

PART III

**POPULATION AND THE
SOCIAL SCIENCES**

CHAPTER 14

Social Demography

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The history of demography in the United States is closely bound up with the discipline of sociology. In many countries, demography is a freestanding field or is considered to be part of a branch of applied statistics. This pattern is much less common in the United States, where demography (and demographic training) is often considered an area of specialization within one or more social and health science disciplines, including economics, geography, anthropology, and sociology. But sociology is the first among equals in its association with demography.

Close interactions between the breadth of the sociological vision and the rigor of demographic analysis create the potential of a symbiotic relationship (Davis 1959). Demography is given its widest exposure via sociology. One or more courses in population are considered part of the core undergraduate curriculum in most sociology departments. In addition, having a nucleus of demographers and a leading population research center appears to favorably impact the prestige and ranking of sociology departments in the United States. Prominent examples include the distinguished sociology departments and population centers at universities such as Brown, Chicago, Michigan, North Carolina, Pennsylvania, Pennsylvania State, Princeton, Texas, University of California—Los Angeles, Washington, and Wisconsin. This association is much less common in other social science and health science disciplines.

This close link between the evolution of demography and sociology in the United States is probably a conjuncture of several independent historical conditions. Lorimer (1959: 162–163) observes that several of the pioneers of American demography, including

Walter Wilcox, William Ogburn, and Warren Thompson, received graduate degrees in sociology at Columbia University, where sociologist Franklin Giddings was an influential advocate of the application of statistical methods in empirical research. For several decades, Ogburn was a central figure in the “Chicago School” (along with Robert Park, Ernest Burgess, and Roderick McKenzie), which became the primary training ground for American sociology in the decades prior to World War II. The Chicago School of Sociology did not identify demography as a distinct branch of the discipline, but the Chicago School’s emphasis on the empirical study of urban social and spatial structure (loosely organized under the theoretical rubric of human ecology) provided a congenial environment for the exploration of demographic data and topics (Namboodiri 1988).¹

Unlike other social science disciplines, which have a primary institutional focus (e.g., economics, political science, etc.), sociology typically covers a variety of distinct areas of specialization. For example, the standard introductory sociology textbook will include chapters on marriage and the family, race and ethnic relations, crime and delinquency, rural and urban communities, formal organizations, religion, and other topics. The sociological study of population trends and patterns fits easily into this list of specialties as another topic in the undergraduate and graduate curriculum. Warren Thompson’s *Population Problems* went through five editions from 1930 to the mid-1960s and was a standard undergraduate textbook in the sociology curriculum (Thompson 1930).

The status of demography in sociology was raised in the decades after World War II, when several sociologist-demographers published a series of important books and articles that helped to define modern sociology (Preston 1993). Kingsley Davis wrote an influential introductory sociology textbook in 1949 and also published a series of important theoretical and empirical books and articles on population, social stratification, the family, and other topics in sociology (Davis 1945, 1949, 1951, 1956; Davis and Moore 1945). At the University of Michigan, Amos Hawley and Ronald Freedman played pioneering roles in the development of human ecology and the sociological study of human fertility in the United States and in Asia (Hawley 1950; Freedman, Whelpton, and Campbell 1959; Freedman and Takeshita 1969). At the University of Chicago, Philip Hauser, Otis Dudley Duncan, and Donald Bogue formally brought demography into the Chicago School of Sociology and Human Ecology (Hauser and Duncan 1959; Duncan and Duncan 1957; Duncan et al. 1960). Duncan moved to Michigan in the early 1960s and in collaboration with colleagues and students, he founded the modern school of social stratification (Blau and Duncan 1967; Duncan, Featherman, and Duncan 1972). Another sociologist-demographer, Stanley Lieberson, has made a series of path-breaking contributions to the sociological study of American race and ethnic relations, research methodology, and cultural change (Lieberson 1980, 1985, 2000). These sociological demographers and their pioneering studies have established the centrality of demographic training and the demographic perspective as core elements of the modern discipline of sociology.

In his assessment of the future of demography from a vantage point in the mid-1970s, Preston (1978) noted four schools of demography, which he identified as the Princeton tradition, the Chicago-Berkeley tradition, the Pennsylvania-Brown tradition, and the Michigan-Wisconsin tradition. The Princeton tradition emphasized formal mathematical

¹ The influential textbook, *Introduction to the Science of Sociology* by Park and Burgess, did not include a chapter on population, and neither “demography” nor “population” was listed in the subject index (Park and Burgess 1921).

demography; the Chicago-Berkeley was the most theoretical, with an emphasis on interrelations between populations and societies; and the Pennsylvania-Brown tradition focused on spatial distribution and labor force structure. The fourth tradition, the Michigan-Wisconsin tradition, which devoted more attention to socioeconomic status and social mobility, presented the broadest scope of the emerging field of social demography. Preston suggested that the Michigan-Wisconsin tradition was becoming more prominent relative to the other schools. The influence of the Wisconsin and Michigan programs was due, in large part, to their productive faculty, both in terms of their published scholarship and in their training of successive generations of social demographers. The doctoral alumni of Michigan and Wisconsin have spread their vision of social demography to many other universities and colleges in the United States and abroad.

Although our claim is that demography has become more central to sociology in recent decades, the reverse is probably not true. In the late 1950s, Hauser and Duncan (1959: 107) reported that three-fifths of Population Association of America (PAA) members holding doctorates earned them in sociology. Of the more than 3,000 PAA members in March 2003, fewer than one-third identified sociology as their major professional field (Dudley 2003).² As demography has gained a more prominent niche within sociology, the field has also become a more attractive area of specialization in economics (economic demography), geography (population geography), anthropology (anthropological demography), and other social, statistical, and health sciences. The comparative success of demography may be due to the nature of the field (an empirical interdisciplinary science with porous boundaries), a reliance on well-measured and quantifiable concepts, a focus on real-world problems, and the relatively generous federal and foundation funding for training (predoctoral and postdoctoral) and research (Morgan and Lynch 2001). All of these factors have also been important for the development of the specialization of demography among sociologists.

The overlap between demography and sociology has come to be known as *social demography*, though this term has been widely used only since the 1970s. The term social demography does not appear in the index of the classic *The Study of Population*, edited by Philip Hauser and Otis Dudley Duncan (1959). Hauser and Duncan drew the distinction between “formal demography” and “population studies” to characterize the two major foci in the field (1959: 33–43). Formal demography includes the analysis of population change in terms of other demographic variables, fertility, mortality, migration, and the age-sex composition of the population. Research in formal demography is generally concerned with the development of mathematical or statistical models. In contrast, the subfield of population studies is typically much more broad ranging, with theories and hypotheses from other scientific disciplines combined with demographic data and variables. It is often difficult to draw a precise line between demographers conducting population studies research and disciplinary researchers who happen to use demographic data.

One of the earliest references to “social demography” was the title of a 1963 essay by Kingsley Davis (Davis 1963; only four years earlier Davis published an essay with the title, “The Sociology of Demographic Behavior, see Davis 1959). *Social Demography* was also the title of a textbook *cum* reader published in 1970 (Ford and DeJong 1970) and the title of a state-of-the-art collection of essays published in 1978 (Tauber,

² The same ratio (one-third of PAA members claiming sociology as their major professional field) would hold if only regular (nonstudent) members were counted.

Bumpass, and Sweet 1978). However, *sociological demography* was the term used to describe the field in an influential book by Calvin Goldscheider (1971: chapters 1 and 2), and one of the classic textbooks published in 1977 was titled, *Introduction to Population: A Sociological Approach* (Matras 1977). Our impression is that *social demography* has been popularly accepted by most sociologist demographers to describe their area of specialization as economists increasingly adopted the term *economic demography* (see chapter 18, "Economic Demography," in this *Handbook*).

Although the term *social demography* has been widely accepted, there may be less agreement on the primary content of the field and its boundaries. The difficulty is that the boundaries of the field have expanded as the marriage between sociology and demography has deepened, and more sociologists identify their work as social demography or they draw upon demographic logic and modes of inquiry. For example, the sociology of the family has a lineage that is largely independent of demography, represented by the seminal works of William Goode, Ruben Hill, and Marion Levy. In recent decades, however, the works of demographer-sociologists such as Larry Bumpass, Andrew Cherlin, Frances Goldschieder, S. Philip Morgan, Ronald Rindfuss, James Sweet, Arland Thornton, and Linda Waite have blurred the boundary between general sociological studies of the family and social demographic studies of the family. Other leading sociologists of the family, such as Frank Furstenberg and Glen Elder, frequently collaborate with demographers and have become mentors of many younger social demographers through their affiliations with university population research centers.

The field of social demography might be described as the analysis of sociological questions with demographic data, such as censuses and population surveys. But this definition would be far too narrow, since quite a few social demographers use qualitative methods. Almost every topic in sociology has drawn the interest of some social demographers. Nonetheless, there appear to be two broad sociological themes that encompass much of social demography—the family and the study of inequality (see chapter 3, "Marriage and Family," and chapter 13, "Demography of Social Stratification," in this *Handbook*).

More than any other social institution, the family is at the heart of sociology. Demographers are well positioned to contribute to empirical research on the family because census, vital statistics, and population surveys are the primary sources for contemporary studies of the family and often the only source for historical studies (Bumpass and Lu 2000; Sweeney 2002; Thornton and Lin 1994; Tolnay 1999). Among the important topics addressed by social demographers are trends in marriage and divorce, changes in age at marriage, childbearing patterns, living arrangements, employment trends of mothers of young children, and child welfare. New topics in demographic research, including population aging and intergenerational support, have direct implications for classic sociological questions about the structure and functions of the family. Two recent presidential addresses at the Population Association of America, Samuel Preston's "Children and the Elderly: Divergent Paths for America's Dependents" (Preston 1984) and Larry Bumpass's "What's Happening to the Family?" (Bumpass 1990) illustrate how demographic insights and analyses can inform the sociological study of the family.

Research on socioeconomic inequality and stratification has been another field-defining area of social demography. Hauser and Duncan's (1959) inclusion of social mobility in their definition of demography put studies of census and survey data on

education, occupations, income, and other census measures of socioeconomic status at the core of the field. The ideas, data, and methods used to study inequality and social mobility by social demographers have been widely diffused throughout sociology and are applied to research on the status of immigrants, race and ethnic inequality, and residential segregation (see chapters 2, 6, 12, and 16 in this *Handbook*). New research directions have included comparisons of men and women in the labor force, race and ethnic identities of new immigrants, and health disparities. In addition to their familiarity with census and other national data sources, social demographers have been able to make important empirical contributions because they have developed innovative methods to study intercohort social change from cross-sectional data and to model the relationship between changes in social structure and social mobility.

Beyond substance, social demography is best described in terms of methodological genres or styles of research. Although these genres of research are not “owned” by social demography, they are common patterns that illustrate how and why social demography has had such an important impact on the discipline of sociology. In the following sections, we highlight three major themes of work that are identified with social demography, broadly defined as: Description of Social Patterns and Trends, Hypothesis Testing and Explanatory Sociology, and Contextual Analysis.

DESCRIPTION OF SOCIAL PATTERNS AND TRENDS

There is a great social and economic demand for objective information about population characteristics and trends. This need arises, in part, from popular curiosity of people wanting to know if others are like them and share common experiences. Businesses want to know about potential markets for goods and services and whether demand is likely to grow or shrink (see chapter 25, “Small Area and Business Demography,” in this *Handbook*). Public authorities also seek information about current and future population size and composition to be able to plan where to locate schools and roads and how much revenue will be needed to provide for future pensions and health care needs. Although these “data needs” are sometimes met by generalizing from one’s own (and acquaintances’) experiences, it is widely recognized that broader and more representative data provide a more accurate portrait. Demographers, by virtue of their expertise in analyzing and interpreting census data and their scientific training, are generally thought to be objective reporters on the state of society as revealed through population data.

Many social demographers, along with social historians, statisticians, and other scholars have used census data to describe the fortunes and problems of the American people (and of other societies). For much of American history, the decennial population census has been the primary (and only) source of information about the size, distribution, and characteristics of the population. Moreover, census data can be analyzed to provide valuable insights on important social and economic issues (Anderson 1988). Demographic data, as with all evidence, can be manipulated by partisans to “speak” on one side or the other of contested issues. In spite of these tendencies, the tradition of the census as the nation’s “fact finder” and as a source of public enlightenment has been an important backdrop for the development of contemporary demography.

This tradition of census-based societal description and accounting is exemplified by the title (and content) of Reynolds Farley’s 1990 highly regarded census monograph,

The New American Reality: Who We Are, How We Got Here, and Where Are We Going (Farley 1996) and the accompanying two volumes, *State of the Union: America in the 1990s* (Farley 1995, 1996), with chapters on income, labor force, education, housing, family, the older population, immigrants, and much more. Although Census Bureau publications occasionally go beyond basic tabulations to describe and analyze social phenomena, the book-length "census monographs" written by academic scholars were important milestones in the development of social demography, beginning with the 1920 census. Among the titles of the 1920 census monographs (published from 1922 to 1931) were *Farm Tenancy in the United States* (Goldenweiser and Truesdell 1924), *Women in Gainful Occupations* (Hill 1929), and *Immigrants and Their Children* (Carpenter 1927).

Although some of the census monographs (published following the 1920, 1950, 1960, 1970, and 1980 censuses) fit the caricature of "one damn statistic after another," quite a few of them have become minor classics and are well worth reading as models of social reporting and careful descriptive analysis. For example, the 1950 census monograph on *Social Characteristics of Urban and Rural Communities* (Duncan and Reiss 1956) illustrated how the rural-urban continuum varied across a number of dimensions. Herman Miller's 1950 and 1960 census monographs on income distribution in the United States became the basis of his popular book *Rich Man, Poor Man* (Miller 1955, 1966, 1971) and were the models for Frank Levy's *Dollars and Dreams*, based on the 1980 census, and the sequel *New Dollars and Dreams* (Levy 1987, 1998). One of the most important census monographs from the 1980 census, *From Many Strands: Ethnic and Racial Groups in Contemporary America* (Lieberson and Waters 1988) explored the implications of measuring "ancestry" as a parallel to standard measures of race, ethnicity, and nativity.

Other exemplars of social reporting were the two volumes on *Recent Social Trends in the United States* and 13 associated monographs, popularly known as the Hoover committee report on social trends (United States, President's Research Committee of Social Trends 1933). In response to a request from then President Herbert Hoover, a panel of distinguished social scientists, with support from the Rockefeller Foundation and the Social Science Research Council, produced detailed empirical overviews on the "physical, biological, and social heritage of the nation." William F. Ogburn, a social demographer at the University of Chicago, was the research director of the committee.

Among the 29 chapters in *Recent Social Trends* were "The Population of the Nation" by Warren S. Thompson and P. K. Whelpton, "Shifting Occupational Patterns" by Ralph G. Hurlin and Meredith B. Givens, "The Rise of Metropolitan Communities" by R. D. McKenzie, "The Status of Race and Ethnic Groups" by T. J. Woofter, and "The Family and its Functions" by William F. Ogburn. These reports were aimed to be "scrupulously empirical and factual" studies of social trends without policy prescriptions, but the latent intent was surely to provide knowledge on the state of American society to those who did make policy. It was rumored that the page proofs of *Recent Social Trends* were read by President-Elect Franklin Roosevelt before he took office, and that these studies had an influence on the formulation of New Deal social policy, including the social security program (Worcester 2001: 23).

Another important development in 20th-century social science was the "Social Indicators Movement" in the 1960s and 1970s (Land 2000). Although the development and publication of social indicators reached far beyond the field of social demography, there was a common perspective on the value and significance of social description and reporting. And just as William F. Ogburn had played a critical role as the research director of the President's Research Committee on Social Trends, sociologist-demographer

Otis Dudley Duncan was one of the primary intellectual leaders of the development of the social indicators field (Duncan 1969a).

The high water mark of the social indicators field was the publication titled *Toward a Social Report*, which summarized the best social science evidence on the social health of the nation, including such topics as Health and Illness, Social Mobility, Our Physical Environment, and Public Order and Safety (U.S. Department of Health Education and Welfare 1969). As the title indicated, this preliminary government report, which drew on the work of academic researchers, was thought to be the beginning of a new federal initiative to monitor the social welfare of the nation's population. Among the ideas being considered was the creation of a Council of Social Advisors, whose role would complement that of the Council of Economic Advisors and would issue periodic reports on the social well-being of the nation. With the change in the political direction following the election of 1968, however, the initiative of a Council of Social Advisors and the mandate for future social reports were dropped (for a critical overview of the promise and limitations of the HEW report, see Karl Taeuber 1969).

Even with lukewarm support from the federal government, the social indicators movement continued for another decade. Several large volumes with multicolor charts of social indicators were published by the Census Bureau (U.S. Census Bureau 1980). The Social Science Research Council and the Russell Sage Foundation played a major role in sponsoring committees and projects related to social indicators (Worcester 2001:66–68). Conferences and edited volumes on the conceptual and methodological underpinnings of social indicators (Sheldon and Moore 1968; Land and Spilerman 1975) and glossy publications of social indicators on a variety of aspects of social welfare were among the most visible activities and products of social science in the 1960s and 1970s. These publications served a valuable purpose in informing university students (via their use in the classroom) and the general public on the state of American society.

In the early 1980s, the SSRC Committee on Social Indicators was disbanded, and the stream of social indicators publications ceased; even the term *social indicators* has receded to the margins of contemporary social science. One school of thought is that politics led to the demise of the social indicators movement. Social indicators were considered to be strictly scientific and neutral observations by their adherents, but the ascendant conservative politics of the 1980s considered all social sciences, especially those that pointed to the social problems in American society, as undeserving of governmental support or attention. Without interest and support from the government, there were simply insufficient funds from universities and private foundations to support the extensive infrastructure of social indicators programs and publications.

Another weakness of social indicators research was the lack of centrality to a particular school of social science. Although most social scientists considered social indicators to be a useful “public good,” there was no single discipline or research community that was devoted to their collection and dissemination. Social science, as with all science, tends to hold in highest regard the development of new theories as well as the most complex and ambitious empirical analyses. Descriptive studies are often characterized as “mere description.” This tendency means that reporting of social trends and societal patterns is less likely to be published in the leading disciplinary journals.

Social demography, however, retains a commitment to careful monitoring of the social pulse; with the decline of the social indicators movement, core demographic data

collection, analyses, and publications provide an important window for the discipline of sociology. These works in descriptive social demography are published by the Census Bureau and in the publications of such organizations as the Population Reference Bureau and the Population Council, which have a long history in providing links between demographic science and public policy.

Perhaps the most illustrious publication of demographic research that attempts to reach beyond a completely academic audience is the journal *Population and Development Review* (PDR). Although the editorial direction of PDR is more in the direction of innovative demographic research than social description, the journal's discouragement of technical virtuosity for its own sake has created an opening for research that illuminates general societal trends and patterns. With its strong editorial vision, PDR has filled an important niche in the field and has a remarkable range of readership, from research scholars to students in undergraduate sociology classes.

Another valuable source of social demographic reporting is the quarterly *Population Bulletin*, published by the Population Reference Bureau. Each issue (around 40 pages) is an extended essay on a single topic with basic data (often summarized in charts and graphs) presented in an easy-to-digest style for the general reader. *American Demographics* began as an outlet for interesting accounts of demographic change in American society, but over the years, it has become more directed to the immediate information needs of business-oriented readers.

An extraordinarily valuable source of social demographic reporting on the United States is *Current Population Reports* (CPR), the periodic reports from the Census Bureau, based on the Current Population Survey (CPS). There are several series of CPR publications that describe the latest survey data on family and household living arrangements, school enrollment and attainment, fertility, migration, income and poverty, and other topics, usually presented in a time series with data from previous years. One of the great values of *Current Population Reports* is the methodological discussion of the details of data collection, processing, and adjustment. Reading these details, often in the appendices and footnotes of CPR publications, is encouraged by the character of graduate training in social demography, which emphasizes acquiring more than a casual knowledge of the methodological underpinnings of government statistics (Shyrock and Siegel 1976).

This knowledge gives social demographers an advantage in interpreting social trends relative to many sociologists (and other social scientists) who are oblivious to the problems in data collection and measurement in government surveys. For example, careful readers of CPR publications learn that about one-third of all 20- to 29-year-old black men in the United States are missed in the CPS (U.S. Census Bureau 2000: Chapter 16). This problem means that most measures of black-white inequality are underestimates of the true differences (assuming that underenumerated black men have lower socioeconomic status than those who are interviewed). The problem of undercoverage is probably evident in all other data sources, including primary data collected by sociologists.

Another important but rarely understood issue in the study of inequality and stratification is the problematic measurement of income. Individual and family income data are based on survey responses to questions on both earned income (wages and salary and self-employment) and unearned income (from wealth and transfer income). Income is the most sensitive question in any census or survey and always encounters a high level of nonresponse (about 10% in the CPS, see U.S. Bureau of the Census 1993: C-10). Even more consequential than nonresponse is selective underreporting of certain

types of income. With imputation, the Census Bureau estimates that the CPS income questions capture 97% of all wage and salary income but only 51% of interest income and 33% of dividend income (U.S. Bureau of the Census 1993: C12-C13). Although income from wealth (interest and dividends) is less than 12% of the total estimated income in the United States, it is received almost exclusively by the richest fraction of the population. This “methodological detail” has important implications for the often-reported finding of increasing income inequality in the United States over the last two decades of the 20th century (DeNavas-Walt et al. 2001: 21).

Another part of the social demographic perspective is an appreciation of the significance of long-term population trends and differentials for understanding social change. The careful assembly of long-term trends in marriage, divorce, and remarriage (Cherlin 1992) and birth rates (Rindfuss and Sweet 1977) has provided important sociological insights about the economic and cultural changes in American society that produced the “return of tradition” in the 1950s and the tumultuous social changes of the 1960s and 1970s. The portrayal of cohort trends in educational attainment as the product of a series of continuation ratios from one grade level to the next is elegant and also a model that “explains” how the American educational system has changed over the 20th century (Duncan 1968: 640; Mare 1995). One of the most famous articles in social demography—Samuel Preston’s (1984) comparison of diverging trends in the welfare of children and the elderly in the United States—was prescient in its conceptualization and interpretation, but analytically, it was straightforward social description.

The elementary logic of demographic analysis focuses attention on the parallels between the life histories of individuals and cohorts as well as the distinction between period and cohort measures (Ryder 1964). This demographic perspective helps social demographers appreciate the value of summary measurements that describe social reality in an intuitive way. For example, the standard period measures of fertility and mortality are constructed to resemble life-cycle experiences of cohorts, e.g., the total fertility rate and life expectancy.

The knowledge of methodological aspects of data sources, elementary demographic techniques, and the value of social description has permitted creative social demographers to “invent” new conceptual measures that illuminate the human condition. Unlike the social indicators noted earlier, these summary measures are often intermediate, but indispensable, steps in the founding of a school of sociological research.

For example, Larry Bumpass and Ronald Rindfuss (1979) created a summary measure of the probability that a child will experience a single-parent household because of a marital breakup by age 18 (or an earlier age). Although such data are not directly collected in any national survey, Bumpass and Rindfuss linked parental marriage history by age of children and created a child-centered life table of experiencing a parental divorce. Another example of creative social demographic description was the index of “excess mortality” by Kitagawa and Hauser (1968). Excess mortality refers to the number of deaths that could have been averted if the entire population had experienced the mortality rates of the top quartile of the education distribution.

In the 1940s and early 1950s, one of the major research foci of sociology was the study of the residential segregation of social classes and race and ethnic groups within cities. Empirical generalizations were rare, however, because of the confusion created by the variety of indexes used to summarize the distribution of different groups across small areas in cities (blocks, census tracts). The confusion was ended with a single paper: Duncan and Duncan’s (1955a) systematic evaluation of all widely used measures of

residential segregation (also see Taeuber and Taeuber 1965: Appendix A). In addition to showing the mathematical relationships among the measures, the Duncans provide a conceptual rationale for using one measure—the index of dissimilarity (δ). For the next generation, there was a cumulative sociological and demographic science of research on residential segregation because all scholars worked within the same analytic school.

Twenty-five years later, Lieberman (1980) brought back one of the “almost forgotten” measures of residential segregation, P^* , an index of exposure rather than evenness of distribution across neighborhoods in a city. Lieberman used P^* to answer an important empirical question about the different ways that native whites in northern cities responded to the growing presence of SEC (Southern, Eastern, and Central) European immigrants and African American migrants from the South. With careful attention to the differences in conceptualization and interpretation of both indexes of segregation, Lieberman was able to continue and broaden the cumulative science of research on residential segregation.

Another major contribution of social demographic research was the extension of a measure of occupational prestige to a standardized index of the socioeconomic status of all occupations. Job titles and descriptions of jobs of survey respondents are coded into a very detailed occupational classification, consisting of hundreds of occupational categories, by the U.S. Census Bureau and other national survey organizations. One of the major problems confronting cumulative sociological research was how to summarize occupational distributions in a way that captures the important underlying dimensions of occupational differentiation and stratification. Most sociologists have traditionally dealt with this problem on an ad hoc basis by collapsing categories (e.g., white collar, blue collar, farm).

Sociological research had shown that a measure of the “social standing” of occupations yielded an interval scale index of occupational prestige that was almost invariant over time and across different populations (Hodge, Siegel, and Rossi 1964; Treiman 1977). The only problem was that occupational prestige was measured by detailed survey questions and only a few dozen of the hundreds of occupations had ever been rated and ranked. Duncan (1961a, 1961b) “invented” a method that showed that prestige scores could be reliably predicted as a weighted average of the income and educational attainments of occupational incumbents. The product of this research, the “Socioeconomic Index of Occupations,” has become a fundamental building block of modern social stratification research (Hauser and Warren 1997).

Although descriptive sociology is sometimes considered as a stepchild of the discipline, social demographers have invested considerable energy and ingenuity in social description and social accounting. This is not simply because social demographers attach greater value to social description than other sociologists, though this may be partially true. Social demographers would agree that mechanical social description is of marginal utility, but they also have a strong belief that cumulative science can develop only when important social science concepts are accurately and reliably measured.

SOCIAL DEMOGRAPHY AS EXPLANATORY SOCIOLOGY

Although good science begins with accurate and insightful description, this is only the first step. The ultimate goal of science is explanation of the natural and social world.

There are, of course, many meanings (and levels) of explanation. The forces that brought about a phenomenon may be quite different from the forces that account for its persistence, change, or demise. The explanation that accounts for how the properties or behaviors of elements of a system (e.g., people) contribute to the survival (or welfare) of the system as a whole may be quite different from the individual-level conscious motivations or the assessment of benefits/losses that are associated with the consequences of specific behaviors. Exploring the complexities of an adequate theory of scientific explanation and its application to the study of societies and human behavior is a task far beyond the bounds of this essay. Here, we simply review more generally the “practice of hypothesis testing” in social demography and sociology.

For most social science research, the standard method of explanatory science has been to attempt to account for variation in one variable (at one moment or over time) in terms of the variation in other variables. For example, can the variation in fertility across societies be “explained” by the level of socioeconomic development? At the individual level, how much of income inequality is a function of educational attainment? In most research, both the variable to be explained (the dependent variable) and the explanatory variables (the independent variables) are conceptualized and measured for comparable units of analysis. Units of analysis can be societies, individuals, cities, years, organizations, events, or person-years, but the standard presumption is that both the independent and dependent variables are measured for the same units. This assumption is not absolute, and it is possible to move across levels of analysis, but this usually requires some justification and appropriate analytical methods.

The most important assumption in deductive empirical research is that there is a testable hypothesis drawn from a general theory or, in other words, the assumption of a causal relationship between the independent variable and the dependent variable. As the popular saying goes, correlation does not equal causation. In fact, even the presumption of an assumption of causation and a high correlation do not necessarily “prove” causation. As will be discussed later in this section, assumptions about causation usually turn out to be more complicated than they seem initially. However, there is still a lot of useful and important research that can be done based on “weak” assumptions about causality.

Standardization and the Method of Expected Cases

Social demographers typically draw on general social science theories, the standard logic of the scientific method, and inferential statistical methods to test hypotheses, which are widely used in the broader sociological craft. However, sociologists with demographic training have a small comparative advantage in developing novel empirical tests with the “method of expected cases,” which is akin to the demographic method of indirect standardization. Standardization is a widely used method in demography to compare mortality (or fertility) rates between two populations with differing age compositions (Preston, Heuveline, and Guillot 2001: chapter 2). For example, the unadjusted mortality rate in many developing countries may be lower than the mortality rate in many industrial countries because of a younger age structure, even though mortality is higher at each age in the less developed country. Even in the absence of age-specific mortality rates for both populations, the method of indirect standardization allows the analyst to estimate how much of the difference in overall mortality is due to population composition, assuming both countries have the same age-specific rates.

This logic of indirect standardization has been used by social demographers (and also by other sociologists) to test important hypotheses with relatively weak data. For example, Lieberman (1980: 354–357) used the method of expected cases or indirect standardization to estimate the degree of labor market discrimination experienced by white immigrants relative to native-born whites and blacks in 1940. He compared the actual occupational distribution of white immigrants to the occupational distribution they would have attained with their own education and the education-occupation relationship of (1) native whites and (2) blacks. Lieberman concludes that white immigrants were able to obtain much better occupations than blacks with the same levels of education (also, see Hirschman and Wong 1986: 19–22, for a comparable study of Asian American occupational patterns).

Another ingenious example of the power of the method of expected cases is Otis Dudley Duncan's (1965) estimate of the trend in social mobility in American society using only one cross-sectional measure of social mobility (the transition matrix of respondent's occupation by father's occupation) from the 1962 Occupational Changes in a Generation (OCG) survey. Duncan compared the observed occupational distribution for various birth cohorts for earlier times with their expected occupational distributions, assuming the earlier cohorts had the 1962 transition matrix (from father's occupation to respondent's occupation), but their own distribution of father's occupations. The 1962 OCG provided estimates of the distributions of fathers' occupations for earlier cohorts, which were represented by the successive age groups in the 1962 OCG. Hauser and Featherman (1973) used the same method to estimate the trend in social mobility from 1962 to 1972, in advance of their replication of the OCG survey in 1973.

Another innovative social demographic analysis using an extension of the same method was Lieberman and Fuguitt's (1967) analysis that addressed the question of how many generations it would take to eliminate racial inequality in occupational structures if discrimination were eliminated immediately. One of the elementary lessons of formal demography is that two population distributions (by age or any other characteristic) will converge if they experience the same processes of change. In this case, the process of change is not fertility and mortality, but the matrix of intergenerational occupational mobility transition rates. The impact of differential social origins (as represented by father's occupation) on black-white occupational inequality would largely disappear in two or three generations in the absence of discrimination (both blacks and whites experiencing the same intergenerational occupational transition matrix).

The application of direct standardization methods, or "holding other variables constant" in sociological parlance, laid the groundwork for what has become the standard method of social demography—and of nonexperimental social sciences more generally. One of the earliest examples of this genre of work was Siegel's (1965) "On the Cost of Being a Negro." Following the logic of direct standardization, Siegel asks how much of the black-white income gap observed in the 1960 census would persist if racial differences in geographical location and educational attainment could be eliminated. Although Siegel acknowledged that other factors affecting racial differences in income were not controlled, he concluded that the "unexplained gap" in income between black and white men was a proxy measure for racial discrimination.

Otis Dudley Duncan (1969b) extended Siegel's work in what he called a "statistical experiment" that asked how much of the black-white gap in earnings was due to the "inheritance of poverty" or the "inheritance of race." One of the most popular explanations for black-white inequality in the 1960s was the "cycle of poverty." This

explanation posited that the primary handicap for black men was that they were born and reared in poor families or, simply put, poverty begets poverty. Using a regression approach that allowed for the inclusion of many more variables than are typically used in direct standardization, Duncan “statistically assigned” black men the values of white men on a variety of attributes, including socioeconomic status of the family of origin, the number of siblings, mental ability as measured by test scores, years of schooling completed, and current occupation. Even with all these sources of unequal background eliminated, black men would still earn about \$1,200 less than white men in 1961 dollars, when the mean income of white men was only \$7,100.

From Hypothesis Testing to Causal Modeling

The original logic of hypothesis testing in sociology (and in science more generally) focused on a single independent variable. The experimental method measures the impact of the experimental variable (or “the treatment”) on the outcome variable, with random assignment to the experimental and control populations eliminating the effects of all other variables. In nonexperimental social science, however, the methodological problems are more complex because the effects of many variables are intertwined, and there is no statistical method to uniquely apportion their interdependence. With the development of multivariate statistical methods, the initial idea was to estimate partial correlations or the “net associations” between variables, holding constant the impact of other variables. This approach, however, is an unsatisfactory method to test hypotheses because partial correlations present somewhat arbitrary estimates of the causal impact of independent variables on a dependent variable. Distinguishing spurious from real causes and the specification of remote causes from proximate mechanisms are theoretical and logical problems that cannot be resolved by more powerful statistical techniques.

Social demographers had an important advantage in developing causal models because of their experience with the logic of temporal order in demographic analyses. Many demographic variables follow a sequence ordered by the life cycle or chronological time. Fertility is a sequence of events that begins with marriage (or union formation), first birth, second birth, and so on. The events can be broken down to even more refined steps, beginning with the age at first sexual intercourse, conception, pregnancy, and birth. The central method of demography, the life table, is a cross-sectional representation of a temporal process—the survival function by age of a cohort from birth until all members of the cohort have died. The life table model provides a number of important summary measures, such as life expectancy for any age (or period of duration after entry into the population) from birth to death. Extensions of life table methods have given rise to event-history analysis and other statistical methods in sociology and social science.

There is a long tradition in demography of developing conceptual and analytical approaches to the study of many sociological variables (statuses) through the lens of the life course and temporal order (Schnore 1961). One of the most important contributions of social demography was Duncan’s concept of the *socioeconomic life cycle*, which applied demographic logic to a life course model, beginning with family background and, following in sequential order, schooling, job, income, and expenditures (Duncan 1967: 87). Duncan explained that these variables were indicators of larger social

processes, ranging from life chances to their ultimate effects on satisfaction and morale. In related work, Duncan introduced statistical methods to sociologists, for example, path analysis (which originated in genetics), to show how to analyze and interpret causal models, and he also provided important research exemplars that popularized life-cycle causal models in sociology (Duncan 1966; Blau and Duncan 1967).

Not all developments in causal models in sociology (and in the social sciences) can be credited to the work of social demographers. Hubert Blalock (1964, 1971), Herbert Costner (1969), Judea Pearl (2000), and many other sociologists, statisticians, and social scientists have made fundamental contributions to the theory and methods of causal analysis. Nonetheless, the introduction of life-cycle sequential logic and temporal order into multivariate models by social demographers has helped to transform sociology from the study of partial associations to the specification and testing of causal models.

Although most of the examples presented here are drawn from the study of stratification, the impact of temporal order and life-cycle models on sociological analysis reaches across the discipline. For example, the concept of the life cycle has been adapted to studies of urban development with the notion that the construction of the physical structure of cities, including transportation systems and housing stock, bears the imprint of the period of initial construction and that the physical infrastructure will decline with age and become less attractive (Duncan, Sabagh, and Van Arsdol, Jr. 1962; Schnore 1963). In their study of the determinants of race riots, Lieberson and Silverman (1965) drew the distinction between underlying conditions (such as minority poverty and unemployment) and precipitating events (an altercation following a police arrest). Perhaps social demographers unconsciously draw upon their familiarity with temporal order in creating causal models of sociological phenomena.

Social Demography and Studies of Social and Spatial Assimilation

The debate over assimilation has been at the heart of sociology since the days of Robert Park and the origins of the Chicago School of Sociology (Park 1950; Park and Burgess 1921). In the early decades of the 20th century, primary attention was focused on the "new immigration" from Southern and Eastern Europe. In the middle decades of the century, following the Great Migration of African Americans to cities in the Northeast and Midwest and especially in the wake of the Civil Rights movement of the 1950s and 1960s, sociology was convulsed with attempts to explain the continuing legacy of racism after 300 years of settlement and 100 years after the Civil War. In the last third of the 20th century, with the renewal of mass immigration from Asia and Latin America, sociology was again asking questions about the absorptive character of American society.

The questions raised by Robert Park, and refined by Milton Gordon (1964), became part of the 20th-century sociological agenda, but for the most part it has been difficult to establish cumulative empirical generalizations that reach across the disparate findings of individual studies. The fundamental problem was the lack of common standards or a hegemonic research paradigm to test the assimilation hypothesis. Although social demographers have not "solved" the problem, there have been several important contributions, many of them arising from demographic familiarity with potential uses and limitations of census and survey data and with techniques of studying social change via inter- and intracohort models.

Karl Taeuber (1964: 375) offers a distinctive sociological definition of assimilation “as the process of dispersion of members of the group throughout the social structure.” This definition is fairly similar to Milton Gordon’s (1964) specification of “secondary group structural assimilation.” Gordon defined the central element of structural assimilation as integration between minority and majority group members in associations where primary group affiliations prevail, such as kinship groups, friendship cliques, and neighborhoods. In addition, Gordon notes that integration may also occur in situations where secondary associations prevail, such as schools, places of employment, commercial establishments, and so on. Many social demographers have adapted Taeuber’s and Gordon’s ideas to the concept of *socioeconomic assimilation*, which is usually operationalized by measuring group differences in education, occupations, and income. Although socioeconomic assimilation does not necessarily imply integration—sharing of common institutions or even common spaces—the assumption is that the lessening of socioeconomic differences will minimize social barriers between groups. One of the advantages of having a well-defined dependent variable (and one that is widely available in many data sources) is the possibility of a cumulative research literature.

Social demographers have also contributed the concept of *spatial assimilation* as a basis for understanding racial and ethnic residential stratification. The idea that spatial patterns reflect socioeconomic inequality, and that some groups reside in more attractive and desirable neighborhoods than other groups, reflects the legacy of the Chicago School (Duncan and Duncan 1955b). Using a variety of measures of residential “segregation,” but especially the index of dissimilarity and the index of exposure/isolation, social demographers have documented the uneven distribution of racial and ethnic groups within U.S. cities (Lieberson 1963, 1980; Massey and Denton 1993).

African Americans have been found to be especially disadvantaged in terms of their patterns of residential segregation and the quality of their neighborhoods. Faced with these descriptive patterns of residential distribution, social demographers turned to the search for explanations, drawing first from theoretical perspectives that had been used to account for other types of racial and ethnic inequality. According to the “spatial assimilation model,” such group variation in neighborhood location and quality reflects corresponding group differences in the socioeconomic standing (e.g., education, occupational status, and income) or, for immigrant groups, the degree of cultural adaptation (e.g., language acquisition). The spatial assimilation model, therefore, suggests the research hypothesis that group differences in residential location should “disappear” once the appropriate root causes are controlled—or, put simply, when individuals are compared only to others with identical characteristics (Alba and Logan 1991; Guest 1980; Massey 1985). When that hypothesis is tested, however, residual group differences in residential location and quality often remain, with African Americans continuing to reside in more segregated and less desirable neighborhoods (Massey and Denton 1987; Massey and Mullen 1984).

Faced with the inability of the spatial assimilation model to fully account for racial and ethnic differences in residential patterns, social demographers have proposed the “place stratification” model, which describes institutional barriers that prevent some groups, primarily African Americans, from converting their higher socioeconomic status into preferred residential locations (Alba and Logan 1991, 1993; Logan and Alba 1993; Logan, Alba, and Leung 1996; Massey 1979; South and Crowder 1997, 1998). While not denying the importance of the causal mechanisms identified by the spatial assimilation model, the place stratification model suggests the additional

hypothesis that groups will vary in their ability to translate a socioeconomic advantage into a residential one. Tests of this hypothesis have yielded mixed results, leading to the further specification of “weak” and “strong” versions of the place stratification model (Logan and Alba 1993). Although the literature on racial and ethnic patterns of segregation and locational attainment has yet to provide a complete accounting, it illustrates nicely how social demography approaches an explanation of social phenomena, employing both deductive and inductive strategies.

The focus on socioeconomic and spatial assimilation by social demographers has been developed in tandem with models (or at least multivariate analyses) that attempt to test hypotheses. One of the key variables in any analysis is time, often measured as a period of influence by comparing data from 1970, 1980, and 1990 (or data from 1920 compared to 1940). However, the majority and minority populations are not always comparable over time because of changes in immigration (or domestic migration patterns), generational succession, and age structure. For example, the current Japanese American population is largely a third- or even a fourth-generation population, the descendants of immigrants who arrived in the first two decades of the 20th century, while the majority of Chinese Americans are immigrants. Temporal comparisons of the average status (or residential segregation) of race and ethnic groups are apt to be very misleading because of the confounding effects of immigration generation and age structure (Taeuber and Taeuber 1967).

Because of the tradition of cohort analysis, social demographers have been very sensitive to generational differences when making temporal comparisons of the assimilation of race and ethnic groups. In his celebrated study, *A Piece of the Pie: Blacks and Immigrants Since 1880*, Stanley Lieberson (1980) compares the attainments of the children of SEC (Southern, Eastern, and Central European) immigrants and the children of black migrants from the South to northern cities. Immigrants, and black migrants to the North, were socialized and educated in “worlds” so different from their current place of residence that it is almost impossible to try to explain the reasons for their socioeconomic inequality with older-stock Americans. On the other hand, their children (the second generation) were born and reared in the United States (or, for blacks, in northern cities), and the temporal (intercohort) trend in their educational progress (which can often be inferred from successive age groups in a single census) can be a proxy for inferences about opportunities in American society. Much of the recent work on ethnic stratification in the United States by sociologists (not all of whom are social demographers) tries to control for generational differences by analyzing the second generation (Portes and Rumbaut 2001) or by creating proxies for the second generation (Hirschman 2001).

The Limits to Explanatory Social Demography

One of the general strategies in social demographic research, which has become part of mainstream sociology, is to identify an important social change (comparing the same population at two or more points in time) or a significant social difference between populations (race and ethnic groups, cities, social classes, etc.) and then attempt to explain these differences in terms of differences in other variables (the independent variables). For example:

- Can changes in birth rates (from baby boom to birth dearth) be explained in terms of changes in educational composition (or farm origins) of the population?
- Can race and ethnic differences in educational attainment be explained in terms of the socioeconomic status of their families of origin?
- Can the shift from extended to nuclear families in modern societies be explained by changing patterns of social and geographical mobility?

There are good sociological theories to motivate these hypotheses and there are reasonably good data to test them. Indeed, these are the sorts of interesting questions that have been addressed by social demographers and other sociologists in the scientific literature. However, these questions have been only partially resolved by research, since there are many anomalous findings that may be a function of data, research design, and the scope and measurement of covariates.

The fundamental problem is that not all social differences over time (or between populations) are a function of population composition. For example, Rindfuss and Sweet (1977) report that the upswing in fertility during the Baby Boom years affected all groups, and the subsequent downturn was also pervasive across all educational, age, race and ethnic, and other social categories. These dramatic period effects cannot be reduced to changes in characteristics of the population by standardization, regression, or any other statistical method that attempts to explain population differences in terms of the variance of other variables (Preston 1978: 301–302).

Sociologists and other astute social observers have no shortage of ideas on potential reasons for the fluctuations in the birth rate over time. The problem is there are an (almost) infinite number of such speculative propositions that are consistent with the observed trends, and it is very difficult to test one hypothesis relative to the others. Richard Easterlin (1962, 1978, 1987) has suggested an elegant and parsimonious interpretation of the reasons for long waves in fertility trends in American society based on the effects of age structure on age-specific rates of fertility (and other behaviors), but the empirical evidence is mixed and there are other competing hypotheses (or ad hoc speculation) that cannot be ruled out.

There are many unique (or relatively rare) historical, political, cultural, or environmental factors that could explain social trends, as well as specific momentous events such as wars, economic booms and busts, and electoral outcomes. Although historians and social observers often discuss social change in terms of historical turning points, it is difficult to specify the specific causes of societal transformations that condition the behaviors of peoples and social aggregates. For example, the discovery of gold in California in 1848 dramatically changed every aspect of subsequent 19th-century American society, but this event was completely exogenous to everything and everyone at the time. Although this is an example of an unusual incident, the basic principle holds—namely, that many important causes of human behavior cannot be derived from the variance of any contemporaneous variables.

In the years ahead, social demography is likely to broaden its scope and incorporate alternative approaches to the study of societal change and human behavior. One possible alternative perspective is evolutionary theory, which has been mentioned as an attractive theoretical paradigm by several social demographers (Knodel et al. 1997; Lieberman and Lynn 2002; Massey 2002) but has yet to become linked to a formal methodological orientation or analytical approach.

SOCIAL DEMOGRAPHY AND CONTEXTUAL ANALYSIS

The premise of sociology as a discipline is that social structure (e.g., societies, communities, organizations) is more than the sum of individual characteristics. In other words, there are emergent properties of social aggregates that affect macrolevel social change and also condition the lives of individuals (Hawley 1992). For example, the size and age distribution of a population (which are properties of the whole) influence the rate of social mobility. Societal attributes condition individual behavior and life chances through opportunities and constraints (Blau 1994). Although this logic is widely accepted by sociologists, it is striking how little contemporary sociological theory and research attempts to refine, develop, or test hypotheses about structural and systemic influences on human societies and social behavior. Most social demographic research uses microlevel variables to explain microlevel outcomes or macrolevel variables to understand variation in macrolevel characteristics. Increasingly, however, social demographers are combining information from different levels of observation in their conceptual and analytic models—especially to allow for the possible influences of macrolevel variables on microlevel outcomes. Fundamental to such mixed-level approaches is the recognition that individuals are embedded within different social contexts and that social contexts can have an important impact on the characteristics and behaviors of individuals. Indeed, the assumption of contextual influences is a hallmark of the sociological perspective

Human ecology, which developed as a theoretical branch of the Chicago School of Sociology and in tandem with social demography, is one of the relatively few sources for sociological hypotheses of macrosocietal influences on social change and individual behavior (Hawley 1950; Duncan and Schnore 1959; Micklin and Choldin 1984; Micklin and Poston 1998). Human ecological theory, which assumes the centrality of social structure, developed in an era when aggregate units such as cities, communities, and neighborhoods were the primary units of analysis for much of quantitative sociology. With the growing development of metropolitan areas and their influence on suburban growth, transportation systems, and economic organization, human ecology provided a coherent macrolevel theoretical framework to posit reciprocal influences of population, environmental, and technological forces on social organization (community structure) (Duncan 1959; Frisbie and Poston 1975). Most social demographers still find intellectual kinship with ecological theory (Namboodiri 1988), and it is even possible to draw close parallels between human ecology and the Marxist theory of social change (Hawley 1984).

Human ecology's star, however, has waned in recent decades. Part of the reason may be an ideological mindset that tends to be very skeptical of all structural approaches to explaining society and human behavior. Most people, including social scientists, have a very individualistic point of view. Success or failure generally appears to be a product of personal characteristics and motivations. Even hypothetical suggestions of social influences are often met with such responses as "not everyone from the wrong side of the tracks becomes a criminal." These "strawman" caricatures of structural influences are illogical, but they probably have resonance in the broader society.

But the deeper reason for the lack of a sociological commitment to structural analysis may be the revolution in the availability of microlevel data in recent decades. Social demographers have enjoyed access to a growing variety of individual-level,

nationally representative, survey data sets that have enabled new directions in social science (and demographic) research. The Census Public Use Microdata Samples (PUMS) have become a “workhorse” of demographic research on both historical and contemporary topics (Watkins 1994). PUMS files are now available for virtually all U.S. Censuses from 1850 through 2000 (Ruggles and Sobek 2001). In addition, many of these data sets, such as the Panel Study of Income Dynamics and the National Longitudinal Surveys, have given social demographers added leverage for inferring causal processes by following the same respondents over relatively long periods of time. Interestingly, however, these same data sets may have contributed to the renaissance of structural analysis through their inclusion of geocodes that allow researchers to situate individuals and families within a variety of geographical/social contexts such as neighborhoods, cities, counties, and metropolitan areas. This capability has led to renewed interest in the question of how various contexts influence individual-level behaviors and characteristics. This line of inquiry, which extends far beyond social demography, goes by many different names, including multilevel modeling, contextual analysis, and hierarchical linear modeling.

At the heart of contextual analysis is the question of whether there are environmental factors that affect the behaviors of individuals—over and above the characteristics of the individuals themselves. One of the most celebrated examples of contextual-level analysis in social demography was the project to find community-level influences on fertility. As part of the World Fertility Survey (WFS) project, Ronald Freedman (1974) advocated the collection of community-level data (i.e., village) to supplement household survey data. Demographic transition theory, the leading social demographic model of fertility decline, provided strong arguments for the salience of social and institutional context (e.g., the economic value of children, the status of women, infant and child mortality, etc.) on reproductive intentions and behavior (Caldwell 1980; Freedman 1979; Smith 1989). The results of research on contextual effects on fertility have been mixed.

Most of the empirical research based on WFS data found only modest effects of community characteristics on variations in individual-level fertility (Casterline 1985). There are a number of methodological obstacles that confront analyses of contextual models, including selection into contexts, variations in length of exposure to community context, and heterogeneity of contexts (Blalock 1985). In his analysis of fertility in four Southeast Asian countries, Hirschman and his colleagues found only modest effects of context on cross-sectional variations in fertility but very substantial effects of contextual variables in explaining fertility decline over time (Hirschman and Guest 1990; Hirschman and Young 2000).

The expanding availability of multilevel data sources, and the development of new and more appropriate estimation techniques, has allowed social demographic researchers to include contextual variables in their investigations of a diverse set of outcome variables, including the sexual activity of youth (Baumer and South 2001), nonmarital sexual intercourse (Brewster 1994), nonmarital childbearing (Brooks-Gunn et al. 1993; Crane 1991), divorce (South, Trent, and Shen 2001), residential location and mobility (Crowder 2001; South and Crowder 1997, 1998; Tolnay, Crowder, and Adelman 2002), family structure (Tolnay and Crowder 1999), and adolescent schooling (Brooks-Gunn et al. 1993; Crane 1991). Although the literature is too extensive to summarize completely, the results from these analyses have revealed a number of significant impacts of social contexts on individual-level outcomes. What is less clear,

in many cases, is the precise mechanisms through which these contextual influences on individual behavior are exerted. In one notable exception, however, Baumer and South (2001) showed that the supportive attitudes and behaviors of peers are largely responsible for the positive relationship between neighborhood disadvantage and the number of sex partners reported by adolescents.

There has also been an emerging interest in measuring the impact of context, conceptualized as opportunity structures, on processes of social and ethnic stratification, sometimes identified as part of the school of *new structuralism*. Although much of this work has been done by social demographers, it is impossible to draw clear boundaries from the work of other sociologists. The research findings are again very complex and do not point to a single conclusion or interpretation. There are city (or community area) differences in occupational and earnings structures (and other dimensions of inequality), and "places" appear to have significant, but relatively modest, impacts on race and ethnic inequality (Fossett and Swicegood 1982; Guest, Almgren, and Hussey 1998; Hirschman 1982; Hirschman and Kraly 1988, 1990; Parcel 1979; South and Xu 1990). Several studies have found that the percent of an ethnic minority in a city (or other geographical areas) has a significant impact on patterns of ethnic stratification (Cohen 1998; Frisbie and Neidert 1977; McCreary, England, and Farkas 1989; Tienda and Lii 1987; Tigges and Tootle 1993; Tolnay 2001).

Important conceptual, methodological, and analytical problems appear to have inhibited the development of cumulative research on contextual models of stratification processes. Perhaps the most fundamental problem has been the conceptualization of place on economic opportunities. In earlier times, cities (or labor markets) were very differentiated from one another, depending on the industrial structure of employment. Because of the limitations of local (and long distance) transportation, people worked where they lived. At the present time, national (and global) integration has lessened the differences between places, and it is possible for workers to travel substantial distances between home and work. Place and location may still be constraints on opportunities, but it is not clear how best to conceptualize and measure the flexibility that frequent geographical mobility and long distance commuting have created.

Researchers interested in conducting contextual analyses face a variety of conceptual and methodological challenges, including the appropriate definition of *context* for a given individual-level outcome, the process through which individuals are selected into contexts, the possibility that multiple contexts influence individual behavior, the heterogeneity of contexts, the clustering of similar individuals within the same contexts, and the need to consider more complex error structures when individual and contextual units are used to predict individual-level outcomes (Blalock 1985; Bryk and Raudenbush 1992; DiPrete and Forristal 1994; Mason, Wong, and Entwisle 1983; Teachman and Crowder 2002). In recent years significant progress has been made in designing statistical software that is capable of meeting many of these challenges (see Zhou, Perkins, and Hui [1999] for a review).

Regardless of the specific software that is used, however, the statistical methods that are appropriate for conducting contextual analyses are designed to answer two general kinds of questions. First, do aspects of the social context have an *additive effect* on individual-level outcomes, independent of appropriate individual-level covariates? That is, is the likelihood of a given outcome (or its intensity) increased or reduced by the characteristics of the setting within which individuals are located? Most contextual analyses of social demographic or stratification outcomes have restricted their attention

to such additive effects. Second, do the effects of individual-level predictor variables vary across contexts? And, if so, is it possible to identify the specific contextual characteristics that account for such variation? Although less common in the literature, the latter effects (often referred to as *cross-level* interactions) have also been considered by social demographers.

For example, one element of the ethnic enclave debate has been whether immigrant workers are rewarded differentially for their human capital in mainstream firms compared to firms owned by coethnics (Portes and Jensen 1989; Zhou and Logan 1989). In other words, does the effect of immigrant status on earnings differ according to the employment context in which they are engaged? From the fertility literature, Entwisle and colleagues report that the microlevel effects of education and childhood residence on fertility and contraceptive use vary across countries depending on the level of economic development and the strength of family planning programs (Entwisle and Mason 1985; Entwisle, Mason, and Hermalin 1986). Moreover, the effects of context may not be linear. Crane (1991) finds that there are “tipping points” of ghetto neighborhoods on adolescent fertility and dropping out. The impact of context may be very important, but only for a small fraction of the population.

A major unresolved issue in contextual analysis is whether all differences between places and institutional settings should be assumed to be the product of structural influences. The alternative hypothesis is selectivity. People move to cities where their skills best match opportunities and parents move to neighborhoods to find better schools. In terms of research design, the question is whether structural effects should be assessed before or after individual-level variables have been included in explanatory models. Much of the research in the “school effects” literature has found that between-school variations in student achievement are relatively small (or smaller than expected) once individual-level differences are held constant. This was one of the principal findings of the Coleman report on equality of educational opportunity (Coleman et al. 1966). The basic findings of the Coleman report were confirmed in reanalyses of the data (Harvard Educational Review 1969; Mosteller and Moynihan 1972), and subsequent research has found few strong “school (or neighborhood) effects” on student achievement and aspirations (Sewell and Armer 1966; Hauser 1969; Hauser, Sewell, and Alwin 1976).

The theory that social structure matters is central to the sociological perspective and to social demography and human ecology in particular. However, it was easier to make claims about the salience of structural influences on social life in an era when aggregate-level analysis was the norm, and there were fewer microlevel data sources available to researchers. The fields of structural sociology and human ecology have become more muddled in recent years without a clear theoretical model and analytical approach. However, just as richer data sources and more powerful statistical methods have exposed some earlier assumptions about “structural determinism,” they also make it possible to develop a more sophisticated theory of the influences of context on social change and social behavior.

Recall the earlier discussion on the limits of conventional hypothesis-testing models of social demography. Tests of whether the variance in the dependent variable can be fully explained by variance in independent variables is a much more successful strategy for disproving “false” hypotheses than in explaining the real causes of social change. Changes in population composition are important elements of how societies change, but more elusive are the reasons for social change when all groups (age groups, race and

ethnic groups, social classes) change their behavior. The explanations for such patterns and changes are most likely to be found in changing contexts (economic, political, social, technological, environmental). The increasing use of contextual analysis by social demographers to study individual-level behavioral outcomes suggests that the discipline is well poised to be a major source of inspiration for future research on these and other important questions. And, as the role of context in shaping individual behaviors assumes a higher profile within social demographic research, the field necessarily becomes more “sociological,” and perhaps moves closer to its intellectual roots in human ecology.

CONCLUSIONS

There are no clear boundaries for the field of social demography. Although the majority of social demographic research probably is located within the areas of family sociology and social stratification, broadly defined, there are sociological demographers whose work reaches every branch of sociology and beyond. For example, Reynolds Farley, Matthew Snipp, Josh Goldstein, Mary Waters, Charles Hirschman, Richard Alba, and other social demographers conduct research on changing racial identities (*Perlmann and Waters 2002; Hirschman, Alba, and Farley 2000; Waters 2002*); Richard Udry writes on biological influences on gendered behavior (Udry 1994, 2000); Scott South has outlined the intersections of social demography and criminology (South and Messner 2000); and Teresa Sullivan has become one of the leading specialists on debt and bankruptcy (Sullivan, Warren, and Westbrook 1989, 2000).

Nor can social demography be pigeonholed by data and methods. The majority of social demographers use statistical methods to analyze census or population survey data, but social demographers have also been among the pioneers and leading advocates of in-depth interviews and focus groups (Knodel 1997), the ethnosurvey (Massey 1987a; Massey and Zenteno 2000), simulation (Wachter, Knodel, and Vanlandingham 2002), and fieldwork methods (Waters 1999: 347–371). Increasingly, social demographers make important contributions by assessing the state of knowledge on specific topics in the social sciences with careful reviews of theoretical debates, the research design of prior work, and the quality of data and analyses (Cherlin 1999; Massey et al. 1998). Social demographers are sociologists and social scientists, whose research foci and methods of investigation are limited primarily by their imagination and creativity, not by artificial boundaries.

There are, however, certain features of a social demographic perspective or orientation that characterize much (but probably not all) of the research work by those trained in the field. Perhaps most common is an understanding of the interplay of cohorts and period in social change. Norman Ryder's (1965) essay on “The Cohort as a Concept in the Study of Social Change” is a canonical reading in social demographic training. The classic applications of the cohort perspective have been in studies of fertility trends (Ryder 1969; Rindfuss, Morgan, and Swicegood 1988), but there have also been illuminating cohort studies of life-cycle events, political attitudes, church attendance, and many other topics (Abramson 1975; Alba 1988; Uhlenberg 1969). To some extent, the application of the cohort perspective has been inhibited by methodological obstacles and the impossibility of obtaining independent estimates of

age, period, and cohort effects (Mason and Feinberg 1985), but the logic of the cohort perspective remains a cornerstone of social demography. Armed with a cohort perspective of the short-term and long-term impacts of period influences, social demographers have a conceptual lens that allows for the study of social change via the changed experiences/behavior of young adults, persistence over the life cycle, and generational replacement (Mayer 1988; Winsborough 1978). Although the current balance of evidence appears to suggest that social change is driven more by period than cohort influences (Ni Bhrolchain 1992; Morgan 1996), these findings were reached within a cohort analytical framework.

Another central dimension of social demographic training is the logic of decomposition. The crude birth rate is understood as the weighted average of age-specific fertility rates. Urban growth is the sum of exits and entries (in and out migrants) to the city, but also of births and deaths in the city, and of the births and deaths of in-migrants (and of "lost" births and deaths of out-migrants). Each of these components may have quite different causes, and the construction of an overall model or theory must be sensitive to underlying mechanisms and their relative magnitudes.

For example, by careful specification of all the population flows between cities and suburbs within and between metropolitan areas, William Frey (1979, 1984) demonstrated that much of the widening racial balance between cities and suburbs in the United States is due to factors other than white flight. In another important contribution, Samuel Preston (1979) cast doubt on the popular view that rapid urban growth in developing countries was due to unprecedented levels of rural-to-urban migration drawn by the "bright lights" of cities. He showed that the major source of urban growth was a natural increase in cities, and the most important reason for rapidly growing cities in some countries was the national rate of population growth in those countries. Douglas Massey (1987b) changed the standard approach to the study of international migration by distinguishing the components of departure, repetition (multiple migrations), settlement, and return migration. Changes in the number of net migrants to the United States over time are a function of the relative volume of these four components, each of which has different individual and structural determinants. Most social phenomena that are studied by sociologists have an internal structure of interlocking components. The demographic logic of decomposition provides an analytical strategy to focus attention on each of these component processes.

Another dimension of the demographic style is the lack of concern with disciplinary boundaries. In traditional social scientific fields, neophytes (graduate students) are generally indoctrinated into thinking about the superiority of certain theories, methods, data sources, and the art of asking the right question. Anthropologists learn that fieldwork is the "preferred" method of inquiry, and economists learn that the proper method of expressing theory is in mathematical form. Sociologists learn that all good research questions must be related to some quotation from Marx, Weber, Durkheim, or other classic theorist. Considerable time and effort is spent in reinforcing disciplinary boundaries. Although many sociologists are interested in testing hypotheses derived from economics and biology, they are likely to incur scorn and derision for straying from the disciplinary heartland.

A fundamental problem with the adherence to traditional disciplinary boundaries is that neither the natural nor the social world is organized for the convenience of researchers who are embedded within the disciplinary organization of contemporary

science. Individuals and groups have preferences (and interests) for certain styles of theory and modes of analysis, but nature does not. Unlike the transformation of many disciplines in the natural sciences in recent decades with the development of new knowledge and methods, most social sciences seem rooted in 19th-century thinking of status and turf protection. Should departments of government change their name to political science? Why was there an almost universal trend to divide departments of anthropology and sociology even though the only real difference was the populations they studied? Why is there such fear by noneconomists of economists who begin to study topics such as politics, the family, and other institutions far from their traditional concerns?

Social demographers tend to be socialized with less doctrinaire orientations about disciplinary boundaries. By claiming to be both demographers and sociologists, social demographers are often more likely to draw upon novel ideas and productive methods regardless of their origins. At most American population centers, graduate students and faculty members are exposed to research (and research styles) from other disciplines through research seminars and research projects. At meetings of the Population Association of America, in the pages of the leading journals of demography, and through conferences sponsored by funding agencies or foundations, interdisciplinary perspectives and communications are valued and rewarded.

As sociology, and the social sciences more generally, faces new challenges in the coming years to address problems of the environment, health and health care, aging, violence and war, and ethnic divisions, it will be difficult to maintain rigid disciplinary boundaries. One tack has been to create new academic units devoted to the policy sciences, ethnic studies, women's studies, and other specialized fields. Although these units often begin as interdisciplinary programs, the general tendency is to create autonomous units with a separate curriculum, hiring and promotion policies, and eventually to create wholly independent disciplines. Social demography offers an alternative model for the future of social science with interdisciplinary centers existing side by side with disciplinary departments.

To paraphrase Oscar Handlin's quip about the place of immigration in American history, we began this survey by looking for the place of social demography at the margins of sociology, but discovered that social demography is at the heart of sociology.

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