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The Community Loss Index: A New Social Indicator

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ABSTRACT The Community Loss Index (CLI), a new social indicator, focuses on the understudied role of place as a source of stress and an aggregator of individual experiences. Building on the relationship between loss and stress, the index attempts to capture *collective loss*, defined as the chronic exposure by neighborhood residents to multiple resource losses at the same time. Using maps, the article analyzes the spatial distribution of six types of loss in New York City and the characteristics of people who live in high- and low-loss neighborhoods. Regionalization reveals a neighborhood-based concentration of loss, patterns of loss that are both widespread and variable by location, and that a group's vulnerability to the adverse effects of community loss depends on where the group lives. The CLI provides a place-based context for investigating neighborhood-based collective loss and allows community members and public officials to fine-tune interventions based on actual community needs.

INTRODUCTION

In recent years, researchers studying urban areas have recognized that place matters: differences in neighborhood conditions powerfully predict the well-being of local residents (Joint Center for Political and Economic Studies 2012). Interest in the many dimensions of place is growing due to mounting demand for accountability, outcome measures, evidence-based research, and indicators that reveal what works. In response, researchers like Jochen Albrecht and Laxmi Ramasubramanian (2004) have developed measures that aim to help communities and policy makers study, understand, and change local conditions.

The Community Loss Index (CLI) presented here examines how stress might be a useful concept not only for individuals but for communities as

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well by capturing the relationship between adverse neighborhood conditions and the concentration of health and social problems in some neighborhoods. It is well established that the stress resulting from exposure to severe loss can create health and social problems for individuals and that health and social problems tend to cluster in poor neighborhoods.¹ However, little is known about what happens to communities when large numbers of people living in close proximity regularly suffer multiple, persistent losses or why health and social problems (behaviors that harm oneself or others) tend to amass in certain areas. Some observers blame the concentration of health and social problems in poor neighborhoods on the behavior of local residents (Murray 1984). Others point to poverty but often cannot explain what about poverty leads people to harm themselves or others. Seeking a fuller understanding, scholars are calling for research that specifies the pathways between neighborhood conditions and spatial concentrations of health and social problems (Feldman and Steptoe 2004; O'Campo, Salmon, and Burke 2008).

Drawing on Stevan E. Hobfoll's (1989) theory of the relationship between resource loss and individual stress and the literature describing how stress affects the mind and body (van de Kolk 1996), this article develops community loss as a potential place-based stressor that, like other stressors, can adversely affect the social fabric on which community functioning depends. We define community loss, based on Hobfoll's Conservation of Resources theory (COR) and prior empirical work that links loss to stress and then describe our construction of the CLI. A geographic information system (GIS) is used to map the spatial distribution of loss in New York City at three increasingly discrete geographic levels and to assess how community loss is distributed among communities that vary in terms of demographic composition. The CLI contributes to the knowledge of poverty and place. It identifies aggregated resource loss as a problematic feature of neighborhood life; recognizes resource loss as a potential community-wide stressor; provides a way to map and analyze aggregated loss at the citywide, neighborhood, and community levels; and adds the notion of community loss to the understanding of the experience of poverty.

1. Neighborhoods, as per our definition, are areas of like high, medium, or low loss. Neighborhoods are designated as follows: if a high-loss ZIP code area abuts a medium- or low-loss one, then this border forms the border of the neighborhood.

BACKGROUND: COMMUNITY, LOSS, AND STRESS

Joseph R. Gusfield (1975) distinguishes between two major, but not mutually exclusive, uses of the term *community*. The first is territorial and geographic, defining a community, for instance, as a particular neighborhood, town, or city. The second is relational, concerned with the quality or character of human relationships, without reference to location (xvi). Using both geographic and relational aspects, the *Oxford Dictionary of Geography* defines community as “an interacting group of people living in the same territory: town, village, suburb, or neighborhood” (Mayhew 2010, 92). Drawing on this definition, this article examines the geographic distribution of community loss based on the understanding that the associated stress affects the quality of life, rendering both territorial and psychological versions of the neighborhood relevant to this research (Bateman and Lyon 2000).

The concept of community loss developed here builds on research that finds evidence for a strong relationship between an individual’s exposure to loss and the development of health and social problems. Indeed, the death of a loved one (Campbell 1983; Boss 1999; Green 2000), major disasters (Erikson 1976; Ursano, Grieger, and McCarroll 1996; Norris 2002), historic trauma (Sotero 2006; Evans-Campbell 2008), and other such losses yield severe stress among individuals. The literature also argues that the ensuing reactions to stress (e.g., fear, anxiety, helplessness, and vulnerability) can heighten individuals’ perceptions of risk (Green 2000), shatter their basic assumptions about safety and protection, and undermine their sense of trust and place (Ursano et al. 1996; van der Kolk et al. 1996; Nord 1997; Norris 2002). Because these reactions can disrupt an individual’s daily routines, capacity to cope, personal relationships, and access to community resources, they often lead to a range of health and social problems. Pauline Boss’s (1999) concept of ambiguous loss adds another dimension to the discussion. Boss analyzes how families and communities react when loved ones are known to be alive but are absent because they are in combat, in prison, deployed, deported, or otherwise not present. Not knowing if the missing person will ever come back or return to the way he or she had been produces what Boss terms *ambient stress*, a chronic condition in which torn-apart families become immobilized, hoping for the best yet fearing the worst.

These studies focus on the nuanced relationship between loss and stress among individuals with the goal of helping them cope. However,

they do not capture other types of individual loss experienced in many cities or towns, which can include homicide, unemployment, foreclosure, eviction, deportation, deployment, long-term hospitalization, incarceration, foster care placement, school closings, and transportation shutdowns. Nor does the research on individuals account for what happens to a community when a large number of residents living in proximity are chronically exposed to high rates of one or more of these types of loss at the same time. The literature (detailed below) suggests that when concentrated by place, the problems associated with loss-induced stress can have an adverse effect on the wider community. That is, amassed loss and stress, captured by the CLI, have the power to weaken neighborhood ties, diminish the size of social networks, limit the community's social capital and efficacy (Sampson and Raudenbush 1999; Sampson 2004), and otherwise impair community functioning (van de Kolk 1996; Bassuck, Melnick, and Browne 1998; Briere and Runtz 2002; Galea 2006). Although this may be mitigated somewhat by social supports and community strengths, this article discusses how collective or aggregated experience of community loss may place communities at a high risk of stress.

THEORY: LOSS OF RESOURCES AS A SOURCE OF STRESS

The Community Loss Index draws on the well-documented understanding of the relationship between loss and stress, especially on Hobfoll's (1989) COR theory, which defines resource loss as the principal contributor to individual stress, especially in low-income communities. More specifically, the theory asserts that humans seek to obtain, retain, and protect resources and that they act to minimize loss and maximize resource gain. Stress results when resources are threatened or actually lost due to life events or when an investment of resources does not lead to resource gain.

COR differs from other theories of stress in ways that make it especially useful for a study of community loss. Most observers regard the stress process either as an internal mental occurrence or as an external environmental phenomenon (Hobfoll 2001). Hobfoll accepts both perspectives but regards context, or the external aspects of the stress processes, as central, objective, and culturally constructed. He views "individual-nested in family-nested in tribe" (338) and defines "tribe" as "the complex set of social aggregations of people into groups," including "friends, col-

leagues, organizations, and communities” (339), or what others think of as social networks. Hobfoll warns that “attempts to separate any piece of this unit (individual, family, tribe) without reference to the greater whole will necessarily lead to limited predictive capacity” (338). He further regards stress as primarily socially situated and involving social consequences. Hobfoll (2001) operationalizes context by focusing on objective and observable resources, measuring stress based on actual or threatened resource loss rather than subjective personal perceptions. He defines the resources deemed key to survival and well-being based on surveys of community members regarding their view of the central resources and argues that community opinions of what resources are important often vary based on culturally defined processes, scripts, and formulations. COR theory successfully predicts a range of stress outcomes in organizational settings and health contexts following traumatic stress as well as in the face of everyday stressors (Hobfoll and Lilly 1993; Hobfoll et al. 2003).

COR theory is especially relevant to the experience of poor people and communities. Nearly everyone reacts to resource loss. However, the poor and disenfranchised, who are already financially strained, are especially vulnerable to the loss of resources and to what Hobfoll (1989, 1991, 2001; Hobfoll et al. 2003) refers to as a downward loss spiral. The latter develops when people with few resources use them up coping with stress or preventing the loss of other resources. The resulting depletion of their reserves increases stress levels. This, in turn, can yield emotional and physical problems that may impair adaptive coping capacities in ways that undermine effective functioning in families, schools, jobs, and communities. Once the cycle of dwindling resources and rising stress gains momentum, it can reinforce a catastrophic downward spiral, from which it is difficult to recover. Given the interdependence of neighborhood residents and given that neighbors often suffer the loss of community resources at the same time, the downward spiral can ripple through the community and undermine its functioning as well as that of individuals (Hobfoll and Lilly 1993).

THE COMMUNITY LOSS INDEX

We develop the CLI as a means of operationalizing the new concept of community loss. The six losses selected for inclusion in the CLI are based on Hobfoll’s definition of resource loss, their demonstrated relationship to

stress, and the availability of data. Hobfoll (1989, 2001) finds that certain losses consistently show up as items most frequently cited by community members on lists of stressful life events. Based on numerous surveys, he lists 74 resources that are viewed by respondents as essential for well-being and survival in Western societies. They include material possessions (house, food, car), conditions (job security, adequate income, time), personal characteristics (health, mastery, sense of control, social skills, connections to others), and energies (money, knowledge, favors owed; Hobfoll 1989, 1991; Green 2000).

The losses considered for incorporation into the CLI include the loss of essential resources, such as loss of income, health, housing, and job security, among others. Specifically, we considered unemployment, untimely death of a loved one, incarceration, foster care placement, long-term hospitalization, deportation, deployment, eviction, and foreclosure, because they all appear at the high end of the stress spectrum. They are unpredictable and uncontrollable—two characteristics known to aggravate or intensify stress because they can leave people with too little time to prepare and with feelings of helplessness and lack of control (Dohrenwend 1998). The resulting stress can undermine an individual's capacity for adaptive coping and lead to the development of emotional and physical problems that, in turn, interfere with effective functioning in families, schools, jobs, and community life.

Because of data limitations, the CLI used in this article uses only six of the above nine losses considered for inclusion. Those selected fall into two categories: the loss or removal of household members due to foster care placement, incarceration, long-term hospitalization, and untimely deaths (due to murders, suicides, and accidents) and the loss of financial assets due to unemployment and foreclosure. After an in-depth search of US Census data, New York City administrative data, various websites, and queries to other researchers, it became apparent to us that data for deportation and eviction were not available at the requisite neighborhood unit. Other losses, such as marital breakup or a child's departure to attend college, are not included because, unlike the items on the CLI, they are not unpredictable or uncontrollable but rather are often a matter of choice. The authors include military deployments in this same category because there is no draft in the United States. Furthermore, mapping of deployment origins revealed no spatial or social pattern within New York City.

The CLI is founded on the interactive nature of communities, where residents who live in close proximity to each other are by definition both directly and indirectly interconnected. As the following literature review shows, when many people living close to each other regularly experience the stigma, isolation, and demoralization that result from the losses examined in this study, the collective experience can keep people from interacting with each other in ways that negatively affect the social fabric of the wider community (Fullilove 2001; Fullilove, Fullilove, and Wallace 2007). The loss of household members, resources, and institutional anchors experienced by one household may also deprive that household of access to the resources embedded in that person's social networks, including family members, relatives, friends, coworkers, and other members of the community. In brief, the tangible effects of loss and the resulting stress can spread from households that have been directly affected by the loss to others, including those living nearby and those in surrounding communities. As noted earlier, the negative effect and downward spiral of resource loss can ripple throughout the entire community in ways that undermine community function and its sense of efficacy or effectiveness. (Fullilove et al. 1998; Fullilove 2001, 2002, 2004).

Fullilove and colleagues (2004) suggest that the losses such as those examined in this study are akin to ongoing societal displacement, or the loss of all or part of one's emotional ecosystem. They describe reactions to such ongoing displacement as "Root Shock" and compare it to traumatic stress, physical shock of a massive bleed, or the emotional upheaval that follows the sudden loss of livelihood and property during a natural disaster.

A group's vulnerability to such adverse effects of community loss clearly depends on where they live. However, given the concentration of persons of color in certain neighborhoods, some observers associate any problems in those neighborhoods with the race of the residents. In contrast, Mary Patillo (2005) and Judith Bell and Mary M. Lee (2011) find that persons of color and white people who live in poor neighborhoods have similar adverse outcomes, while persons of color and whites residing in middle- or upper-income neighborhoods have similar favorable outcomes. That is, when income is held constant, place trumps race. Race (defined as racism rather than skin color) also matters. Due to persistent racial segregation, middle-class blacks are more likely than middle-class whites to live in poor neighborhoods that tend to be both worse off than white

neighborhoods and adjacent to areas of concentrated poverty (Patillo 2005; Bell and Lee 2011; LaVeist, Gaskin, and Trujillo 2011). Living near poor neighbors places middle- and high-income persons at risk for suffering the hardships that characterize less well-off areas (Diez Roux 2001; Bishaw 2005; LaVeist et al. 2011).

LITERATURE REVIEW: SIX COMMUNITY LOSS INDICATORS

The following literature review discusses each of the six resource losses, with an emphasis on their potential contribution to community stress. It suggests that the experience of persistent and simultaneous loss of household members and economic assets by many people living in proximity to each other has the potential to create a community version of Hobfoll's downward loss spiral, especially in low-income communities with already low resource reserves.

UNEMPLOYMENT: THE LOSS OF WORK

In the modern economy, job loss is pervasive, and this is exacerbated by frequent economic crises. Although the US recession officially ended in June 2009, the country's unemployment rate measured 7.9 percent in January 2013, with even higher figures for New York State (8.2 percent) and New York City (8.8 percent; New York State Department of Labor 2013). However, unemployment remained extremely high for persons of color: 6.5 percent of Asian workers, 7.0 percent of white workers, 9.7 percent of Latino works, and 13.8 percent of black workers were jobless nationwide (US Bureau of Labor Statistics 2013).

Loss of Personal Resources

Unemployed workers, especially those who are jobless in the long term, are twice as likely as their employed counterparts to suffer loss of personal resources, including the loss of skills, steady income, a structured work routine, and opportunities to participate in social activities with coworkers and neighbors (Paul and Moser 2009). Employed workers, who have the opportunity to contribute actively to the vitality of their communities by paying taxes and providing services, are also less likely to turn to street crime or to move away from the area in search of opportunities elsewhere (Crabtree 2011).

Rise of Social Problems

The stress, self-blame, feelings of stigma, and loss of self-esteem reported by the jobless often translate into larger health, mental health, family, and social problems (Price, Friedland, and Vinokur 1998; Dreier 2009; Lou 2010; Malar 2010; Sayer et al. 2010; American Psychological Association 2012). According to the Gallup-Healthways Well-Being poll, underemployed Americans rate their lives more poorly and suffer from more daily worry, sadness, stress, and anger than the employed, and they are considerably more likely to become depressed (Mendes and Marlar 2011). They are also more likely than the employed to suffer poor health, including higher rates of obesity and chronic illnesses that affect both their long-term health and community health-care costs (Harter and Agrawai 2011).

Loss of Community Economic Viability

The loss of jobs by community members can translate into a network event when its consequences spill over to others. In addition to increased coworker workload (Price et al. 1998), many family and community members have to make up for lost income and labor, which depletes community energy, resources, and innovation. High rates of unemployment in a community also create fiscal stress, as falling revenues make it difficult to sustain affordable housing, quality schools, employment programs, public transportation, and other services (Brisson, Roll, and East 2009; Dreier 2009). The ongoing decline of purchasing power and property values leads firms to close or flee, costing the community more jobs and furthering the downward loss and stress spiral.

Less Social Cohesion and Crisis of Legitimacy

Aggregated job loss can also undermine social cohesion. Unemployed workers are less likely than employed workers to feel that they belong to the neighborhood and to participate in civic activities (Steward et al. 2009). Their withdrawal from work, relationships, and local organizations (churches, recreational facilities, schools, etc.) deprives the community of important interactions, information, and energies. The legitimacy of the state is also at stake (American Psychological Association 2012). If and when community residents blame business and government for policies that lower wages and increase joblessness for some while increasing the wealth of others, the perception of favoritism can undercut trust in government as the incarnation of the popular will (Jacobs and King 2009). In

2010, the United Nations predicted that the inequality associated with extended global unemployment would engender a growing of sense of unfairness that could intensify social tensions and social unrest. Richard G. Wilkinson and Kate E. Pickett (2009) report a fundamental link between increasing inequality in advanced economies and greater physical, emotional, social, and political disorder.

FORECLOSURE AS COMMUNITY LOSS

For most people, housing is more than just a shelter: it provides comfort, privacy, a sense of security, and a home (Suglia, Duarte, and Sandel 2011). Yet more than 4 million homes have been lost to foreclosure during the past 5 years, although recent data report that the number of filings are falling (Christie 2012).

Personal Losses

The loss of a home to foreclosure sets off multiple other losses, including the loss of financial security, stable family relationships, and good health (Saegert, Fields, and Libman 2011). The loss of assets and a damaged credit rating can impede employment, the purchase of another home, insurance, and other services key to financial stability (Kingsley, Smith and Price 2009; Steward et al. 2009). Foreclosure also feeds marital tensions, exacerbates negative behaviors (child abuse, addictions, etc.), and increases debt, among other difficulties. These losses often trigger a range of health and mental health problems.

The Rise of Social Problems

Foreclosures also have far-reaching negative consequences for communities. Foreclosed families often double up with others or become homeless. Abandoned homes increase rates of crime (e.g., arson, murder) and vandalism and invite illicit activities such as gangs, drug dealing, and prostitution (Apgar and Duda 2005; Saegert et al. 2011). The rise of social problems fuels the community's downward spiral, as it damages the neighborhood's reputation, housing stock, sense of safety, and business climate. Potential buyers back away from declining neighborhoods, leaving more houses empty, while those invested in nearby homes and businesses stand to lose as foreclosures accelerate the decline of entire neighborhoods (Saegert et al. 2011).

Loss of Community Economic Viability

Susan Saegert and associates (2011) regard mortgage foreclosure as the loss of social, economic, and human capital in social, geographic, and economic spheres, and they argue that the loss in one sphere affects the others. Foreclosed properties create many economic difficulties for already disadvantaged communities. In addition to the deterioration of the housing stock and local living conditions, foreclosed buildings and declining housing markets drain city budgets. Falling property values reduce the revenues needed to sustain city services just when the cost of processing foreclosures and providing needed services to displaced families increases (Kingsley et al. 2009; Immergluck 2011). There is evidence, therefore, that repeated extraction of resources and the accumulation of loss over time negatively affect the well-being of individuals and groups within as well as across generations.

Social Cohesion and Crisis of Legitimacy

The foreclosure crisis also undermines the social cohesion of communities. Social networks lose the financial support of some of their most well-off members as well as the social support from neighbors forced to move (Saegert et al. 2011). Neighborhoods lose not only population but also capital circulation, physical and social amenities, reputations, public services, a sense of safety, and a sense of place. These losses risk isolating residents from the societal mainstream and can undermine trust in the basic societal institutions (Guzman, Bhatia, and Durazo 2005; Vidmar 2008; Saegert et al. 2011). In 2012, only 21 percent of Americans reported a great deal or quite a lot of confidence in banks, down from 41 percent in 2007 and 60 percent in 1979; in 2012, 35 percent had very little or no confidence (Jones 2012). And if Americans view banks as predatory institutions or elected officials as favoring Wall Street over Main Street, they may conclude that government policies help businesses more than foreclosed homeowners, challenging the legitimacy of the state as a representative democracy (Jacobs and King 2009; Immergluck 2011).

FOSTER CARE PLACEMENT

In 2011, almost 400,000 children lived in foster care in the United States, with 252,000 entering the system that year (Annie E. Casey Foundation n.d.). Meant to be a temporary solution, many children remain in care for

an average of 2 years, and the average foster child is moved at least once, with 25 percent moving three or more times (Doyle 2007). These patterns suggest that foster care placements represent a major family and community loss akin to displacement or, as per Fullilove (2001; 2004), the loss of all or part of one's emotional ecosystem.

Personal Losses

Child maltreatment and foster care placements disrupt child development and family life. The removal of children from their biological parents can leave a child with a deep sense of loss and abandonment, creating stress that can undermine children's physical and mental health (Roberts 2010).

Social Problems and Children Removal

Another study linking entry into foster care to neighborhood conditions rather than maltreatment finds that the risk of entry is concentrated and heightened in areas that suffer adverse conditions such as residential instability, impoverishment, and child care (Lery 2009). The author of that study finds evidence for this direct relationship between placement and disadvantage at all levels of neighborhood aggregation (e.g., census block, census tract, and ZIP code) and that the risk of placement increases for children living in or near the worst-off neighborhoods. When separation reduces the children's future interest in the community, the downward spiral ensures that community suffers still another loss (Roberts 2010).

Social Cohesion and Crisis of Legitimacy

Dorothy E. Roberts (2010) examines the community-wide effects of simultaneous removal of children from many different homes. The low-income women she interviewed saw the child welfare program as an important source of financial support and services, yet the spatial concentration of children in foster care also disrupted the community's social cohesion (Roberts 2005). Child welfare supervision engendered fear and distrust to the extent that it encouraged neighbors to gossip about families in the system, to handle grudges by threatening to report one another to the department, and to otherwise turn to destructive means for resolving neighborhood conflicts (Roberts 2010).

The removal of children from their homes also undercuts social cohesion by jeopardizing the community's human capacity (e.g., for devel-

oping future leaders), its ability to safeguard its language and culture, and the capacity of its members to envision the future (Evans-Campbell 2008). Roberts (2005) finds that the placement of large numbers of children in state custody—even when some are ultimately reunited with their families or placed in adoptive homes—interferes with community members’ ability to form healthy connections and to participate fully in the democratic process. Citing Linda C. McClain (2006), she suggests that intense regulation of foster care contradicts the vital role that families play in fostering citizen’s moral development free from state control. Roberts (2005) additionally observes that these adverse outcomes are especially problematic in neighborhoods with a high percentage of African Americans, given the well-established racial disproportionality in foster care. She suggests that “the spatial concentration of child welfare agency involvement in African American neighborhoods is what makes the child welfare system a distinctively different institution for white and black children in America” (31).

INCARCERATION

The US incarceration rate exceeds that of any other country in the world (International Centre for Prison Studies 2012). Nationally more than 60 percent of the prisoners belong to racial and ethnic minorities, a disparity that reflects well-known and often critiqued arrest, prosecution, and sentencing policies. As of January 1, 2011, more than 56,000 people lived in New York State prisons: 54,109 (96.1 percent) males and 2,206 (3.9 percent) females. More than 50 percent are African American, 24.9 percent are Latinos, and 22.4 percent are white. Nearly 90 percent of both the women and the men are between the ages of 21 and 59—the prime years for parenting, workforce advancement, and community engagement (New York State Department of Correction and Community Supervision 2012).

Personal Loss

Prisoners and their families experience a tremendous resource loss (Hairston 2001). Incarceration removes people from family, work, and community roles (Clear and Rose 1999); creates emotional and financial voids in households that others must fill; and disrupts individual func-

tioning, family solidarity, and overall community efficacy or effectiveness. Prisoners' children and families often experience shame and social stigma, leading some to try to hide the imprisonment from relatives and friends. These unacknowledged or hidden losses can complicate mourning and impede access to family and social supports (Walsh 2007). If the social stigma transfers from individuals to the family, its members may withdraw from the community, losing still more social support. The resulting social isolation can shift new burdens to a smaller number of already stressed family and community members. Public policy exacerbates the loss (Golembeski and Fullilove 2005; Raphael 2009), especially the distant location of prisons, limited options for prisoners to communicate with their families, the lack of reentry services for ex-offenders, and the exclusion of felony offenders from public housing and the voting booth (Sentencing Project 2006; Dallaire 2007).

Rise of Problems

Many communities fail to provide the services needed to reintegrate prisoners upon release from incarceration. When large numbers of former prisoners return to the same community but do not get hired or receive rehabilitative services, they are more likely to suffer substance abuse, violence, depression, and the lack of self-care (Iguchi et al. 2005; Williams 2007). The concentration of people experiencing high rates of distress can place members of the wider community at risk for a range of health and social problems. For example, children with an incarcerated parent often perform poorly in school and question parental authority, and they are more likely than other children to enter the child welfare or the criminal justice systems (Rose, Clear, and Ryder 2002). As with the spatial concentration of unemployment and foster care placement, residents not directly affected by incarceration may nonetheless face collateral consequences when it is experienced by the community-at-large (Rose and Clear 2004). The collective loss is especially large in predominantly black neighborhoods, where as many as 25 percent of young adult males are incarcerated at any given time (Clear and Rose 1999).

Loss of Economic Viability

By removing individuals from their neighborhoods, incarceration may improve the quality of community life if it involves only a few residents. However, in neighborhoods with many offenders, the removal can un-

dermine the community's viability. If the stigma that accompanies both the high rates of incarceration and the concentration of health and social problems becomes attached to the wider community, it may yield fear, lower property values, and damage to the area's reputation as a good place to live and to do business (Rose et al. 2002; Mauer 2004). The practice of locating prisons far away from the prisoner's original residence deprives the prisoner's hometown of jobs and revenue while increasing federal funding for prison communities. This transfer of resources occurs because the US Census counts prisoners as residents of the district in which the prison is located (Mauer 2004).

Social Cohesion

Incarceration also undermines social cohesion when it deprives prisoners and their communities of important political influences (Roberts 2004). Many states deny former prisoners the right to vote (Mauer 2004). Nationally such laws have cost an estimated 5.3 million Americans this basic right, including more than 60 percent of New York State inmates (New York State Department of Corrections and Community Supervision 2012). Given that people often go to the polls together and that voting engages family members in talk about elections, the disenfranchisement of former prisoners can reduce voter turnout among other eligible voters (Mauer 2004). Political participation may also fall should racial disparities in mass incarceration yield negative perceptions of police departments, the legal system, and the government. It is also affected when states redraw political boundaries so that prison-driven census counts boosts that area's political clout (*New York Times* 2010) while depriving the prisoner's home—typically an urban community—of a political voice. Policies that undermine political engagement leave many poor neighborhoods underrepresented (Mauer 2004; Williams 2007).

Incarceration in the wider community can also create a crisis of legitimacy to the extent that neighborhood residents believe that the government treats them unfairly. A 2012 Gallup poll (Jones 2012) of Americans' confidence in societal institutions found that only 29 percent have a great deal or quite a lot of confidence in the criminal justice system, compared to 75 percent for the military. The erosion of trust in the law's fairness reduces the community's willingness to comply with its authority, which in turn compromises public morale, spirit, and safety (Clear and Rose 1999). The lack of trust and cooperation places the police, the courts, and

social services at a disadvantage since they operate best with strong community support (Bobo and Thompson 2006).

LONG-TERM HOSPITALIZATION

There is little to no research on how the long-term hospitalization of many local residents might affect the wider community. However, it has been included here as a community loss indicator on the grounds that long-term hospitalization removes family members from the home and community. While hospitalization may be accompanied by sympathy rather than stigma from family and communities, the sympathy may diminish and the stigma may increase over time. As is the case with other losses, the absence of key household and community stakeholders can disrupt existing arrangements and lead to both increased burdens and a reorganization of roles.

Large variations in hospitalization rates have been documented in studies comparing rates of different nations, regions, states, communities, and neighborhoods (Billings et al. 1993). Most studies report higher hospitalization rates in low-income communities, especially among those under age 65. In one study of several US and Canadian cities, average admission rates in these areas were as much as 3.7 times greater than in higher-income areas. Individuals living in low-income ZIP codes had rates more than 20 times higher than those in some more affluent areas. In 1982, the low-income hospitalization rate was 2.8 times that of high-income neighborhoods; in 1993 it was 3.4 times higher. The 1980 hospitalization rate for black patients was 72 percent higher than the rate for white patients; in 1998, the black rate was 131 percent higher. The research suggests that the class and race disparities are related to serious access or systemic problems (Billings, Anderson, and Newman 1996), such as the lack of timely and effective outpatient care that may also be linked to age and insurance coverage (Billings et al. 1993).

UNTIMELY LOSS (DEATH)

Loss, disappointment, failure, and grief are normal and natural parts of the human experience. However, untimely loss, which typically occurs without any forewarning, can be especially problematic. Untimely loss includes

death from heart attacks, strokes, accidents, and sudden infant death syndrome but also suicide, homicide, loss of combat buddies, and natural disasters (Dyer 2003). Untimely death becomes more stressful if the loss does not make sense; is random, violent, stigmatized, mutilating, destructive, or preventable; involves multiple deaths; is a close call for the mourner; or is accompanied by concurrent crises and multiple secondary losses (e.g., loss of income, home, social status, or capacity to access other resources). When the resulting response to stress compounds other ongoing life stressors, it may disrupt and undercut both individual well-being and community functioning.

Some untimely deaths, such as homicide, suicide, and death due to gang violence, HIV/AIDs, premature child birth, and infant mortality poor health, are a daily occurrence in many low-income communities and often are socially determined. Sandro Galea and colleagues (2011) found that in the year 2000, approximately 245,000 deaths in the United States were traced to low education, 176,000 to racial segregation, 162,000 to low social support, 133,000 to individual-level poverty, 119,000 to income inequality, and 39,000 to area-level poverty. The authors report that mortality estimates are comparable to deaths from the leading pathophysiological and behavioral causes, such as acute myocardial, cerebrovascular disease, and lung cancers. High mortality rates have also been linked to discrimination and other negative social interactions known to produce stress, as well as to regular exposure to violence, to the harmful effects of the built environment, to social norms that promote adverse behaviors, and to decreased access to health and social services. Galea and colleagues' (2011) identification of a large number of deaths due to social factors, Joseph Garbarino's (1995; also see Garbarino 2000) description of low-income communities as war zones, and a record 500 shooting deaths in Chicago in 2012 (equivalent to one Newton, CT, massacre every 2 weeks; Thistlewaite 2013) suggest that losses suffered in many US communities amount to a major disaster (Walsh 2007). The instantaneous offering of memorial murals, photos, wreaths, and teddy bears on the day after an untimely death potently suggest that the grief is shared throughout the wider community (Jorgensen-Earpa and Lanzilotti 1998; Doss 2008).

There is little spatial analysis of untimely loss. However, in 2011, the Health Care Agency in Orange County, California, produced a geographic health profile that included the distribution of infant mortality and deaths

from a variety of other causes. Although it revealed a distinct clustering of these deaths by ZIP code, the report did not discuss the demographic characteristics of each ZIP code (Orange County Health Care Agency 2011).

METHODOLOGY

We use a Geographic Information System (GIS) to investigate and document the geographic characteristics of Community Loss in New York City neighborhoods. The theoretical model underlying the development of the CLI shifts the focus of inquiry from individual behavior to geographic context, allowing for analyses seeking to understand the relationship between people and place. GIS technology integrates information about individuals and households with information about their neighborhoods. This requires spatial data, which can be tied to a particular location such as a postal address, a census tract, a ZIP code, or a larger geographic unit such as a health, police, or voting district. GIS methodology assumes that attributes of any particular geographic unit characterize the entire unit (Bivand, Pebesma, and Gomez-Rubio 2008). Therefore, the ideal geographic reference is the smallest geographic unit, creating more homogenous spaces and allowing researchers the greatest flexibility to aggregate data into larger geographic units. Unfortunately, data for small geographic units are often unavailable.

DATA COLLECTION

Based on the literature on loss detailed above, the authors constructed a CLI comprising six variables reflecting the types of losses experienced by various households: foster care placement, job loss, loss of housing through foreclosures, untimely death, long-term hospitalization, and incarceration. The data were collected from a variety of public and private agencies, and the study was approved by the Hunter College Institutional Research Board. The CLI is part of a larger research project that explores the relationship between adverse neighborhood conditions (accumulated disadvantage), stress, and the concentration of health and social problems in particular neighborhoods. All variables are presented in the form of rates, as per appendix A and tables 1 and 2. The choice of data reflects the

TABLE 1. Above- and Below-Average Losses in High-Loss Neighborhoods

High-Loss Neighborhood	Foster Care	Unemployment	Foreclosure	Untimely Death	Long-Term Hospitalization	Incarceration
Bronx	++	+	++	+	+	+
Brooklyn	+	+	++	+	+	+
Harlem	+	+	-	++	+	+
Jamaica	+	+	++	+	+	-
Staten Island	++	+	+	++	-	-

Note.—+ = loss is above citywide average; - = loss is below citywide average; ++ = highest-ranking loss by neighborhood.

TABLE 2. Above- and Below-Average Losses by Neighborhood in Low-Loss Neighborhoods

Low-Loss Neighborhood	Foster Care	Unemployment	Foreclosures	Untimely Deaths	Long-Term Hospitalization	Incarceration
Manhattan	-	-+	-	-+	-+	-
Flushing	-+	-	-	-	-+	-

Note.—- = below citywide average; -+ = highest-ranking loss among those that are below average.

criteria described earlier in this article but also the availability of data for specified variables that have a reference to a location (address or area), the scale (areas should represent the behavioral space of an average citizen; in New York City that is approximately 2 square miles), and the most commonly used administrative boundaries in agency reporting.² Whenever possible, data drew on the smallest available geographic units, such as postal addresses, census tracts, and ZIP code areas. When smaller units were unavailable, data based on larger units, such as hospital or community districts, were used.³ Note, however, that the boundaries of the larger police, health, education, and other departmental districts do not match each other, a phenomenon referred to in geography as the Modifiable Area Unit Prob-

2. In urban planning, and here in particular in transit-oriented planning, US literature says that Americans are willing to walk one-quarter mile to a transit stop. New Yorkers are willing to walk a lot more (on average 20 minutes) and faster (3 miles an hour), which amounts to covering a distance of 1 mile. Compromising to arrive at a conservative estimate and to include children and the elderly, the authors used a figure of 0.8 miles, which, using the formula for the area of a circle, results in approximately 2 square miles (Thompson 2007; America Walks 2013; Environmental Protection Agency n.d.).

3. Community districts are the political-area units of the members of New York City's City Council.

lem (Openshaw 1984). The following section explains how we dealt with the problem to combine data collected for different geographic spaces.

DATA ANALYSIS

GIS technology helped to solve the problem of unmatched reporting units by using dasymetric mapping (Langford and Unwin 1994; Mennis 2003), a technique to disaggregate the data—in our case the distribution of US Census block-level data to New York City building data. Each building was assigned a value based on its share in the distribution of a particular variable. The data were then reaggregated to a geographic unit of interest, in this case a ZIP code tabulation area.

The availability of data dictated the use of ZIP-code-level data as the common denominator for this study. While the data on rates of incarceration were simple to aggregate into ZIP-code-area geographies because they are address level, the data on untimely deaths required a more complicated approach. We used GIS to convert these data from New York City Community Districts into ZIP codes by translating original data into fine-grained raster data, which places the data into cells that are not confined to a preexisting geographic unit. The raster data set was then recombined into ZIP code areas based on the mean value of all raster cells that fall within a ZIP code. Then, using pycnophylactic interpolation (Tobler 1979), the rates were redistributed according to where people actually live rather than spread indiscriminately throughout a community district.

The measurement scales available for each of the six community loss variables vary widely (e.g., people per 100,000 households, per capita income, and days of hospitalization). To make them comparable, the data were standardized into 10 loss ranks or deciles (using Jenks natural breaks), where the lowest decile represents the least loss and the highest decile represents extremely high loss. Jenks is regularly used in spatial data analysis because it divides the data into classes based on natural breaks and thus provides a scale based on actual distribution of the data's characteristics (Jenks 1967; Congalton 1991). Based on the 10 loss ranks, a community loss rank was calculated for each loss variable for each New York City ZIP code area. The sum of the six losses became the basis for the CLI, which measures the aggregated or accumulated loss for each ZIP code area. The CLI identifies ZIP code areas where residents are regularly exposed to multiple losses at the same time, denoting a stressed community. The data

are presented in visual form on choropleth maps that use different colors or shades to depict the average values in each area. The map of figure 1 depicts the distribution of each ranked variable as well as that of the accumulated loss in New York City.

VISUALIZING COMMUNITY LOSS IN NEW YORK CITY

Figure 1 includes seven inset maps (*a-g*) that visualize community loss in New York City neighborhoods. Six individual maps (inset maps *b-g*) depict the citywide distribution of each of the following losses: foster care placement (F), incarcerations (I), unemployment (U), long-term hospitalizations (H), premature deaths (D), and foreclosures (C). The aggregated loss map (inset map *a*) is a composite of all six losses that effectively depicts high-loss areas suffering multiple losses at the same time, pointing to a condition of accumulated disadvantage. Taken together, the maps in figure 1 depict New York City as sharply divided into high-loss and low-loss areas. The following data analysis reveals more detail about New York City's stressed communities.

The analysis of community loss moves from the maps in figure 1 to bar charts and superimposed whisker diagrams (figs. 2–7). Given page size and the sheer size of New York City, it was not possible to place the charts directly onto the citywide maps. However, labels on the bar charts reference the high- and low-loss areas on the maps, making it easy to refer from chart to map and vice versa. In addition, figures 4 and 5 contain maps of individual neighborhoods that are small enough to allow for the combination of bar charts and maps.

The bar charts in figures 2 and 3 depict the rank or contribution made by each of the six losses to the overall experience of loss in the high- and low-loss areas, respectively. The bar charts in figures 6 and 7 rank the population groups that experience the community losses in the neighborhoods in which they live by the decile calculation described earlier. The top of each bar represents the average rank in each area, with the lowest rank or decile representing the lowest level of loss and the smallest population group and the highest decile the highest loss and largest population group in the areas. The losses in each area are compared to each other by examining them in relation to the citywide average of five.

The whisker diagram superimposed on each bar chart indicates the spread of observed values for each type of loss and for each population

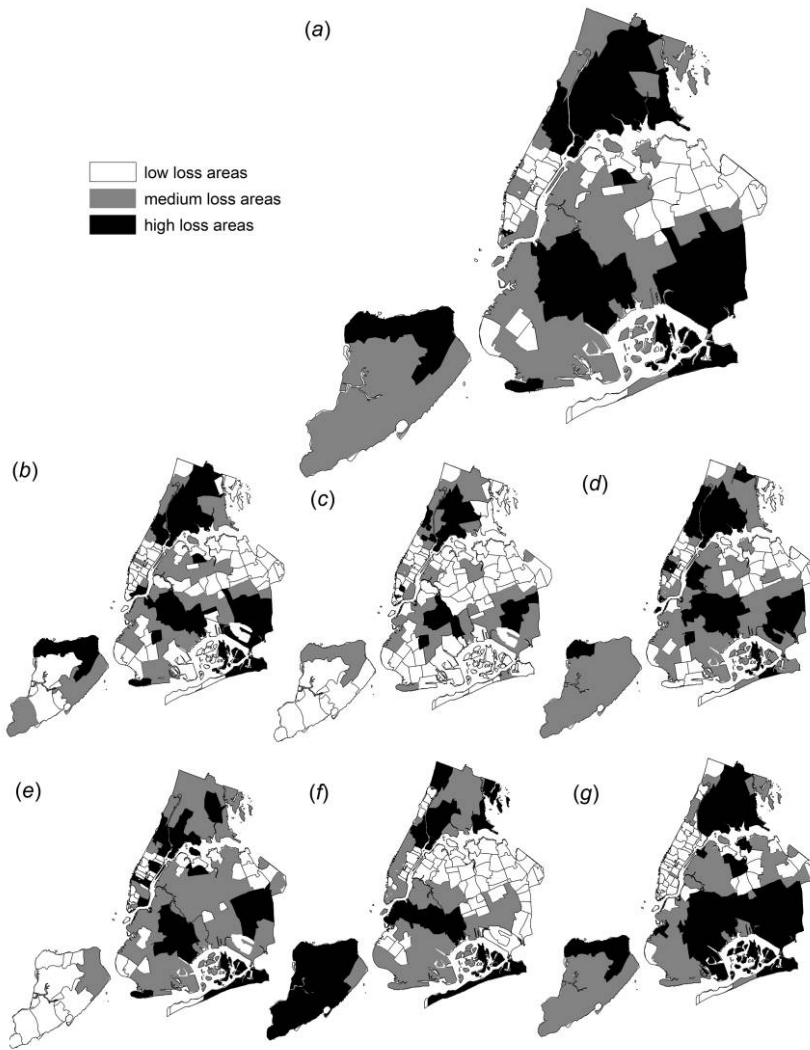


FIGURE 1. Accumulated community loss and its contributing factors. *a*, accumulated community loss; *b*, fostercare placements; *c*, incarcerations; *d*, unemployment; *e*, long-term hospitalizations; *f*, premature deaths; *g*, foreclosures.

Each loss type (*b–g*) is a rate that has been standardized to a 1–10 scale for each ZIP code area. Losses were then classified using Jenks’s natural breaks into low, medium, and high losses. The ranks of each ZIP code area were then added to form the accumulated community loss. The range of these was again classified to form areas of low, medium, and high accumulated loss. For data sources, see table 1.

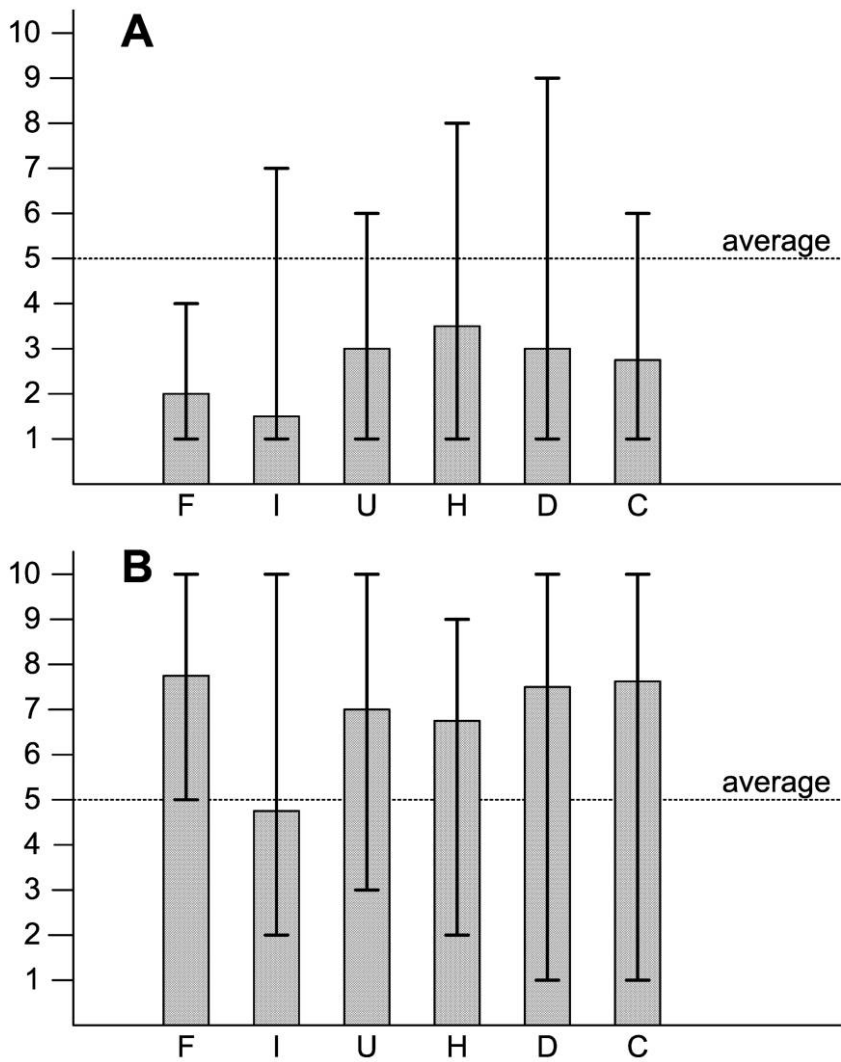


FIGURE 2. Loss ranges by loss type. *A*, low-loss areas; *B*, high-loss areas. The height of the bars represent the average observed values. The top and bottom horizontal lines of the superimposed whisker diagram represent the maximum and minimum observed values, respectively. Foster care placement (F), incarcerations (I), unemployment (U), long-term hospitalizations (H), premature deaths (D), and foreclosures (C).

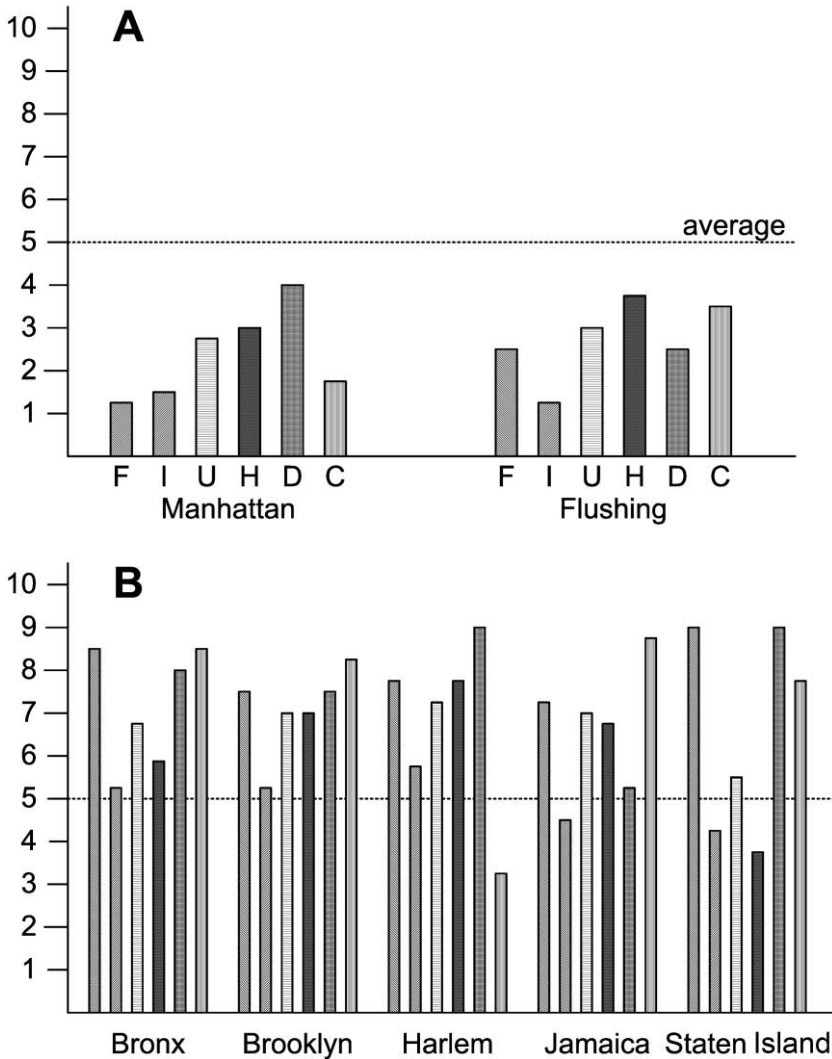


FIGURE 3. Loss ranges by loss type. A, low-loss areas; B, high-loss areas. Foster care placement (F), incarcerations (I), unemployment (U), long-term hospitalizations (H), premature deaths (D), and foreclosures (C).

group. If the average values represented by the height of the bar characterize the high- and low-loss areas in general terms, the ranks represented by the top (maximum observed value) and the bottom (minimum observed value) of the whisker diagram highlight variations among the ZIP code areas within the high- and low-loss areas. That is, in one or more

ZIP code areas, the loss experience deviates up or down from the average observed value for that area. The same applies for the interpretation of population groups.

GEOGRAPHICAL ANALYSIS OF COMMUNITY LOSS

The following analysis of the geography of community loss in New York City consists of two parts. The first part provides information about the spatial distribution of community loss, showing the concentration of each type of loss within high- and low-loss areas identified by the CLI (figs. 2–3). The second part focuses on the distribution of the population groups living in the high- versus the low-loss areas (figs. 6–7), estimating which groups are likely to experience the most and the least community loss. While the maps include data on high-, medium-, and low-loss areas, due to limitation of space, the overall discussion is limited to high- and low-loss areas.

To understand the spatial distribution of loss in New York City and its neighborhoods, both losses and population analyses were regionalized by conducting analysis at three increasingly smaller geographic levels: citywide, neighborhoods, and ZIP-code-area-level communities within individual neighborhoods. We decided to conduct multiscale analysis because of the size and complexity of New York City neighborhoods; each of the secondary regions is the size of a large US city (approximately half of a million people). New York City is also very diverse (New York City Department of City Planning 2013); each of the identified neighborhoods differs from the others as much as Minneapolis does from New Orleans. Each level of analysis adds more detailed information useful for researchers, community members, and policy makers.

The citywide analysis of losses is depicted in the maps of figure 1, and figure 2 ranks the contribution made by each loss relative to the citywide average. The uneven distribution of loss throughout New York City confirmed the need for further analysis, especially since some of the losses carried more stigma than others. The first regionalized analysis (fig. 3) highlights five specific high-loss neighborhoods that are colored black on figure 1 and two specific low-loss neighborhoods that are colored white on the maps. The spatial clustering of like-ranked ZIP code areas reveals that the distribution of loss is not random. Moreover, in the high-loss areas, the more highly stigmatized losses (e.g., foster care, incarceration, job loss, and foreclosure) play key roles and are more prominent than the less

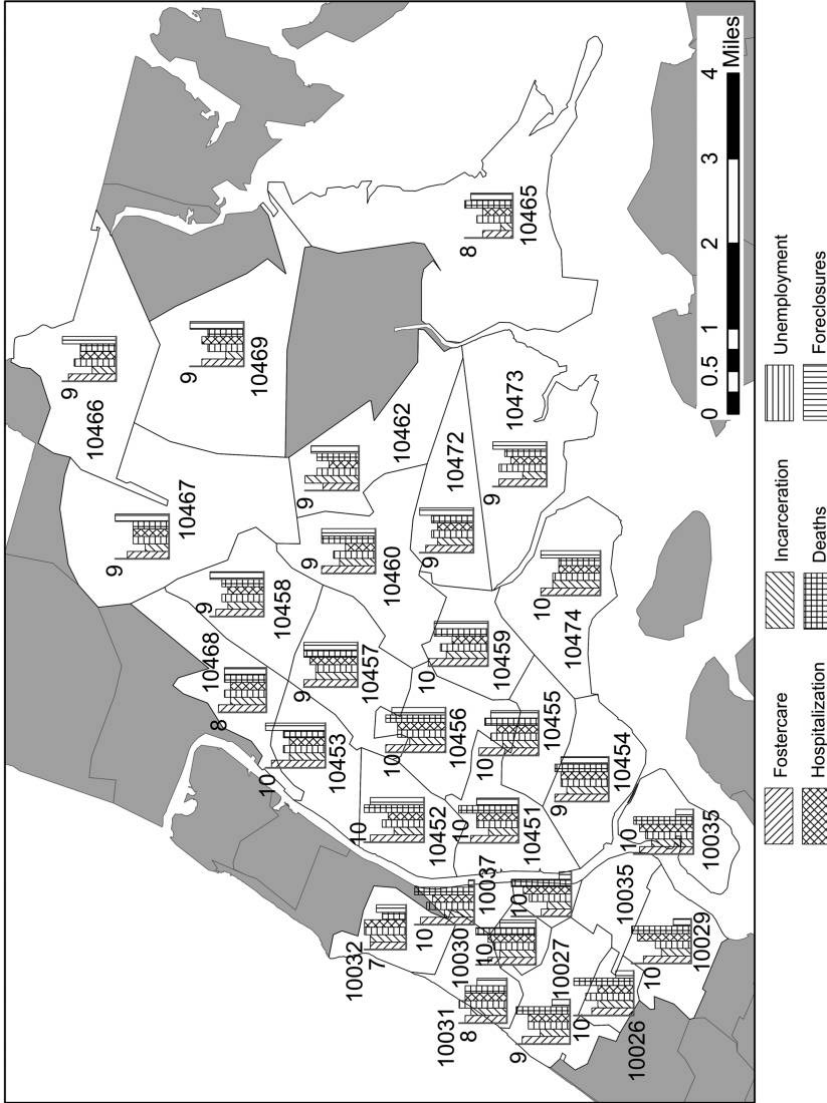


FIGURE 4. High-loss area. Accumulated community loss at the neighborhood level, Harlem and the Bronx. The high-loss areas are depicted with transparent (white) background to contrast with the bar charts contained in each ZIP code area. Five-digit numbers denote the actual ZIP code of the area; one- or two-digit numbers represent the highest loss level observed in the respective ZIP code area.

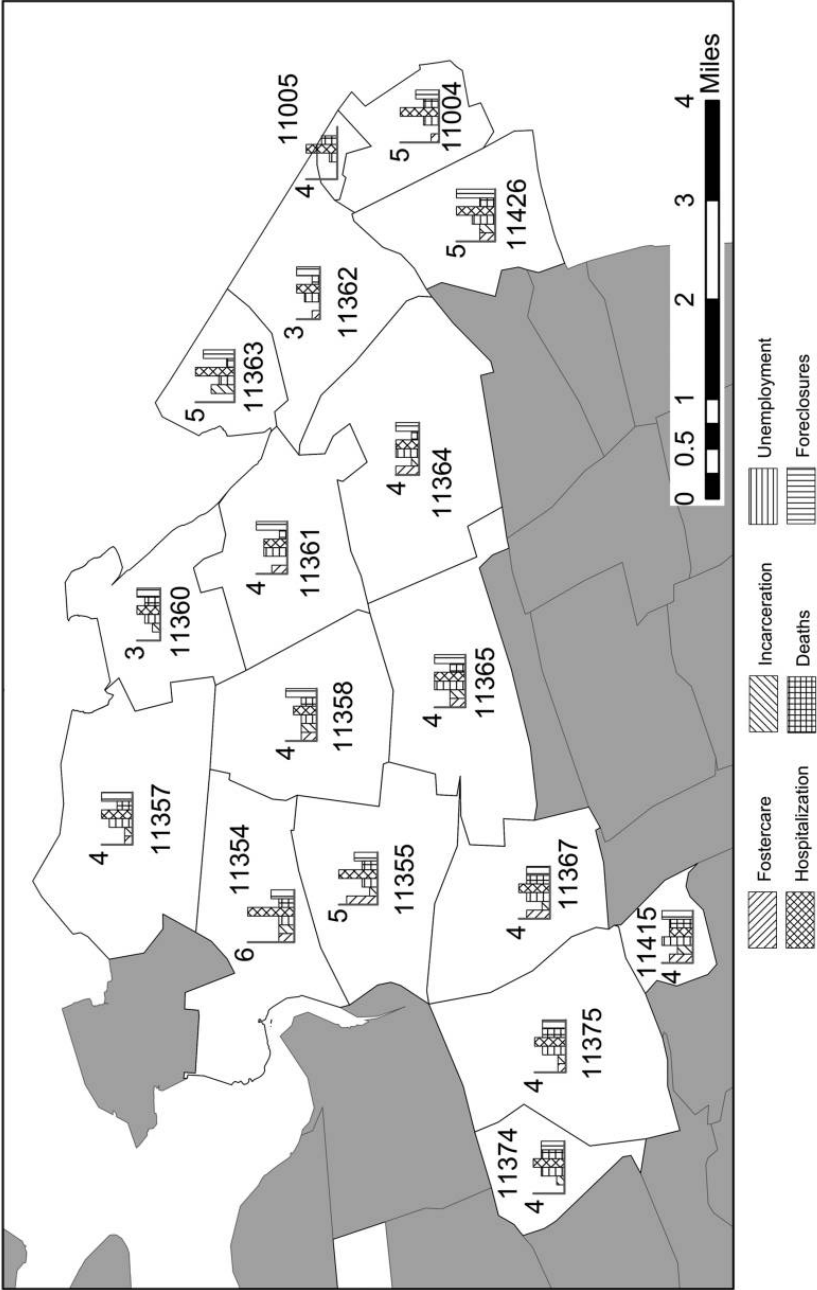


FIGURE 5. Low-loss area. Accumulated community loss at the neighborhood level, Flushing, Queens. The low-loss areas are depicted with transparent (white) background to contrast with the bar charts contained in each ZIP code area. Five-digit numbers denote the actual ZIP code of the area; one- or two-digit numbers represent the highest loss level observed in the respective ZIP code area. The scale of the bar charts in this figure is the same as that in figure 4.

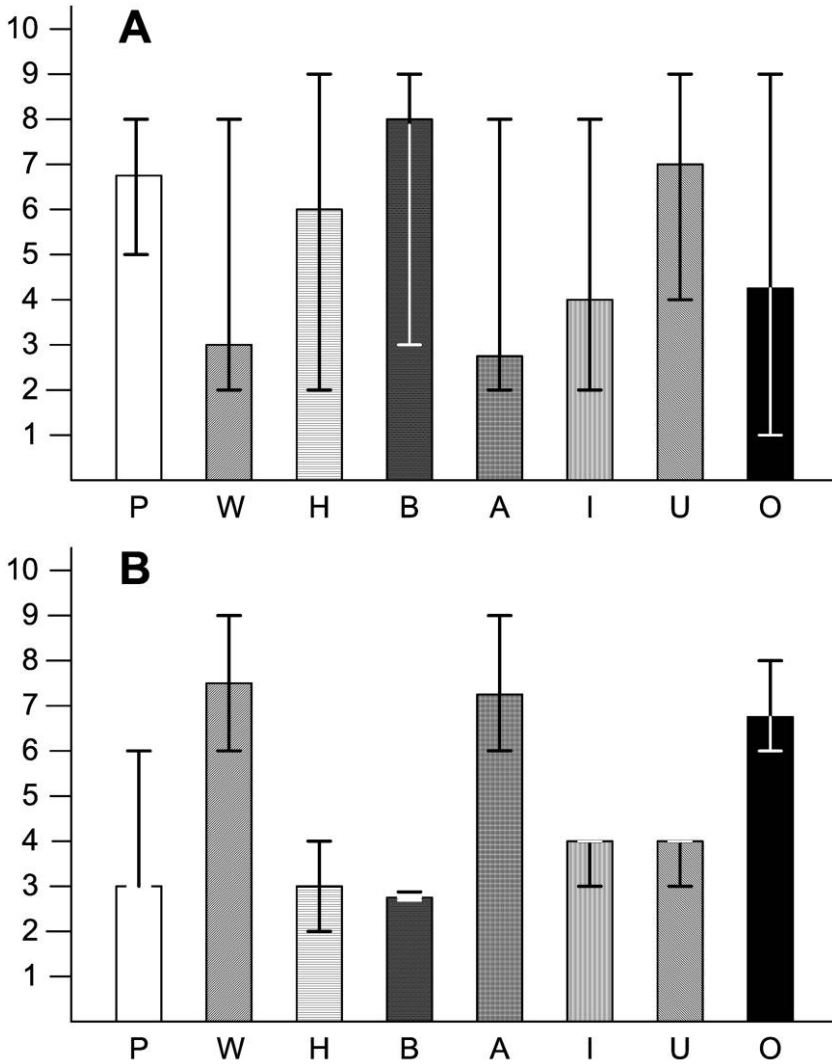


FIGURE 6. Demographic characteristics. *A*, high-loss areas; *B*, low-loss areas. The height of the bars represent the average observed values. The top and bottom horizontal lines of the superimposed whisker diagram represent the maximum and minimum observed values, respectively. Below poverty (P), white (W), Hispanic (H), black (B), Asian (A), recent immigrant (I), under age 5 (U), and over age 64 (O).

stigmatized losses (untimely death and long-term hospitalization). This spatial clustering raises the question of what else these ZIP code areas share, leading to the second regionalized analysis, which focuses on the losses within ZIP code areas and their communities located within two exemplary neighborhoods. Figures 4 and 5 depict this ZIP-code-area or

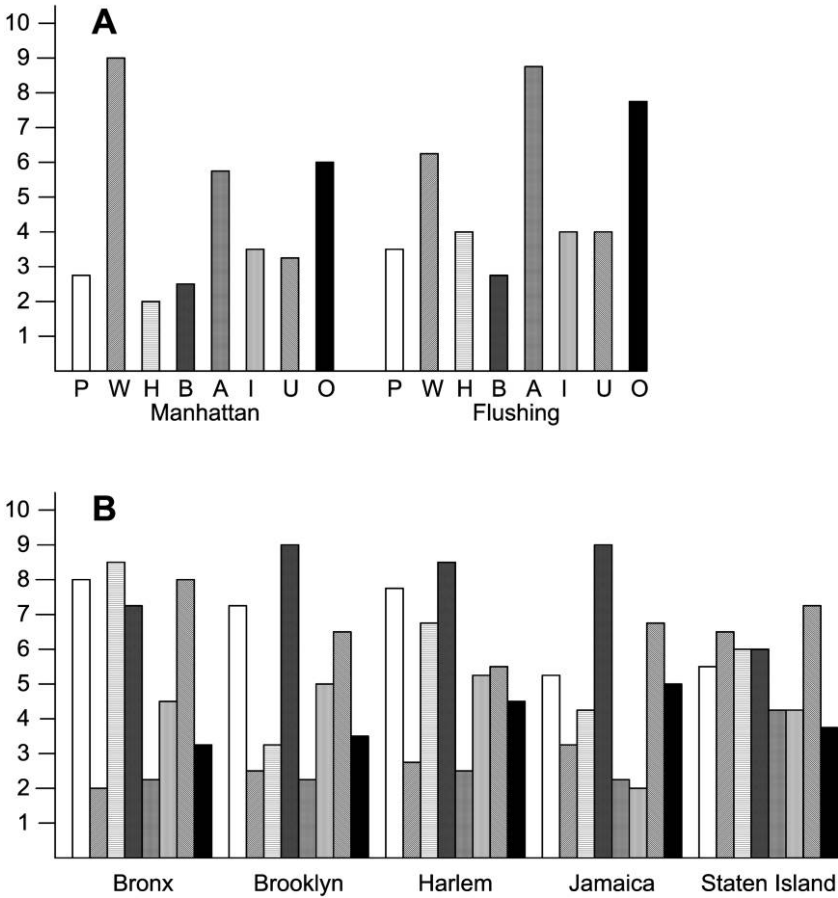


FIGURE 7. Demographic characteristics by neighborhood. A, low-loss areas; B, high-loss areas. Below poverty (P), white (W), Hispanic (H), black (B), Asian (A), recent immigrant (I), under age 5 (U), and over age 64 (O).

community-level analysis for one high-loss and one low-loss community, in which bar charts are superimposed on each of two maps (it was not possible to present a similar procedure on New York City-wide maps as the figures would have become too complex). This analysis uncovers patterns of specific losses that are more precisely located than in the larger maps, and it cautions us against stereotyping neighborhoods based on perceived averages or popular profiles. The demographic analysis reveals that the population groups living in the more and less privileged neighborhoods are not the same and that the loss differential falls more heavily on the already disadvantaged groups than on the others.

THE CITYWIDE DISTRIBUTION OF COMMUNITY LOSS

Maps *b–g* in figure 1 show the distribution of each of the six losses in New York City. Map *a* (the aggregated loss map) combines all six losses into a single map. Together, the maps reveal a rather sharp divide between New York City's high- and low-loss neighborhoods. The aggregated losses amount to an experience of accumulated disadvantage that is known to undermine community well-being, social capital, and solidarity. In contrast, the residents of low-loss areas benefit from the accumulated advantages associated with having to deal with many fewer losses.

High-Loss Areas

The bar chart in figure 2 depicts the relative contribution made by each type of loss to the quality of life in the city's high- and low-loss areas on a scale of 1 to 10, where the value 5 always depicts the citywide average. The height of each bar shows that five of the six losses rise far above the citywide average. Comparison of the bar heights reveals that the loss of children to foster care placement represents the most severe community loss in the high-loss areas. It reaches 8 for foster care, compared to just under 8 for long-term hospitalization and untimely deaths, just below 7 for foreclosures and unemployment, and 5 (just at city average) for incarceration. The whisker diagrams that depict the range of each loss indicate both the severity of the loss and its spread. The maximum and minimum values (the top and bottom lines of the whisker diagrams, respectively) indicate that the average for each loss (represented by the height of each bar) does not represent all the ZIP codes in the area. For example, the top line stands at 10 for five of the six losses and at 9 for incarceration. The minimum ranges from 2 to 5. These differences indicate that the contribution of each loss in the high-loss area is somewhat variable. The rank of foster care placements stands out again; its high average combined with its high maximum and high minimum values indicate that this is one of the major losses for residents living in high-loss areas of New York City.

Low-Loss Areas

The low-loss areas (see fig. 2) present a starkly different picture of the experience of loss. Here the average for each of the six losses falls far below the citywide average, dropping to about 3 for four of the losses (e.g.,

unemployment, foreclosure, untimely deaths, and long-term hospitalization), 2 for foster care, and 1 for incarceration. However, the loss experience is varied even in these areas. The top line of the whisker diagram rises above the citywide average for five of the six losses (all but foster care). In contrast, the bottom line consistently registers a very low value of 1 for all six losses. Variability around the regional average is most pronounced for untimely death and long-term hospitalization. That some ZIP code areas in both the high- and low-loss areas have higher than average unemployment rates may be due to the state of the economy at the time this study was conducted. The following regionalized analysis addresses the question of what is happening in those outlier ZIP code areas.

PATTERNS OF LOSS BY NEIGHBORHOOD AREAS

High-Loss Neighborhoods

The cross-neighborhood comparison deepened the citywide analysis by revealing important differences among the five high-loss neighborhoods (see fig. 3). At first glance the data seem to confirm the citywide finding that nearly all of the losses rise above the citywide average. However, a closer look reveals that the neighborhoods vary in relation to both number of losses that rise above the citywide average and the type of loss that ranks highest in each neighborhood. Table 1 summarizes these patterns.

Table 1 reveals that in two neighborhoods (the Bronx and Brooklyn) all six of the losses rose above the citywide average (indicated by +), followed by Harlem, where only foreclosure fell below the citywide average due to the lack of owner-occupied homes in this neighborhood of high-rise apartments. Five losses also rose above the citywide average in Jamaica, but only three did so in Staten Island. Despite the presence of fewer losses, Harlem and Jamaica shared four of the five above-average losses. In three of these high-loss neighborhoods, a few losses fell below the citywide average (indicated by -).

Table 1 also shows which losses ranked highest in each neighborhood (++). Three losses stand out: foreclosure (three neighborhoods), foster care (two neighborhoods), and untimely death (two neighborhoods). Although unemployment rises considerably above average in all five neighborhoods, it ranks slightly below the above-noted losses in four neighborhoods and much lower in Staten Island. In other words, while noteworthy by itself, unemployment does not rank as disproportionately high (i.e.,

much higher than the city average) in the affected neighborhoods as do foster care, foreclosure, and untimely death. The residents of all the high-loss neighborhoods experience considerable loss, but the residents of the Bronx and Brooklyn have to contend with all six losses, one or two of which are also the highest ranked.

Low-Loss Neighborhoods

Figure 3 also depicts the loss experience of two different low-loss neighborhoods, Manhattan and Flushing. While all the losses in the low-loss area fall below the citywide average of five, the neighborhood-level analysis revealed that the pattern of losses varied again by neighborhood.

Table 2 indicates that all six losses fell far below the citywide average in each of the two low-loss neighborhoods. The three highest-ranking losses in Manhattan in rank order are untimely death, long-term hospitalization, and unemployment. The three highest-ranking losses in Flushing are long-term hospitalization, unemployment, and foreclosure. These two low-loss neighborhoods benefit from having less loss and low stigma attached to its highest-ranking losses, which may help to lower stress levels.

Detailed Analysis of Harlem and the Bronx (High-Loss Communities)

The patterns found in the first neighborhood-based regionalization analysis raised new questions: if losses were concentrated in particular ZIP codes, did these ZIP codes share any features, and were there any other distinguishable patterns? To explore these questions, it was necessary to look at still smaller geographic units. Thus, the second regionalization analysis (figs. 4 and 5) brought the loss experience closer to home by focusing on two exemplary neighborhoods and the communities within them. Figure 4 shows the distribution of the six losses by specific ZIP code areas in the high-loss communities of Harlem and the Bronx and reveals several spatial clusters of high-ranked losses.⁴ For example, untimely death is most severe in several ZIP codes that cluster along both banks of the Harlem River. The reason behind this hot spot is a little more obvious

4. Whenever a spatial cluster is detected, the phenomenon is nonrandom, which means that driving factors are at work in these locations. It is beyond the scope of this article to reason about what these factors are, but the very existence of such clusters alerts researchers and policy makers to the needs of such a “hot spot” area.

for a similar clustering of high foreclosure rankings in several ZIP code areas that form a contiguous trail from eastern to the northern Bronx: this string of communities represents a ring of suburbs into which poor and minority groups were displaced. As opposed to the wealthier (white) suburbs further out, they became prime victims of predatory lending during the last housing crisis (Webber 2001; Neighborhood Economic Development Advocacy Project 2002; Nier 2008; Goldstein and Urevick-Ackelsberg 2009). Foster care placement, which showed up as very high loss in the citywide and neighborhood analyses, topped the scales in three neighboring ZIP codes and tied first place in three other nearby ZIP codes that together form the epitome of the South Bronx.⁵ Incarceration stood above average in three neighborhoods, but in no neighborhood did it show up as the highest ranking, and it did not form a unique cluster. Unemployment has a midrange effect in virtually every ZIP code area, suggesting a more uniform effect in the high-loss neighborhoods.

Detailed Analysis of Flushing, Queens, a Low-Loss Community

Figure 5 examines the distribution of the six losses by ZIP code in the low-loss communities of Flushing and Queens. As expected, the heights of each bar in the bar charts are considerably lower. Although they differ by ZIP code, several losses hardly register at all, except for long-term hospitalization, which ranks highest in seven ZIP codes and ties for first place in four others.⁶ Foreclosures rise to the top in two adjacent ZIP codes and tie for first in six others, four of which are contiguous and characterized by suburban, yet relatively less affluent, demographics. While incarceration is virtually nonexistent in three of four adjacent ZIP codes on the eastern border of Flushing, it ranks rather high in one ZIP code on the northern border of this cluster. When ZIP codes with higher rates of foreclosure, incarceration, or other losses sit on the border of more stable ZIP codes, it raises the tipping point question: at what point will the drift of

5. Although once being made up of vibrant neighborhoods such as Mott Haven, Hunts Point, Melrose, Morrisania, and Highbridge, now this area has deteriorated and is just called "South Bronx"; it is a place that white people as well as many people from other parts of the Bronx are afraid to go to (Roby 2008).

6. Not as much a probable cause but by way of a possible lead, these communities have a disproportionately high number of elderly East and South Asians who joined their families after their kin received permanent residence or citizen status.

problems from the worse-off area destabilize the better-off area? Although low-loss areas typically attract little attention from a policy intervention perspective, this fine-grained analysis detected such possible tipping points that merit early notice to prevent further decline.

DEMOGRAPHIC ANALYSIS OF COMMUNITY LOSS

The previous section described the spatial variation of community loss but did little to explain who lives in the high- and low-loss communities. The following discussion examines loss in relation to race and ethnicity (white non-Hispanic, Hispanic, black, and Asian persons), age (children under age 5 and adults over age 64), recent immigration status, and income. It focuses on who is most and least likely to live in stressed communities characterized by accumulated disadvantage. As before, regionalization at the citywide and neighborhood levels provides us with the means to avoid misleading generalizations and instead to fine-tune our understanding of the relationship between people, place, and the experience of loss.

THE CITYWIDE ANALYSIS OF PEOPLE IN PLACE

The citywide analysis reveals clear and troubling distinctions between who lives in the high- and low-loss areas. As in the loss analysis, the height of the bars in figure 6 represents the average rank for each of the eight demographic groups under study. The whisker diagrams superimposed on the bars indicate how representative the average for each group is for the area as a whole. The sharp divide in age, income, and racial composition parallels the sharp divide between high- and low-loss areas in New York City.

The high-loss area is largely populated by four groups: black persons, poor persons, larger percentage of families with children under age 5, and Hispanic persons. Fewer whites, Asians, or adults over age 64 live here. However, the top and bottom lines of the whisker diagrams and the large spread between them indicate that the areas are not demographically homogenous. Rather one or more ZIP code areas house whites, Asians, and persons over age 64, who do not reflect the high-loss pattern.

The average demographics for the populations of low-loss areas appear as a mirror image of their high-loss counterparts. Here, three groups (white persons, Asians, and adults over age 64) rise far above the city-

wide average, while the five groups that ranked highest in the high-loss areas fall well below average. In contrast to the high-loss area, the top and bottom lines of the whisker diagram and the spread between them indicates that low-loss areas include few if any pockets (ZIP code areas) of people typically found in high-loss areas.

NEIGHBORHOOD LOSS AND DEMOGRAPHICS

A more regionalized look at selected high- and low-loss neighborhoods specifies the location of the different population groups and shows a varied demographic pattern. Figure 7 reveals that the loss experience of people differs by age, income, race and ethnicity, and immigration status even in seemingly similar high-loss (or low-loss) neighborhoods.

Black and Hispanic New Yorkers are overrepresented in the five high-loss neighborhoods, but the patterns differ. The black population exceeds the citywide average in all five high-loss neighborhoods, but more so in the Bronx, Brooklyn, and Jamaica. Hispanics exceeded the citywide average in only three high-loss neighborhoods (the Bronx, Harlem, and Staten Island) but more so in the Bronx and Harlem. Blacks far outnumber Hispanics in Harlem, Brooklyn, and Jamaica, where the average for Hispanics falls considerably below the citywide average. Hispanics outnumber blacks only in the Bronx, but both groups have the same rank in Staten Island. Both groups clearly have to cope disproportionately with multiple losses. However, the experience of loss is somewhat more pronounced for black New Yorkers than Hispanic New Yorkers.

White and Asian New Yorkers are overrepresented in the two low-loss neighborhoods, although their patterns also differ. Whites rank higher in Manhattan than in Flushing, while Asians rank higher in Flushing than in Manhattan. The main exception is Staten Island, which is a predominantly white borough and by New York City standards an almost suburban part of the city. The northern part of the island ranks as high-loss area, which makes this high-loss area unique because in all other high-loss areas the minority group is the majority. The combination of predominantly white population and high loss in Staten Island is exceptional in New York City. Asian New Yorkers are also underrepresented in high-loss neighborhoods, falling far below the citywide average in all of them. With the exception of some white persons in Staten Island, both whites and Asians generally do not live in the communities that this study identifies as stressed, where accumulated loss diminishes the quality of life.

The share of recent immigrants falls below the citywide average in both low-loss neighborhoods and in three high-loss neighborhoods. It approaches the citywide average in two other high-loss neighborhoods (Brooklyn and Harlem). The high- and low-loss areas house a smaller share of recent immigrants, because many tend to settle in medium-loss areas (New York City Department of City Planning 2013), avoiding the drag of high-loss areas but unable to afford settling in low-loss areas.

Children under age 5 and adults over 65 live in strikingly different places. Large numbers of children inhabit each of the five high-loss neighborhoods, especially the Bronx and Staten Island whereas, relative to other neighborhoods, fewer adults over age 65 can be found here. In contrast, children under age 5 are underrepresented in the two low-loss neighborhoods of Flushing and Manhattan, where adults over age 64 are overrepresented—even more so in Flushing than Manhattan. That such a high proportion of young children live in communities experiencing stress does not bode well for their development, given how chronic stress affects health and well-being of both the individual and the community.

Poor New Yorkers are overrepresented in three of the five high-loss neighborhoods, ranking far above the citywide average in the Bronx, Harlem, and Brooklyn and matching the average in Staten Island and Jamaica. The share of poor New Yorkers living in low-loss areas falls below the citywide average. This overlap between community loss and poverty represents one step in understanding what factors may contribute to and reinforce poverty.

DISCUSSION AND CONCLUSION: PLACE MATTERS

The CLI developed in this article adds to an understanding of place. It identifies aggregated resource loss as a problematic feature of neighborhood life that remains largely unrecognized and unmeasured, focuses on the accumulated or collective resource loss as a major source of community-wide stress, and helps to unpack poverty by identifying community loss as a largely unstudied aspect of impoverished communities.

Loss is well known as a potentially momentous event for individuals. However, the aggregated effect of living in a neighborhood characterized by many losses highlights the importance of place. The CLI follows a strong tradition in the human services that place matters (Steinberg and Steinberg 2006). In the late nineteenth century, settlement house work-

ers at Chicago's Hull House developed a series of community maps as a means of assessing social and economic injustices in neighborhoods. More recently many scholars have pointed to the benefits and rewards of using GIS to help carry out a wide range of social service research and social agency functions (Queralt and Witte 1998; Tomkins and Southward 1998; Hillier 2007).

In this study, CLI documents the geography of resource loss in New York City by measuring both the loss of household members to foster care placement, incarceration, untimely death, and long-term hospitalization and the loss of key assets such as one's job and home. The analysis reveals that resource loss is amassed and concentrated in some but not other neighborhoods, that the pattern of loss that is both widespread and variable by location, and that a group's vulnerability to the adverse effects of community loss depends on where they live.

We conducted analysis on three increasingly smaller spatial units—citywide, specific neighborhoods, and ZIP code areas that serve as the geographic setting of communities. The citywide analysis is able to identify the areas in New York City characterized by high, medium, and low loss and the relative contribution each loss made to the overall experience of loss, but not to pinpoint the loss experience in specific neighborhoods within each area. The neighborhood-level analysis picks up where the citywide analysis leaves off. A cross comparison of five high-loss and the two low-loss neighborhoods shows that the scale and scope of loss varies by neighborhood in both the high- and low-loss areas. The analysis of two exemplar neighborhoods, one high-loss neighborhood and one low-loss neighborhood, explores loss patterns in more detail. It more precisely identifies communities, where the experience of loss is found to be more intense than in other neighborhoods, discovering that high-ranking losses are associated with specific ZIP codes and ZIP code clusters.

Given the size and diversity of New York City, the variation that the citywide analysis shows is not surprising. However, the more detailed spatial analysis conducted in this study reveals otherwise invisible variation. Generally, smaller geographic units typically tend to be more homogenous and thus less varied. However, the neighborhood level and two smaller exemplar community analyses reveal that in New York City there is considerable variation within these smaller units. By pinpointing such neighborhood-based differences related to the experience of community loss, CLI data can be used to avoid profiling or stereotyping the neigh-

neighborhoods in each area and to identify criteria to help city officials both target and prioritize investments in local communities.

Finally, the growing awareness of the realities of place suggests the need to reconsider how local conditions may affect the lives of community members. The CLI reveals that a group's vulnerability to the adverse effects of community loss is associated with where the group lives. Some groups are more likely to live in high-loss neighborhoods, where they are exposed to multiple losses at the same time. These more vulnerable New Yorkers—blacks, Hispanics, children under age 5, and the poor—live under conditions of accumulated disadvantage, where they and other community residents, who live in close proximity to each other, regularly deal with multiple losses, as well as the health and social problems that accompany the resulting high levels of chronic stress.

When poor families, who already live on the brink of running out of resources, find themselves dealing with multiple losses amid diminishing resources, they become vulnerable to what Hobfoll refers to as resource depletion and to a catastrophic downward spiral of loss and stress, from which, he argues, it is difficult to recover. Moises Velasquez-Manoff (2013) reports that the toxicity of exposure to stress increases with a person's sense of helplessness and loss of control, both of which "tends to decline as one descends the socioeconomic ladder." Michael Marmot (2004) concludes that an adverse social position and the associated lack of control over one's life creates the conditions for chronic stress in the body. When a large number of residents living in proximity persistently face the depletion of multiple resources around the same time, the negative effects of the negative feedback loop also ripple through the wider community leaving it with a devastating concentration of health and social problems (Gennetian et al. 2013).

The findings based on the CLI have wider conceptual implications for the understanding of stress and the underlying components of poverty. Informed by Hobfoll's definition of stress as primarily socially situated and involving social consequences, the CLI contributes to the discussion of what might be called the social construction or the social determinants of individual and community stress. The removal of household members, the loss of work in an era of high unemployment, and the loss of one's home in a period of predatory lending qualify as socially situated or determined stressors that are known to yield negative social consequences. Individuals need to take personal responsibility for some aspects of these out-

comes, but even personal choices are typically shaped by external events such as globalization, the jobless recovery, criminalization of poverty, and the deregulation and financialization of the economy that lie beyond the control of individual and households.

By showing how losses pile up by location, the CLI helps to unpack poverty. It complicates the popular belief that the concentration of health and social problems in low-income neighborhoods reflects the choices and behavior of local residents rather than the consequences of daily and persistent exposure to accumulated disadvantage. The CLI identifies community loss as a major component of the collective experience of poverty. Some argue that those who live in high-loss neighborhoods suffer the loss of household members or economic assets due to their own irresponsible behavior (Murray 1984). Others, such as Marmot (2004), identify underlying causes, including material deprivation but also adverse social position and inequality. The findings based on the CLI support the literature reporting that living amid the accumulated disadvantage that characterizes high-loss neighborhoods can yield toxic stress, which in turn contributes to the problematic social and health behaviors known to cluster in high-loss neighborhoods (Marmot 2004; Acevedo-Garcia et al. 2010; Corbin et al. 2010).

The first perspective asks what the residents do wrong, attributing poverty to the behaviors of the individuals. The second perspective asks what happens to people regularly exposed to multiple losses and focuses on prevention (Marmot 2004; Keene and Geronimus 2011). Arguably, the latter question represents a more productive approach to problem solving, neighborhood development, and social change, as well as fostering civic participation. Marmot (2004) finds that social engagement, the ability to participate as a full member of society and the attendant self-esteem, is critical to positive health outcomes.

This article demonstrates the viability of the CLI as a new social indicator that can be used to describe and document the spatial distribution of community loss in New York City and potentially elsewhere. The findings based on the CLI help to unpack poverty further by suggesting that the largely unrecognized and unstudied experience of community loss is a potential source of stress in contemporary life. The findings also raise the prospect that exposure to large doses of community loss may help account for the concentration of health and social problems in low-income neighborhoods. The CLI points to community loss as target for service intervention, community planning, and prevention.

The CLI is only one measure the authors are developing as part of a larger study focused on the relationship between adverse neighborhood conditions, stress, and neighborhood-based health and social problems. As the needed geographic data become available, additional indicators will be used to capture the relationship between neighborhood conditions (e.g., health, housing, education, income, food, educational and other insecurities) and a range of resulting health and social problems. These data will permit an in-depth analysis of the hypothesis that stress operates as a pathway between exposure to adverse neighborhood conditions and the concentration of health and social problems in some but not other neighborhoods. It is hoped that the current findings, as well as our future research on community-level loss, will discourage the development of victim-blaming policies in favor of those that can undo accumulated disadvantage through prevention and social change.

APPENDIX

DATA USED

TABLE A1. Data Provenience

Household Loss	Data Source	Original Spatial Resolution	Release Date
Long-term hospitalization	NY Statewide Planning and Research Cooperative System (SPARCS)	ZIP code area	2000–2004
Unemployment	US Census, American Community Survey (5-year)	Census tract	2005–9
Incarceration	NYS Prison Administration	Home address	2006
Foster placement	NYC Administration for Children and Families	ZIP code area	2010
Untimely death	NYC Department of Health and Mental Hygiene	Community district	2010
Foreclosure	Local Initiatives Support Cooperation Center of Housing Policy, Urban Institute	ZIP code area	2008

TABLE A2. Transformation of Input Data to Rates

Variable	Definition
Placements	Placements per ZIP code area divided by number of households in that ZIP
Incarcerations	Incarcerations per ZIP code area divided by number of households in that ZIP
Unemployment	Number of people who receive unemployment insurance divided by the number of households in a ZIP code area
Hospitalization	Number of hospitalizations lasting longer than 180 days in a ZIP code area, divided by number of households in that ZIP code area
Premature deaths	Given as a rate (1/1,000) by New York City Department of Health
Foreclosures	Relative need value compared to the neediest in New York State as per HUD calculation

NOTE

Mimi Abramovitz is the Bertha Capen Reynolds Professor of Social Policy, Silberman School of Social Work at Hunter College and the CUNY Graduate Center. Abramovitz's interests include US social policy, women and social policy, poverty and place, and the impact of the current policy environment on the human service workforce. She codirects the Hunter Neighborhood Stress Project with Jochen Albrecht and is currently writing a book entitled *Gendered Obligations: The History of Activism among Low-Income Women in the United States since 1900*.

Jochen Albrecht is an associate professor for computational and theoretical geography at Hunter College and the CUNY Graduate Center. In addition to general work with GIS, he specializes in spatio-temporal analysis, data modeling, and qualitative spatial reasoning. Together with Mimi Abramovitz, he has devoted a good part of the past 5 years on the Hunter Neighborhood Stress Project, of which the research reported on here is a part.

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