



California Center for Population Research
University of California - Los Angeles

*Neighborhoods, Poverty and
Children's Well-being: A Review*

Anne R. Pebley
Narayan Sastry

CCPR-035-04

February 2003

California Center for Population Research
On-Line Working Paper Series

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Anne R. Pebley

School of Public Health and Department of Sociology

University of California, Los Angeles

and

Narayan Sastry

Labor and Population Program

RAND

February 2003

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The authors are grateful to the Russell Sage Foundation for support of this research. Additional funding for this research was provided by the National Institute of Child Health and Human Development and the Office of Behavioral and Social Science Research at the National Institutes of Health. We thank our colleagues at UCLA and RAND for comments and suggestions.

Introduction

American cities have long been characterized by a highly uneven spatial distribution of physical and human capital, e.g., income, educational attainment, housing stock. In the decades prior to 1990, deindustrialization of cities, structural changes in labor demand, racial discrimination, suburbanization of the middle class, and public policies regarding residential segregation, public housing, and transportation systems led to increasing concentration of poverty in poor minority urban neighborhoods (Wilson, 1987 and 1996; Massey and Eggers, 1990; Massey and Denton, 1993; Jargowsky, 1997). Despite substantial economic and social changes during the past decade, results from the 2000 census show only small overall declines in residential segregation by race and income during the 1990s (Logan et al., 2001; Mare and Cort, 2003).

Residential segregation facilitates the intergenerational transmission of poverty if growing up in a poor neighborhood negatively affects children's social and behavioral development and opportunities for success. Numerous studies have shown that social problems, such as poor health status, lagging school performance, behavior problems, substance abuse, early sex and parenthood, delinquency, and violence are geographically clustered in concentrated poverty neighborhoods.¹ Moreover, there is a solid basis in social theory for the idea that social environments, including home, school, peers, and neighborhoods, strongly influence children's development (e.g., Bronfenbrenner, 1986; Coleman, 1988, Wilson, 1987, 1996). However, prior to Jencks and Mayer's influential review in 1990, there was little persuasive evidence that

¹ See reviews by Jencks and Mayer (1990), Gephart (1997), Aneshensel and Sucoff (1996), Robert (1999), Sampson et al. (2002), Leventhal and Brooks-Gunn (2000), and Ginter et al. (2000). The geographic clustering of disadvantage and negative outcomes in American cities and its importance for public policy is, of course, not a new observation; for example, see Burgess (1930).

neighborhood conditions were causally related to child outcomes, and, if so, exactly how and why (Jencks and Mayer, 1990).

In the last decade, a tidal wave of new “neighborhood effects” studies has appeared (see Figure 1 in Sampson et al., 2002), some of which employ novel methodological approaches and make theoretical advances. The best of these new studies provide stronger evidence of neighborhood effects on children which are not due to selectivity or family characteristics (e.g., Del Conte and Kling, 2001; Aaronson, 1997, 1998; Solon, Page, and Duncan, 2000). Nonetheless, Duncan and Raudenbush (2001:107) recently concluded that “...the task of securing precise, robust and unbiased estimates of neighborhood effects has proved remarkably difficult.”

In this paper, we examine recent research in the area of neighborhood effects on children’s development. We begin by reviewing the literature on the mechanisms through which neighborhoods may influence child development. Then we consider four issues which are fundamental to neighborhood effects research: (1) the definition of “neighborhood,” (2) which aspects of neighborhood environments are important and how they should be measured, (3) neighborhood selection, and (4) children’s residential mobility. Next, we assess recent empirical work on neighborhood effects. Recent reviews by Sampson et al. (2002), Ginter et al. (2000), Duncan and Raudenbush (1999, 2000), and Leventhal and Brooks-Gunn (2000) catalog studies since 1990 and provide thorough reviews of their results. Rather than duplicate their efforts, we briefly summarize and compare their conclusions and then focus on the results of selected studies which provide novel approaches or insights. The final section of the paper summarizes the current state of knowledge about poor neighborhoods and their role in the intergenerational transmission of poverty.

Why Would Neighborhoods Affect Children's Well-Being?

Research on neighborhood effects suggests that neighborhood characteristics, such as poverty, crime, and residential turnover, influence several interrelated aspects of the neighborhood environment that, in turn, affect families and children. These mechanisms can be summarized in four categories: (1) child and family related institutions, (2) social organization and interaction, (3) normative environment, and (4) labor and marriage markets. Each of these is described briefly below.

Child and family related institutions include schools, child care providers, public libraries, recreational programs and activities (e.g., piano lessons, youth organizations, sports activities, arts and theaters, mentoring programs, etc.), parks, religious institutions, and social service providers. These institutions play a vital role in the general process of socialization, but many also impart important skills and provide specific services. While the availability and quality of institutions may be affected directly by public policy (e.g., school improvement programs in poorer neighborhoods), they are also likely to be determined by neighborhood socioeconomic characteristics (Jencks and Mayer, 1990; Aber et al., 1997). For example, child care centers and after school programs may be more readily available, may hire better staff, and may provide better service in more affluent or well-educated neighborhoods, because residents demand it and can afford to pay for it. As described below, more socially organized neighborhoods may also be able to demand better institutions through collective action and the political process, even if income and educational levels are low. Poorer neighborhoods may be worse off than others, not only because they have weaker institutions, but also because the greater needs of families are likely to overtax the existing institutions (Aber et al., 1997).

Neighborhood *social organization and interaction* has recently received considerable attention in research on neighborhood effects. Social disorganization theory suggests that some neighborhood characteristics (e.g., poverty, ethnic heterogeneity, high residential turnover rates, low home ownership, concentration of recent immigrants) make it harder for residents to establish social ties and to agree on values needed to exercise social control and to work together on common goals. As a result, socially disorganized neighborhoods are more difficult, dangerous, and stressful places to live. Parents and children in these neighborhoods are both more likely to participate in deviant behavior (e.g., delinquency, crime, violence, and substance abuse) and to suffer the consequences of this behavior in others (Shaw and McKay, 1969; Sampson et al., 2002). Sampson and his colleagues (Sampson, Morenoff and Earls, 1999; Sampson et al., 2002) argue that neighborhood collective efficacy—that is, shared expectations and involvement of neighborhood residents in active support and social control of children—is key to a positive neighborhood environment for children. In neighborhoods with higher collective efficacy, residents are more likely to monitor and, when necessary, correct children's behavior. They are also more likely to work together on neighborhood problems and to build and maintain strong local institutions.

Two other theoretical perspectives—Wilson's (1987, 1996) collective socialization model and Coleman's (1988) social capital theory—suggest related ways in which neighborhood social interaction may be important for children. Collective socialization models posit that neighborhood adults play an important role by monitoring children's behavior (as Sampson and colleagues emphasize) and by providing role models. For example, Wilson (1987, 1996) argues that selective out-migration of middle class professionals from African American inner-city neighborhoods has meant fewer positive role models for children. Social capital models suggest

that the key element is dense and overlapping social ties among adults and children. In neighborhoods with more social capital, children know they will be held accountable for their actions and that they can rely on neighborhood adults for support. However, as Wilson (1996) and Sampson, Morenoff and Earls (1999) note, high levels of social capital can facilitate the enforcement of *both* negative and positive norms and behavior. For example, Wilson points out that in neighborhoods “characterized by high levels of individual and family involvement in aberrant behavior” (Wilson, 1996: 62), a high degree of social integration among adults can, in fact, help to create and reinforce problem behavior among children.

Connections with the world outside the neighborhood may also be important. Especially in disadvantaged neighborhoods, extralocal social ties can provide access to information about, or assistance with, opportunities or services, or normative feed-back from those who move in other social circles (Coleman, 1988; Stack, 1974, Edin, 1991; Tigges et al., 1998). Oliver’s (1988) study of social networks in urban African American communities in Los Angeles shows extralocal social ties vary considerably among neighborhoods. He concludes that in poor neighborhoods the lack of outside social ties may be a significant disadvantage. In recent decades, urban sociologists have argued that de-spatialized social networks have displaced the role of neighborhoods in urban life, i.e., that neighborhoods are increasingly *unimportant* in individuals’ lives (South, 2001; Fischer, 1984; Wellman, 1999). However, Wellman (1999: 27), who is among the proponents of this view, admits that “...communities have not totally lost their domestic roots...Local relationships are necessary for domestic safety, controlling actual land use, and quickly getting goods and services...” He shows that Toronto residents, for example, have much of their telephone contact with neighbors rather than with extralocal ties (Wellman, 1996). As Sampson et al. (2002) point out, social ties among neighbors do not need to be strong

or close in order to be effective. In fact, social disorganization theory suggests that neighborhood environments depend on weak and limited ties among neighbors who share a minimum level of trust, agreement on basic standards, and willingness to live by and enforce those standards. Nonetheless, the relative importance of urban neighborhood environments vs. social networks on children's development is an empirical question for which we do not yet have complete answers.

Several theorists posit that the *normative environment* itself is the key element linking neighborhood characteristics and child outcomes. The greater the concentration of like-minded people, the stronger the normative climate and the greater the exposure of neighborhood residents to these norms. For example, black children in poor inner city neighborhoods may be more likely to be exposed to social problems, because the extreme concentration of poverty in inner-city African American neighborhoods since 1970 has created negative normative environments in which behavior considered negative by the middle class is reinforced and valued (Massey, Gross, and Eggers, 1991; Massey and Denton, 1993; Wilson, 1987 and 1996; Fordham and Ogbu, 1986). However, this process is not necessarily limited to concentrated poverty neighborhoods or to negative outcomes—for example, some observers have argued that concentrated immigrant communities in Los Angeles can provide supportive climates for social mobility (Waldinger, 1996). The epidemic hypothesis (Crane, 1991; Case and Katz, 1991) is a specific version of theories about normative environments. Crane (1991) argues that concentrated poverty neighborhoods dramatically increase adolescents' exposure to problem behavior and negative norms through contacts with peers. "Epidemics" of social problems can occur once neighborhoods reach a critically high level of negative social behaviors.

The economic models suggest that *labor and marriage markets* are a key element in neighborhood effects on families and children (Duncan and Hoffman, 1991; Haveman and Wolfe, 1994). Local labor markets, marriage markets, and, in some neighborhoods, the illicit economy provide constraints and opportunities for neighborhood residents. Market conditions affect adults and adolescents most directly. However, by affecting *parents'* probabilities of employment and marriage, local markets may have indirect effects on younger children. For example, in neighborhoods with poor labor markets, higher rates of parental unemployment may affect children by increasing stress on parents, depressing household income, and creating a more stressful home environment.

Neighborhood characteristics, such as high levels of marriage, are thought to affect children's well-being both: (a) directly by providing a positive normative environment, strong institutions, effective monitoring and social control, and a supportive climate for children, and (b) indirectly through effects on parents and the home environment. As noted above, neighborhood labor market and marriage market conditions can affect parents' income, family structure, and the home environment. Neighborhoods may also directly affect parenting behavior and family dynamics (Aneshensel and Sucoff, 1996; Klebanov et al., 1997; Coulton, 1996; Korbin and Coulton, 1997). For example, parents in extremely disadvantaged neighborhoods are more likely to exhibit more punitive, authoritarian, and coercive parenting styles and to use corporal punishment (McLoyd, 1990, Sampson and Laub, 1994) as well as to withdraw emotionally from their children (Klebanov et al., 1994). These responses are likely to have detrimental consequences for children's emotional, cognitive, and social development, which may later be reinforced by other negative aspects of neighborhood life.

Parents and families may also act as mediators between children and neighborhood environments (Furstenberg, 1993; Aber et al., 1997; Jarrett, 1997). For example, from qualitative studies, Furstenberg (1993) and Jarrett (1997) suggest that parents in poor neighborhoods use a variety of strategies both to protect their children from negative aspects of the neighborhood and to find the resources their children need within and outside of the neighborhood. Clearly, individual parents vary in their motivation and ability to play this mediating role. Furstenberg (1993) also suggests that parents' motivation and ability at using strategies of this kind is itself affected by the neighborhood social environment. However, in their Philadelphia study, Furstenberg et al. (1998) found very little across-neighborhood variation in parents' management strategies—and parenting more generally—results that were replicated in a series of similar studies in other cities.

Alternative Approaches to Defining Neighborhoods

“Neighborhood” is a relatively flexible and amorphous concept which is generally defined spatially. The above review of neighborhood effects mechanisms suggests that neighborhoods can be viewed in at least two ways. The first view is that neighborhoods are spaces in which residents are exposed on a regular basis to specific types of people, individual and collective behaviors, and social and physical environments, purely because of where they live. For example, many hypotheses suggest that children in poor neighborhoods are disadvantaged because of greater risk of *exposure* to negative environments and social problems. A second view is that neighborhoods are places in which individuals have the potential to develop neighborly relationships and where they can collectively influence the social and physical environment. In other words, neighborhoods can be defined as geographic areas for

which individuals can have a sense of attachment, ownership, or belonging. As described below, these two views of “neighborhood” can yield substantially different definitions of neighborhood boundaries.

Social scientists have defined neighborhoods in several ways. Early social ecologists saw urban neighborhoods as organic or “natural” entities created as a result of the isolation of small geographic areas by physical barriers, such as railroads, rivers, and boulevards (Burgess, 1930) and/or through competition over land for residential and commercial use (Sampson et al., 2002; Park et al., 1967). Over time, these neighborhoods develop distinct identities, including names, which in turn influence the characteristics of in- and out-migrants to and from the neighborhood. Most cities and towns have some consensus about names for neighborhoods and at least rough definitions of their boundaries. Examples include the Lower East Side in Manhattan, Hyde Park in Chicago or Pico-Union in Los Angeles. Empirical studies by Hunter (1974, 1975) and Guest et al. (1982) in Chicago, Rochester, and Seattle have shown that these neighborhood names (and presumably identities) can be quite persistent over time. However, traditional neighborhoods are rarely used in neighborhood effects studies because their boundaries are often ambiguous and change over time. Moreover, traditional neighborhoods may be considerably larger and more diverse than the “neighborhoods” whose conditions are hypothesized to affect children’s outcomes.

Almost all neighborhood effects studies are based on census tracts, zip codes, other administrative units, or aggregates of these units. The primary reason is that census, vital statistics, and administrative data on neighborhood characteristics which most studies employ are based are generally available only for census geographies (blocks, block groups, tracts, metropolitan statistical areas) and for zip codes, cities, and towns. Census tracts and block

groups were developed by the U.S. Bureau of the Census and local collaborators to approximate, at least when initially drawn, ecologically meaningful areas. However, researchers often argue that census and other administrative geographies may be less salient to families and children than geographies defined in other ways (Burton et al., 1997; Coulton et al., 2001; Duncan and Raudenbush, 2001; Elliott and Huizinga, 1990).

Several alternatives to administrative units have been proposed for neighborhood studies. The first approach is to use residents' own definitions of their neighborhood boundaries based on mapping exercises or questions on neighborhood boundaries or size² (Coulton et al., 2001; Lee and Campbell, 1997; Guest and Lee, 1984). For example, Coulton and her colleagues (2001) asked a sample of 140 respondents living in seven census block groups in Cleveland to draw the boundaries of their neighborhoods on a map of the 8-mile radius surrounding their home. The maps were subsequently digitized using mapping software and the maps of respondents within each block group were compared. The results showed that the average area in respondents' neighborhood maps was about equal to the average size of census tracts. However, the boundaries of resident-defined neighborhoods were quite different than those of the census tracts in which they lived. Using residents' consensus neighborhood boundaries³ often yielded considerably different average neighborhood characteristics than using census tract boundaries. Coulton et al. also found substantial within-block group variation in all dimensions of neighborhood definition that they examined, making it more difficult to arrive at a single resident-determined definition.

² Survey questions not involving mapping include the Panel Study of Income Dynamics Child Development Supplement question which asks respondents whether they think of their neighborhood as: the block or street they live on, several blocks or streets in each direction, the area within a 15-minute walk from their house, or an area larger than a 15-minute walk from their house.

³ Consensus boundaries are those on which 70% or more of the sample living in the block group agreed (Coulton et al., 2001).

Although the authors concluded that their mapping approach is feasible, they also caution that implementation is difficult. The level of intra-neighborhood agreement on boundaries varies considerably among neighborhoods and is likely to depend on the spatial dispersion of the sample interviewed. For example, a sample of respondents in a census block group is likely to give more tightly overlapping responses than a sample dispersed across a tract. Furthermore, while this approach is feasible for a limited number of spatially separate neighborhoods, it would be less feasible for defining boundaries for all neighborhoods in a large metropolitan area, because of the expense and the extensive overlap of resident-defined boundaries in adjacent areas.⁴ Resident-defined boundaries combine the dual views of neighborhoods described above: while residents' responses are likely to delineate areas over which they feel some control and attachment, they are also likely to be affected by frequency of exposure to areas around their home. For example, whether a particular block is included in an individual's "neighborhood" may be determined by how frequently he/she travels in that direction.

A second approach comes from the geographic literature on the space and time dimensions of human activities (Newsome et al., 1998; Rindfuss et al., 2002; Crawford, 2002). Hagerstrand (1963) originally proposed the idea that an individual's activities could be seen as a series of movements through space and time. Subsequent research has modeled these "activity spaces" both for individuals, social groups, and local areas. Simpler strategies use information about average travel time in a particular location to draw areas such as radial buffers around a centroid. The radial buffers represent the average distance that can be traveled in a reasonable amount of time to carry out regular activities. For example, Rindfuss et al. (2002) use

⁴ The Project on Human Development in Chicago Neighborhoods (PHDCN) did collect neighborhood boundary information using maps from respondents in their neighborhood survey for all neighborhoods in Chicago. However, to our knowledge, PHDCN has not yet published analyses of these data.

radial buffers around rural Thai villages to represent the average distance a farmer is likely to walk to his fields each day. In complex urban areas, another approach is to use information about average travel time on specific segments of specific streets and highways to draw time-specific areas around individual residences. For example, Pebley, Sastry and Zonta (2002) examined areas that are within 15 minutes walking distance in each direction of respondents' homes in Los Angeles based on average network travel times. Unlike circular radial buffers, these spaces are irregular in shape because travel times along each radius can vary.

Other geographic approaches describe the regular travel patterns of individuals using shapes including prisms and ellipses (Newsome et al., 1998). For a sample of individuals living in the same geographic area (e.g., a block group or tract) the shapes describing each individual's travel path can be superimposed to provide a measure of the spread of the sample members' regular activities. For example, one could examine the spatial patterns of children living in a particular block group as they travel to day care, school, place of worship, shopping, and leisure activities. Geographic approaches focused on activity spaces reflect not only the area immediately around families' dwellings, but also other neighborhoods to which residents are regularly exposed, such as the area between a child's street and a local school or park. Thus, they are more consonant with the concept of neighborhoods as the places to which children are regularly exposed.

Grannis (1998) proposes a third and very different strategy. Following in the tradition of urban social ecologists (e.g., Jacobs, 1961, Burgess, 1930; Park et al., 1976), he suggests that social interaction, at least in urban areas, is affected by the physical design of city streets rather than by spatial proximity alone. In particular, he argues that small residential (or tertiary) streets are key to social interaction among neighbors. Grannis divides the urban landscape into tertiary

street communities (t-communities) in which “every household...is reachable from every other household by only using tertiary streets.” (Grannis, 1998: 1533). In t-communities, Grannis argues, residents have the potential for neighborly relationships because they encounter each other regularly. In census tract or other units, by contrast, residents often do not even have the potential for encountering each other because they may have to cross streets designed for automobiles or other obstacles. Grannis’ analysis shows that residential segregation patterns by race in central Los Angeles and San Francisco are more closely approximated by t-communities than by census tracts. Grannis’ definition of t-communities fits squarely with the concept of neighborhoods as spaces in which residents have the potential to interact and to exercise some control over their local environment.

All of these approaches to neighborhood measurement seek to establish a single set of neighborhood boundaries, either for specific neighborhoods or for an entire landscape (e.g., all neighborhoods in San Francisco). Yet common sense suggests that a single, “crisp” set of neighborhood boundaries does not adequately describe individuals’ experience of neighborhood life, in many cases. Not only do definitions of neighborhood boundaries vary among individuals living on the same block (Lee et al., 1991; Guest and Lee, 1984; Logan and Collver, 1983; Coulton et al., 2001), they also may vary for a single household or individual over time (e.g., as children age) and may depend on context. For instance, a person may define only individuals living on his block as neighbors, but define his neighborhood as a larger space when determining whether he works or shops in his neighborhood. From residents’ perspective, the “neighborhood” is probably best described as an area relatively close to their home with fuzzy boundaries that may expand or shrink depending on context and personal experience. Moreover, Sampson et al. (1999) suggest that there are important spatial externalities to positive

neighborhood social interaction. Specifically, they show that, regardless of their own population composition, neighborhoods benefit from being close to other neighborhoods with high levels of collective efficacy. Both the fuzziness of neighborhood definitions and the potential importance of spatial externalities suggest that research based on a fixed set of neighborhood boundaries may be missing much of the action.

Several promising strategies for future neighborhood effects research do not require the assumption that neighborhood boundaries are fixed. One straightforward, albeit data intensive, approach is to model neighborhood effects using a decay function in which each child's outcomes are a function of the characteristics of all points in the area surrounding his/her home (potentially extending out for several miles in each direction). The effects of the characteristics at a given point are assumed be weaker the further away in distance or travel time the point is from the child's home or block. Crawford (2002) proposes using fuzzy set theory and grade of membership models to define fuzzy neighborhoods surrounding a central area of residences. In these models, the grade of membership score reflects the probability that a point or area is within the "neighborhood" for a given group of residents (e.g., the residents of a particular block). A simpler alternative is to examine the effects of spatially lagged characteristics of neighborhoods that form concentric rings around the study neighborhood, beginning with all adjacent neighborhoods.

In summary, theoretical literature suggest that neighborhoods can be viewed both as: (a) spaces which define residents' exposure to specific types of people, individual and collective behaviors, and social and physical environments and (b) places to which individuals can potentially have a sense of attachment, ownership, belonging, and control. Neighborhood effects research has relied almost exclusively on predefined administrative boundaries which may have

limited its scope for uncovering and understanding neighborhood effects. Several novel approaches described in this section accord more closely with theoretical conceptualizations of neighborhoods and may yield clearer findings in future research. It is important to note that administrative units will remain a key element of neighborhood effects research because census and other data are primarily available for these units. However, they should be viewed as a starting point, but not an ending point. The novel approaches described above and standard geographic information systems approaches allow researchers to estimate neighborhood characteristics for spaces that more closely approximate the roles they play in daily life.

Measuring Neighborhood Characteristics

A significant limitation of almost all neighborhood effects studies is that they use compositional characteristics (e.g., income, ethnicity, unemployment rate, household structure, etc.) as proxies for the social mechanisms through which neighborhood effects are thought to operate. For example, while many studies show a strong correlation between neighborhood poverty rates and poor child outcomes, they provide little evidence on *how* this effect occurs because the intervening mechanism is not measured. To study collective socialization models, for example, requires information on aspects of neighborhood social organization such as: the density of social ties and level of interaction among neighbors, neighborhood norms about monitoring others' children and about acceptable behavior, the availability of successful role models and neighborhood leaders, and the extent of residents' social ties outside the neighborhood. Institutional models suggest that the availability and quality of social services directed to children and families (e.g., schools, day care, after school and recreational programs;

housing, food and cash assistance) are also likely to account for part of observed neighborhood effects.

Because most of these characteristics are not readily available from census, vital statistics, or other administrative sources, they must generally be collected by researchers themselves through interviews or observation. There is a growing literature on assessing the social and physical dimensions of neighborhood context (e.g., Burton et al., 1997; Kingston et al., 1999; Caughy et al., 2001; Cook et al., 1997; Diez Roux et al., 2001). Among the most influential and theoretically grounded is a set of approaches developed by Sampson and Raudenbush and their colleagues in the Project on Human Development in Chicago Neighborhoods (PHDCN) (Raudenbush and Sampson, 1999; Sampson and Raudenbush, 1999).

The PHDCN uses two methods of assessing neighborhood environments: (1) a survey of neighborhood residents exclusively designed to measure neighborhood-level characteristics and (2) systematic social observation (SSO), i.e., direct observation of neighborhoods by trained observers. The neighborhood residents survey was undertaken in all 343 PHDCN-defined neighborhood clusters in Chicago. In each cluster, approximately 25 adult respondents were interviewed. Respondents were asked about their neighborhoods, including items for scales designed to capture key theoretical concepts such as informal social control, social cohesion, and trust.⁵ The research group then constructed neighborhood-level measures by aggregating responses by neighborhood. This strategy increases the precision of estimates because the large

⁵ Most items were 5-point Likert scales. For example, they included questions about whether the respondent thinks it is very likely, likely, neither likely nor unlikely, unlikely, or very unlikely that neighbors would intervene if neighborhood children were skipping school, showing disrespect to an adult or spray painting graffiti. Other questions asked about social interaction in the neighborhood –e.g., whether the neighborhood is close-knit and whether residents do favors for each other. Sampson and his colleagues have proposed several strategies for scale construction using these items. See Sampson et al. (1997) and Sampson et al. (1999).

sample size in each neighborhood minimizes sampling variability.⁶ The PHDCN neighborhood survey sample was also selected independently of the sample for the household survey. This independence eliminates potential contamination between individuals' reports of their own and their neighborhoods' characteristics, but requires conducting two separate, large-scale surveys – an expensive proposition.⁷

The PHDCN scales appear to be closely related to neighborhood compositional characteristics in Chicago, although not always in the ways that the literature would predict. Sampson et al. (1997) show that the measure of collective efficacy (a scale based on the social cohesion, informal social control, and trust measures) is strongly associated with concentrated disadvantage, immigrant concentration, and residential stability, as social disorganization theory predicts. Collective efficacy also accounted for a substantial portion of the relationship between residential stability and disadvantage, on one hand, and neighborhood violence, on the other. As the authors recognize, causal direction in these relationships is unclear because their analysis is cross-sectional. Sampson et al. (1999) examined aspects of their collective efficacy measures that theory suggests would be most important for children. Specifically, they reorganized their measures into scales representing child-centered social control, reciprocated exchange, and intergenerational closure. Their results indicate that intergenerational closure and neighborly exchange were in fact *not* related to concentrated disadvantage, as the literature on neighborhood poverty would suggest. Instead, they found that these aspects of collective efficacy are related to concentrated affluence, residential stability, and low population density, consistent with other research as described below.

⁶ By contrast, most other studies which ask respondents about their neighborhoods rely on one or two respondents' reports of local conditions in each neighborhood.

⁷ An example of an alternative approach is the Los Angeles Family and Neighborhood Survey (L.A.FANS) which interviewed respondents in an average of 41 households per neighborhood and replicated the PHDCN measures with the adult sample in the household survey (Sastry et al., 2000).

A second strategy employed in the PHDCN was direct observation by trained observers (SSO). The advantage of direct observation is elimination of the subjective nature of residents' reports and of an unknown amount of variation in the quality of these reports among neighborhoods.⁸ PHDCN staff videotaped both sides of streets in all sampled Chicago neighborhoods using a specially equipped vehicle traveling at five miles per hour. These staff member also recorded physical and social observations on each block using a standard form. The videotapes were subsequently coded using standard forms by independent raters. The objective was to code specific signs of physical and social disorganization, including trash on the sidewalks and street, graffiti, broken windows, poorly maintained buildings, gangs hanging out, drug deals, etc. Raudenbush and Sampson's (1999) results show that measures derived from these observations are generally strongly related to measures of social disorder from the neighborhood survey described above and from census and administrative data.

Although videotaping and subsequent independent rater coding can be extremely expensive, surveys which involve in-person visits by listing teams or interviewers can incorporate direct observation methods by these field staff (with appropriate training and standardization methods) at a more reasonable cost. The Los Angeles Family and Neighborhood Survey (L.A.FANS) conducted systematic social observations, using a modified version of the PHDCN observation forms. Three trained observers independently walked each block face included in L.A.FANS and completed check sheets, reflecting the social and physical characteristics of the block. Table 1 below shows variation in these SSO observations by

⁸ However, Ross et al. (2001: 571) caution that "Independent assessments made by researchers are no more 'objective' than those made by residents. A description of place as assessed by a researcher simply substitutes the researcher's subjectivity for the resident's." Nonetheless, assessment of all neighborhoods in a sample by a single group of observers does provide comparable measures across neighborhoods.

neighborhood income status.⁹ The first panel of the table presents socioeconomic compositional data from the census. In the second panel, we show two direct observation indicators (trash and housing quality) – these are the tract means of first principal components of an analysis based on all observations for each block in L.A.FANS, averaged across all blocks in each income category. The third panel presents several PHDCN-based indicators of the neighborhood social environment drawn from interviews with a random sample of adults in each neighborhood.

(Table 1 about here)

The LAFANS SSO results show that lower income neighborhoods in Los Angeles have consistently poorer housing quality and a more disordered environment (e.g., more trash, drug paraphernalia, broken bottles) compared with the others. However, these indicators and others also show considerable variations *among* neighborhoods in each income group as well (not shown). For example, some poor neighborhoods in the sample have considerably better housing quality and are much better cared for than others. The third panel includes four scales drawn from the PHDCN (Sampson et al., 1999) which were described above and a variable indicating the mean number of voluntary organizations respondents belong to in neighborhoods in each group. Because these scales are sums of Likert-type items, the values are not meaningful except in relative terms. In a simple analysis of variance, the differences between the four income groups for all variables are statistically significant.

In summary, there have been several recent developments in measuring neighborhood social and physical environments. For example, results from PHDCN and LAFANS suggest that both respondent perceptions of social interaction and direct observation of the social and

⁹ Neighborhood income status is based on the three sampling strata used in LAFANS: very poor (tracts in the top 10 percent of the poverty distribution in 1997), poor (tracts in the 60-89th percentiles), and non-poor (tracts in the bottom 60 percent of the distribution). For this table, non-poor tracts were further divided into those with median household incomes higher or lower than \$50,000.

physical environment are significantly related to neighborhood socioeconomic composition in cities as different as Chicago and Los Angeles.

Nonetheless, considerable work remains to be done in determining which aspects of neighborhood environments are most salient to family life and how these aspects can be measured most reliably. In particular, basic methodological studies using techniques such as cognitive interviewing, focus groups, and other qualitative techniques are required to determine how neighborhood residents interpret and respond to questions such as those in the PHDCN and other surveys. Another promising approach is to combine survey-based neighborhood studies with in-depth ethnographic studies of a subsample of neighborhoods included in the larger study. Qualitative research conducted in the same neighborhoods included in major neighborhood surveys holds the promise of refining and extending our current tools for neighborhood measurement.

Neighborhood Selection

A serious problem in studying neighborhood effects on children's well-being is the potential endogeneity of neighborhood (and school) characteristics. Parents can choose the neighborhood in which they live and their choice is likely to be based in part on which neighborhood characteristics they perceive to be important for children's behavior/development. For instance, parents may move to help their children escape the influences of gang activity, drug use, teenage pregnancy, or crime, or they may choose a neighborhood for the quality of its schools. Even if children attend private schools, school characteristics (and possibly neighborhood attributes, as well) would remain potentially endogenous. Other neighborhood attributes that may influence both parents' choice of where to live and children's

behavior/development include strength of neighborhood ties and characteristics of other families and children in the neighborhood. To the extent that neighborhood of residence is a choice, all neighborhood characteristics should be treated as endogenous. It is important, however, to understand the source of the endogeneity in order to identify appropriate analytic strategies.

Neighborhood attributes may be endogenous because place of residence is a choice variable and is determined, in part, by factors that also influence children's behavior and development. Thus, a common set of parent/family characteristics determines both children's behavior/development *and* neighborhood choice. Some of these characteristics, such as household income and parents' education, are measurable, and can be controlled in models of children's behavior/development. However, some are unobserved and hence are picked up in the random component of statistical models, where correlation with included regressors—i.e., neighborhood characteristics—leads to biased and inconsistent estimates of all model parameters. As Duncan et al. explain (e.g., Duncan, Connell and Klebanov, 1997), the problem of neighborhood selection is thus really one of omitted variables. Specific unobserved (omitted) parent/family factors are the parents' cognitive ability and family motivation and aspirations, which may influence the degree to which a family values their children's behavior and development (as well as their choice of place of residence).

If panel data are available, there are several statistical approaches to control for omitted/unobserved child- or family-specific effects and hence account for the potential endogeneity of neighborhood characteristics when studying their effects on children's behavior/development. For example, fixed effects models have been used in the previous literature on neighborhoods effects, as described below. If the omitted variables (and their correlation with observed variables) are time invariant, then each family or child can be used as

their own control, by regressing changes in outcomes on changes in neighborhood characteristics. A second strategy is to use correlated random effects models (e.g., Chamberlain, 1980 and 1984). This is a more general approach than the fixed effects models; it has all the strengths of these models but, in addition, allows researchers to examine the nature and strength of the association between unobserved heterogeneity and the regressors, permits the estimation of time invariant covariates, and allows for possibly time-varying unobserved heterogeneity—including changes over time in the correlation between the unobservables and the regressors.

A third approach for which panel data is helpful but not necessary is to use instrumental variables or, more generally, to undertake the joint estimation of child outcomes and neighborhood choice. The challenge is finding convincing instruments that are correlated with the neighborhood measures but uncorrelated with child- or family-level unobserved heterogeneity. For example, an analyst could assume that employment location is exogenous, and that residential choice depends upon neighborhood characteristics and upon the commute to work. In that case, information on the availability of public transportation could provide instruments. However, previous neighborhood effects studies have had a very difficult time identifying credible instruments and this approach has only rarely been attempted.

Apart from statistical models that account for endogeneity, another strategy is to collect more extensive and reliable data on children, parents, and families. Improvements in measuring key variables can reduce the problem of neighborhood endogeneity considerably. As Duncan and Raudenbush (1999) note, “[t]he best non-experimental approach to the endogenous [neighborhood] membership problem is to locate data that measure crucial family and individual-level omitted variables.” For example, important family characteristics to measure might include parental cognitive skills, attitudes toward child development, priorities and preferences for time

use, and family dynamics. While these variables are often omitted from surveys and their measurement is still rudimentary, neighborhood effects studies can reduce the chance that their results are due to endogeneity and unobserved variables by more intensive efforts to measure salient attributes of families and neighborhoods.

A final approach to overcome problems related to the endogeneity of neighborhood choice is social experiments. In theory, experiments have significant advantages over nonexperimental research because they allow investigators to control unobserved heterogeneity through random assignment. As described below, the results of several recent experiments do suggest that moving from a poor to a better neighborhood leads to some improvement in adult and child outcomes. However, experiments also have some limitations. First, as the Moving to Opportunity example (described below) shows, social experiments often suffer from unanticipated sources of heterogeneity which reduce the reliability of the results, such as failure of some participants to participate in the treatment offered and less than adequately implemented treatments. Second, experiments provide evidence on the existence and potential size of neighborhood evidence, but little information on how parents choose neighborhoods when not involved in mobility programs and why neighborhoods may affect children's outcomes.¹⁰

Children's Residential Mobility

Another important aspect of residential mobility for analyses of neighborhood effects is that many American children live in several different neighborhoods during childhood and some children move very frequently. For example, the March 2000 Current Population Survey results show that approximately 18 percent of children age 0 to 19 moved during the *single-year* period

¹⁰ An important exception is the Boston Moving to Opportunity study which conducted extensive qualitative research focused on the mechanisms through which residential mobility affected outcomes (see Kling et al., 2001).

1999 to 2000 (Schachter, 2001, calculated from Table B). Furthermore, this high annual rate is not primarily due to post-high school moves for older children: the mobility rates are highest for younger children (an average of 23 % for 1-5 year olds) and decline to 15 % for 10 to 19 year olds. These rates imply that many children move at least once, if not more often, during childhood. Yet most neighborhood effects analyses examine only the association between characteristics of the neighborhood children currently live in with developmental outcomes.¹¹

As a consequence, analyses which relate the characteristics of the neighborhood that a child currently lives in (or a single neighborhood in the past) with current developmental outcomes may seriously misstate the size and direction of neighborhood effects for children who have lived in multiple neighborhoods during childhood. If children live in the same type of neighborhoods even if they move frequently, it would be more tenable to use current neighborhood characteristics as a proxy for attributes of all their childhood neighborhoods.¹² However, there is substantial evidence that families often move in an effort to find better neighborhoods, schools, and housing for their children (Ludwig et al., 2000, 2001; Furstenberg et al., 1999; Rossi, 1955). This motivation for moving plus increases in parents' income across the life cycle suggest that the quality of children's neighborhoods is likely to improve on average during childhood. Furthermore, siblings often differ in their exposure to neighborhoods depending on their birth order. The literature on residential mobility also suggests that some groups find upward residential mobility easier than other groups (Massey et al., 1994; Gramlich et al., 1992; South and Crowder, 1998; Crowder, 2001). For example, South and Crowder

¹¹ Ginter et al. (2000) is an exception. They use PSID data over a 21 year period matched with tract level data on all the locations that sampled children lived during this period. Other PSID-based analyses, such as Brooks-Gunn et al. (1993) have included characteristics from a single neighborhood in which each child lived prior to the behavior under study.

¹² Even in this case, children who move frequently may have different long run outcomes than stationary children simply because of the experience of moving (Myers, 1999).

(1997a, 1997b, 1998) show that African American families are less likely to move to better neighborhoods than whites even holding constant socioeconomic status.

To provide credible estimates of neighborhood effect, analyses must consider not only the process of family selection into and out of neighborhoods, but also the effects of residential mobility on the variety of neighborhoods that many children live in during childhood.

Neighborhood Effects Analyses

The extensive neighborhood effects literature published since 1990 has generally sought to answer one or more of the following three questions:

1. Are children who grow up in poor neighborhoods worse off than other children?
2. Are disparities in children's welfare by neighborhood poverty level due to differences in their families' characteristics or do neighborhoods conditions themselves play a role?
3. What mechanisms link concentrated poverty neighborhoods to poorer outcomes for children?

Studies addressing these questions have generally been of two types. The largest group is non-experimental or observational studies, generally based on sample survey data. More recently, several experimental studies have assessed the consequences for poor families of moving into non-poor neighborhoods. Both types of studies have usually sought to investigate the first two questions, i.e., do children's outcomes differ by neighborhood characteristics and does this variation persist if family attributes are held constant. A smaller number of studies have attempted to answer the third question, i.e., to explore mechanisms.

Recent reviews by psychologists, economists, and sociologists have thoroughly cataloged and critiqued this literature (Leventhal and Brooks-Gunn, 2000; Ginter et al., 2000; Duncan and Raudenbush, 1999 and 2001; Sampson et al., 2002). In this section, we draw on these critiques and our own reading of the literature to summarize the results of non-experimental research on neighborhood effects. We then consider more recent experimental studies.

Observational Studies

Observational studies are typically based on individual and household data from sample surveys linked with census data on the local areas (usually census tracts) in which children and families live. These studies have employed a wide range of study designs, survey data sets, theoretical approaches, neighborhood, family, and outcome measures, and statistical models. The results of this very diverse group of studies can be summarized as follows.

- Basic descriptive analyses have shown that many dimensions of children's well-being (including teen sexual behavior, substance abuse, mental health, cognitive and achievement scores, high school completion, youth violence, delinquency, and child abuse) vary significantly by neighborhood income levels and, less often, by other neighborhood characteristics such as residential stability, high school completion rate, female headship, social disorder, and social cohesion. Children and teens living in poorer neighborhoods generally have poorer outcomes.
- A substantial part of the variation in children's outcomes by neighborhood income level is accounted for by differences in family income and other family characteristics. In other

words, when family characteristics such as income, family structure, and parents' educational attainment are held constant, the relationship between children's outcomes and neighborhood income levels is substantially reduced. Moreover, Ginter et al. (2000) show that the more complete the set of family characteristics that is held constant, the greater the decline in the size and significance of coefficients on neighborhood variables. They conclude that the results of many neighborhood effects studies are likely due, at least in part, to omitted variables at the family level. Nonetheless, their analysis and others find that some neighborhood characteristics retain significant effects even after extensive controls for family and individual characteristics are introduced.¹³

- The size of neighborhood effects on children's outcomes is generally modest and considerably smaller than the effects of family and individual characteristics. For example, in studies reviewed by Leventhal and Brooks-Gunn (2000), neighborhood characteristics accounted for 5 to 10 per cent of the variance in children's outcomes. However, Duncan and Raudenbush (2001: 132) argue that "...the degree of neighborhood-based 'action' may still be large enough to be consistent with cost-effective, neighborhood based interventions."
- Not surprisingly, results from these studies suggest that the effects of neighborhood conditions (net of family SES) vary by type of child outcome investigated (behavior problems, school readiness, teen sex, delinquency) and by the child's age, ethnicity, and gender. For example, Brooks-Gunn, Duncan and colleagues examined an extensive set of

¹³ Ginter et al. (2000) suggest that neighborhood characteristics most closely associated with the outcome being investigated (e.g., local school dropout rates for an analysis of individuals' level of educational attainment) are most likely to remain significant.

child development indicators across a broader age range (Brooks-Gunn et al., 1997). Duncan and Raudenbush (1999) summarize the results as follows: (1) neighborhood effects appear in preschool years, but are most consistent for school-age children, (2) neighborhood effects appear to be stronger for cognitive and achievement outcomes than for behavior and mental health measures, and (3) whites appear to be more affected by neighborhood conditions than African-Americans. Sampson et al.'s (2002) argue that the evidence of neighborhood effects on crime rates is stronger than the evidence for other types of outcomes.

- Several studies suggest that the presence of affluent neighbors has a great impact on children's outcomes than neighborhood poverty (Brooks-Gunn et al., 1997; Duncan and Raudenbush, 1999, Sampson et al., 1999). However, Ginter et al. (2000) dispute this conclusion. Their reanalysis of the PSID data includes variables indicating the percent of households with high and with low income as well as the income of the child's family relative to that of other families in the neighborhood. Their results suggest that "...the income of the family relative to that of its neighbors – rather than the extent to which the neighborhood is populated by high (low) income families – may be the more relevant consideration." (Ginter et al., 2000: 628). This is an important topic for future neighborhood effects research.
- As described above, reliable methods for assessing neighborhood social and physical environments are not well developed and tested. Those studies that have examined intervening processes have investigated a broad range of potential mechanisms. For example, Sampson and colleagues (Sampson et al., 1997; Sampson and Raudenbush, 1999;

Morenoff et al., 2001) show that informal social control, collective efficacy, and social ties are significantly related to outcomes such as delinquency, crime, and homicide. South and Baumer's (2000; Baumer and South, 2001) results suggest that peer attitudes and behaviors account for a substantial proportion of neighborhood effects on adolescents, particularly teen parenthood and sexual activity. Upchurch et al. (1999) and Aneshensel and Sucoff (1996) show that perceived "ambient hazards" (e.g., neighborhood disorder, disorganization, and threats) are an important mediating factor between neighborhood disadvantage and teen sexual behavior and mental health.

- A few studies have tackled endogenous residential choice using nonexperimental data and statistical models. Evans et al. (1992), Case and Katz (1991), and Foster and McLanahan (1996) used instrumental variables to eliminate the correlation between unobserved parent attributes and neighborhood variables. However, finding credible and viable instruments is a very difficult task (Aaronson, 1997, 1998). Instead, Aaronson (1997, 1998) and Plotnick and Hoffman (1996) used sibling fixed effects in analyses of educational attainment, adult economic status, and teen pregnancy in the PSID. While Aaronson found significant neighborhood effects once unobserved family characteristics were controlled, Plotnick and Hoffman (1996) did not. Aaronson (1998) suggests that the difference in results lies in the types of sibling pairs included and the measurement of neighborhood variables. Solon, Page and Duncan (2000) took another approach: they compared correlations for sibling pairs with correlations among neighbors within sampling clusters in the PSID. Their results suggested that the size of neighborhood effects was small and considerably smaller than family effects.

Experimental Studies

More recently, several experimental or quasi-experimental studies have attempted to tackle the issue of endogenous neighborhood selection. The initial effort was the Gautreaux project in which low-income African-American families from Chicago housing projects were given Section 8 housing vouchers which could be used only in predominantly white or multi-ethnic neighborhoods (typically in suburban areas). The control group was Section 8 voucher recipients who used their vouchers in the city of Chicago. Rosenbaum (1991; 1995) showed that children who moved to the suburbs rather than cities were less likely to drop out of school and more likely to attend college, have a job, and to receive higher pay. However, the study had several methodological limitations including self-selection into the study and substantial sample attrition.

The Moving to Opportunity (MTO) experiment was a more carefully designed outgrowth of the Gautreaux project developed by the U.S. Department of Housing and Urban Development (HUD) and implemented by local public housing authorities and non-profits between 1994 and 1999 in Baltimore, Boston, Chicago, Los Angeles, and New York (Brennan, 2002). Participants were volunteers from very low-income families with children in public housing or Section 8 project-based housing in inner city high poverty neighborhoods. Each participant family was assigned randomly to one of three groups: (1) the *experimental group* which received vouchers that could be used only in low-poverty areas plus counseling and assistance locating housing, (2) the *comparison group* which received geographically-unrestricted vouchers and standard housing authority briefings and assistance, and (3) the *control group* which continued to receive project-based assistance. The study sought to answer two questions: (1) what impact does mobility counseling have on families' residential choices and housing and neighborhood

conditions? and (2) what are the effects of neighborhood conditions on the well-being of MTO families? (Brennan, 2002).

The follow-up design and analyses of MTO in each city has been conducted by separate groups of researchers using different data collection and analytic strategies.¹⁴ This approach has the disadvantage that it is harder to make comparisons across cities (and hence generalizations beyond each city). But it also has the advantage that the multiple research strategies used provide a richer picture of the experimental process and outcomes. The one commonality among all five sites is that HUD conducted a self-administered baseline survey of all families who volunteered to participate. Researchers in most study sites conducted follow-up telephone surveys two to three years after families were assigned to treatment groups. The Boston and Los Angeles projects also conducted qualitative studies with a sample of participants. In contrast, analyses of Boston participants have relied on baseline, passive and active tracking of respondents, and administrative data on arrests and school performance. Furthermore, the project in each city focused on a somewhat different set of children's outcomes.

As in almost all social experiments, the MTO project encountered significant problems in implementation of the experimental treatment (Matulef, 1999). Large proportions of families who were offered vouchers did not move during the period when the vouchers were valid and analyses comparing movers to non-movers in the experimental and comparison groups show that movers are significantly different from non-movers. As a result, most (but not all) MTO analyses adopt analytic strategies which account for this selection. For example, Ludwig and his colleague (2000, 2001) in Baltimore and Katz and colleagues (2001) in Boston produce both intent-to-treat (ITT) and treatment-on-treated (TOT) estimates. ITT analyses compare outcomes for families assigned to the two treatment groups whether or not they actually moved with

¹⁴ See Kling (2002) for published and unpublished papers from all five sites.

outcomes for the control group. Thus, ITT results are “lower bounds” on the effects of the treatment because the two treatments groups include substantial proportions of families who never actually moved. Ludwig et al. (2000, 2001) and Katz et al. (2001) also estimate an “effects of treatment on treated” (TOT) parameter which is a measure of the effect of moving on those who actually did move during the program. The TOT analysis uses instrumental variables methods to estimate the difference between families who actually moved in the treatment groups with those in the control group who would have moved if offered the opportunity. In the New York study, Leventhal and Brooks-Gunn (forthcoming) use a conceptually similar approach by comparing treatment group movers with both treatment group non-movers and those who were assigned to the control group.

(Table 2 about here)

Because the MTO experiment was conducted in the middle to late 1990s, results now available only apply to the first few years after families moved. The results to date for children’s outcomes are summarized in Table 2. In general, most studies show some improvements in children’s outcomes in the treatment groups compared to the controls. In particular, the Boston and Baltimore studies show significant differences in behavior problems, including juvenile arrests and respondent-reported behavior problems. This result is particularly striking, since both studies report that children in the experimental group were more likely than those in the other groups to be arrested prior to their move. Experimental group children in New York, especially boys, experienced fewer depressive and anxiety-related behaviors.

Baltimore children in the treatment groups also have better test scores. Compared with the control group, children in the experimental group had better test scores overall, while those in the comparison group had better reading scores. There is some evidence in the Baltimore results

that children were more likely to be suspended from and drop out of school. Ludwig et al. (2001) suggest that middle-income schools are less likely to tolerate behavior which is acceptable in schools in poor neighborhoods. Health outcomes are better for children in the experimental group in Boston. The Boston and Chicago studies also report significant declines in fears about safety and increases in feelings of safety, a point-of-view echoed in the Los Angeles and New York studies.

An important concern of the New York and Los Angeles studies was the effects of poor children moving into middle class neighborhoods on their social adjustment, social capital, and friendship patterns. If children move to better neighborhoods, but feel left out or are socially isolated, they may or may not be better off in the long run. In general, the results to date are reassuring. Children in all three groups are as likely to have a friend in the neighborhood. In some cases, children are less likely to participate in extracurricular activities in the experimental group. Hanratty et al. (1998) speculate that the reason may be that experimental group families faced more stringent financial situations because of higher rents and large security deposits compared to other groups.

In summary, early results of the MTO experiments provide important new evidence that neighborhood social and physical conditions affect family life and at least some aspects of children's well-being. As described above, the results of experimental studies are limited by implementation problems and unexpected events as well as by difficulties in generalizing to the rest of the population. Nonetheless, these results of experiments combined with those from observational studies will play an important role over the next several years in helping us understand the role of residential patterns on children's well-being.

Discussion

In this paper, we have surveyed the literature on the effects of neighborhood conditions on children's well-being. We reviewed social theory about why and how poor neighborhoods may detrimentally affect children's development and chances in life. We also considered several issues which have limited the results of previous empirical research on neighborhood effects and outlined new directions in research in these areas. The final sections of the paper assess observational and experimental neighborhood effects research.

Despite serious methodological problems that are only beginning to be addressed adequately, a review of previous experimental and observational studies suggests that there is evidence that growing up in a poor neighborhood negatively affects children's outcomes over and above the effects of family socioeconomic status. However, the effects may be complex and difficult to observe. For example, the MTO results suggest that a major effect of moving to a better neighborhood is feeling safer and less anxious and depressed. While we might expect greater safety and lower anxiety and depression to have very important long run effects on children's emotional development and outlook on life, the effects may be less immediately apparent on school performance, skills acquisition, and behaviors – outcomes which are more typically measured in surveys and administrative data.

Research to date also suggests that family effects on children's outcomes are significantly larger than neighborhood effects. However, it is important to keep in mind that measurement of neighborhood characteristics is at an even more rudimentary stage of development than measurement of family processes in large-scale surveys. It makes sense that families would have greater influence over children's well-being than neighborhoods or other social environments, because of their pervasive role in most children's lives. However, public policy generally has

considerably less ability to influence parents' behavior and attributes directly than to affect neighborhood quality. Hence, even modest neighborhood effects may be of considerable interest to policy makers.

Moreover, it is important to consider residential segregation and neighborhood and family effects on children's well-being in a larger context. The finding that neighborhood effects are more modest in size than family effects can be misleading to the extent that neighborhood conditions and residential segregation, more generally, have an important influence on families' socioeconomic status and on family dynamics. Residential segregation has been implicated by many scholars as a key mechanism for the intergenerational transmission of inequality (Massey and Denton, 1993; Wilson, 1987, 1996; Jargowsky, 1997). The argument is that restriction to concentrated poverty neighborhoods compounds the difficulty that poor, minority families face in escaping poverty because in poor neighborhoods, housing values remain low, chances of criminal victimization remain higher, high-paying jobs are less available, exposure to disease and substance abuse is greater, and individuals are more socially isolated. Thus, residential segregation and residence in concentrated poverty neighborhoods may be an important determinant of the family socioeconomic status and a major indirect influence on children's outcomes.

Moreover, if residence in a poor and dangerous neighborhood affects parents' attitudes, mental health, and parenting practices (Furstenberg et al., 1999; Kling et al., 2001; Brooks-Gunn et al., 1997), it is even more difficult to disentangle "family" effects from "neighborhood" effects. Nonetheless, several recent experimental and observational studies promise to provide clearer answers than past research on the direct and indirect pathways through which residential segregation affects children growing up in poor neighborhoods.

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Table 1. Selected Characteristics of L.A.FANS Neighborhoods by Neighborhood Poverty

Avg. Neighborhood Characteristics	Very Poor Stratum	Poor Stratum	Low Non-poor Stratum	High Non-poor stratum	All Tracts in L.A. County
Census					
Mean Income (1990)	\$18,250	\$26,060	\$38,330	\$62,510	\$38,263
% Home ownership	24%	36%	52%	78%	50%
Ethnicity					
% Latino	69%	67%	31%	14%	38%
% White	4%	11%	40%	60%	34%
% African American	16%	6%	8%	4%	11%
% Asian and PI	4%	9%	16%	17%	12%
Population Density	22,501	17,790	10,463	5,470	11,969
Single Female-headed HHs	16%	11%	8%	4%	8%
Systematic Social Obs. (SSO)					
Trash Index (High=more trash)	1.4	0.6	-0.9	-1.4	--
Housing Quality (High=better)	-1.2	-0.4	0.6	1.2	--
Social Environment					
Social Cohesion	15.8	16.4	17.7	18.9	
Collective Efficacy	25.6	26.8	28.8	30.9	--
Child-Centered Social Control	9.8	10.4	11.0	11.9	--
Trust	3.2	3.3	3.7	4.0	--
No. of Vol. Associations	0.2	0.3	0.5	0.9	--

Note: All census figures are for 2000 unless otherwise indicated. SSO indices are the tract means of first principal components of an analysis based on all observations for each block in L.A.FANS.

Source: Tabulations from the Los Angeles Family and Neighborhood Survey, 2000-2001.

Table 2. Summary of the Results for Child Outcomes of the Moving to Opportunity Studies

	Baltimore: Ludwig et al. (2001, 2000)	Boston: Katz et al. (2001), Kling et al. (2001)	Chicago: Rosenbaum and Harris (2000a, 2000b, 2001)	Los Angeles: Hanratty et al. (1998); Pettit and McLanahan (2001)	New York: Leventhal and Brooks-Gunn (2002)
Study Design	Passive and active tracking results; Match to admin data ITT and TOT results	Follow-up survey of participants; Qual. Study ITT and TOT results	Follow-up survey of movers	Follow-up survey of participants; Qual. study	Follow-up survey of participants; compare movers, non-movers, and controls
Juvenile Arrests; Delinquency	EG: Violent crime arrest reduced by 30-50%. Property crime arrests go up initially, but not sig. when pre-prog. controlled.. S8: does almost as well as EG				No sig. treatment effects
School performance	EG: 5-12 year olds have much better test scores. S8: 5-12 year olds have much better scores for reading only EG and S8: Teens may have more expulsions and dropout, but slightly higher retention rates?				
Behavior problems		EG and S8: Sig. reductions for boys. Declines for girls not sig.			EG: had lower depressive symptoms and anxiety, esp. boys
Health		EG.: sig. reduction in injury and asthma attack. S8: no sig. differences from controls		EG and S8: less likely to use emergency rooms for regular care	No sig. group differences
Safety		EG: large & sig. increase in safety. S8: Same effects, but smaller	EG and S8: Sig. declines in fears for personal safety in compared to pre-move	EG and S8: Report sig. better safety than CG	
Children's Activities				EG: Young children less like to participate in activities than S8 or CG. EG: Older kids more likely to be tutored	Very little difference among groups, but EG and S8 14-18 yr olds more likely involved in student govt.

Table 2 (continued)

	Baltimore: Ludwig et al. (2001, 2000)	Boston: Katz et al. (2001), Kling et al. (2001)	Chicago: Rosenbaum and Harris (2000a, 2000b, 2001)	Los Angeles: Hanratty et al. (1998); Pettit and McLanahan (2001)	New York: Leventhal and Brooks-Gunn (2002)
Social interaction				Chd in all 3 groups equally like to have at least 1 friend in neighborhood	
Teen employment				EG and S8: Teens <i>less</i> likely to earn money	
Teen substance abuse					EG: Girls more likely to use alcohol

Notes to Table 2:

EG is the experimental group which received housing vouchers which could be used only in low poverty neighborhoods plus counseling and assistance in locating housing.

S8 is the comparison group which received a standard Section 8 housing voucher with no geographic restrictions. This group also did not receive supplemental counseling or assistance.

CG is the control group who continued to receive project-based assistance.

“Sig.” means statistically significant as defined by the authors of the cited papers.

MTO articles, papers, and reports are available at Kling (2001).