a discipline with distinguishable boundaries until the present century. One widely quoted definition was set out by Wolfe in 1931, wherein demography was described as, "The numerical analysis of the state and movement of human population inclusive of census enumeration and registration of vital processes." [3] This definition has the virtue of specifying the basic sources of demographic data, but its broad reference to the "state and movement" of population is unnecessar-

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[1] See Joseph J. Spengler and Otis Dudley Duncan, editors, *Demographic Analysis,* Glencoe: Free Press, 1956, p. 439; George Lundberg, *Foundations of Sociology,* New York: Macmillan, 1939, pp. 459–460; and Kingsley Davis, *Human Society,* New York: Macmillan, 1949, p. 552.

[2] Achille Guillard, *Élements de statistique humaine; ou démographie comparée,* Paris: Gullaumin et cie., 1855.

[3] A. B. Wolfe, "Demography," *Encyclopaedia of the Social Sciences,* New York: Macmillan & Co., 1931, 5, pp. 85–86.

ily ambiguous. As we shall see, only certain aspects of the "state" of a population come under demographic purview, while the "movements" to which demographers attend —social as well as physical—are quite readily specified.

Sources of data. The "state" of a population is ordinarily ascertained by means of a *census*—an enumeration, whether complete or partial (via sampling), of the number and characteristics of a given population at a given point in time. The cross-sectional element in this definition is critical; a census offers a snapshot, or an essentially static portrait of a population. However, only three facets are of demographic interest: (1) size, (2) spatial distribution, and (3) composition. This last aspect—the "make-up" of a population—represents the subdivision of a population into significant biological, social or economic categories.

In sharp contrast with the census stands the *registration* system, designed to record and compile the incidence of certain events at or near the time of their occurrence. Note that "events" and not persons are the units employed; more important, recording occurs more or less continuously, rather than at arbitrary points in time, so that the census "snapshot" may be augumented by a "moving picture" of closely spaced observations. Now "registration," as a system of data collection, is not to be confused with "vital statistics," which typically include only births, adoptions, marriages, separations, annulments, divorces, and deaths.[4] Other events that are amenable to registration are migration and various types of mobility. Movements between modern nation-states, or "international migrations," are commonly registered. In contrast, "internal migration," or change of residence within a country, is less frequently a subject of registration. Registration is also logically applicable to other types of mobility, in the sense of movements in the social system, or status changes. For example, occupational changes may be recorded in a registration system; they are analogous to changes in marital status, and may be registered just like marriages and divorces, albeit at great expense.[5]

In any event, the two major sources of demographic data—census and registration systems—must be seen as complementary devices, and they are particularly informative when their products are combined. The mutual relevance of the two types of demographic data is readily appreciated as soon as it is recognized that the "movements" of population that are of interest to demographers include all those events that bring about alterations in a population's size, distribution, or composition.[6]

The demographic equation. The demographer is obviously interested in such phenomena as fertility and mortality, the "vital processes" by means of which the size of the world's population is determined. Here is also the basis of the demographer's concern with migration, or physical movement through space. Even in the absence of significant variations in fertility and mortality, substantial changes in distribution, and in the size of local populations, can be readily effected by migratory movements.

Recognition of the fundamental role of the vital processes (fertility and mortality) in producing changes in population size has given rise to definitions of the field phrased solely in terms of vital statistics.[7] This emphasis has survived in more recent definitions, although migration is typically added.

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[4] Although sometimes discussed as the means of entering or leaving a particular population, closer examination reveals that vital statistics refer to ways of entering or leaving a given family. This fact is undoubtedly related to the legal basis of these data collection systems.

[5] A census may provide surrogate data on mobility. See Donald J. Bogue, "The Quantitative Study of Social Dynamics and Social Change," *American Journal of Sociology,* 57 (May, 1952), pp. 565–568; Bogue describes "mobility statistics" as census data referring to a "change in some status during an arbitrarily selected interval of time," and "tenure statistics," wherein "each person is asked when he entered his present status."

[6] For more detailed accounts, see George W. Barclay, *Techniques of Population Analysis,* New York: John Wiley and Sons, 1958; Mortimer Spiegelman, *Introduction to Demography,* Chicago: The Society of Actuaries, 1955; Peter R. Cox, *Demography,* Cambridge: At the University Press, 1950; Hugh H. Wolfenden, *Population Statistics and Their Compilation,* Chicago: University of Chicago Press, 1954, rev. ed.

[7] See, for example, George Chandler Whipple, *Vital Statistics,* New York: John Wiley and Sons, 1919, p. 1.

As an example, consider Davis's delineation of the province of demography:

> "The primary tasks of demography are (1) to ascertain the number of people in a given area, (2) to determine what change—what growth or decline—this number represents; (3) to explain the change, and (4) to estimate on this basis the future trend. In explaining a change in numbers the populationist begins with three variables: births, deaths, and migration. He subtracts the deaths from the births to get 'natural increase' and he subtracts the emigrants from the immigrants to get 'net migration' . . . It is clear that any factor influencing the number of people must operate through one or more of the variables mentioned. *In no other way can a population be changed.* For this reason we may call the four variables [fertility, mortality, immigration, and emigration] 'the primary demographic processes.' They represent the core of population analysis." [8]

More recently, Davis has identified these four variables as "the strictly demographic realm [containing] the first-order variables—those through which, and only through which, any other factor can influence population change." [9] While it is an adequate representation of demographic interest in population size and distribution, we shall see that this view contains a serious deficiency as a characterization of demography as it has actually developed in the course of the past century. What it fails to include is an explicit recognition of the demographer's interest in population *composition,* and his complementary concern with *social mobility.*

Compositional change occurs in the absence of vital events, and in the absence of any migratory movement whatsoever. Consider a population composed of persons in various marital statuses. The marital composition of the population in any short time interval can obviously be altered without any births, deaths, or migrations if a substantial number of persons marry or secure a divorce, i.e., change their marital status. Although not ordinarily so labelled, these movements are forms of "social mobility" in the generic sense that we want to develop here.

Another, more complicated example will serve to show that many compositional changes are the effects of variations in fertility, mortality, migration, *and* social mobility operating in combination. Consider the problem of the changing "social class" composition of a purely hypothetical nation. In this imaginary country, *fertility* is inversely related to social class—i.e., the higher classes exhibit significantly lower fertility. Similarly, *mortality* and social class are negtively associated, so that substantially higher death rates occur in the lowest strata. Let us suppose, however, that the net effect of these tendencies favors the lower classes, whose fertility rates are high enough to compensate for their higher mortality rates, so that their rates of natural increase consistently remain above replacement requirements. Let us further assume that the higher strata are reproducing themselves at levels so low that even their low mortality rates cannot prevent net deficits from being sustained year after year. With respect to *migration* into and out of this hypothetical country, moreover, let us imagine that immigrants typically arrive with occupational skills that fit them for unskilled and menial labor; immigrants thus tend to enter the national class structure at the bottom. At the same time, emigration from the country —much smaller in volume—is not occupationally selective, so that neither upper nor lower strata lose disproportionate numbers from their ranks.

Now the combined effect of all these class-contingent demographic processes, operating over a period of time, would yield a class structure exhibiting a progressively greater bulge at the bottom, accompanied by a radical shrinkage at the top. The lower strata, constantly replenished by the numbers represented by the "gap" between the vital rates, and further swollen by net immigration, would expand rapidly. At the same time, the upper strata would be suffering the numerical decimation of an unfavorable balance between the vital rates, and—unable to depend upon immigration to compensate for the "natural" deficits—would exhibit absolute losses.

Up to this point we have considered only certain simple relations between social class, vital rates, and migration. What of the im-

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[8] *Op. cit.*, pp. 551–552; italics added.

[9] Kingsley Davis, "The Demographic Consequences of Changes in Productive Technology: An Essay on the Problem of Measurement," in *Social, Economic and Technological Change,* Paris: UNESCO, 1958, p. 197.

plications of this situation for class composition and social mobility? Let us suppose that a series of censuses over the period of observation disclosed no noticeable change in class composition, as indexed by the proportions in various occupations. Despite the implications of immobility or class equilibrium suggested by these data, we would actually have to infer considerable net upward *social mobility*. In other words, substantial numbers of persons would have to experience occupational changes — either intergenerationally or in individual career terms—from lower to higher positions, in order to preserve the same over-all class composition. This is because the remaining demographic variables are behaving in such fashion as to yield surpluses at the bottom and deficits at the top. If the successive censuses revealed changes in class composition representing an occupational "up-grading" of the entire population, by means of expansions at the top and contractions at the base, then even more net upward mobility would have to be inferred. Note that we specify "net" upward mobility, in recognition of the fact that changes may occur in either direction as far as individuals are concerned.

We may summarize the foregoing argument in more abstract terms. If one is exclusively interested in changes in population size and/or distribution in a given time interval, then the four "first-order variables" specified by Davis are sufficient for demographic analysis. As he has pointed out,

> "If 'r' is the rate of growth, then the following equation holds:
> $r=(b-d)+(i-e)$
> where 'b' is the birth rate, 'd' the death rate, 'i' the immigration rate, and 'e' the emigration rate for a given period. If the population in question is that of the whole world, migration drops out of the picture, leaving only natural increase." [10]

By strictly analogous reasoning, changes in population distribution can be disaggregated or separated into their demographic components, and appropriate weights can be assigned to the responsible processes according to their actual contributions.

If one is concerned with changes in composition, however, the "demographic equation" must be modified accordingly, in order to take account of the possible role of social mobility. Thus for the changes in the size of a particular occupational stratum or marital status category, the proper expression would read:

$$(B-D)+(I-E)+(X-Y)$$

where "B," "D," "I," and "E" refer to the *absolute* numbers of births, deaths, immigrants and emigrants respectively, and where "X" signifies movement into, and "Y" denotes movement out of, the stratum or category.

Thus social mobility is a subject of vital interest to demographers. The concern may be direct and for its own sake, as in the analysis of accessions to and departures from the labor force. More frequently, certain kinds of mobility are of interest for the bearing they may have upon vital rates, as exemplified by the concern shown by students of fertility over the marriage rate, which reflects the relative frequency of one kind of change in status. Demographers frequently analyze changes in composition into their "components," as portrayed in the expression given immediately above. Whatever the motivation behind the work, however, and whatever the practical or theoretical ends that are served, the study of various kinds of social mobility is an important part of the demographer's stock in trade.

Defining the field. The most serviceable definition of demography—one that is neither unmanageably broad nor unduly restrictive, and one that gives due attention to the actual activities of professional demographers—has recently appeared in a formulation by Hauser and Duncan:

> "Demography is the study of the size, territorial distribution, and composition of population, changes therein, and the components of such changes, which may be identified as natality, mortality, territorial movement (migration), and social mobility (change of status)." [11]

These writers distinguish rather sharply between "demography" and what they choose to call "population studies," reserving the former term for the more technical and de-

[10] *Ibid.*, p. 197.

[11] Philip M. Hauser and Otis Dudley Duncan, "Overview and Conclusions," in Hauser and Duncan, editors, *The Study of Population,* Chicago: University of Chicago Press, 1959, p. 2.

scriptive aspects of demographic inquiry. Under the rubric of "population studies" they refer to any analysis, undertaken from any of a wide variety of disciplinary viewpoints, that focusses upon demographic phenomena as either independent or dependent variables. This distinction gives formal recognition to the many points of contact between demography and a host of scientific specialties, both biological and social, and these links deserve a few brief remarks.

It should be obvious that demography is not the exclusive property of any one discipline. Demographic study is informed by any body of theory or research that bears upon the questions of human birth, death, and movement, whether through social or physical space. Many subfields of biology thus qualify as conducting "population studies," although there is some disposition among social scientists to pre-empt the field, as when Davis asserts that "whenever the demographer pushes his inquiry to the point of asking why the demographic processes behave as they do, he enters the social field." [12] Moreover, it is futile to try to link demography to any one of the special social sciences. The fact that most demographers in the United States are trained as sociologists is as fortuitous as that most representatives of the profession in Europe are trained as economists, actuaries, public health statisticians, or anthropologists.[13] Nevertheless, we will attempt to show that demography has immediate relevance for sociology, in that (1) a *compositional* view of population inevitably provides a proximate description of *social structure,* and (2) a demographic treatment of *changes in status* yields invaluable data on *social mobility*. Nothing that is said here should suggest that similar arguments could not be made for the special relevance of demography for (say) economics or geography.[14] The author writes as a sociologist, and as one especially concerned with macroscopic aspects of social structure and social mobility as major foci of that discipline. In general, he subscribes to the view that

> "Demography may be considered as a service discipline to the other branches of social science. Its data and findings are basic to every other social science because of their immediate descriptive value and, what is even more important, because of their use in suggesting problems for research in other disciplines." [15]

These preliminary remarks should serve to establish the relevance of social mobility for demography. Our next task is to focus more closely upon mobility, to distinguish subtypes of mobility, and to specify the manner in which they are treated demographically.

TYPES OF MOBILITY AND THEIR MEASUREMENT

Up to this point, we have been content to speak of mobility as change in status. Satisfactory as this may be for preliminary purposes, closer analysis must begin by classifying statuses, and then proceed to subdivide them according to the manner in which they may be altered. As it happens, our initial distinction derives, not from demography, but from the literature of anthropology and sociology. It is the widely recognized distinction between *"ascribed"* and *"achieved"* statuses usually credited to Linton.[16]

Ascribed statuses. Commonly cited examples of universally "ascribed" statuses are age, sex, and certain kinship statuses; these share a non-volitional quality, in that no amount of effort on the part of the individual can alter them. An equally apt example is one's place of birth; although one may lie about it, one's birthplace cannot be changed. By contrast, "achieved" statuses are more clearly subject to change, and as the term itself suggests, effort and volition frequently have a role. In addition, one's educational or marital status, his occupation, and his place of residence are not immutably fixed. Even

[12] Davis, *Human Society, op. cit.,* p. 552.

[13] David V. Glass, editor, *The University Teaching of Social Sciences: Demography,* Paris: UNESCO, 1957.

[14] See Glenn T. Trewartha, "A Case for Population Geography," *Annals of the Association of American Geographers,* 43 (June, 1953), pp. 71–97, and the essays concerned with the various disciplines in Hauser and Duncan, *op. cit.,* Part IV.

[15] Amos H. Hawley, *Human Ecology: A Theory of Community Structure,* New York: Ronald Press, 1950, p. 70. See also, Philip M. Hauser, "Demography in Relation to Sociology," *American Journal of Sociology,* 65 (September, 1959), pp. 169–173.

[16] Ralph Linton, *The Study of Man,* New York: Appleton-Century-Crofts, Inc., 1936, p. 115.

if they cannot be changed at will (since the norms of many societies treat them in ways as fully deterministic as those governing age and sex) they have the common quality of *potential* for change. The basis of the distinction, however, does not turn upon the presence or absence of a capacity for change *per se;* we shall see that at least one ascribed status changes automatically, and that the forms of change taken by various achieved statuses do not reduce to a single type. Nor does the distinction rest, at bottom, upon the capacity for volition to be exercised. As it turns out, this dimension of status—ascription versus achievement — hinges upon whether or not the status can be determined at birth.[17]

As concrete examples, let us consider the universally "ascribed" statuses first. These include age, sex, place of birth, and kinship within the family of orientation.[18] Among these, age stands out distinctly as a changeable status; while all of the others are immutable, one's age is constantly changing from the instant of birth, for aging is a biological fact to be reckoned with continuously. Equally vital for our purposes is the fact that this change has the quality of irreversibility. Trivial as it may seem at first blush, the fact that one's age changes in only one direction turns out to be of critical significance, conceptually and in terms of measurement.[19]

Achieved statuses. Upon superficial examination, it may seem that "achieved" statuses are simply those that are changeable, since it is difficult to conceive of any that are absolutely resistant to change.[20] Why then utilize the ascribed-achieved dichotomy at all? We shall deal with this issue below; it is more profitable, for the moment, to consider some concrete instances of changeable statuses that fall under the "achieved" rubric. Among the important achieved statuses that are commonly recognized are the following: education, occupation, income, religion, marital status, and kinship in the family of procreation. Each of these could serve as the subject for detailed discussion, but two or three of them merit special attention.

First of all, when educational status is defined in terms of school years completed (as in our census system), it has a more or less unique quality. One may add to, but never subtract from, the number of years of attendance.[21] Another interesting case illustrates the importance of the definitions of the categories employed. If one is concerned with marital status, one is likely to work with a set of categories similar to those used in the United States census, viz., single, married, separated, divorced, and widowed. If so, some of the statuses are clearly reversible, in the sense that a person can be divorced or widowed and he may subsequently remarry, at which time he reassumes a status previously held. For some purposes, however, demographers find it profitable to work

[17] The fact that they can be ascertained at birth may tempt one to call them "biological" characteristics, but the inclusion of kinship and birthplace as important subtypes stretches the meaning of the term to a point of diminishing utility. Moreover, age and sex are socially defined statuses in every society.

[18] This type of family refers to the kin group into which one is born; it is to be contrasted with the "family of procreation," created when one marries. Adoption into another family of orientation is possible, of course, and it has actually served as an avenue of social mobility in some societies; the existence of the practice makes for a certain degree of ambiguity in classification.

[19] Viewed more broadly, "age" can be conceived in a manner that makes it reversible: one begins life in a state of dependence, moves to a stage of relative independence, and then ages into dependency with respect to a wide range of social responsibilities. The status of "citizen" is also an interesting one, typologically speaking. Determined at birth, at least in the United States, it can be legally lost and regained, as by inmates of certain custodial institutions; in this sense it is changeable and reversible, albeit technically ascribed. The status is also open to achievement, by naturalization. We are ignoring here those cases of changes in sex that occur from time to time. For a distinction between "population structure" (referring to "unalterable characteristics") and "population composition" (referring to "changeable features") see John V. Grauman, "Population Estimates and Projections," in Hauser and Duncan, *op. cit.*, pp. 565–569.

[20] Perhaps "veteran" is one such status; it is clearly not reversible. This example, by the way, should be enlightening to those who persist in attaching particular significance to the exercise of will in "achieved" statuses, for volition may or may not operate.

[21] If educational status is defined in terms of simple literacy, the possibility of forgetting acquired skills of reading and writing would make this a potentially "reversible" attribute.

with only a crude dichotomy: "never-married" (single) and "ever-married" (including the currently married, separated, divorced, and widowed). In this case, the only possible status change is irreversible.

The other achieved statuses are chiefly marked by the fact of reversibility. Adherents of a particular religion may enter and leave, they may join another church or sect, rejoin their original faith, or forswear allegiance to any religious group. Similarly, an individual may move through a whole series of occupations, from time to time reassuming a position that had been previously abandoned. Finally, one can alter his place of residence, with the obvious option of returning to a place previously occupied. Although we prefer to discuss changes in place of residence as "migration," it is important to recognize the fundamental parallel between such changes and those that may ensue between other statuses; they are cognate processes, and offer a number of interesting problems when they are jointly considered.[22]

Status changes. It remains only to identify the traditional interest of sociologists in "social mobility" in these terms. This task will be facilitated, however, if we summarize the foregoing discussion in graphic form. Figure 1 encompasses all of the concrete cases discussed above; note that the "unchangeable-reversible" cells are empty by definition, since reversal is a form of change. It is undoubtedly the irreversible and unchangeable quality of most ascribed statuses, together with the changeable and reversible character of most achieved statuses, that have tempted most writers to emphasize the matter of volition. Our analysis, however, has demonstrated that this is not the crucial basis of distinction; rather, it is the extent to which a status is amenable to assignment at birth.

	Type of status change			
	CHANGEABLE		UNCHANGEABLE	
Type of status	REVERSIBLE	IRREVERSIBLE	REVERSIBLE	IRREVERSIBLE
ASCRIBED	"Citizen"	Age		Sex Place of birth Kinship in family of orientation "Race"
ACHIEVED	Occupation Income Religion Marital status Place of residence Kinship in family of procreation	Education		"Veteran"

FIGURE 1. TYPES OF STATUS CHANGE, WITH EXAMPLES

Sociological interest in statuses has taken a number of directions. Perhaps the most popular approach starts from the image of the individual as simultaneously occupying a number of statuses, each of which constitutes a membership in some group or social category. This line of thought leads naturally to a statistical consideration of the co-occupancy of statuses, as in the work of Lenski, Gibbs and Martin,[23] or (more frequently) into a non-statistical analysis of the compatibility of statuses. Concern with

[22] One example will serve. Residence rules (e.g., matrilocal, patrilocal, neolocal) require migration of one or both spouses at the time of change in marital status.

[23] Gerhard Lenski, "Status Crystallization: A Non-Vertical Dimension of Social Status," *American Sociological Review,* 19 (August, 1954), pp. 405–413; Jack P. Gibbs and Walter T. Martin, "A Theory of Status Integration and Its Relationship to Suicide," *American Sociological Review,* 23 (April, 1958), pp. 140–147.

"role conflicts" and "marginality" are typical problems here. Both of these approaches may derive from a simple cross-sectional consideration of statuses held at a given point in time. But still another direction of sociological effort begins with the observation that individuals pass through a series of statuses in sequence during the course of a lifetime. Thus some writers are concerned with modal sequences and with the appropriateness of one status for its probable *sequelae* (e.g., youth for adulthood).[24] Allied concepts that have grown out of this area of discussion include "anticipatory socialization" and "resocialization," and the general interest is longitudinal or developmental, with the individual career at issue.

All of these theoretical and empirical efforts bear the common stamp of an individualistic emphasis, although degrees of status crystallization or integration can be properly regarded as variable properties of populations in certain applications. Quite different facets of the problem come into view, however, if we assume another posture and consider statuses from the standpoint of social structure in the large. As Gutman has observed, "Many population characteristics about which information is collected in census tabulations are relevant also to the analysis of social structure." [25] Social structure, in other words, is amenable to study in terms of population composition. The United Nations has recommended the following items for inclusion in all censuses: sex, age, marital status, place of birth, citizenship, mother tongue, educational characteristics, fertility data, economic characteristics, household data (including the relationship of the individual to the head of the household), and urban and rural place of residence.[26] Such data would comprise a rich mine, indeed, for the student of comparative social structure, for they include all of the specific statuses discussed above, and census cross-tabulations permit an elaborate description of a society's gross morphology. Unfortunately, very few countries compile and publish data on all of these subjects, and the amount of cross-tabular detail is even more limited. Truly comparative structural analysis of more than a small and biased sample of countries will have to await the implementation of these recommendations by nations and territories outside the Western sphere. This fact notwithstanding, it is important to take note of the potential for structural analysis that resides in a compositional view of population.

Sociological views. Our final task in this section is to locate the traditional interest of sociologists in "social mobility" within the framework that we have developed here. Sociological effort has been focussed almost exclusively upon the cluster of statuses in the lower left-hand corner of Figure 1, or more explicitly, on the "reversible achieved" statuses. Not all of these, however, have been the subject of scrutiny in terms of mobility. Studies of changes in marital status are ordinarily taken up in the context of family studies. Changes in place of residence and religion have been somewhat slighted in the mobility literature in favor of emphasis upon occupation, income and education, and "social mobility," in the sociological lexicon, has primary reference to changes in these statuses.[27]

Now these three statuses—education, occupation, and income—have seemingly come into analytical prominence because of two facts: (1) social mobility, as a subject of sociological inquiry, has been absorbed into a more general content area, i.e., "stratification;" (2) much of the theoretical and em-

[24] See, for example, Talcott Parsons, "Age and Sex in the Social Structure of the United States," *American Sociological Review,* 7 (October, 1942), pp. 604–616.

[25] Robert Gutman, "In Defense of Population Theory," *American Sociological Review,* 25 (June, 1960), p. 328.

[26] United Nations, *Population Census Methods,* New York: United Nations, 1949.

[27] The related topics of "race" and ethnic membership constitute difficult problems of conceptualization and measurement, and they have been practically ignored in this presentation. At first glance, they are obviously ascribed, unchangeable, and irreversible. Such a classification, however, reckons without such phenomena as "race passing" and "assimilation," and evades a whole series of problems arising out of "race mixtures"—problems which render the subject somewhat resistant to systematic treatment. Moreover, an entire racial group may experience upward or downward mobility. The space required to deal with these complex issues can be better devoted to other matters.

pirical literature in this latter area treats statuses unidimensionally. It ranks them along a single scale, e.g., in accordance with the differential evaluation accorded various statuses. These three statuses have the common feature of being more or less readily ranked; for contrast, one need only think of marital statuses, the "ranking" of which is difficult. Of all the achieved statuses listed in Figure 1, only educational, income, or occupational movements can be meaningfully labelled as "upward" or "downward." Indeed, two of them (income and education) are almost intrinsically quantitative, and can be easily represented as relatively unambiguous scales. It might also be added that a whole host of studies have shown the utility of these variables in predicting a wide variety of behavior of sociological interest—including consumer decisions, voting performance, fertility preferences, and life styles in general. Our intention is not to deny or minimize the value of these inquiries. Rather, it is to point to the rather narrow canvas upon which mobility has been portrayed, and to point to some possible advantages that might derive from a generic conception of "social mobility."

To take only one example, sociologists concerned with mobility are in the habit of dealing only with occupational movements *between* broadly defined strata, ignoring movements *within* the stratum. (Such movements have come to be labelled shifts within a "situs" by a few writers.)[28] There is also a tendency to regard only changes across a particular occupational line—such as those between manual and non-manual jobs—as "true" mobility. Although sometimes dictated by the small number of cases under analysis, and by the demand for imposing comparability upon data derived from different sources, such procedures harbor grave methodological hazards if one is setting out to assess the total amount of occupational mobility in a system wherein the strata consist of assemblages of occupations. Finally, there is the vexing problem of the disposition of agricultural occupations, which do not fit nicely into the usual ranking schemes; what constitutes "upward" versus "downward" mobility is sometimes difficult to determine in rural to urban shifts. Some of these problems are clarified by the adoption of a demographic persceptive. Toward this end, we will turn to a review of some demographic contributions to the study of social mobility, viewed in the larger sense to which we have alluded.

DEMOGRAPHIC CONTRIBUTIONS TO THE STUDY OF SOCIAL MOBILITY

Demographers, of course, are likely to work with all of the variables enumerated in Figure 1, at least in simple combination. For the most part, however, their empirical efforts have been confined to cross-sectional examinations of co-occupancy patterns among the various statuses. Thus differences between various age grades in education, occupation, income, marital status, place of residence, etc., are rather well known for countries possessing modern census systems. Still, it must be recognized that these materials do not furnish *direct* evidence concerning mobility between statuses. The cross-sectional emphasis stems from the fact that censuses are typically far more inclusive, with respect to the list of statuses treated, than are registration systems.[29]

Items that are widely registered include the following: births, adoptions, marriages, separations, annulments, divorces, and deaths. Certain countries maintaining "continuous registration" systems add data on changes in place of residence; these record-linkage systems, however, are expensive to maintain, and they tend to be rather fragile, in the sense that they are easily subject to error.[30] Direct demographic evidence is thus

[28] See Émile Benoit-Smullyan, "Status, Status Types, and Status Inter-relations," *American Sociological Review,* 9 (April, 1944), pp. 151–161; Paul K. Hatt, "Occupations and Social Stratification," *American Journal of Sociology,* 45 (May, 1950), pp. 533–543; Richard T. Morris and Raymond J. Murphy, "The Situs Dimension in Occupational Structure," *American Sociological Review,* 24 (April, 1959), pp. 231–239.

[29] See the recommendations listed in United Nations, *Principles for a Vital Statistics System,* New York: United Nations, 1953, and the review of actual registration practices summarized in United Nations, *Handbook of Vital Statistics,* New York: United Nations, 1955, pp. 114–119.

[30] Such systems are described in some detail by Dorothy S. Thomas in Appendix C, National Resources Committee, *Problems of a Changing Popu-*

effectively confined to changes in marital and familial statuses. Marriage and divorce statistics are especially favored by demographers because of the fundamental bearing of nuptiality upon fertility. These materials are probably of limited interest to most sociologists concerned with social mobility.

There are other changes in status that have not been adequately treated in demographic terms. One of these concerns religious affiliation. In the United States, this item is not even enumerated in the decennial census, and though religion is recorded in some state vital registration systems, actual changes in religious affiliation are not registered as such. Still, this topic is of considerable interest from the standpoint of mobility, when it is regarded in prestige terms. Moore has observed that "Protestant religious denominations in the United States have differential prestige, at least at the community level, and there is some indication of changes in affiliation with career success," and he goes on to suggest the desirability of measuring the more general relation "between income-and-occupational mobility and changes in number and types of associational memberships." [31]

As we have indicated, sociologists evince considerable interest in the relationship between education and social mobility. Although relatively little demographic effort has gone into this subject in the United States, it is perhaps significant that the most intensive investigation thus far conducted in a Western country was carried out under the general direction of a demographer, and that it makes effective use of a variety of demographic techniques.[32] As in the case of religion, this represents another instance in which American demography has not contributed its full potential to the study of mobility.

American demographers, like their sociological counterparts, have been much more concerned with occupational mobility. They have become increasingly involved in various types of "labor force analysis," and this is one area in which occupational mobility is approached more or less directly. Combining data from censuses, sample surveys, and a variety of statistical sources, a large amount of information has been assembled on such matters as rates of entry into and separation from the work force; labor force participation rates by sex, age, and other characteristics; migration and labor mobility; and the length of working life.[33] A number of contact points between this work and various specialities within sociology—including social stratification and social mobility—are concisely enumerated in an essay by Philip M. Hauser on "The Labor Force as a Field of Interest for the Sociologist." [34]

The demographic analysis of social mobility is typically focussed on the relationship between mobility and the "traditional" demographic variables, particularly migration and fertility. The literature on rural-urban migration contains a wealth of indirect evidence on occupational mobility, since this shift in place of residence typically involves occupational changes from agricultural to non-agricultural pursuits; selectivity of migration, or the characteristics of movers versus non-movers, has been frequently studied. However, more direct inquiries into the relationship between migration and occupational mobility have been conducted by Goldstein, Bogue, and Freedman and Hawley.[35] Each of these studies, although conducted by a professional demographer, made use of data from other than the traditional demographic sources (nation-wide censuses and registration systems). Goldstein em-

lation, Washington: U. S. Government Printing Office, 1938.

[31] Wilbert E. Moore, "Measurement of Organizational and Institutional Implications of Changes in Productive Technology," in *Social, Economic and Technological Change, op. cit.,* p. 245.

[32] David V. Glass, editor, *Social Mobility in Britain,* London: Routledge and Kegan Paul, 1954.

[33] The best general introduction to this area is still A. J. Jaffe and Charles D. Stewart, *Manpower Resources and Utilization,* New York: John Wiley and Sons, 1951.

[34] *American Sociological Review,* 16 (August, 1951), pp. 530–538.

[35] Sidney Goldstein, "Migration and Occupational Mobility in Norristown, Pennsylvania," *American Sociological Review,* 20 (August, 1955), pp. 402–408; Donald J. Bogue, *An Exploratory Study of Migration and Labor Mobility Using Social Security Data,* Oxford, Ohio: Scripps Foundation for Research in Population Problems, 1950; Ronald Freedman and Amos H. Hawley, "Migration and Occupational Mobility in the Depression," *American Journal of Sociology,* 55 (September, 1945), pp. 170–177.

ployed data from a series of city directories, Bogue used quarterly reports from the Bureau of Old Age and Survivors Insurance for two states, and Freedman and Hawley utilized materials from a special state census of unemployment in which complete work histories were collected. (The latter data are not gathered in the typical census.) It is also important to note that all of these studies conceive mobility in career terms, i.e., as taking place within the individual's own working life, rather than inter-generationally. Both of these features—"non-demographic" data and a career definition of mobility—also characterize another recent demographic study of mobility, that by Jaffe and Carleton, in which the results of a six-city sample survey are utilized.[36]

Demographers have also displayed some interest in mobility in the course of studying fertility. In the empirical work that has been accomplished, mobility has ordinarily entered the analysis as an independent variable, both inter-generational and career measures have been employed, and income changes as well as occupational shifts have sometimes been considered.[37] These sources are perhaps of less direct interest to sociologists concerned with mobility because they offer little in the way of an explanation of the phenomenon, rich as they are in suggesting some behavioral consequences of mobility.

Of greater general interest to the sociologist is the demographic perspective on social mobility provided in Elbridge Sibley's well-known essay, "Some Demographic Clues to Stratification." Sibley succeeded in integrating differential fertility, immigration, and technological progress, considered as factors contributing to a long-term net upward mobility in the United States, and offered a cogent discussion of the potential role of education in continuing the process. He concluded that, "Together, immigration and differential fertility have contributed more than technological progress to the upward movement of individuals in America." [38] Although he made no effort to demonstrate this thesis statistically, his discussion remains one of the most lucid analyses of the ways in which the demographic processes bear upon each other, and the ways in which they combine to effect changes in population composition.

Freedman and Freedman have more recently been able to show that rural-to-urban migrants in the United States tend to be found near the bottom of the urban class structure, when their status is measured by income, education, and occupation.[39] Though

[36] A. J. Jaffe and R. O. Carleton, *Occupational Mobility in the United States, 1930–1960,* New York: King's Crown Press, 1954. Strictly speaking, a "career" definition of mobility is the only one that conforms to the demographic model elaborated above, in that it yields (together with data on migration, mortality, and fertility) a complete accounting for compositional change in a population. An inter-generational approach to mobility, although somewhat more convenient from the standpoint of data collection, provides only an indirect and incomplete accounting. Comparison of an individual's occupation with that of his father, for example, is roughly analogous to a comparison of population distribution at two points in time. Net shifts can be approximately inferred, but there are numerous gaps, including the omission of losses through mortality. Methodological pitfalls include the difficulty of specifying one occupation for the father, when he may have actually held many in the course of his career. (See Richard Centers, "Occupational Mobility of Urban Occupational Strata," *American Sociological Review,* 12 (April, 1948), pp. 197–203). A third type of mobility measurement—relating occupations of newly married men to those of their wives, or to those of the fathers of the spouse—has even more severe methodological restrictions, and is without a direct demographic analogue. Some studies of assortative mating and homogamy have used demographic techniques, but not the "demographic equation." Inter-generational and intermarriage measures of mobility are discussed in Ruth Shonle Cavan, *The American Family,* New York: Thomas Y. Crowell Co., 1953, pp. 226–233. For other problems of measurement, see Melvin M. Tumin and Arnold S. Feldman, "Theory and Measurement of Occupational Mobility," *American Sociological Review,* 22 (June, 1957), pp. 281–288.

[37] For general statements, see Jerzy Berent, "Fertility and Social Mobility," *Population Studies,* 5 (March, 1952), pp. 244–260; Charles F. Westoff, "The Changing Focus of Differential Fertility Research: The Social Mobility Hypothesis," *Milbank Memorial Fund Quarterly,* 32 (January, 1954), pp. 69–103; and Ruth Riemer and Clyde V. Kiser, "Economic Tension and Social Mobility in Relation to Fertility Planning and Size of Planned Family," *ibid.,* 32 (April, 1954), pp. 167–231. Both of these latter reports are from the Indianapolis Study.

[38] *American Sociological Review,* 7 (June, 1942), pp. 322–330.

[39] Ronald and Deborah Freedman, "Farm-Reared Elements in the Nonfarm Population," *Rural Sociology,* 21 (March, 1956), pp. 50–61. This study was based on data from a national sample survey; unfortunately, native and foreign-born migrants were not distinguished in the analysis. Similar findings from a survey of a single city are reported in

this may result from excessive downward mobility on the part of migrants (since the survey materials do not identify the point of entrance), the Freedmans infer that rural-urban migrants tend to enter the urban class structure at the bottom. Building upon this basic finding, Goldberg has recently argued that this disproportionate representation of rural migrants in the lower urban strata accounts for the usually observed inverse relationship between social class and fertility in urban populations. Goldberg finds insignificant differences in the fertility of "two-generation urbanites" in the various class levels. The usual inverse pattern is observed only in the farm-reared segment of the urban population. The relevance of his argument at this point should be clear: if the farm-reared typically enter the urban class structure at or near the bottom, it is apparently the upwardly mobile farm-reared migrants who limit their child-bearing most severely.[40] An additional possibility worthy of investigation is that many of the traits and behaviors found to be related to social class standing in urban areas (a) are products of the heavier representation of rural migrants in the lower strata, and/or (b) result from selective upward mobility of farm-reared elements in the urban class structure. In any event, Goldberg's work represents another instance of a demographer working simultaneously with three broad variables—fertility, migration, and mobility. It is out of such detailed investigations that the empirical dimensions of social mobility will be filled in with greater precision.

All of the foregoing studies exemplify ways in which demographic techniques and a demographic perspective throw light upon a subject that is rarely viewed as lying within the province of the discipline. With his repertoire of sophisticated techniques, the demographer seems particularly well qualified to aid the sociologist in the task of measuring the volume, direction, and characteristics of the mobile portion of the population. By virtue of his awareness of certain methodological dangers, such as those attending the use of inter-generational measures of mobility, the demographer is also able to provide warning against incomplete treatment of the subject. (Since the demographer employs the concept of a closed system in working with the demographic equation, he is inclined to be sensitive to various "leaks" that characterize sample survey data, as illustrated in our earlier discussion of intergenerational mobility in footnote 36.) The fact that more demographic research on mobility has not been accomplished to date can probably be attributed to the absence of systematic registration of most status changes. The increasing use of sample survey materials by demographers should fill in these lacunae in the traditional sources of demographic data, and they can learn a great deal from those sociologists who have already acquired the methodological sophistication required for handling these materials. Equally important, however, is an awareness on the part of both sociologists and demographers that the latter are well equipped, both technically and conceptually, to tackle the problem of social mobility.

CONTRIBUTIONS OF SOCIOLOGISTS TO THE DEMOGRAPHIC ANALYSIS OF MOBILITY

With its tradition of descriptive research, it might be thought that the greatest single deficiency characterizing the treatment of social mobility in demography is in regard to conceptualization. Indeed, demographers have been criticized as being inclined to describe without explaining, and as if they were at least averse to theory-building if not actually debilitated by a trained incapacity to theorize.[41] This view represents a gross over-

Seymour Martin Lipset, "Social Mobility and Urbanization," *Rural Sociology,* 20 (September–December, 1955), pp. 220–228. See also Howard W. Beers and Catherine Heflin, "The Urban Status of Rural Migrants," *Social Forces,* 23 (October, 1944), pp. 32–37.

[40] David Goldberg, "The Fertility of Two-Generation Urbanites," *Population Studies,* 12 (March, 1959), pp. 214–222. Goldberg questions the relevance of mobility in explaining differentials in fertility, and presents data showing no systematic variation among various (inter-generational) mobility categories. See also David Goldberg, "Another Look at the Indianapolis Fertility Data," *Milbank Memorial Fund Quarterly,* 38 (January, 1960), pp. 23–36. For an earlier study, see Clyde V. Kiser, "Birth Rates Among Rural Migrants to Cities," *Milbank Memorial Fund Quarterly,* 26 (October, 1938), pp. 369–381.

[41] See Rupert B. Vance, "Is Theory for Demographers?" *Social Forces,* 31 (October, 1952), pp.

simplification, although students of population have no cause for complacency; their methodological assurance and the somewhat restricted scope of their specialty should have permitted the construction of far more elegant theory than is currently available. In actual fact, however, demographers have much to learn from sociological students of mobility in matters other than concept manipulation at the verbal level.

First of all, there are a number of empirical investigations by non-demographers that merit attention on methodological grounds.[42] The most familiar study is probably the one by Rogoff, in which data from marriage license applications in a single county in Indiana were employed in order to assess the amount, direction and character of occupational mobility in two different time periods.[43] Aside from the substantive results, the main interest of this study lies in Rogoff's effort to distinguish between "individual mobility," as it is ordinarily conceived in inter-generational terms, and "structurally-induced mobility." The latter type of mobility derives from alterations in the occupational structure wrought by technological and organizational changes; different time periods may thus offer different probabilities of mobility for the individuals concerned. By means of an ingenious variant on familiar contingency methods, Rogoff attempted to control structurally-induced mobility and to observe changes in individual mobility. She was unable, of course, to separate the latter from the mobility resulting from differential fertility and mortality, as well as from other sources, but the possible application of her general method to other areas of demographic interest has yet to be attempted; it appears to be appropriate to the study of rural-urban migration in periods and in areas (e.g., nations) characterized by different distributions of population according to size of place.

In a similar vein, Kahl's work on the sources of social mobility merits close attention by demographers.[44] First of all, Kahl distinguished "technological mobility" (roughly synonymous with the "structurally-induced mobility" discussed above) from "immigration mobility" and "reproductive mobility," with the latter types referring to the differential demographic behavior of the various social strata. By comparing occupational distributions in the United States in 1920 and 1950, by employing estimates of the occupational distribution of net immigration in the same period, and by the use of occupational net reproduction rates, Kahl attempted to estimate the amount of occupational mobility attributable to these sources. Drawing upon data from a national sample survey, in order to estimate total inter-generational mobility, he then proceeded to subtract the foregoing "component" estimates from this total, and thus

9–13; George A. Hillery, Jr., "Toward a Conceptualization of Demography," *Social Forces,* 37 (October, 1958), pp. 45–51; and Leighton van Nort, "On Values in Population Theory," *Milbank Memorial Fund Quarterly,* 38 (October, 1960), pp. 387–395. For effective contradictions of this view, see Kingsley Davis, "The Sociology of Demographic Behavior," in Robert K. Merton, *et al.,* editors, *Sociology Today,* New York: Basic Books, 1959, pp. 309–333, and Robert Gutman, *op. cit.* If general sociology offers a more elegant "middle-range" theory than the stable population model developed by A. J. Lotka, the author is unaware of it. Even the theory of demographic transition fares well in comparison with many sociological efforts.

[42] Our identification of "non-demographers" is according to apparent major interest and affiliation with professional societies. Actually, no sharp boundary can or should be drawn; it is the problem, the technique, and the conceptual perspective that counts. Some relevant efforts, however, seem to escape the attention of sociologists and demographers by reason of title or place of publication, so that this rough classification may be useful to the reader. We cannot possibly review all of the relevant sociological contributions here. Useful bibliographies are to be found in Kurt B. Mayer, *Class and Society,* Garden City: Doubleday and Co., 1955; and Raymond W. Mack, Linton Freeman, and Seymour Yellin, *Social Mobility: Thirty Years of Research and Theory,* Syracuse: Syracuse University Press, 1957. A rich literature from other countries has been ignored; see, for example, Theodore Geiger, "Mobilité Sociale dans les sociétés européennes de notre temps," in *Problèmes de population,* Strasbourg: Centre Universitaire de Hautes Études Européennes, 1951, pp. 123–134.

[43] Natalie Rogoff, *Recent Trends in Occupational Mobility,* Glencoe: Free Press, 1953. A useful summary of the main facts for the nation, together with a discussion of their implications for social mobility may be found in Albert J. Reiss, Jr., "Change in the Occupational Structure of the United States, 1910 to 1950," in Paul K. Hatt and Albert J. Reiss, Jr., editors, *Cities and Society,* Glencoe: Free Press, 1957, pp. 424–431.

[44] Joseph A. Kahl, *The American Class Structure,* New York: Rinehart & Co., 1957. Chapter IX.

to derive the amount of "individual" mobility. Although necessarily rough and inexact, Kahl's effort deserves attention, if only as an attempt to give statistical substance to Sibley's discussion.

Another study that stems from a sociological concern with stratification and mobility is the recent comparative study by Seymour Martin Lipset and Reinhard Bendix.[45] Although it has been properly heralded as the first general theoretical treatment of the subject since Sorokin's classic appeared some thirty years earlier,[46] the major interest in the work attaches to the data presented. Most of these derive from two sources: (1) a study of career mobility in a sample of Oakland, California workers; (2) a large number of sample surveys from various nations, dealing mainly with inter-generational mobility. There are few innovations in the career-mobility materials, and the analysis of the international data is marred by several minor technical deficiencies caused by the nature of the data. For one thing, attention is focused upon the inter-generational crossing of the "manual-nonmanual" line, despite evidence that such a dichotomous treatment obscures the total volume of mobility; indirect evidence to this effect, in fact, is to be found in the authors' own Oakland data. Secondly, the study fails satisfactorily to resolve the problem of rural-to-urban occupational mobility, the significance of which varies from country to country, depending upon levels of urbanization. Despite these methodological defects, the volume warrants close attention by reason of the sheer scope of its comparative coverage, which is certainly the most ambitious to be found in the literature.

Lest it be inferred from earlier remarks that demographers have little to learn from sociologists in the way of theoretical insights, attention must be called to the analysis of social mobility by Sorokin, mentioned above. After thirty-odd years, this volume remains the most rewarding general treatment of the topic in the sociological literature, and it deserves perusal by any demographer who undertakes work in the area. Examination of the Lipset-Bendix volume also yields large dividends. Yet there are gaps in the sociologists' discussion of the topic, and some of them are surprising in view of the discipline's presumed interest in explaining variations in mobility at the macroscopic level. By and large, a great deal of attention has been devoted to such matters as motivations for mobility, the emotional consequences of mobility, the stresses and strains that impinge upon the mobile person, and the individual behavioral correlates of mobility. Few sociologists appear to have grappled with the broad issue of *the determinants of variations in mobility at the societal level.* Sorokin, Sibley, Kahl, Lipset and Bendix are certainly prominent exceptions, but there have been only occasional efforts by other sociologists.

The determinants of mobility. One little-known discussion of the sources of mobility that deserves some attention has been offered by Havighurst. The major portion of this paper is devoted to an effort at comparing mobility in the United States, England, Australia, and Brazil by reference to sample survey data; unfortunately, some of the methodological difficulties that characterize the Lipset-Bendix comparative materials are even more in evidence here. In the course of his discussion, however, Havighurst attempts to identify the conditions that make for net upward mobility in a society. First, although he neglects class-selective migration, Havighurst correctly identifies a demographic factor by pointing to the role of differential reproduction; in this respect, his analysis is similar to that of Sibley and Kahl. Havighurst goes on, however, to specify in detail another general condition—the one variously identified as "structurally-induced mobility" by Rogoff, and as "technological mobility" by Sibley and Kahl. In Havighurst's words, this condition is

> "*A shift in occupational distribution so as to increase the proportion of middle and higher status occupational positions.* This could result from:
>
> "a. Change in technology of production which increases the proportion of more technical and highly-skilled jobs. For instance, automation does this.
>
> "b. Change in type of industry from those with many unskilled jobs to those with more

[45] *Social Mobility in Industrial Society,* Berkeley: University of California Press, 1959.

[46] Pitirim Sorokin, *Social Mobility,* New York: Harper and Brothers, 1927; republished as *Social and Cultural Mobility,* Glencoe: Free Press, 1960.

jobs requiring technical training. The change from agriculture to manufacturing industry usually does this; and so does a change from farming with human labor to farming with machinery.

"c. Introduction of new industries which require a high proportion of technically-trained and well-paid workers.

"d. Increase of industrial productivity with resultant increase in wages and salaries, which allows people to spend more of their income on services provided by professional people, thus increasing the proportion of such people.

"e. Free or easy access to valuable natural resources, such as good land, gold, diamonds, oil, uranium. This creates people with wealth who take the status positions of owners of wealth." [47]

The principal merit of this brief discussion is that it attempts to move beyond the simple recognition of the possibility of changes in occupational structure—changes that may affect the individual's chances for moving within that structure—to a specification of some sources of structural change *per se*. Although the list he presents is probably not exhaustive, and though it is clearly not made up of mutually exclusive "factors," its serves as a starting point for further analysis.

An ecological approach. The sources of change in occupational structure enumerated by Havighurst appear to be amenable to reformulation in terms of the "ecological complex," a heuristic device that seems particularly appropriate to this problem.[48] From the ecological standpoint, mobility may be treated as a demographic variable, with sources of change in that variable to be sought in four general areas, i.e., among other demographic, organizational, technological, and environmental factors. Let us specify social mobility as the *explanandum,* or dependent variable, in an analysis that takes the nation-state as the unit of observation. The independent variables may then be said to include the following:

A. *Other demographic factors:*
   1. Differential replacement, according to social strata, brought about by differential fertility and mortality;
   2. Class-selective net immigration.

B. *Technological factors:*
   1. Innovations in the technology of production (see Havighurst's item "a");
   2. Innovations in the technology of distribution, and especially in transportation and communication, that yield changes analogous to B-1 above, or to C-4, C-5, or D-3 below.

C. *Organizational factors:*
   1. Change in type of industry (see Havighurst's item "b");
   2. Introduction of new industries (see Havighurst's item "c");
   3. Increases in the size of firms, in order to realize "internal economies," which tend to increase employment in white-collar jobs;
   4. A redistribution of wealth resulting from increased productivity, leading to increased demand for certain services (see Havighurst's item "d");
   5. A redistribution of wealth by political means, involving either a more or less equitable allocation among the various strata, leading to changes in demand for certain services;
   6. A re-organization of external relationships with other nation-states, leading to the creation or expansion of certain occupations (e.g., those in trade and military activities).

D. *Environmental changes:*
   1. Bringing new elements of the physical environment under control by technological changes, leading to new industries (see C-2 above) or redistribution of wealth (see C-4 above);
   2. Bringing new natural resources into use by discovery or conquest, leading to results similar to those suggested in D-1 above;
   3. Bringing new natural resources into use via organizational changes (see C-6 above) or by increased ease of distribution (see B-2 above).
   4. The exhaustion of non-replaceable resources, by depletion, erosion, dessication, etc.

Although this scheme undoubtedly remains

[47] Robert J. Havighurst, "Education and Social Mobility in Four Countries," *Human Development Bulletin,* University of Chicago, Committee on Human Development, 1958, pp. 35–36; italics added.

[48] For brief discussions and analytical uses of the ecological complex, see Otis Dudley Duncan, "Population Distribution and Community Structure," *Cold Spring Harbor Symposia on Quantitative Biology,* 22 (1957), pp. 357–371; Leo F. Schnore, "Social Morphology and Human Ecology," *American Journal of Sociology,* 63 (May, 1958), pp. 620–634; Otis Dudley Duncan "Human Ecology and Population Studies," in Hauser and Duncan, *op. cit.,* pp. 678–716; and Otis Dudley Duncan and Leo F. Schnore, "Cultural, Behavioral, and Ecological Perspectives in the Study of Social Organization," *American Journal of Sociology,* 65 (September, 1959), pp. 132–146.

incomplete, it suggests a new direction for research and analysis that would push our understanding of the sources of social mobility beyond its present point. For one thing, this ecological treatment—based upon an extension and reorientation of Havighurst's reasoning—suggests that we should not be content to point to changes in occupational structure as a prime source of mobility; rather, we should be encouraged to press our analysis one step further, in the direction of a consideration of the *sources* of alterations in occupational structure *per se*. Secondly, this brief effort should indicate how complex and ramified a question is posed when we consider the sources of upward mobility; it should be evident that we cannot be satisfied to point to "industrialization" and leave it at that. Finally, this discussion should serve to demonstrate the potential utility of viewing social mobility from a demographic perspective. Although the adoption of an ecological framework—or any other analytical scheme—obliges the analyst to work with other variables as well, nothing appears to be lost and much might be gained when mobility is treated as a demographic variable.

SUMMARY AND IMPLICATIONS

This paper has attempted to show the relevance of a demographic approach to the study of social mobility. Starting with a brief consideration of demography's actual scope, we have tried to show that certain salient aspects of the subject are within the province of demography, and that, in fact, it is a frequent subject for demographic study. Working with a typology of statuses and status changes, we then proceeded to review some demographic contributions to the study of mobility in the large, and as it is more narrowly conceived by sociologists. Reversing the procedure, we then reviewed a number of works by sociologists that recommend themselves to demographers on either methodological or conceptual grounds. In conclusion, we sketched an ecological approach to the problem, in order to illustrate the mutual relevance of a demographic conception of mobility and at least one sociological point of view.

In general, there appear to be three potential contributions—theoretical, technical, and empirical—that would serve to facilitate interchange between sociology and demography in the study of social mobility:

(1) Conceptually, it appears that there is much to be gained from a rigorous exploration of the formal analogies between migration and mobility. It is a commonplace that territorial movement and movement through "social space" possess more than a few commonalities, but the potential utility of such a theoretical undertaking appears to be substantial. First of all, the sociologist studying mobility and the demographer studying migration share an obvious interest in the volume and direction of these movements, as well as in the characteristics of movers versus non-movers. Starting with the conceptual apparatus currently employed in migration analysis, it seems that certain concepts and hypotheses recommend themselves for use in the study of mobility; among them are the following: the concepts of migratory pushes, pulls, and opportunities; the intervening-opportunities hypothesis; the concept of migratory backflow, or return migration; the concept of selective migration; the problem of the exhaustion of "pools" of potential migrants; and the distinction between "migration" and "residential mobility." [49]

(2) Technically, the major task confronting both sociologists and demographers is the creation of better classificatory systems. Comparatively speaking, the problem of

[49] See Otis Dudley Duncan, "Human Ecology and Population Studies," *op. cit.*, pp. 699–700. Migration is defined as *inter*-community movement, residential mobility as *intra*-community movement; the mobility analogue of the latter may be movement within a "situs." (See the previous references in Footnote 28.) An interesting taxonomic treatment of migration that has no counterpart in the mobility literature is to be found in William Petersen, "A General Typology of Migration," *American Sociological Review*, 23 (June, 1958), pp. 256–266. One might even seek the mobility analogues of such recurrent physical movements as commuting, for the latter involves temporary shifts in status, i.e., between familial or domestic and occupational roles. See Talcott Parsons, "The Principal Structures of Community," in his *Structure and Process in Modern Societies*, Glencoe: Free Press, 1960, pp. 250–279; and Leo F. Schnore, "Transportation Systems, Socioeconomic Systems, and the Individual," in *Proceedings*, Conference on Transportation Research, National Academy of Sciences, August, 1960 (in press).

metrics seems to be a minor one in the case of income and education. Hierarchical classification of occupations, however, constitutes an extremely difficult issue. Representatives of both disciplines in this country are prone to use either the census classification developed by Edwards or a modification of the Hatt-North scale, although recognizing the severe limitations of both schemes.[50] Among other difficulties, the lack of an adequate taxonomy has prevented intensive demographic research into occupational and class differentials in mortality in the United States; [51] this deficiency renders equivocal some of the findings on differential fertility. With respect to mobility, the problem is clear: the very volume of mobility observed is partially dependent upon the number of strata distinguished in the analysis. A reclassification of occupations might proceed along the lines taken by Edwards in his effort to validate his original scheme, i.e., by exploring the educational and income levels achieved by the various occupations, but employing age controls and more up-to-date techniques.[52] Ideally, such a reclassification would take account of census practices in other countries, so that comparative analyses would be facilitated.

(3) Empirically, the great need is for further comparative study. We should not be satisfied with the type of material reviewed by Lipset and Bendix, suggestive as it is, but we should exploit other existing sources of data. One such source is represented by census statistics on occupation. Comparisons of successive censuses in a number of countries, and the computation of simple coefficients of redistribution,[53] would serve to test the major conclusions of the Hollingshead and Lipset-Bendix reviews: that rates of social mobility are substantially the same in all industrialized nations. The ecological approach to mobility sketched here also contained the implicit hypothesis that societal rates of mobility are linked to levels of economic development and urbanization. If these census-based tests tended to confirm these hypotheses, we would be enabled to pursue more extensive comparative investigations, utilizing data for many nations in which sample survey studies of mobility *per se* have yet to be conducted; all that would be required would be two or three successive censuses. Demographers profess pride in the comparative heritage of their discipline, while American sociologists are frequently accused of an ethnocentric preoccupation with their own culture. Be that as it may, the cross-cultural study of social mobility offers still another logical contact point between the interests of demographers and sociologists.

[50] See Alba M. Edwards, *A Social-Economic Grouping of the Gainful Workers in the United States,* Washington: U. S. Government Printing Office, 1938; Paul K. Hatt and Cecil C. North, "Jobs and Occupations: A Popular Evaluation," *Opinion News,* 9 (September 1, 1947), pp. 3–13.

[51] See Iwao M. Moriyama and L. Guralnick, "Occupational and Social Class Differentials in Mortality," in *Trends and Differentials in Mortality,* New York: Milbank Memorial Fund, 1956, pp. 61–73.

[52] See Alba M. Edwards, *Comparative Occupation Statistics for the United States, 1870–1940,* Washington: U. S. Government Printing Office, 1943. For a modern approach, see Otis Dudley Duncan, "A Socio-economic Index for All Occupations" (unpublished paper), and his working paper on "The Study of Social Change" (Committee on Social Trends, Social Science Research Council, hectographed, 1958).

[53] The coefficient is equal to the sum of the plus or minus percentage-point differences between two distributions, when the data are arrayed according to the same categories. The latter stipulation renders comparison between countries difficult in some instances, but exploratory work with a number of censuses suggests that the problem is not insurmountable. For an illustrative use of the coefficient of redistribution, see Edgar M. Hoover, "The Interstate Redistribution of Population, 1850–1940," *Journal of Economic History,* 1 (May, 1941), pp. 199–205. Since this procedure ignores differential reproduction and immigration, the results yield inexact estimates of total mobility, but precise assessments of the net shifts. The use of Kahl's method would be preferable, but the requisite data are not at hand for most countries. A large-scale study under the direction of Simon Kuznets and Dorothy S. Thomas has already yielded a rich body of historical statistics on the redistribution of the labor force, manufacturing activity, and residential population; see *Population Redistribution and Economic Growth, United States, 1870–1950,* Volumes I and II, Philadelphia: American Philosophical Society, 1957 and 1960.