

**Is Chicago an Outlier?
Organizational Density in Poor Urban Neighborhoods**

Mario Luis Small and Jessica Feldman
University of Chicago

ABSTRACT

One of the most important factors affecting conditions in an urban neighborhood is the number of banks, clinics, grocery stores, recreation centers, and other commercial and nonprofit establishments—i.e., its organizational density. The “deinstitutionalized ghetto” hypothesis, based largely on research in the city of Chicago, has argued that the loss of organizational density is a major consequence of the concentration of poverty at the neighborhood level. The hypothesis, however, has been subject to little empirical scrutiny. This article performs the first comprehensive test across all U.S. cities of the hypothesis that concentrated poverty reduces the density of a wide array of establishments. We find that there is little support for the hypothesis across a remarkable range of organizations; that the special case of Chicago differs dramatically from the average city; and that regional location and the general economic climate of a city are the most important predictors of organizational density. Findings suggest moving toward a perspective in which conditions in poor neighborhoods, and by extension “neighborhood effects,” depend systematically on the historical and geographic contingencies of separate regions of the country and on the political economy of the city.

Note to the reader: The following is (still) a very rough and unfinished draft. Nevertheless, it reports sufficient findings for a concrete discussion. A more complete version should be available in the near future. All findings are preliminary. Please do not cite. --MLS.

INTRODUCTION

One of the most important factors affecting conditions in urban neighborhoods is their organizational density, the number of banks, churches, clinics, bowling alleys, recreation centers, and other commercial and nonprofit establishments (Jacobs 1961). An influential theory of conditions in urban neighborhoods has argued that the loss of organizational density is a major consequence of the concentration of poverty that took place in the last decades of the 20th century (Wilson 1987, 1996; Wacquant 2007). This “deinstitutionalized ghetto” perspective, based largely on research in the city of Chicago, has affected how many researchers and policy makers conceive of poor neighborhoods and of the consequences of living in them (Small and Newman 2001; Goering and Feins 2003).

Nevertheless, the basic proposition that concentrated poverty decreases organizational density has been subject to little systematic testing. Many ethnographic and quantitative studies have found evidence for the proposition in the city of Chicago, where many poor neighborhoods appear to be “deinstitutionalized” (Klinenberg 2003; Sampson, Morenoff, and Earls 1999; Duncan 1987). However, almost no studies have tested the proposition on a wide array of establishments in neighborhoods across multiple cities (e.g., Siegel and Loman 1991; Pollard 1996).

The only recent study to perform a large-scale test of these alternatives is Small and McDermott (2006), which used national data on all MSA/PMSAs for the year 2000. The authors found that poverty tended to be slightly positively associated with the presence of day-to-day establishments. However, there are three problems with that study. First, its conception of organizational density was narrow, focused only on establishments that played a role in people’s ability to acquire important resources, such as prescription drugs or personal banking, in their

neighborhood. As we show below, theorists have conceived of organizational density in several alternative ways, leading to systematically different understandings of which establishments matter and why. Second, as a result, Small and McDermott (2006) only examined “day-to-day” establishments such as hardware stores, grocery stores, and convenience stores. They did not examine the presence of social service agencies, medical institutions, recreational areas, and religious institutions, all of which form part of some understandings of organizational density, and several of which would be expected to bear a relationship to urban poverty different from that of day-to-day resources. Third, Small and McDermott (2006) did not compare Chicago to other cities, leaving open the question of why there seems to be evidence for a negative effect of poverty on organizational density in Chicago. Is Chicago an outlier? Or is the relationship between concentrated poverty and organizational density more complex than previous studies have assumed?

WHY ORGANIZATIONAL DENSITY

When attempting to understand a neighborhood’s overall *organizational capacity*, its organizational density is but a narrow slice of a very large pie, only one component of a complex set of conditions and processes (Warren 1978 [1963]). A neighborhood’s organizational capacity is affected not only by the number of establishments it exhibits but also, for example, by the quality of services or goods sold or offered, the extent to which the organizations are locally or externally staffed, the (horizontal) ties among the organizations, the (vertical) ties between them and external entities, and the relationship between formal organizations and informal organizing or collective efficacy in the neighborhood (Laumann, Galaskiewicz, and Marsden

1978; Warren 1978 [1963]), Shaw and McKay 1969 [1942], Sampson 1999). Nevertheless, there are a number of reasons to examine organizational density in its own right.

There are four theoretical motivations to examine organizational density. One is that organizational density is expected to *deter crime*. Jane Jacobs (1961) argued that a high density and diversity of organizations provided, among other things, eyes on the street, which deterred crime and vandalism. Empirical studies have, in fact, found that street drug activity and violent crime are lower in neighborhoods with greater organizational density, given that illicit activity is more difficult to conduct with the sidewalk activity created by a preponderance of establishments (Peterson, Krivo, and Harris 2000; Ford and Beveridge 2004; Lee and Ousey 2005). Notice that this model implies a specific understanding of both “neighborhood” and “organizational density.” First, the neighborhood is conceived as a relatively small walkable area where it is meaningful to speak of a sidewalk life. Second, by this logic, organizationally dense neighborhoods are those with a preponderance of establishments of any type, for- or non-profit, regardless of what they sell or offer, since they all contribute to sidewalk life.¹ However, the model implies that small establishments, not mega-stores, are collective goods. In Jacobs’ vision, inspired by the cafes and small shops of New York City’s Greenwich Village, mega-stores (Home Depot, Walmart), with their large parking lots and buildings spanning entire city blocks, undermine rather than reinforce sidewalk life and thereby do not counter illicit activity.

A different motivation is that organizational density *fosters community formation and collective efficacy*. Several different perspectives in urban sociology converge on this point. One is Jacobs’ (1961). The author believed that organizational density contributed to the number of random sidewalk encounters among neighbors, which help sustain a sense of

¹ In this respect, the term “establishment” may be even more appropriate than “organization,” since the formal characteristics of the entity, whether its bureaucratic structure or institutional rules, are irrelevant.

community. Another perspective would add that local community is built by interactions in the establishments themselves. Certain kinds of establishments, such as cafes and barbershops, create opportunities for neighborhood residents to interact repeatedly, thereby strengthening local networks and building collective efficacy (Sampson, Morenoff, and Earls 1999). Duneier's (1992) study of the Valois restaurant depicted this process in great detail. Nevertheless, the most sustained argument in this vein may be Oldenburg's (1991) defense of "third places," such as restaurants, cafes, and bars, as places important to the life of a community for their contribution to leisurely interaction and conversation. This general model tends to assume a micro-conception of the neighborhood (in Jacobs' version) but allows for a broader understanding of a neighborhood's size (in the alternative versions), whereby establishments may still build community and collective efficacy if they are not within a micro-space of random encounters but are still understood to be "of" the neighborhood by residents, such as the Valois restaurant. Like the model focused on safety, a community formation model also focuses on small establishments, but is specifically centered on those providing a place for social interaction: restaurants, cafes, bars, barbershops, and churches.

A third motivation is that organizationally dense neighborhoods offer greater *resource access*. Urban scholars have worried about the availability of goods and resources important to day-to-day survival, especially in poor neighborhoods (Goering and Feins 2003). By this rationale, certain establishments are especially useful when they are located in the neighborhood. These include clinics, dentist offices, grocery stores, pharmacies, childcare centers, banks, credit unions, and the like—any establishment that meets day-to-day needs of sustenance and recreation (Wilson 1987; Goering and Feins 2003; Small and McDermott 2006). This model allows for a broader understanding of neighborhoods, and includes sections of metropolitan areas

where driving, rather than walking, is the primary mode of transportation, even within neighborhoods. In addition, by this logic, both small and large establishments are important—large supermarkets and neighborhood groceries, and both large and small hardware stores. Notice the different assumptions about the role of large establishments in a crime-deterrence vs. a resource access perspective. A large Home Depot likely undermines sidewalk life: large parking lots in front of many such establishments create dead-spaces reserved for cars and do not contribute to random street encounters. However, these establishments also provide access to a slew of resources of day-to-day value.

A final motivation is that organizational density *increases congestion*. The previous three perspectives conceive of organizational density as a collective good; the fourth, as a nuisance. Specifically, the density of commercial establishments would be expected to increase traffic, congestion, pollution, and litter, decreasing quality of life in the neighborhood. The underlying perspective has been part of the critiques by many who argue that urbanization has detrimental impacts on social life (Wirth 1938). This perspective also allows a geographically broad conception of a neighborhood, under the assumption that congestion in walkable and drivable neighborhoods exhibits different traits, but is always affected by organizational density. From this perspective, establishments of all kinds, large or small, are ultimately detrimental.

THE ROLE OF CONCENTRATED POVERTY²

² A currently prominent tradition, based on the study of collective efficacy, has recently focused research not on concentrated poverty but on “disadvantage,” usually a composite index including factors such as the proportion of households that are female headed and the proportion of residents who are African American or Latino (Sampson, Morenoff and Earls 1999). This study focuses on concentrated poverty, not disadvantage, for three reasons. The first is theoretical. As we show below, the literature has produced a set of theoretical reasons why concentrated poverty specifically undermines organizational density; there has been no comparable argument for why factors such as the proportion of households that are female headed has. The second is empirical. Almost all of the research on collective efficacy has been based in the city of Chicago, where the association among the variables that constitute disadvantage indexes is much stronger. (For example, the correlation between proportion poor and

The most prominent perspective on the relationship between poverty and organizational density argues that the latter is a collective good, but that poverty undermines it. The “deinstitutionalized ghetto” thesis (Wilson 1987, 1995, 1996; Wacquant 2007), based on research in Chicago, argues that poor neighborhoods are unable to sustain local establishments because of their lack of economic stability and social organization. The underlying conception of the neighborhood in the work of Wilson, Wacquant, and others derives directly from one strand of the early Chicago School of sociology, by which cities were conceived as market-driven entities in which group competition resulted in natural areas of different composition (Park, Burgess and McKenzie 1925). Less competitive residents—those poorer or with lesser education or political access—are expected to be unable to sustain local establishments, a process Wilson witnessed in the South Side of Chicago, where the number of movie theaters, recreation areas, churches, and small commercial establishments declined dramatically as the middle class left. As Wilson (1995:9-10) argues, “poverty in ghetto neighborhoods has sapped the vitality of local business and other institutions, and it has led to fewer... movie theaters, bowling alleys, restaurants, public parks and playgrounds, and other recreational facilities.” Along these lines, Wacquant explicitly argues in his most recent work that one of the constitutive traits of the black poor ghetto is its “low organizational density” (2007:5). Several ethnographic and quantitative studies in Chicago have, in fact, found evidence in support of this perspective (Duncan 1987; Klinenberg 2003; Siegel and Loman 1991:28).³

proportion black is .7 in Chicago, .5 in cities as a whole.) Thus, it is more sensible to associate concentrated poverty with disadvantage in Chicago than in other cities. The third reason is policy-related. Probably the most important recent study on neighborhood effects, the federally-funded Moving to Opportunity experiment, is based specifically on the idea that concentrated poverty negatively affects outcomes (Goering and Feins 2003). That is, the “treatment” is a neighborhood no more than 10% poor. Thus, the findings have concrete implications to what we understand to be conditions in the treatment and control conditions of one of the most central current policy concerns.

³ In their widely referenced book on crime, Messner and Rosenfeld’s (2001) quote a police officer who describes the physical conditions of a poor Chicago neighborhood: “Do you see any hardware stores? Do you see any grocery

There are at least three reasons to question this expectation. One of them is associated with the notion of congestion discussed earlier. Even if we adopt the early Chicago School model by which organizational density is primarily affected by the residents of a given neighborhood, we should recognize that the lifestyle and actions of middle- and upper-middle-class residents of metropolitan may have consequences inconsistent with those expected by the de-institutionalized ghetto model. Some would argue that many residents value a separation between commercial and residential space at the micro-neighborhood level, even if, when comparing cities, they prefer commercial vibrancy and amenities such as museums and opera houses (Clark 2004; Florida 2002). That is, the de-institutionalized ghetto perspective would ignore that that, for many, the model of a livable neighborhood is Wirth's, not Jacobs', and that many consider high organizational density in the neighborhood where their children play to be a nuisance. Higher income residents are more able than low-income residents to successfully impose their political wills, leading one to expect organizational density to be associated with higher poverty rates. Evidence consistent with this critique is clear in numerous studies of NIMBYism, which have demonstrated the ability of more affluent residents to restrict density of commercial establishments of all types, including commercial establishments, large and small.

A second reason to question the "deinstitutionalized ghetto" theory stems from the idea that organizational density in neighborhoods is shaped by factors other than the residents who live there. We note three factors, at least two of which have formed part of a political economy critique of the ecological models developed in early Chicago School research (Logan and Molotch 1987). One is that both commercial and non-commercial establishments are fundamentally driven by rents and the cost of real estate, such that managers seek, above all,

stores? Do you see any restaurants? Any bowling alleys? There is nothing here.... Everything we take for granted – a laundromat, a cleaner's, anything. It's not here" (2001:33).

affordable locations. For example, McRoberts (2003) found that poor African-American neighborhoods in Boston were dense in storefront churches not because of a commitment to the residents but because the rents were cheaper.

The second and third factors, both institutional in nature, are the state and the nonprofit sector (Logan and Molotch 1987; Powell 1987). Due to the unavailability of data, this paper does not address the role of the state, but it is important to note this limitation in many understandings of organizational density. Local governments, and the political machineries that run them, have major impacts on organizational density by controlling zoning regulations and tax structures.⁴ Here, the relationship between neighborhood poverty and organizational density would be said to be too dependent on the complicated idiosyncracies of local government to be consistent from city to city. This would lead one to expect no consistent effect, positive or negative, of concentrated poverty.

The influence of the nonprofit sector may be just as important, for at least one set of organizations, those providing social services. Some social service organizations would naturally be expected to be more prevalent in high poverty neighborhoods, given their mandates or orientations to serve the poor—an example is food kitchens. But non-income-targeted social service organizations such as childcare centers still tend to cater their services to populations unable to meet certain needs independently or through the private market. Thus, one would expect neighborhood poverty to have a positive effect on this particular type of organizational density. For example, using a mix of IRS data, telephone directory data, and other sources, Taggart finds that in Philadelphia ethnically diverse block groups and those with a population in poverty greater than 40% had the largest number of nonprofit organizations per 1,000 residents

⁴ Ironically, this is especially notable in the city of Chicago, where aldermanic control of real estate development fundamentally shapes the use and non-use of construction space in neighborhoods.

(Taggart Unpublished). Small and Stark (2005) find that in New York City publicly-funded childcare centers are in fact more, not less, likely to be located in neighborhoods with concentrated poverty, net of other neighborhood characteristics.

A third reason to question the expectations of the deinstitutionalized ghetto perspective is strictly empirical. Much of the evidence in support of the perspective stems from the city of Chicago. While probably the single most studied city in the U.S., Chicago is nevertheless a somewhat unique city, one with a very high level of residential segregation (Massey and Denton 1993). Poor neighborhoods in Chicago seem to exhibit dramatically lower organizational and population densities than reported in ethnographic studies of poor neighborhoods in cities such as New York and Boston (Newman 1999; Small 2004). Scholars in recent years have argued that Los Angeles might more accurately represent the American city of the 21st century, a place with high and persistent immigration, a large Latino population, an especially costly real estate market, and the site of a host of political battles that often reverberate throughout other cities (Dear 2002). Other researchers have adopted a “multi-city” perspective on urban inequality, arguing that multiple patterns of urbanization and development are in evidence across urban areas (O’Connor, Tilly, and Bobo 2001).

This third critique would lead to several specific expectations. By one, cities that formed part of the Rustbelt experienced a historically-specific set of contingencies—particularly, the dramatic loss of jobs in the manufacturing sector—that led to the phenomena observed by theorists in Chicago. Thus, the negative relationship between concentrated poverty and low organizational density is particular to these cities, not endemic to *the city*. Second, some would argue that what Wilson observed was the radical depopulation of many parts of Chicago, a process ultimately more important than whether the people who were leaving were middle class

(Small and McDermott 2006). By this logic, the negative relationship Wilson hypothesized may specifically characterize cities with low population densities. A third expectation is related to the processes occurring among these cities. Wilson and many others have accurately pointed to the overall economic viability a city requires to sustain establishments in their neighborhoods, a viability that may ultimately shape how much poverty matters. Finally, some would argue that size matters. Chicago is the third most populous MSA/PMSA area in the United States, with nearly 8.3 million residents in the metropolitan area. The average MSA/PMSA had approximately 680,000 residents in 2000. It is possible that the complex processes leading to deep inequality among neighborhoods of different poverty rates do not manifest themselves in cities of average (and therefore much smaller) size.

In what follows, we determine which of these perspectives or critiques is consistent with the distribution of establishments across urban neighborhoods in the year 2000.

DATA AND MEASURES

Data

We employ two datasets. The County Business Patterns section of the U.S. Census compiles extensive data from a range of governmental administrative sources on all businesses and organizations in the United States that have a payroll. Businesses and organizations are identified by over 1,000 North American Industry Classification System (NAICS) codes. The office makes some of these data, such as the number of businesses, available at the zip code level. No data are available below the zip code level. We obtained the data for the year 2000. The specific measures are described in a section below.

Our second source was the 2000 U.S. Census, Summary File 3, from which we obtained demographic data at the zip code level and the level of the Metropolitan Statistical Area (MSA) and Primary Metropolitan Statistical Area (PMSA).⁵ Since zip codes are U.S. postal designations with no natural relationship to MSA/PMSAs, they were matched to metropolitan areas using GIS technology, following a “centroid” approach (using Arcview). We calculated the geographic center of every zip code, and matched the zip code to the metropolitan area that contained that center. Zip codes partly within the bounds of metropolitan areas but whose centers were outside it were excluded. The result is a two-level dataset containing a tabulation of every establishment with a payroll, by zip code (n = 13,776), for every metropolitan area (n = 331) in the U.S.⁵

Dependent variable

Our discussion of the rationales for studying organizational density has pointed to several types of organizations varying in size and purpose. For this reason, we employ several different outcome variables, including small and large establishments. We define small establishments as those with 20 or fewer employees. Among small establishments, we identify five general types: day-to-day establishments (hardware stores, grocery stores, convenience stores, pharmacies,

⁵ Two data issues are important to note. First, the census does not make available at the zip level any information on establishments that have no payroll. For example, if a couple opened a bakery and hired only their child to help occasionally, this store would not be included unless the child was on a formal payroll. (The census labels these establishments “non-employers.”) The absence of these data could lead to an under-estimation of the number of resources in poor neighborhoods. We assess this possibility in our analysis. Second, the smallest geographic unit with available establishment data is the zip code. Depending on the issue, some zip codes may be too large. For studies of neighborhood socialization in poor areas, tracts, with populations of about 4,000, are probably the most appropriate (among the publicly available data sources for multiple cities). For example, in studies of the influence of educated adult role models for youth, zip codes are probably too large (Cutler and Glaeser 1997). For studies of economic issues, such as job availability and industry sector dominance, tracts are probably too small, and zip codes may be more appropriate, since regions of economic activity are wider than those of social neighborhood activity (though many zip codes are very small as well). For example, for supermarkets and post offices, the modal number per tract will often be zero, given tracts’ small size. Thus, the use of zip data as opposed to tract data may be increasingly appropriate as we are concerned with economic well-being and increasingly inappropriate as we are concerned with social well-being. We assess this issue in our analysis.

banks, credit unions, restaurants, laundries, grooming centers); small medical establishments (physicians' clinics, mental health physicians' clinics, dentists' offices, and other small offices of mental health), social service establishments (childcare centers, child and youth services, services for the elderly and disabled, and other individual and family services); recreational establishments (movie theaters, fitness and recreational sports centers, and bowling alleys); and social establishments (religious institutions, restaurants, cafeterias, book stores, childcare centers, snack centers, and bars). We separated medical establishments from other service establishments due to their importance; we excluded schools due to the complicated dynamics underlying the spatial distribution of schools as well as their ubiquity. Some establishments playing more than one role are included in more than one category. For example, restaurants are day-to-day establishments but also places for socialization. All five types of establishments contribute to street safety and to different types of resource access, and all contribute to congestion; the last type contributes to community building and local collective efficacy. For a summary of the establishments we study and why, see Table 1.

Table 1 here

Among large establishments we study large hardware stores (100 to 999 employees), large grocery stores (100 to 499 employees), and large medical establishments (100 or more employees). All three types contribute to both resource access and congestion, but none deters street crime or builds collective efficacy or local community. It is important to note that the presence of large organizations may itself shape the presence of small ones. A long literature on large mega-stores has asked precisely this question. The "Home Depot" effect may be such that

the presence of one large hardware store may undermine the presence of small ones. Such an effect may influence both the distribution and economic viability of hardware stores and grocery stores. We separately study the relationship between neighborhood poverty and both small and large organizations. See Table 1.

DESCRIPTIVE FINDINGS

We first compare the number of establishments per 100,000 residents in poor neighborhoods in all cities and in four case study cities.⁶ Poor neighborhoods are defined as zip codes in which 30% or more of the population is poor.⁷ The case studies were selected for illustrative purposes. Later we assess statistically the level of heterogeneity across cities. The table presents both small and large establishments affecting the safety, resource access, community building and collective efficacy, and congestion of neighborhoods. Items in bold are composites based on the sum of the non-bold items immediately below them.

Table 2 here

As Table 2 shows, Chicago poor neighborhoods have fewer establishments per 100,000 than poor neighborhoods in the average city. In fact, poor neighborhoods in Chicago are consistently below the mean for each of the major establishment types and every one of the sub types. For comparison, consider that Atlanta is also frequently below the mean, while Boston is frequently above it.

⁶ Seventy zip codes with fewer than 100 residents were dropped. Ninety-four zip codes with more than 1,000 establishments per 100,000 residents were dropped. These were unlikely to be residential. Including them does not change the basic picture, but artificially inflates the numbers for the average city.

⁷ Since zip codes are on average larger than tracts, we use a 30% cutoff, rather than the common 40% cutoff for very high poverty neighborhoods. Very few zip codes are 40% poor or greater.

A problem with Table 2 is that poor neighborhoods in some cities may have few establishments because *all* neighborhoods in the city tend to exhibit low organizational density. Table 3 compares organizational density in poor and non-poor neighborhoods. It displays the number of establishments per 100,000 in poor zip codes minus the number in non-poor zip codes for each of the four cities and for the country.

Table 3 here

In some cities, the average poor neighborhood is more organizationally dense than the average non-poor neighborhood; in others, the opposite is true. But as shown in the table, in the average U.S. city, poor neighborhoods exhibit *greater* organizational density than non-poor neighborhoods. This, however, is not the case in Chicago, Los Angeles, or Atlanta—it is true in Boston. With respect to our broader question, the finding is clear: poor neighborhoods in Chicago do not resemble poor neighborhoods in the average U.S. city—they are systematically more deprived of organizations and, contrary to the case in most cities, they are less organizationally dense than those in non-poor neighborhoods.

One branch of the de-institutionalized ghetto hypothesis specifically argues that poor predominantly *black* neighborhoods exhibit low organizational density (Wacquant 2007). To assess this possibility, we compare black poor neighborhoods to all other neighborhoods, in the average city and in the four case study cities. We operationalize black poor neighborhoods as those that are 30% or more poor and 50% or more Latino. See Table 4.

Table 4 here

As the table makes clear, organizational density in the average city does not exhibit the pattern it does in Chicago (or in the other case study cities). Certainly in Chicago, but not elsewhere, black poor neighborhoods are de-institutionalized when compared to all other neighborhoods in the city. For comparison purposes, we show, in Table 5, the difference in organizational density between Latino poor neighborhoods and all other neighborhoods in the city.

Table 5 here

Surprisingly, in the average city, Latino poor neighborhoods are less organizationally dense than other neighborhoods by all measures except small day-to-day establishments. This pattern holds in Chicago and all other case study cities, suggesting that de-institutionalization might more accurately capture Latino neighborhoods in the new millennium.

These tables do not adjust for important differences among neighborhoods and among cities. They confirm that poor neighborhoods in Chicago differ from those in other cities, but not whether the relationship between concentrated poverty and organizational density in Chicago differs, net of other factors, from that in other cities. We turn to more formal models to explore this question further.

METHODS

Models

We estimate hierarchical generalized linear models (HGLM) in which zip codes are nested within metropolitan areas. Generalized linear models specify a sampling model, a structural model, and a link function. A Poisson distribution is often assumed in estimating a rate (such as homicides per 100,000 persons) or a simple count. The outcome variable is assumed to reflect a “rate,” λ , or expected mean, so that $E(Y | \lambda) = \lambda$. In a Poisson distribution, the variance is identical to the mean. We make two modifications to these assumptions. To adjust for over-dispersion, we assume in our estimates that $\text{Var}(Y | \lambda) = \sigma^2 E(Y | \lambda)$, and expect $\sigma^2 > 1$. Second, the standard Poisson model assumes constant “exposure” across units. In our case, zip codes vary widely in area; thus, we assume a varying exposure, measured by the area in square miles (Raudenbush and Bryk 2002:309ff; McCullagh and Nelder 189:193ff). We model λ as a function of metropolitan- and zip-level variables, in a hierarchical framework (Raudenbush and Bryk 2002). Hierarchical linear models are systems of simultaneously estimated equations in which the zip-level (neighborhood) and metropolitan-level (city) predictors are modeled independently; in conjunction, they realize the linear predictor η . Given neighborhood i in city j , we specify the connection between the linear predictor and λ with the log link, whereby, $\eta_{ij} = \log(\lambda_{ij})$ (Long 1997:257). Our main concern is the effect of poverty on the log number of establishments. Our model takes the following form:

Level1

$$\eta_{ij} = \beta_{0j} + \beta_{1j}(\text{Neighborhood_Poverty})_{ij} + \sum_{q=2}^9 \beta_{qj} X_{qij} + \varepsilon_{ij}$$

Level2

$$\beta_{0j} = \gamma_{00} + \sum_{p=1}^6 \gamma_{0p} W_{0pj} + \mu_{0j}$$

$$\beta_{1j} = \gamma_{10} + \sum_{p=1}^6 \gamma_{1p} W_{1pj} + \mu_{1j}$$

Where β_{0j} is the expected log number of establishments in the average neighborhood i in city j and β_{1j} is the average coefficient associated with the neighborhood's poverty level. Six coefficients γ are associated with city-level predictors of both the number of establishments in the average zip code in the city and the effect of neighborhood poverty on the number of establishments in the neighborhood. (Raudenbush et al. 2000). The zip-level controls are proportion black, proportion Latino, proportion Asian, population density (logged), residential instability (the proportion of residents who lived elsewhere five years earlier), suburban location, and the number of large establishments of the same type (to control for the "Home Depot" effect). The metropolitan-level predictors, derived from our previous discussion, are region (South, Northeast, and West; Midwest as baseline), the metropolitan population density (logged), the metropolitan total population, and the poverty rate of the city as a whole, as a proxy for economic health. We examine whether γ_{10} is negative or positive (i.e., whether the average effect of poverty is negative or positive); whether γ_{10} varies significantly across the level-2 units (i.e., whether the effect depends significantly on the city); and whether city-level factors (W) help explain the effect of neighborhood poverty. All level 1 predictors, except for suburban location, are centered on the city mean; all level 2 predictors are centered on the mean.

Size of neighborhood

Zip codes vary widely in size. Even though our data are limited to zip codes in metropolitan areas, the mean zip code is still 45.0 square miles with a standard deviation of 106.0 square miles. A quarter of the zip codes are less than 7.0 square miles. The large zip codes are often located in Western states with low population densities, where designating a single zip code for an average population will often cover a large area. From a statistical perspective, our models account for this issue by adjusting estimates by the size of the zip code. However, from a substantive perspective studying all zip codes under a single size collapses a set of radically different types of neighborhoods that, in fact, should be studied separately. We previously stated that a small walkable neighborhood and large driveable neighborhood would invite separate rationales for studying organizational density. In many urban areas of the West, driving 25 minutes to a movie theater or large hardware store constitutes enjoying a nearby amenity. Nevertheless, it is clear that an area higher than 100 square miles is not a neighborhood in any substantive sense, even after granting that in large depopulated states people may conceive of their neighborhoods, and the resources they care to acquire within them, as wide driving distances.

To make this problem tractable, we remove from the analysis below any zip code over 100 square miles. We divide the rest of the zip codes into three categories: *walkable neighborhoods*, zip codes no larger than 5 square miles; *drivable neighborhoods*, those between 5 and 20 miles; and what we describe as *large resource use areas*, those between 20 and 100 square miles. The first two categories constitute neighborhoods as understood in different components of the literature. The third is only motivated by a concern with resource access—it refers to larger metropolitan areas where, given the distributions of establishments in some parts

of the country, driving a considerable distance for recreation or acquiring certain goods is not uncommon. There are 1,394 such zip codes: 3.4% are in the Northeast; 19.4% in the Midwest, 43.9% in the South, and 34.3% in the West. The bulk of the analysis is focused on the first two categories. In addition to this categorization, each of our models adjusts estimates for differences in land area.

Limitations

There are at least two important limitations to this analysis. First, all of our data are for the year 2000; the analysis is not longitudinal. In this respect, the paper is not a full test of Wilson's theory, which involved two distinct if interrelated observations—that concentrated poverty is associated with low organizational density, and that the departure of the middle class over the 1970s and 1980s precipitated the decline in organizational density. We cannot test the latter observation with our data, and longitudinal data are not available to test the model comprehensively.⁸ Second, this analysis ignores all of the implications that derive from thinking of establishments as part of a population of organizations (Hannan and Freeman 1977; Carroll and Hannan 2000). That is, the probability of birth or survival of an establishment of any given type—e.g., small pharmacies—at any given time is shaped in part by the conditions of the population of pharmacies as a whole and the historical juncture in the evolution of pharmacies. For argumentative coherence and for lack of data, these dynamics are not considered in the current paper.

⁸ There are two problems with data availability. First, Zip Business Data are only available beginning in 1994. Second, data for 1994 to 1998 are coded under the U.S. Standard Industrial Classification (SIC) system, rather than the NAICS system. It is possible to approximately match listings across the two systems, but such a procedure would tend to overestimate the extent of change. In addition, the best it would offer still creates a four-year between the demographic data (from Census 1990) and the organizational data (from SIC Zip Business Data 1994. Source <http://www.census.gov/epcd/www/zipstats.html>, accessed 11/07/07.

[In addition, the current version of the paper ignores the problem of spatial autocorrelation. To be addressed in a future version.]

FINDINGS

Preliminary findings

Before turning to the hierarchical models, we consider the overall relationship between neighborhood poverty and organizational density in the case study cities. Table 6 reports Poisson coefficients of the effect of poverty for Chicago, Atlanta, Los Angeles, and Boston, on each of the five types of establishments, after controls. For readability, these preliminary models control for the land area of the zip code but pool all three neighborhood types under a single model to identify an average effect.⁹ For comparison, the first column presents the results for all cities combined (without city-level predictors, but adjusting standard errors for clustering within cities).

Table 6 here

The table reveals two basic stories. Consider, first, the Chicago column. Even in Chicago, the de-institutionalized ghetto perspective only holds for small medical establishments; for all other establishment types, the effects of neighborhood poverty on organizational density are positive or not significant. In cities as a whole, all of the effects of poverty are either positive or not significant, except for that on the number of medical establishments. Among the rest of the cities, the relationships are mixed for all cities except Los Angeles, which reveals a

⁹ In addition, dividing the zip codes within each of the case-study cities into three categories leaves too few zip codes (especially drivable neighborhoods and large resource use areas) to make reliable estimates.

consistently positive relationship. Second, as shown across rows, the results are consistently positive for day-to-day establishments, the category Small and McDermott (2006) studied, and for social establishments.

Large establishments are considered in Table 7. The table exhibits logit coefficients for the effect of proportion poor on the presence of large establishments after controls, for all cities and the four case studies. (We estimate a binary outcome model given the low average number of establishments of each type.) There are so few large hardware stores that there were no effects to estimate in the case studies and no effect in cities as a whole. Large grocery stores are a different matter. They are consistently less likely to be located in high poverty zip codes, an observation made in Chicago and found to be true there and elsewhere (but not in Boston). Finally, neighborhood poverty bears no relationship to large medical establishments in the case study cities, but a positive relationship in cities as a whole. We now turn to the hierarchical results.

Table 7 here

Day-to-day establishments

We first consider small day-to-day establishments. Table 8 exhibits the relevant HGLM coefficients predicting the log number of day-to-day establishments in walkable neighborhoods, drivable neighborhoods, and large resource use areas.

Table 8 here

As the first row of the table shows, the effect of poverty on the number of small day-to-day establishments is consistently positive, regardless of the size of the measured zip code. The top row indicates that in a walkable neighborhood in an average Midwestern city the log number of establishments increases by 0.20 for every 1 percentage point increase in the proportion poor in the neighborhood over the city average. At the city level, two variables helped determine the size of the poverty slope (though not for small establishments): proportion poor in the city and location in the West and South. In cities significantly poorer than average, the effect on drivable neighborhoods is negative. Interestingly, the effect of poverty on walkable neighborhoods, those most strongly associated with theories of organizational density, is not affected by the expected city-level predictors.

[The results for large establishments will be available in a future draft.]

Medical and social service establishments

Table 9 exhibits the results for medical establishments; Table 10, for social service establishments. Neighborhood poverty has no effect on the number of small medical establishments in walkable neighborhoods. In larger areas, however, the effect is negative in the Midwest. The regional effects on the poverty slope are so strong, however, that in the West and the South, the effects are, in fact, either positive or zero. These findings are consistent with the expectation that the Midwest and Northeast represent particular cities with especially deteriorated poor neighborhoods. *[The results for large hospitals will be available in a future draft.]*

Social service establishments exhibit a different neighborhood pattern but a similar city pattern. In walkable neighborhoods, as proportion poor increases, so does the number of social service establishments, an effect attenuated in larger cities. In larger neighborhoods, neighborhood poverty has no effect in the average Midwestern city, but it is negative if the city is substantially poorer and positive if it is in the West or the South.

Table 9 here

Table 10 here

Recreational and social establishments

Table 11 exhibits the results for recreational establishments. As the table makes clear, neighborhood poverty seems to have little bearing on their presence, except in the West (when compared to the Midwest), in which case the effect of neighborhood poverty is positive. Table 12 exhibits the results for social establishments. Here, the results resemble those for day-to-day establishments, with poverty being a strong, positive predictor regardless of neighborhood size in the average Midwestern city. The effect is attenuated somewhat in poorer than average cities, but it is even stronger (more positive) in the West and the South.

Table 11 here

Table 12 here

DISCUSSION

The results offer little or no support for the deinstitutionalized ghetto hypothesis, especially among walkable neighborhoods, where for all establishments the concentration of poverty either increases or has no effect on organizational density. In these neighborhoods, region matters, though not enough to make the effects of poverty negative on average. In drivable neighborhoods, the effects are only negative for small medical establishments. Among these neighborhoods, region matters as well, as does a city's overall poverty rate, which tends to depress poor areas. In general, between-city differences matter more for drivable than for walkable neighborhoods.

The results are consistent with two overarching pictures, both of which deserve further exploration. First, poor neighborhoods in Chicago do not resemble those in the average city; they are systematically less organizationally dense. It is not surprising that the deinstitutionalized ghetto perspective was born in Chicago, since in this city (though not in the average city) poor neighborhoods are in fact less dense than non-poor neighborhoods. A street-level observer would see the difference documented in Tables 2 and 3. (Of course, after controlling for other differences, the relationship between neighborhood poverty and organizational density is not always negative even in Chicago). Chicago-based theorists painted a picture that accurately captured the poor neighborhoods in their cities, but erred in generalizing what they observed to poor neighborhoods in cities nationwide, which are affected by local economy and regional histories to a greater extent than previously acknowledged. Second, both day-to-day establishments and social establishments are positively associated with poverty on a consistent basis, regardless of the scale at which the neighborhood is measured. This is consistent with a picture in which establishments seek to avoid the expensive rents of higher income areas, and residents continue to be reluctant to support high commercial density in their

own backyards. This suggests that the political economy of cities and socio-political mobilization may play a greater role than the standard deinstitutionalized ghetto perspective assumes.

[The discussion section will be greatly expanded in a future draft.]

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Table 1. Measures of organizational density, by type and by theoretical rationale for studying establishment

	<i>Small establishments</i>					<i>Large establishments</i>		
	Day-to-day	Medical	Social service	Recreational	Social	Hardware	Grocery	Medical
<i>Decreases street crime</i>	X	X	X	X	X			
<i>Builds community</i>				X	X			
<i>Provides resource access</i>	X	X	X	X	X	X	X	X
<i>Increases congestion</i>	X	X	X	X	X	X	X	X

Table 2. Organizational density in poor zip codes, 2000

	Mean number of establishments per 100,000 residents, high poverty zip codes				
	All Cities	Chicago	Atlanta	LA	Boston
Small day-to-day establishments	174.30	88.97	84.37	127.27	296.41
Hardware stores	3.89	3.55	0.53	5.38	1.78
Grocery stores	34.42	32.78	26.36	28.06	31.80
Convenience stores	15.73	4.70	12.73	10.84	31.35
Pharmacies	13.62	10.04	2.47	11.53	32.98
Banks	4.15	0.83	0.00	1.53	11.00
Credit unions	16.92	2.27	4.75	4.09	6.24
Restaurants	61.54	23.18	28.57	48.85	103.16
Laundries	4.79	8.31	1.96	5.76	5.56
Grooming centers	19.24	3.31	7.01	11.25	72.55
Small medical establishments	125.20	36.00	45.20	87.98	230.73
Offices of physicians (excluding mental health)	83.60	25.99	37.79	57.07	141.11
Offices of physicians, mental health	5.28	2.27	1.78	2.83	5.55
Offices of dentists	32.25	6.87	4.56	26.92	69.80
Offices of other mental health practitioner	4.07	0.86	1.07	1.15	14.27
Small social service establishments	59.12	29.30	36.41	23.20	56.85
Childcare centers	24.01	16.00	20.54	14.20	12.68
Child and youth services	8.40	3.97	3.25	3.01	7.33
Services for elderly and disabled persons	8.19	2.20	7.49	1.76	3.57
Other individual and family services	18.51	7.13	5.13	4.22	33.27
Small recreational establishments	8.34	0.39	1.51	4.37	18.34
Movie theaters	0.80	0.00	0.00	0.79	0.90
Fitness and recreational sports centers	7.09	0.22	1.51	3.58	16.55
Bowling alleys	0.44	0.17	0.00	0.00	0.90
Small social establishments	278.63	98.96	116.75	193.10	453.60
Religious orgs (e.g. churches, mosques)	64.25	34.03	37.81	23.44	31.40
Full service restaurants	65.59	11.82	15.39	63.76	163.27
Limited service restaurants	61.54	23.18	28.57	48.85	103.16
Cafeterias	4.13	0.13	1.82	3.08	0.79
Book stores	8.45	0.99	5.12	3.14	50.13
Childcare centers	24.01	16.00	20.54	14.20	12.68
Snack and non-alcoholic beverage centers	14.64	3.30	2.80	16.08	56.18
Alcoholic beverage drinking places	36.02	9.52	4.69	20.55	35.98
Large hardware stores	0.01	0.00	0.00	0.00	0.00
Large grocery stores	1.29	0.74	1.31	0.73	1.69
Large medical establishments	3.62	2.57	0.71	1.44	9.82
HMO medical centers	0.11	0.26	0.00	0.00	0.90
General medical and surgical hospitals	3.14	2.31	0.71	1.29	8.13
Other specialty hospitals	0.37	0.00	0.00	0.16	0.79

Source: Zip Business Patterns, 2000. U.S. Census. Zip code-level data GIS-matched to 331 metropolitan areas. Figures limited to zip codes with more than 100 residents and no more than 1,000 day-to-day establishments per 100,000 residents, and those in which 30% or more of all persons are poor. There are 10 such zip codes in Chicago; 28 in Los Angeles; 9 in Atlanta; 5 in Boston; 641 in all cities combined. Small establishments have fewer than 20 employees. Large hardware stores and warehouse clubs have between 100 and 999 employees; large grocery stores have between 100 and 499 employees; large medical establishments have 100 or more employees. Categories listed in bold font are additive indices of the establishments listed beneath the category heading.

Table 3. Difference in organizational density between poor and non-poor zip codes

	Number of establishments per 100,000 persons in poor zip codes minus non-poor zip codes				
	All Cities	Chicago	Los Angeles	Boston	Atlanta
Small day-to-day establishments	65.08	-29.08	9.57	140.95	-16.21
Small medical establishments	36.93	-84.33	-99.26	112.71	-47.95
Small social service establishments	-0.33	-7.78	-3.75	6.06	-5.22
Small recreational establishments	30.36	2.11	-1.65	16.19	12.78
Small social establishments	95.64	-92.67	29.21	295.32	-48.06

Source: See Table 1.

Table 4. Difference in organizational density between black poor zip codes and all other zip codes

	Number of establishments per 100,000 persons in poor zip codes minus non-poor zip codes				
	All Cities	Chicago	Los Angeles	Boston	Atlanta
Small day-to-day establishments	51.94	-28.18	-118.68	-159.13	-12.84
Small medical establishments	24.05	-81.95	-177.13	-120.95	-39.83
Small social service establishments	0.65	-7.62	-7.74	-12.43	-4.93
Small recreational establishments	30.76	5.13	-24.68	-41.09	19.00
Small social establishments	65.76	-94.77	-182.95	-222.15	-38.39

Source: See Table 1.

Table 5. Difference in organizational density between Latino poor zip codes and all other zip codes

	Number of establishments per 100,000 persons in poor zip codes minus non-poor zip codes				
	All Cities	Chicago	Los Angeles	Boston	Atlanta
Small day-to-day establishments	10.53	-41.40	-24.01	-159.13	-99.89
Small medical establishments	-8.65	-87.23	-103.51	-120.95	-91.09
Small social service establishments	-6.87	-7.94	-6.88	-12.43	-6.51
Small recreational establishments	-1.75	-16.23	-3.35	-41.09	-24.17
Small social establishments	-33.43	-118.22	-33.01	-222.15	-165.54

Source: See Table 1.

Table 6. Effects of proportion poor on log number of small establishments in zip code

	All cities	Chicago	Atlanta	Los Angeles	Boston
Day-to-day establishments					
Proportion poor	0.018*** (0.002)	0.013*** (0.003)	0.009*** (0.004)	0.013*** (0.002)	0.009** (0.004)
Medical establishments					
Proportion poor	-0.009** (0.003)	-0.043*** (0.003)	-0.011** (0.004)	0.012*** (0.002)	-0.038*** (0.005)
Social service establishments					
Proportion poor	0.015*** (0.002)	0.000 (0.004)	0.015** (0.007)	0.007 (0.004)	-0.021** (0.009)
Recreational establishments					
Proportion poor	-0.004 (0.003)	-0.015 (0.013)	-0.019 (0.017)	0.022** (0.010)	-0.027* (0.016)
Social establishments					
Proportion poor	0.020*** (0.002)	0.006*** (0.002)	0.008*** (0.003)	0.009*** (0.002)	0.006* (0.003)
<i>N zip codes</i>	12,188	288	150	257	192

Source: See Table 1. Poisson regression coefficients. All models adjust for overdispersion and for variable exposure (area in square miles). All models include zip-level controls for proportion black, proportion Latino, proportion Asian, logged population density, center city location, residential instability, and the number of large establishments within each category.

*p < .05 **p < .01 ***p < .001

Table 7. Effects of proportion poor on the log of the odds that there is a large establishment in zip code

	All cities	Chicago	Atlanta	Los Angeles	Boston
Large hardware stores					
Proportion poor	-0.018 (0.037)	--	--	--	--
Large grocery stores					
Proportion poor	-0.061*** (0.005)	-0.065* (0.033)	-0.171*** (0.052)	-0.057** (0.027)	0.029 (0.051)
Large medical establishments					
Proportion poor	0.018*** (0.004)	0.020 (0.034)	0.032 (0.045)	-0.013 (0.025)	0.062 (0.058)
<i>N zip codes</i>	12,188	288	150	257	192

Source: See Table 1. Logit coefficients. All models include controls for proportion black, proportion Latino, proportion Asian, logged population density, center city location, area (in square miles) and residential instability at the zip code level. Standard errors in first column adjusted for clustering in cities.

*p < .05 **p < .01 ***p < .001

Table 8. Effects of proportion poor in zip code on log number of small day-to-day establishments

	<i>Walkable neighborhoods</i>	<i>Drivable neighborhoods</i>	<i>Large resource use areas</i>
<i>Effect on log number of establishments of:</i>			
Proportion poor in neighborhood	.020*** (.005)	.009** (.003)	.014*** (.004)
<i>Effect on proportion poor slope of:</i>			
Proportion poor in city	-0.001 (.002)	-.002*** (.000)	-.001*** (.000)
City population density (logged)	-.001 (.002)	-.003 (.002)	.000 (.004)
City size (total population)	-.002 (.002)	.001 (.002)	.001 (.002)
City located in Northeast	-.002 (.004)	-.002 (.004)	-.007 (.005)
City located in West	.010 (.007)	.018*** (.004)	.009 (.007)
City located in South	.011* (.005)	.017*** (.003)	.013* (.005)
<i>N zip codes</i>	2,500	4,213	5,475
<i>N cities</i>	234	291	325

Unit-specific models, robust standard errors. Additional coefficients included in the model are not presented for readability. Models include the following zip-level predictors: proportion black, proportion Latino, proportion Asian, logged population density, center city location, and residential instability. Models also include the shown metro-level predictors for the level-1 intercept. All level 1 predictors, except for central city location, centered on the group mean; all level 2 predictors, except for region indicator variables, centered on the mean.

Table 9. Effects of proportion poor in zip code on log number of small medical establishments

	<i>Walkable neighborhoods</i>	<i>Drivable neighborhoods</i>	<i>Large resource use areas</i>
<i>Effect on log number of establishments of:</i>			
Proportion poor in neighborhood	.012 (.008)	-.028** (.010)	-.028*** (.008)
<i>Effect on proportion poor slope of:</i>			
Proportion poor in city	-.001 (.0008)	-.003*** (.0008)	.000 (.0009)
City population density (logged)	-.004 (.004)	-.011* (.005)	.002 (.008)
City size (total population)	-.009* (.004)	-.001 (.004)	-.006 (.005)
City located in Northeast	.006 (.008)	.018 (.010)	.012 (.011)
City located in West	.021* (.009)	.029** (.009)	.057*** (.015)
City located in South	.012 (.008)	.036*** (.008)	.025** (.009)
	<i>N zip codes</i>	2,500	4,213
	<i>N cities</i>	234	291
			5,475
			325

Unit-specific models, robust standard errors. Additional coefficients included in the model are not presented for readability. Models include the following zip-level predictors: proportion black, proportion Latino, proportion Asian, logged population density, center city location, and residential instability. Models also include the shown metro-level predictors for the level-1 intercept. All level 1 predictors, except for central city location, centered on the group mean; all level 2 predictors, except for region indicator variables, centered on the mean.

Table 10. Effects of proportion poor in zip code on log number of small social service establishments

	<i>Walkable neighborhoods</i>	<i>Drivable neighborhoods</i>	<i>Large resource use areas</i>
<i>Effect on log number of establishments of:</i>			
Proportion poor in neighborhood	.016** (.005)	.005 (.005)	-.008 (.006)
<i>Effect on proportion poor slope of:</i>			
Proportion poor in city	-.0001 (.0006)	-.003*** (.0006)	-.002*** (.0005)
City population density (logged)	.0007 (.003)	-.003 (.003)	.002 (.005)
City size (total population)	-.007** (.003)	-.003 (.003)	-.003 (.003)
City located in Northeast	.002 (.005)	.004 (.008)	.020* (.008)
City located in West	.012 (.007)	.025*** (.006)	.038*** (.009)
City located in South	.0001 (.005)	.018*** (.005)	.034*** (.007)
<i>N zip codes</i>	2,500	4,213	5,475
<i>N cities</i>	234	291	325

Unit-specific models, robust standard errors. Additional coefficients included in the model are not presented for readability. Models include the following zip-level predictors: proportion black, proportion Latino, proportion Asian, logged population density, center city location, and residential instability. Models also include the shown metro-level predictors for the level-1 intercept. All level 1 predictors, except for central city location, centered on the group mean; all level 2 predictors, except for region indicator variables, centered on the mean.

Table 11. Effects of proportion poor in zip code on log number of small recreational establishments

	<i>Walkable neighborhoods</i>	<i>Drivable neighborhoods</i>	<i>Large resource use areas</i>
<i>Effect on log number of establishments of:</i>			
Proportion poor in neighborhood	.011 (.007)	-.007 (.007)	-.012 (.007)
<i>Effect on proportion poor slope of:</i>			
Proportion poor in city	.0002 (.0008)	-.001 (.0008)	-.002** (.0006)
City population density (logged)	-.002 (.004)	-.005 (.005)	-.002 (.007)
City size (total population)	-.008 (.004)	-.002 (.004)	-.001 (.004)
City located in Northeast	.001 (.007)	-.005 (.012)	-.004 (.011)
City located in West	.010 (.009)	.025** (.008)	.043*** (.013)
City located in South	.0007 (.008)	.008 (.007)	.014 (.010)
<i>N zip codes</i>	2,500	4,213	5,475
<i>N cities</i>	234	291	325

Unit-specific models, robust standard errors. Additional coefficients included in the model are not presented for readability. Models include the following zip-level predictors: proportion black, proportion Latino, proportion Asian, logged population density, center city location, and residential instability. Models also include the shown metro-level predictors for the level-1 intercept. All level 1 predictors, except for central city location, centered on the group mean; all level 2 predictors, except for region indicator variables, centered on the mean.

Table 12. Effects of proportion poor in zip code on log number of small social establishments

	<i>Walkable neighborhoods</i>	<i>Drivable neighborhoods</i>	<i>Large resource use areas</i>
<i>Effect on log number of establishments of:</i>			
Proportion poor in neighborhood	.019*** (.005)	.015*** (.003)	.015*** (.004)
<i>Effect on proportion poor slope of:</i>			
Proportion poor in city	-.001** (.0004)	-.003*** (.0003)	-.001** (.0004)
City population density (logged)	-.001 (.002)	-.002 (.002)	.0009 (.004)
City size (total population)	-.004 (.002)	-.0007 (.001)	.003 (.002)
City located in Northeast	.002 (.004)	.004 (.003)	.002 (.005)
City located in West	.011* (.005)	.015*** (.003)	.007 (.008)
City located in South	.013** (.005)	.014*** (.002)	.007 (.005)
	<i>N zip codes</i>	2,500	4,213
	<i>N cities</i>	234	291
			5,475
			325

Unit-specific models, robust standard errors. Additional coefficients included in the model are not presented for readability. Models include the following zip-level predictors: proportion black, proportion Latino, proportion Asian, logged population density, center city location, and residential instability. Models also include the shown metro-level predictors for the level-1 intercept. All level 1 predictors, except for central city location, centered on the group mean; all level 2 predictors, except for region indicator variables, centered on the mean.