

DEMOGRAPHIC DESTINIES

Interviews with Presidents of the Population Association of America

Interview with Barbara Entwisle PAA President in 2007



This series of interviews with Past PAA Presidents was initiated by Anders Lunde
(PAA Historian, 1973 to 1982)

And continued by Jean van der Tak (PAA Historian, 1982 to 1994)

And then by John R. Weeks (PAA Historian, 1994 to present)

With the collaboration of the following members of the PAA History Committee:
David Heer (2004 to 2007), Paul Demeny (2004 to 2012), Dennis Hodgson (2004 to
present), Deborah McFarlane (2004 to 2018), Karen Hardee (2010 to present), Emily
Merchant (2016 to present), and Win Brown (2018 to present)

BARBARA ENTWISLE

PAA President in 2007 (No. 70). Interview with John Weeks, Dennis Hodgson, Karen Hardee, Emily Merchant and Win Brown via Zoom, since we were all self-isolated at home due to Covid-19, May 20, 2020.

The completed interview will be available soon!

PUTTING PEOPLE INTO PLACE*

BARBARA ENTWISLE

Over the past two decades, there has been an explosion of empirical research on neighborhoods and health. However, although the data and approaches owe much to the early contributions of demographers and population scientists, this debt is largely unrecognized. Likewise, challenges posed in the early literature remain largely unanswered. I argue that just as demographers and population scientists were pioneers in the study of neighborhoods and health, they are uniquely poised to lead the field again. Putting people into place means explaining behavior and outcomes in relation to a potentially changing local context. A more dynamic conceptualization is needed that fully incorporates human agency, integrates multiple dimensions of local social and spatial context, develops the necessary longitudinal data, and implements appropriate tools. Diverse approaches with complementary strengths will help surmount the many analytic challenges to studying the dynamics of neighborhoods and health, including agent-based microsimulation models.

Places—local social and spatial contexts—influence nearly all aspects of people’s lives, not least of which is their health. Obviously, a family’s economic disadvantage affects the health of its members, but does living in a poor neighborhood place residents at a disadvantage above and beyond family factors? If so, how? Attempts at answering this and related questions have inspired a vast literature on neighborhoods and health in urban areas in the United States and other developed countries. Scholars of developing countries have addressed a parallel set of questions, such as whether living in a more modernized village with better access to health care leads to innovative health behaviors. Hundreds of studies have been devoted to questions of health and context in a wide range of settings, and as I will document, demographers and population researchers initially were at the forefront in setting a research agenda that persists to this day. Indeed, I argue that the conceptual frameworks, data sources, and statistical machinery prominent today were mostly in place two decades ago. Future progress requires a new perspective on the interconnection of people and places, especially on the dynamics of this interconnection, and new approaches to studying it. The conclusion argues that just as demographers and population scientists were pioneers initially, we are ideally positioned to lead research in new directions.

A VIEW OF HISTORY

The contemporary research literature on neighborhoods and health originated in the 1960s. At that time, population growth was a major concern and focus of research activity. Population growth rates globally were estimated at 2% per year (Coale 1974). Growth was a particular concern in the third world. It was clear that most future growth would be concentrated there and, further, that fertility trends would be key. There were major debates about the roles of family planning programs and social and economic change generally in bringing about fertility decline (Berelson 1969; Davis 1967; Demeny 1979; Tsui and

*Barbara Entwisle, Department of Sociology, University of North Carolina at Chapel Hill, CB #3210, Hamilton Hall 070A, Chapel Hill, NC 27599-3210; E-mail: entwisle@unc.edu. This is a written version of the Presidential Address given at the annual meeting of the Population Association of America, March 29–31, 2007, New York City. The thoughts expressed in it are my own, but I have been influenced in many ways by conversations I have had over the years with my mentors, my colleagues, the students and postdocs with whom I have had the privilege to work, and most of all, my husband, Kenneth A. Bollen. I would also like to acknowledge the support of the National Institute of Child Health and Human Development (R24 HD050924; R03 HD050217; R21 HD051776) and of the Carolina Population Center, especially the help of Bridget Riordan, Lori Delaney, Laurie Leadbetter, and Tom Swasey.

Bogue 1978). However, no one disputed that massive changes were underway or that individuals would be influenced by those changes.

Demographers at that time began to think about how the attributes of social setting might affect specific behaviors. Ronald Freedman led the development of a research program devoted to this.¹ He conceptualized individuals as living in and influenced by local community contexts and was interested in using data from multiple levels of observation to study this (e.g., Freedman 1975). Innovation in the design and collection of social surveys fielded in many parts of the world starting in the mid-1960s made it possible to investigate these ideas empirically. These surveys, collectively labeled KAP (Knowledge, Attitude, Practice) surveys, documented patterns of fertility and contraceptive use and collected information about possible determinants (with an eye to interventions). What was novel was the addition of a community component to collect data on the characteristics of local communities, typically villages. KAP surveys with a community component were administered in India, Iran, Korea, Nigeria, Pakistan, Tanzania, Thailand, and Turkey (Freedman 1974).

Freedman and his associates built on this experience to design an optional community survey for the World Fertility Survey (WFS), which was used in 17 countries in the 1970s and early 1980s (Casterline 1985:885). The WFS Community Surveys collected information on a variety of characteristics: transportation, communication, government and other institutions, health and related facilities, family planning services, schools, agriculture, and aspects of development (Casterline 1985:888–89; Freedman 1974). These were measurable features of local communities relevant to prevailing theories of fertility decline. The WFS Community Survey was designed primarily for use in rural areas, where villages constituted the primary sampling units of the survey, a research approach that still characterizes much research on developing countries. Typically, the information was collected in a group interview of village leaders.

There was tremendous excitement about the potential for the WFS community data to shed light on the determinants of fertility and family planning. In the words of Halvor Gille, the WFS Project Director, “Few would query the proposition that demographic decisions are heavily influenced, one way or another, by the community or social setting in which those concerned find themselves, to the extent that failure to take account of such factors renders attempts to paint the picture of the demographic scene seriously incomplete” (Casterline 1985:v).

A seminar was held in 1983 to review the methodology and results obtained to that point with the WFS Community Survey. In the volume based on the seminar (Casterline 1985), the sense of disappointment is palpable. Research results fell short of expectations. In his review of fertility research, John Casterline wrote, “Totaling up the statistically significant findings leaves one almost empty-handed” (1985:73). Amy Tsui, who reviewed the research on contraceptive use, also noted the generally weak community effects. In his summary observations, Freedman commented, “Overall . . . the findings are disappointing. I expected more, despite the crudeness of the measures” (1985:269). We know now that the effects of social contexts, whether they are rural villages in developing countries or urban neighborhoods in the United States, are generally modest. This was not known at the time.

There was a lot of soul-searching following from this disappointment. Some attributed the weak effects to weak methodology, including possible data quality issues, overly crude measures, lack of cultural sensitivity, absence of clear time references, and a questionable match between the sampling units in a national survey and a community of collective action

1. Freedman (1975:11) is the first to acknowledge his intellectual predecessors: the American Soldier project, which found unit as well as individual soldier effects; and a tradition of research in education that looks at school and classroom as well as individual student effects. However, whereas military units and schools are self-contained contexts with well-defined authority structures and clear rules of membership, villages, neighborhoods, and communities are not. Interest in these local contexts was a clear departure.

and common normative structure (Freedman 1985:269–71). All agreed on the need to develop clearer theory about the nature of communities and their consequences for behavior.

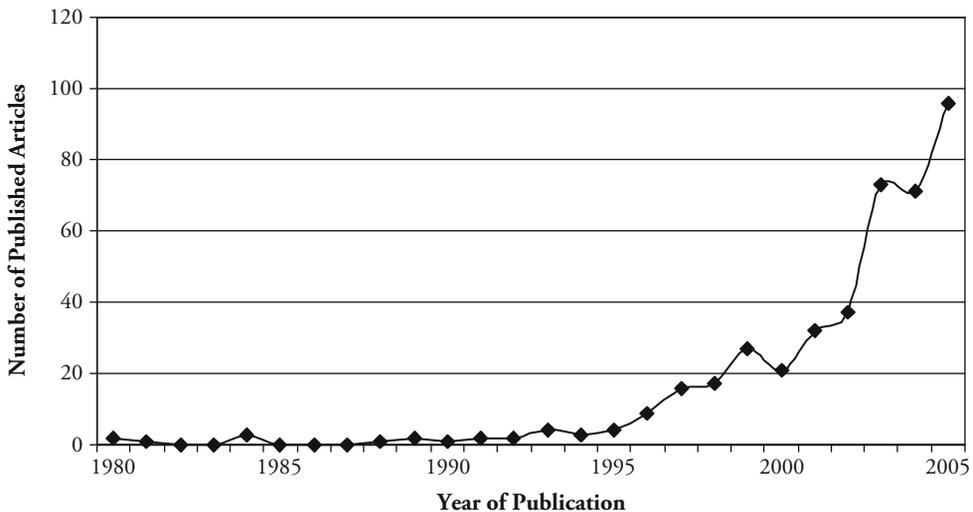
At roughly the same time, a parallel research stream emerged that considered neighborhood effects in the United States. In fact, the earliest look at neighborhood effects that fully integrated macro and micro perspectives was published in 1964 by Otis Dudley Duncan. In a reanalysis of the 1941 Indianapolis Study of Social and Psychological Factors Affecting Fertility, Duncan (1964) showed that both median rent for a tract and household rent were associated with smaller numbers of children ever born to couples in which the wife was 40–44 years old. This study linked information on census tracts with survey data on individuals, an approach that characterizes the literature on developed countries to this day.

Although the first study was published in 1964, the domestic literature was quiescent until the 1980s (e.g., Billy 1983; Hogan and Kitagawa 1985) and by the end of the decade coalesced around the study of poverty in urban neighborhoods (Mayer and Jencks 1989; Tienda 1991; Wilson 1987). Several critical reviews of this literature were published in the late 1980s and early 1990s. Susan Mayer and Christopher Jencks (1989) noted that findings about the effects of neighborhood socioeconomic status and racial mix were disparate, lacked cohesion, and varied across the outcomes they considered. They offered several explanations, including measurement inconsistencies, potentially nonlinear and interactive effects, differences in model specification, and problems associated with cross-sectional designs. Marta Tienda (1991) elaborated on the need for a more dynamic conceptualization of neighborhoods, especially for attention to sorting processes and their consequences for neighborhood differentiation. Tienda also commented on the need for an appropriate conceptual as well as operational definition of neighborhood and for more attention to the measurement and specification of transmission mechanisms.

By the end of the 1980s, a set of challenging critiques had replaced the optimism and high hopes of the earlier literature. An effective response required theory and data that did not yet exist. With respect to theory, there was a need to identify a full range of potentially relevant neighborhood characteristics and the mechanisms according to which their effects would be transmitted, and a need to embed these characteristics and mechanisms in a dynamic conceptualization of neighborhoods, points made by Sampson and his colleagues in their 2002 review (Sampson, Morenoff, and Gannon-Rowley 2002). To capture dynamics, longitudinal data on both individuals and neighborhoods were needed, along with better measures of neighborhood characteristics. Expectations about the magnitude of neighborhood effects also required adjustment.

If researchers had worked together to address these challenges, progress might have been made. Instead, the field fragmented. Since the late 1980s, there has been almost no cross fertilization between international and domestic research,² even though those literatures were initially interconnected. For instance, a special American Sociological Association session in 1989 featuring micro-macro linkages in demographic research included work in developing countries, in historical Europe, and in the contemporary United States (Huber 1991). After this, however, there was a split in the trajectories of the domestic and international literatures, with the former more focused on neighborhood pathology and negative outcomes and the latter focused on innovative behavior in the context of social change. Further fragmentation occurred within each of these literatures according to health behavior/outcome of interest and disciplinary perspective. The fragmentation of the field and the lack of communication among the fragments may help explain why the pioneering work of population scientists is largely unacknowledged in the current literature.

2. For example, an influential review of research on neighborhoods and health mentioned only one study conducted in a developing country (Sampson et al. 2002).

Figure 1. Empirical Research on Local Contexts and Health: Published Articles

THE STATE OF THE FIELD

The critiques notwithstanding, since the late 1980s, there has been a tremendous flowering of research on neighborhoods and health. A broad search of bibliographic databases for empirical research on local contexts and health turned up 503 articles.³ Figure 1 graphs the time trend. The trend is fairly flat until the mid-1990s, when publications take off.⁴

Growth has been exponential over the past decade. There are now literally hundreds of studies addressing diverse outcomes: of neighborhood processes bearing on mortality among the elderly during the 1995 Chicago heat wave (Browning et al. 2006), ambient neighborhood stress as a factor in mental health in early adulthood (Wheaton and Clarke 2003), collective efficacy and obesity among adolescents in Los Angeles (Cohen et al.

3. The search featured empirical research on neighborhoods and health outcomes in which local contexts were external to families and individuals, with measurement on both. It covered English-language articles in peer-reviewed journals published before October 2006. Local contexts included neighborhoods, census tracts, block groups, zip code areas, villages, communities, contexts, and areas. Studies of interest included measurements on these contexts—everything from poverty to family planning availability, norms to opportunity structures, and social capital to social cohesion. Studies that simply coded whether individuals live in urban or rural areas, or in cities of varying sizes, were not included. Health outcomes included self-reported health, cancer mortality, heart disease mortality, age- and sex-adjusted death rates, health care access, drug use, adolescent sexual activity, adolescent childbearing, marital timing, low birth weight, and infant mortality. Measurement of these outcomes was in terms of individuals. Not included were studies primarily interested in the effects of individual variables (e.g., socioeconomic status), with neighborhood measures serving as proxies because the appropriate individual-level variables were not available. Also not included were studies interested in ecological correlations. Given the broad parameters of the search and the multiple databases searched, a large number of potentially relevant studies were identified. Abstracts were reviewed for relevance, yielding a set of 503 articles. Because of coverage limitations of the databases (e.g., a lag between publication and inclusion), this number is an underestimate.

4. The trend shown in Figure 1 differs from the trend reported by Sampson et al. (2002) mainly because of the different criteria used to select relevant studies. Sampson et al. searched for studies having “neighborhood” or “social capital” in the title, whereas the studies here, selected based on the content of their abstracts, relate local social and spatial contexts (however labeled) to health outcomes for individuals.

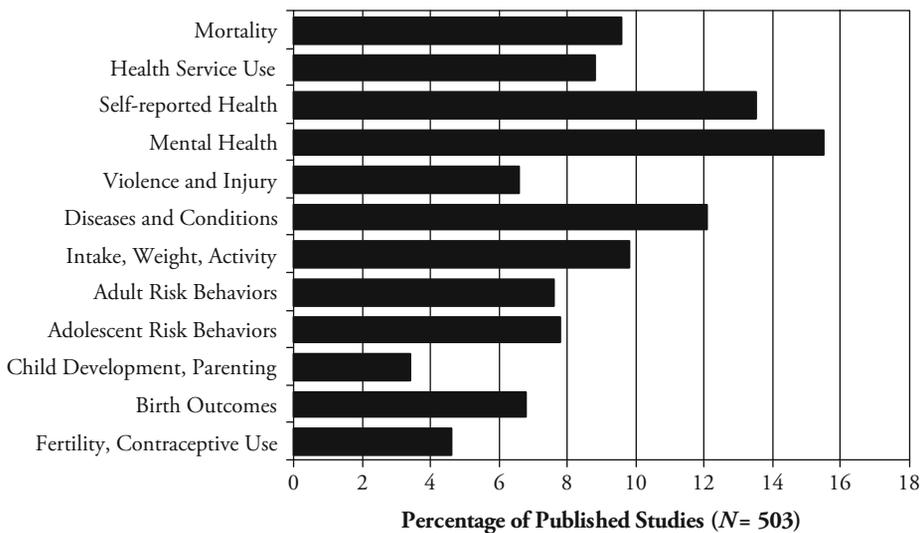
2006), neighborhood disadvantage and teen pregnancy (Crowder and Teachman 2004) and adult drug use (Boardman et al. 2001), the contextual effect of the local food environment on dietary intake (Morland, Diez Roux, and Wing 2002), neighborhood crime as a factor in preterm birth (Messer et al. 2006), neighborhood stability and psychological well-being (Ross, Reynolds, and Geis 2000), neighborhood context as a factor in violence victimization (Kaufman 2005), and inequality in the built environment as a contributor to disparities in physical activity and obesity (Gordon-Larsen et al. 2006), to name just a few.

To develop a description of this diversity, I coded abstracts for the 503 studies identified in the search of the bibliographic databases into 12 broad categories: (1) fertility and contraceptive use; (2) birth outcomes such as preterm birth, low birth weight, and infant mortality; (3) child development, well-being, parenting, and maltreatment; (4) adolescent risk behaviors; (5) adult risk behaviors; (6) overweight, obesity, dietary intake, and physical activity; (7) specific diseases and chronic conditions; (8) violence and injury; (9) mental health; (10) self-reported health; (11) health service use; and (12) all-cause and cause-specific mortality. It was possible for a study to fall into more than one of these categories, depending on its scope. Figure 2 shows the representation of health outcomes and related behaviors in the literature.

Topics central to the core areas of demography and the population sciences are included, but in contrast to the early years, they do not dominate. Whereas the earliest studies of local context and health focused on fertility and contraceptive use (see above), only a small fraction of the literature overall focuses on these outcomes. Mental health and general health are the most frequently studied outcomes, but what is striking about the histogram is the spread across topics. No single focus dominates. The wide variety of health outcomes and related behaviors that have been studied is striking.

However, the explosion of interest in neighborhoods and health has not produced equivalent improvements in the conceptualization and measurement of neighborhoods and their effects. Many of the criticisms of and challenges to the early literature still stand. I

Figure 2. Empirical Research on Local Contexts and Health, by Health Focus



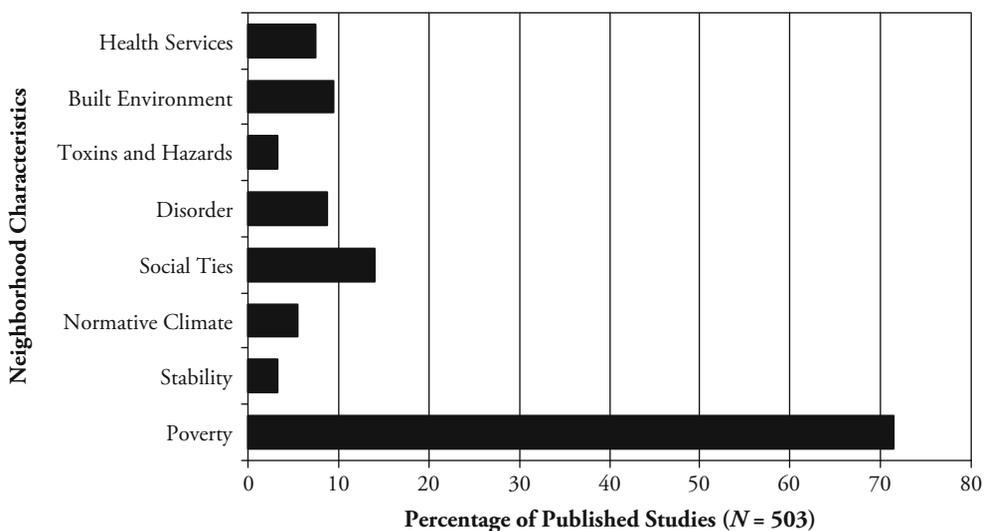
want to give particular attention to three: theory remains underdeveloped; measurement is narrow; and almost all research relies on a cross section of neighborhoods.

First, theory about context and its consequences is pretty much where it was two decades ago: exposure to varying circumstances is key. By living in a particular place, a person might be exposed to a low or high standard of living, particular normative constraints, a set of role models, a likelihood of crime, traffic noise, and so forth. The theory has it that neighborhoods are exogenous and predetermined, and individuals are the passive recipients of their effects. This “trickle-down theory of neighborhood effects” is pervasive. An influential version was recently published by Glass and McAtee (2006). Theirs is a laudable attempt to integrate diverse influences on health outcomes, from neurons to neighborhoods, from cells to society. Time is the *x*-axis. A nested hierarchy of biological and social systems forms the *y*-axis. With respect to causal influence, however, the arrow points downward, from the global to the macro to the meso to the micro to human action and behavior. There is little sense of human agency in this conceptualization and indeed, little sense of agency in any of the research that has been conducted to date.

Second, research on neighborhood effects is too narrowly focused. Figure 3 shows that the most commonly studied aspect is poverty, a category that groups together measures of structural disadvantage, inequality, and concentrated affluence. More than two-thirds of the studies identified in the literature search included measures of one of these interrelated characteristics. Certainly, the topic is important. The fact that measures are so readily available is probably also a factor. Other characteristics appear in only a minority of the studies reviewed.

Many if not all of these concepts in Figure 3 are relevant to health behaviors and outcomes. It would be difficult to make inferences about the effects of one without taking into account the effects of the others as confounders, mediators, or moderators. However, only a quarter of the studies consider two or more from the list. For instance, exposure to hazardous waste; environmental toxins related to manufacturing, mining, or agricultural

Figure 3. Empirical Research on Local Contexts and Health, by Neighborhood Focus



activities; air pollution; water pollution; and ambient noise (Evans and Kantrowitz 2002; summarized as “toxins and hazards” in the figure) is the least examined neighborhood attribute. Given that toxins and hazards tend to be concentrated in poorer neighborhoods (Pastor, Sadd, and Hipp 2001; Saha and Mohai 2005; but see Anderton et al. 1994; Oakes, Anderton, and Anderson 1996), they may be quite important to consider in a study of poverty and health outcomes. What appear to be the consequences of poverty may in reality be the consequences of air pollution or some other hazard.

Third, almost all research on neighborhoods and health involves only a single cross section of neighborhoods. Some research examines change at the individual level, but change at the neighborhood level is rarely incorporated. Only a very small minority of studies—2.4% of the 503 identified in the search—do so.

At a moment in time, it is perhaps reasonable to think of individuals as operating within and constrained by the social, spatial, and biophysical environments in which they live. Over time, it is not. We might expect a lagged effect, possibly even a cumulating effect. The few researchers who have examined this possibility have found, in fact, stronger lagged effects than contemporaneous effects (e.g., Wheaton and Clarke 2003). More is needed. As a related point, there may be especially critical times. Some evidence suggests that neighborhoods may be particularly important during childhood and adolescence (e.g., Angeles, Guilkey, and Mroz 2005; Monden, Van Lenthe, and Mackenbach 2006). Again, more research needs to be done on this.

Even more fraught is the assumption that a cross section of neighborhoods mimics what change in a single neighborhood would look like over time. This is commonly assumed in multilevel models of neighborhood effects. However, there is no single trajectory of neighborhood experience—it depends on and changes with shifts in the larger regional and national context.

Indeed, most research on neighborhood and community effects uses data collected for another purpose. Researchers often capitalize on the sample design of social surveys, operationalizing the primary or secondary sampling units as local contexts for studies of community and neighborhood effects. For instance, villages are typically the primary sampling units in surveys fielded in the rural areas of developing countries. Units of census geography typically serve as sampling units in surveys fielded in developed settings. This is efficient, but it is not clear that primary or secondary sampling units function as communities and neighborhoods in any meaningful sense, or that individuals residing there relate to them in this way.

In research based in developed countries, there is reliance on administrative and census data to characterize context—data also not designed for this purpose. These data are readily available but do not cover many of the domains of potential interest to an understanding of neighborhoods and health. This explains the limited scope of the effects considered and the prominence of easy-to-measure aggregate characteristics, such as economic advantage and disadvantage, in the domestic literature. Researchers typically draw on the most recent census data available, which in the United States, are data from the most recent year ending in a zero, at least until now. In some studies, measurement of neighborhood conditions is contemporaneous with measurement of individual behaviors and outcomes. In other studies, there may be a lag of almost a decade. Variability in lags may account for some of the differences between studies in the strength of the effects found (cf. Wheaton and Clarke 2003). With census data, examining change at the level of the neighborhood would require data covering more than a decade. Few studies follow individuals over such a long time (although see Boyle, Norman, and Rees 2004). It is easy to understand why research in developed countries has been cross sectional at the contextual level.

Research based in developing countries is much more likely to rely on special surveys as sources of data about community conditions, with particular attention to health care accessibility. These community surveys are fielded contemporaneously with the household

surveys with which they are paired, sometimes even a little later. Techniques have been developed to collect retrospective data in neighborhood surveys (Axinn, Barber, and Ghimire 1997), but they are seldom used. Multiple waves of community data may be collected as part of a longitudinal household survey, but this is not the norm. Most research uses data for a single cross section of villages or neighborhoods.

The ready availability of standard software packages for estimating multilevel models serves to reinforce a top-down approach to studying neighborhoods and health. Hierarchical modeling is consistent with the trickle-down imagery. People are nested in contexts; individual outcomes are logically the consequence of those contexts and their characteristics. Although not widely recognized, many of the multilevel models in use today are elaborations of ones proposed by demographers more than two decades ago (Mason, Wong, and Entwisle 1983).

INTO THE FUTURE: INTEGRATING MACRO AND MICRO

Given the size of the literature, it is surprising that as a field, we have not made more progress. Research appears to be guided more by the availability of data and statistical packages than a clearly articulated theory about macro and micro processes and their integration. Moving forward requires new thinking about the ways that people interconnect with places.

Most research conceptualizes people as affected and constrained by features of local environments: the “trickle down.” With respect to neighborhood effects, residents are passive rather than active agents, corresponding to the cross-sectional character of much of the data that are analyzed and with the hierarchical statistical approaches that are often taken. At a moment in time, people *are* affected and constrained by their environments. Over time, however, they may change them in a variety of ways by moving between neighborhoods and/or doing something to change the neighborhood in which they live. A theory of neighborhoods and health thus needs to incorporate agency on the part of individuals.

Agency may take different forms, four of which seem particularly relevant to an understanding of health and context. First, people make choices about the neighborhoods in which they live. Second, as a consequence of residential mobility, neighborhoods of origin and destination may be changed in both composition and structure. Third, people may operate directly to change neighborhood conditions. Fourth, people may be selective in relating to a local sociospatial context.

Residential Choice

Where people live is a matter of choice, at least to some extent. Normative climate, socioeconomic and ethnic composition, safety, accessibility, and quality of the natural and built environment may influence where people choose to live. These, of course, are all characteristics with the potential to influence health outcomes. Indeed, to the extent that there is a choice, when choosing a neighborhood, people may anticipate the consequences of living there. That school districting affects the neighborhoods in which parents choose to live is accepted as fact among real estate agents. The consequences appear in residential segregation at many levels. People may also choose neighborhoods based on their potential to enhance health and to avoid negative outcomes. Choices can be severely constrained, however. Some people become “stuck” in crime-ridden places.

There are two ways to think about the consequences of residential choice. According to one approach, residential choice is a source of bias in modeling the effects of local contexts on health outcomes (Moffitt 2001; Tienda 1991). The characteristics of neighborhoods are endogenous. The problem is particularly serious if people choose neighborhoods based on health needs. For example, with sufficient means, those with chronic illness may choose to live in communities that are well-known for excellent and accessible health care. Health is a factor in deciding where to live, the reverse of what is commonly assumed. If this potential

reverse effect is not recognized and incorporated into analysis, the estimated effects of health care services on health outcomes will be biased. In fact, it may appear that health care service availability is somehow deleterious to health!⁵ Less obvious versions of this same problem occur when some unobserved factor related to health is also related to neighborhood choice. Endogeneity bias is a problem that may be solved using various instrumental variable techniques or, less typically, experimental and quasi-experimental designs.

Alternatively, residential choice can be incorporated explicitly. As in the first approach, neighborhood characteristics are endogenous. The difference is that now residential choice is of substantive interest and is modeled, rather than handled as a methodological nuisance. Modeling the endogeneity directly leads us to think more generally about migration as a potential influence on health outcomes. For example, we need to consider possible selectivity associated with the move itself. Researchers interested in the “healthy mover” effect have concentrated on international movements (e.g., Palloni and Arias 2004). There is some suggestion in the literature that this selectivity may also operate at a more local level (e.g., Roos et al. 2004). The relevance of residential choice to neighborhood effects is obvious. It is surprising that it is so seldom mentioned in the research literature.

Consequences for Neighborhoods

Not only do people change the neighborhoods in which they live by moving, but as a consequence of these moves, neighborhoods themselves are changed. Consider an extreme example. Suppose there are two neighborhoods, one consisting mainly of persons in ethnic group A and the other consisting mainly of persons in ethnic group B. Suppose further that a minority person of ethnic group B living in the first neighborhood prefers to live in the second neighborhood, where he or she would be in the majority. All else being equal, if that person moves from the first to the second neighborhood, residential segregation would be increased in both. What is more, changes in ethnic composition may induce mobility on the part of others in the neighborhood, and so forth, in a reinforcing cycle. This example shows how individual behavior can affect a neighborhood characteristic.

Thomas Schelling (1971, 1972) developed a simple agent-based model to investigate how this process might work. Agent-based models are a type of microsimulation (Macy and Willer 2002). Agents are decision-making entities (e.g., individuals, households, firms) with unique characteristics that behave according to a set of (potentially probabilistic) rules. The idea is to project agents individually but in relation to and interacting with one another and their environment, allowing for feedbacks over time. Schelling was interested in racial segregation, household residential mobility, and neighborhood tipping points (i.e., the point at which further shifts in racial composition lead quickly and inevitably to segregated neighborhoods). His model suggested that given some simple rules and heterogeneous preferences for the composition of neighborhoods, residential segregation would be high even if the average preference was for an integrated neighborhood. Recent work by Bruch and Mare (2006) calls these findings into question (although see Macy and van de Rijt 2006). Either way, however, this line of work shows that when households move, not only do they change their own neighborhood through a kind of swap, they can actually change the characteristics of these contexts, potentially in nonlinear ways.

Movements in and out of neighborhoods can change their compositional characteristics. They can also change the social structure of neighborhoods. To show how this might work, I draw on a recently published article that explores the structure of social ties within villages in Nang Rong District, in Northeast Thailand (Entwisle et al. 2007). The surveys fielded in Nang Rong are unusual in collecting complete social network data on multiple social relations for each of the 51 villages in the sample (Rindfuss et al. 2004). With these

5. This can also happen if services are placed in areas of greatest need, in which case the endogeneity is at the community level (Angeles, Guilkey, and Mroz 1998).

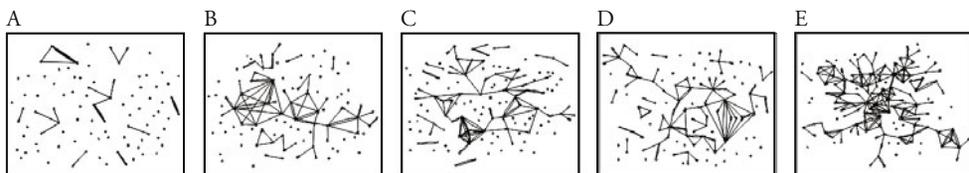
data, it was possible to describe not only the structure of social networks in a single village but also variability in this structure among villages.

Figure 4 reproduces one of the graphics from the article. In the figure, each box represents a village. The dots are households, and the lines between them denote a social relation. The upper set of boxes shows sibling relations between households; the lower set shows households that helped each other with the most recent rice harvest. The villages are identified with letters, A to E. They are the same in each set but are ordered differently. For each relation, the village at the far left has the sparsest network; the one at the far right has the densest one. Data for 5 of the 51 villages suffice to show that there is tremendous variability in the structure of these social networks. This variation was not expected in a small sample of villages coming from a fairly circumscribed area in North-eastern Thailand. What little theory exists suggested homogeneity, not heterogeneity (Entwisle et al. 2007).

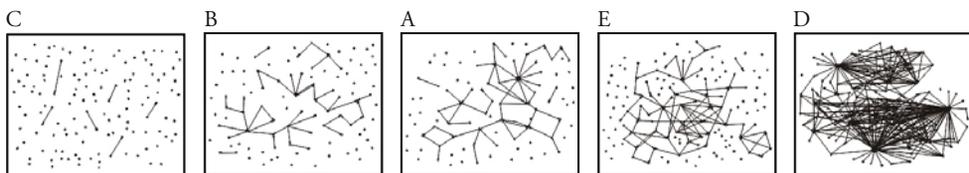
What accounts for the variability? The research needed to answer this question has not been done, but migration and residential mobility are arguably implicated. An empirical connection between migration and social networks has been demonstrated in many settings. Mostly, analysts have focused on migration and choices about where to live as outcomes and social ties as determinants. However, social networks are dynamic (Moody 2006). Social ties that are spatially based and organized will change as individuals and households move into and out of neighborhoods. That social ties are endogenous has been recognized for a long time in the literature on friendship and its consequences. It is less well recognized at the neighborhood or community level (although see Erbring and Young 1979; Manski 1993). Just as residential mobility may affect the compositional characteristics of neighborhoods, it may also affect their social relational structure. Because of their implications for access to social resources, diffusion of information, and patterns of social influence and support, the structure of social ties is potentially important for a wide variety of health and health-related outcomes.

Figure 4. Ties Between Households in Five Villages in Nang Rong, Thailand

Sibling Ties



Help With the Rice Harvest



Interventions

Through their behavior, people can change the characteristics of neighborhood contexts. They may do this indirectly, as just discussed, and also directly by intervening to change neighborhood conditions. Direct effects may involve political activity, attempts to organize residents to make improvements of some sort (e.g., traffic calming), and the like. The intervention that has attracted the attention of demographers, however, is the potential endogeneity of program placement (e.g., Angeles, Guilkey, and Mroz 1998). Health clinics and family planning outlets, for example, are often placed in areas of need, not distributed randomly as is assumed in a standard analysis. This complicates the study of their impact. In the cross section, it is even possible to find a “counterintuitive” relationship between service availability and the behavior or outcome those services were intended to address. The forces leading to a particular distribution of services need to be taken explicitly into account. The endogeneity of neighborhood characteristics occurs in many ways and at many levels.

Engagement

Just because people live in the same area does not mean that with respect to place they live in the same neighborhood (Burton, Price-Spratlen, and Spencer 1994). Within particular local social and spatial contexts, residents seek out particular opportunities and avoid particular constraints (Sharkey 2006). People make choices about where to go and with whom to associate. They may carve out their own “activity spaces” (e.g., Sherman et al. 2005), which may or may not map onto units of census geography. It is in this sense, too, that people choose their neighborhoods.

PUTTING PEOPLE INTO PLACE

The state of the literature now was largely anticipated by what was in place at the end of the 1980s. The conceptual frameworks, data sources, and statistical machinery prominent today were mostly in place 20 years ago. As well, the early critiques still apply. Moving forward requires new thinking about the ways that people interconnect with places. It also requires new data, better measures, and diverse methods with which to study these interconnections.

Neighborhoods have been variously conceptualized in the literature as local ecologies consisting of natural and built environments, catchment areas for various social and health services, markets of various sorts, and social contexts consisting of people with varying attributes, behaving in a variety of ways, and connected to one another (or not) in varying ways. As a related point, we need to recognize that local ecologies are themselves embedded in larger contexts (e.g., Morenoff 2003). It is time to integrate and develop a multidimensional conceptualization of local context. Aspects to be considered include location with respect to various opportunities (e.g., jobs, health services, gangs); visibility and social as well as spatial proximity to role models; norms and expectations about behavior in their local context; social relations grounded in space; and the distribution of social and biophysical hazards. These all involve social and spatial dimensions. Together, they describe a place.

Longitudinal data on neighborhoods are needed to address neighborhood change, both at the neighborhood level (e.g., gentrification, decay) and at the level of individuals and families as they move from one neighborhood to the next. Panel data sets following individuals can be augmented in a variety of ways. Historical census data can be linked to long-standing longitudinal data sets. Work along these lines is already underway with the Panel Study of Income Dynamics. This study started in 1968 and has been following individuals ever since. Using address information obtained in various waves, it is possible to follow individuals as they move from one place to the next. So far, the data have been linked

to census tract information (e.g., Crowder and South 2005; Massey, Gross, and Shibuya 1994; South, Crowder, and Chavez 2005).⁶ This is an important first step, but to adequately capture the multifaceted nature of local contexts, it will be important to expand beyond census-based measures. Other historical sources can be used to develop a fuller picture of change at the contextual level (e.g., historical aerial photos and satellite images). Another way to enrich a longitudinal perspective is retrospectively in the context of a community survey, with the neighborhood history calendar. The neighborhood history calendar uses directed recall techniques common in life-history calendars to collect data on key events in the history of local areas (Axinn et al. 1997). Although developed for use in developing countries, the approach might be adapted to other settings.

New data sets can and should be developed. The Project on Human Development in Chicago Neighborhoods (PHDCN) and the Los Angeles Family and Neighborhood Survey (L.A.FANS) were designed specifically for the study of health (broadly defined) in relation to neighborhoods. Both PHDCN and L.A.FANS have been innovative in their approach to the collection of contextual information. For instance, PHDCN data include a community survey, systematic social observation, and links to administrative data of various sorts in addition to census data. Both have the detailed locational information needed to link to a wide variety of other data sources and to take full advantage of spatial analysis possibilities in a GIS. For example, L.A.FANS has collected detailed information not only about where individuals live but about their (and their children's) place of regular activities such as work, school, and shopping that can be used to situate them within an activity space (Sastry et al. 2006; Sastry, Pebley, and Zonta 2002). Both studies have collected or will collect at least two waves of data at the neighborhood level. L.A.FANS will collect information about people moving into as well as out of neighborhoods. Similar data collection efforts are underway in other countries. For example, the Nang Rong (Thailand) surveys collected information about people moving into, and returning to, villages as well as about people moving out, linking this information to complete social networks, community surveys, spatial coverages, and a time series of remote imagery (Entwisle et al. 2007; Korinek, Entwisle, and Jampaklay 2005; Rindfuss et al. 2003; Walsh et al. 2005). The field would benefit from the cross fertilization of approaches in developing- and developed-country settings.

Advances in measurement will also be needed. Raudenbush and Sampson (1999; also see Sampson, Morenoff, and Earls 1999) have proposed an approach called "ecometrics," which focuses on the measurement of ecological variables. They used this approach to develop and assess measures of social and physical disorder from systematic social observation of 23,816 face-blocks in a sample of 80 Chicago neighborhoods (Raudenbush and Sampson 1999). They also used it to develop and assess measures of collective efficacy (defined as shared expectations and mutual engagements by adults in the active support and social control of children) from survey responses collected from a sample of 8,782 residents of 343 Chicago neighborhoods (Sampson et al. 1999; Sampson et al. 1997). It is important to establish the measurement characteristics of the full range of variables relevant to the study of neighborhoods and health, including measures of poverty. Publications documenting the reliability and validity of these measures encourage the use of the measures by other investigators, facilitating comparison of results across study and setting. It is also important to develop measures that are appropriate for use in a full range of settings.⁷

Finally, diverse approaches with complementary strengths will help to surmount the many analytic challenges to studying the dynamics of neighborhoods and health. Making

6. Census data have been linked to other longitudinal data sets as well, including the National Survey of Family and Households (Clarke and Wheaton 2005) and the National Survey of Children (Wheaton and Clarke 2003).

7. Systematic social observational techniques developed for use in urban areas of the United States and other developed countries could be usefully adapted for use in rural areas. Community survey approaches developed for use in the rural areas of developing countries could be adapted for use in urban areas.

causal inferences based on observational data is problematic (Moffitt 2005; Oakes 2004), even when the data are longitudinal. Given a dynamic social world, it is not clear that there is a statistical solution. The opportunity to conduct experiments is rare, and when they are done, as in the case of the Move to Opportunity Programs (e.g., Katz, Kling, and Liebman 2001; Kling, Liebman, and Katz 2007), they are limited in their generality. Microsimulation approaches such as agent-based models provide an additional approach. They can capture the multifaceted aspects of neighborhood contexts, ground them socially and spatially, and model change from the bottom up as well as top down. Micro and macro processes are endogenous in these models. As an approach and methodology, agent-based models are at the forefront in many fields. In sociology, for example, agent-based models have been used to study mobility, residential segregation, and tipping points (e.g., Bruch and Mare 2006; Macy and van de Rijt 2006; also see Schelling 1971, 1972), although they are not yet spatially explicit (Macy and Willer 2002). In geography, spatially explicit agent-based models have been developed to describe land use change in a variety of settings (e.g., Brown et al. 2005; Evans and Kelley 2004), although they do not elaborate key demographic components such as feedbacks involving migration. In economics, spatially explicit agent-based models have been constructed that include endogenous demographic components, although their focus is on subsistence economies and population growth and collapse over centuries (e.g., Axtell et al. 2002), not on shorter-term effects. Building on and integrating across these efforts has the potential to break new ground in the study of people and place, especially if dynamic social networks can be incorporated.

TAKING THE LEAD (AGAIN)

Putting people into place means explaining individual behavior and outcomes in relation to a potentially changing local social and spatial context. Over the past two decades, there has been an explosion of empirical research on neighborhoods and health. Hundreds of studies have been published on a wide range of health behaviors and outcomes. For the most part, however, the conceptual frameworks, data sources, and statistical machinery in use now were mostly in place 20 years ago. A critical need is to incorporate agency into theories of neighborhoods and health. This is a tall order, but clearly an important piece is to embed a theory of migration and residential mobility into theory of health and context. People change neighborhoods, directly by moving from one neighborhood to another and indirectly as neighborhood characteristics and structures are altered by movements of residents in and out. Progress also depends on better data—specifically georeferenced longitudinal data with multiple measures of contexts at multiple points in time. With the advent of GIS, and the ability to locate respondents with some precision, we no longer need to depend on the census to define contexts, their boundaries, and their characteristics. With diverse data, moving beyond a unidimensional concept of local context and blending social and spatial dimensions is analytically straightforward.⁸ Finally, a multifaceted conceptualization of local contexts is needed that incorporates both social and spatial dimensions. We need to draw on and integrate multiple perspectives on place: the ecologist's understanding of the "natural" environment, the geographer's interest in spatial location, urban studies' focus on the built environment, the criminologist's understanding of spatial distributions and hot spots, the sociologist's perspective on social relational contexts and normative constraints, the anthropologist's approach to the construction of social space, the economist's understanding of markets, and attention to the placement and distribution of services that would be of interest in evaluation research.

8. Such data, however, require careful handling. The locational information needed to put people into place threatens the confidentiality of their response (VanWey et al. 2005), a problem that is compounded when data from multiple sources are integrated.

Demographers and population scientists are uniquely qualified to develop theory about migration and residential choice and embed it in a theory about neighborhoods and health. We have been major innovators in the collection of longitudinal data sets and the integration of diverse data (including spatial data) into those data sets. We have substantial experience working across disciplines and can facilitate in this effort. Demographers and population scientists were pioneers in the study of neighborhoods and health. It is time to take the lead again.

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