

**Specifying the determinants of neighborhood satisfaction:  
A robust assessment in 24 metropolitan areas over four time points<sup>1</sup>**

John R. Hipp\*

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\* Department of Criminology, Law and Society and Department of Sociology, University of California, Irvine. Address correspondence to John R. Hipp, Department of Criminology, Law and Society, University of California, Irvine, 2367 Social Ecology II, Irvine, CA 92697; email: john.hipp@UCI.edu.

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**Specifying the determinants of neighborhood satisfaction:**

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**Abstract**

Using a sample of households nested in census tracts in 24 metropolitan areas over four time points, this study provides a robust test of the determinants of neighborhood satisfaction taking into account the census tract context. Consistent with social disorganization theory, the presence of racial/ethnic heterogeneity and single parent households consistently reduced neighborhood satisfaction. Those perceiving more social or physical disorder were considerably less satisfied with the neighborhood, and perceiving more crime showed an accelerating negative effect on satisfaction. Furthermore, the effect of perceiving crime was exacerbated in tracts with a distressed labor market or the presence of disengaged youth. There was consistent evidence that those with more economic investment (homeowners) or social investment (married residents and parents) in the neighborhood are more satisfied. On the other hand, there was no evidence that longer-term residents report more satisfaction, nor that general residential stability in the tract will increase satisfaction.

**Specifying the determinants of neighborhood satisfaction:**

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Even in an era of increasing globalization, local neighborhoods have important implications for their residents. They are the locations for many daily activities of their residents, whether shopping, engaging in recreational activities with family and friends, chatting with neighbors, feeling safe from crime and disorder, or sending one's children to nearby schools. For these and other reasons, neighborhoods are important to households, and while some households may simply abandon an undesirable neighborhood, many other households lack the resources to move away, or feel a strong emotional tie that precludes simply moving away (Massey & Denton 1993, Massey et al. 1994). As a consequence, considerable scholarship has focused on the determinants of greater neighborhood satisfaction reported by residents (Adams 1992; Bolan 1997; Connerly and Marans 1985; Hartnagel 1979; Lee, Campbell, and Miller 1991; McHugh, Gober, and Reid 1990; Woldoff 2002).

While early studies in the neighborhood satisfaction literature were concerned with determining which household-level demographic characteristics were related to greater neighborhood satisfaction, more recent work has acknowledged that such satisfaction is composed of two parts: both the individual household member's perception, as well as aggregate contextual effects that make some neighborhoods more desirable. This suggests a need for a multilevel approach to this question to tease apart these individual and contextual effects for neighborhood satisfaction, and some studies have taken this approach (Sampson 1988; Sampson 1991). While studies using nested data have made important advances, there remain unanswered questions. First, despite the evidence that a neighborhood's social demographic characteristics appear even more important for fostering a sense of satisfaction than the physical characteristics (Herting and Guest 1985), multilevel studies frequently employ few indicators of the neighborhood context, limiting our understanding of which contextual factors matter most. Second, given the difficulty in data collection, multilevel studies frequently are limited to residents within a single city (or part of a city) at a single time point (Bolan 1997; Sampson 1991; Woldoff 2002), raising the

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question of whether such findings can be generalized from a particular city to all cities, and from a particular point in time to other time points.

The present study thus adds to our knowledge of neighborhood satisfaction by adopting a multilevel approach in studying the individual and tract-level determinants of neighborhood satisfaction in 24 standard metropolitan statistical areas (SMSAs) over four waves of data. This multilevel approach allows for testing the effects of *household*-level characteristics on neighborhood satisfaction specified by the community of limited liability and place stratification theories, and the *neighborhood*-level characteristics specified by the social disorganization and systemic theories. By using four waves of data in multiple SMSAs—with over 70,000 households at each of four time points (from 1987 to 1999)—this study is able to determine robust relationships predicted by these key theories, as well as consistent *non*-effects. That is, failing to detect a significant effect over these four time-points suggests the need to reformulate theories and specify scope conditions.

### **Theories of neighborhood satisfaction**

Scholars have long been interested in understanding the determinants of the psychological construct of neighborhood satisfaction. Although a classic statement by Wirth (1956) suggested that aggregate characteristics of cities had important effects on individuals—specifically, that the city population size, population density, and racial/ethnic heterogeneity reduced attachment and increased anomie—more recent work has focused on the characteristics of specific neighborhoods. For instance, Gans (1995) emphasized that cities were characterized by a tendency towards segregation based on certain characteristics of persons (e.g., ethnic villagers), which led to a lifestyle characterized by primary network contacts with other similar individuals and not confined only to the secondary contacts that Wirth implied characterized city life. Gans focused on the choices of individuals in selecting where to move, concluding that residential instability was the primary driving force behind any reduced attachment that Wirth perceived. And Fischer (1975, 1995) emphasized how the size of cities enabled clustering of certain types of people into subcultures (e.g., ethnic subcultures) that then reinforced an attachment to the

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norms of these subcultures. This builds on Breton's (1964) notion of the institutional completeness of such ethnic neighborhoods, which can bring about an attachment to the particular neighborhood. Consequently, Fischer (1982) suggested that we must focus on the role of network relations, and with whom individuals have formed ties, for affecting attachment to the neighborhood. The hypothesized importance of context for fostering satisfaction resulted in an early study that aggregated measures to the level of the metropolitan area (Lee & Guest 1983); although metropolitan areas are clearly too large to capture neighborhood effects, the spirit of this approach has been extended in studies focusing on neighborhood contextual effects (Sampson 1988; Sampson 1991).

When comparing across neighborhoods to determine more desirable ones, researchers have primarily focused on the social demographic and physical characteristics of neighborhoods for fostering a sense of satisfaction with the community (Amerigo & Aragonés 1997). Given that prior work has suggested that social characteristics may have a stronger effect on neighborhood satisfaction than physical characteristics (Herting & Guest 1985), it is unsurprising that several theories based on social characteristics have emerged from the literature for explaining differences in neighborhood satisfaction among residents. I focus on five theories here. The first two of these theories emphasize the role of neighborhood social structural characteristics for fostering neighborhood satisfaction: 1) the social disorganization theory; 2) the systemic theory. The other theories posit that certain types of persons and/or households will be more satisfied with the neighborhood: 3) the place stratification model; 4) the community of limited liability theory; and 5) a satiation model (Galster 1987). I next explore each of these theories.

### *Social disorganization model*

While scholars have frequently employed the *social disorganization* model (Sampson & Groves 1989, Shaw & McKay 1942) to study neighborhood crime and disorder, only more recently has it been explicitly employed to explain neighborhood satisfaction or attachment (Markowitz et al. 2001, Taylor 1996, Woldoff 2002). While social disorganization theory posits that certain neighborhood structural

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characteristics will give rise to mechanisms that affect neighborhood crime and disorder, these characteristics also likely affect the desirability of neighborhoods. Specifically, this model posits that the residential stability, racial/ethnic heterogeneity, broken households, and economic resources of the neighborhood affect the formation of social ties, which in turn, allow a neighborhood to provide the sort of social control necessary to address crime and disorder when it appears (Hipp 2007b, Markowitz et al. 2001, Sampson & Groves 1989, Warner 2003). Given that social ties are likely important for fostering attachment to the neighborhood (Austin & Baba 1990, Connerly & Marans 1985, Hipp & Perrin 2006, Hunter 1975, Kasarda & Janowitz 1974, Lee et al. 1991, Mesch & Manor 1998, Sampson 1991), which then likely impacts neighborhood satisfaction (Adams 1992, Connerly & Marans 1985, Davis & Fine-Davis 1981, Lee et al. 1991, Parkes et al. 2002, Sampson 1988, 1991), this suggests that these neighborhood structural characteristics likely have important implications for neighborhood satisfaction.

There is some evidence that these structural characteristics do indeed affect neighborhood satisfaction, though the evidence is far from conclusive for all of these measures. On the one hand, there is consistent evidence that the racial/ethnic heterogeneity of the neighborhood appears to reduce satisfaction. Studies using such varied samples as the 1975 Detroit survey (Connerly & Marans 1985), a sample of 99 small Iowa towns (Rice & Steele 2001), and a 1984 sample of 11,030 residents of 500 localities in Great Britain (Sampson 1991) have found a negative relationship between racial/ethnic heterogeneity and reported satisfaction or attachment. Scholars have suggested that neighborhoods with fewer economic resources have less ability to lobby for services from the larger community that would help in reducing neighborhood crime, or lobby for amenities that make the neighborhood desirable (Guest 2000, Hunter 1995). Studies have found a positive relationship between neighborhood satisfaction and the average SES level (Sampson 1991) or the average income level (Stipak & Hensler 1983). On the other hand, whereas the presence of more single parent households in a neighborhood likely reduces the ability to supervise one's own as well as neighbor children—possibly leading to more crime and teens dropping out of school or the labor force—few studies have tested whether this affects neighborhood satisfaction, though one did find the expected negative relationship (Sampson 1991).

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It hardly seems controversial to suppose that the crime and disorder fostered by these structural characteristics reduces neighborhood satisfaction. While crime and disorder are clearly two distinct constructs, they have been linked in theories of neighborhood change. Kelling (1996) argued that untended disorder plays a crucial role in fostering downward spirals of neighborhoods. And Skogan and colleagues (Skogan 1986, 1990, Skogan & Maxfield 1981) have argued that crime and disorder play a key role not only in neighborhood satisfaction, but also in mobility decisions that can also induce a downward spiral. For instance, studies have found that perceptions of crime were associated with reduced neighborhood attachment (Austin & Baba 1990) and satisfaction (Adams 1992, Harris 2001, Parkes et al. 2002). And research has found that perceived social or physical disorder reduces neighborhood satisfaction (Davis & Fine-Davis 1981, Harris 2001, Woldoff 2002). However, fewer studies have tested these as neighborhood-level effects on satisfaction. Whereas one study found a negative relationship between neighborhood-level disorder and neighborhood satisfaction (Lu 1999), and one study found that the victimization rate was negatively related to neighborhood *attachment* (Sampson 1991), another study found no relationship between the crime rate and neighborhood satisfaction beyond the effect of the individual's perception of crime (Adams 1992). This may suggest that an individual's *perception* of neighborhood crime and disorder is more important for fostering neighborhood satisfaction. However, the evidence that such perceptions of crime and disorder show a considerable relationship with independent measures of crime and disorder (Hipp 2007c, Perkins & Taylor 1996, Sampson & Raudenbush 1999, Sampson et al. 1997, Skogan & Maxfield 1981) suggests that such neighborhood-level measures may also affect neighborhood satisfaction.

### *Systemic theory*

The *systemic* theory of Kasarda and Janowitz (1974) posits that residential stability increases social interaction among residents (Connerly & Marans 1985, Logan & Spitze 1994, Ross & Jang 2000, Rountree & Warner 1999, Sampson 1988, 1991, Warner & Rountree 1997), and this increased social interaction results in greater attachment to, and satisfaction with, the neighborhood. Thus, this model focuses on the psychic attachment that residents can develop to a neighborhood as longer residence

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fosters stronger social bonds to neighbors, creating a stronger sense of place. This differs from the social disorganization perspective, which does not posit any such psychic attachment, but rather simply focuses on how these increased social ties in a residentially stable neighborhood can enhance residents' ability to provide social control, resulting in lower levels of crime and disorder. Nonetheless, the minimal evidence regarding this effect is mixed. Whereas one study found the expected positive effect of residential stability on neighborhood satisfaction (Adams 1992), another study failed to detect this effect (Connerly & Marans 1985). A few studies have tested the effect of residential stability on neighborhood *attachment*, and whereas one study found a positive relationship (Rice & Steele 2001), other studies failed to observe a significant effect (Connerly & Marans 1985, Sampson 1988). Thus, the evidence for this relationship is quite sparse.

Beyond this aggregated effect of residential instability, the systemic model also argues for individual-level effects. That is, longer residence in a neighborhood should increase satisfaction through meeting more neighbors and increasing informal social ties (Adams 1992, Austin & Baba 1990, Bolan 1997, Campbell & Lee 1992, Hipp & Perrin 2008, Kasarda & Janowitz 1974, Logan & Spitze 1994, Sampson 1988, 1991). Nonetheless, there is little support for such a relationship with neighborhood satisfaction. One possible explanation is that many studies finding a null relationship also included a measure of neighboring in the model (Adams 1992; Connerly and Marans 1985; Lee, Campbell, and Miller 1991; Sampson 1991)(Galster 1987); the mediating variable of neighboring arguably would eliminate the direct effect of length of residence in such models. However, other studies that have not included this mediating variable have likewise found a null relationship (Bolan 1997; Woldoff 2002) or even a negative relationship (Lu 1999, McHugh et al. 1990, Parkes et al. 2002). It is striking that of the ten studies of which I am aware, not one found a significant positive relationship with neighborhood satisfaction. These consistent null results contrast with the body of literature that has frequently found a positive relationship between length of residence and neighborhood *attachment* (Bolan 1997, Connerly & Marans 1985, Kasarda & Janowitz 1974, Lee et al. 1991, Sampson 1988, Woldoff 2002). This suggests that whereas longer residence in the neighborhood may increase one's sense of perceived cohesion with



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the neighborhood, it has minimal effects on satisfaction. Another possibility is that this may be a nonlinear relationship, as explored below in the satiation model.

### *Place stratification model*

A third key perspective, and one that focuses more at the individual and/or household level, is the *place stratification* model (South & Crowder 1997a, b). This theory argues that residents' race/ethnicity and socio-economic status affect their satisfaction by limiting access to the most desirable neighborhoods. Thus, households with higher levels of income are better able to attain the most desirable neighborhoods, whereas those with less income may feel relatively "trapped" in less desirable neighborhoods. This model dovetails with the locational attainment model (Alba & Logan 1992, Logan et al. 1996), and posits that those with higher levels of income, education, or wealth will attain more desirable neighborhoods. However, the evidence for economic resources is mixed: although some studies have found a positive relationship between household income and satisfaction (Davis and Fine-Davis 1981; Harris 2001; Lu 1999; Parkes, Kearns, and Atkinson 2002; Stipak and Hensler 1983), others have failed to find a significant effect (Bolan 1997, Jagun et al. 1990, McHugh et al. 1990), and one study even found a negative relationship (Connerly and Marans 1985).

Similarly, the place stratification model focuses on the constraints faced by certain racial/ethnic groups when choosing among neighborhoods to which to move (Cutler et al. 1999, Kain & Quigley 1975, Rosenbaum 1994, South & Crowder 1997a, South & Deane 1993), arguing that racial/ethnic minority households will be pushed into the least desirable neighborhoods. This implies that such households would report less satisfaction. However, the evidence for race/ethnicity is also mixed: whereas some studies have found that white residents are more satisfied with the neighborhood than other racial/ethnic groups (Lee, Campbell, and Miller 1991; Lu 1999; Parkes, Kearns, and Atkinson 2002), a number of studies have failed to detect any difference for African-Americans (Adams 1992; Connerly and Marans 1985; Stipak and Hensler 1983; Woldoff 2002). It should be emphasized that all of these studies explored partial correlations, and thus a possible robust bivariate negative relationship between minority

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households and neighborhood satisfaction could be reversed based on the measures included in the model, an issue considered in our models below.

### *Community of limited liability theory*

The *community of limited liability* model (Janowitz 1952) also focuses on household characteristics in positing that the resident's degree of either economic or social investment in the neighborhood affects neighborhood attachment and satisfaction. An important source of economic investment in the neighborhood is homeownership. Homeowners likely feel increased attachment and thus satisfaction since they feel a greater commitment to the neighborhood and a decreased willingness to simply abandon it at the first sign of difficulties. While the evidence is generally supportive of this hypothesis (Harris 2001; Lee, Campbell, and Miller 1991; Lu 1999), some studies have failed to detect a significant effect (Connerly and Marans 1985; Parkes, Kearns, and Atkinson 2002; Woldoff 2002). Two key sources of social attachment are being married and the presence of children. Those who are married may feel a greater sense of attachment to the neighborhood than do single persons, for whom the neighborhood may be viewed in a more transitional manner. Although one study found this hypothesized effect (Jagun, Brown, Milburn, and Gary 1990), most studies have failed to detect a significant relationship (Adams 1992, Bolan 1997, Connerly & Marans 1985, Hipp & Perrin 2006, Sampson 1991, Woldoff 2002). The presence of children, who have a relatively narrow geographic activity sphere that brings their parents into more consistent contact with neighbors and community amenities and institutions, likely increases the household's feeling of attachment to, and hence satisfaction with, the neighborhood. Nonetheless, the evidence for this relationship is also quite mixed. Whereas one study found the expected positive relationship when controlling for the neighborhood social characteristics (Parkes et al. 2002), others have failed to find a significant effect (Bolan 1997, Lee et al. 1991, McHugh et al. 1990, Woldoff 2002), and some have even found a negative effect (Adams 1992, Sampson 1991).

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### *The satiation model*

The satiation model comes from work by Galster (1987), and builds on the economic notion of the law of diminishing marginal utility.<sup>1</sup> In this model, residents have particular needs and desires: increasing the amount of an amenity will increase satisfaction with the neighborhood until it reaches a point at which the resident is “satisfied”, and increasing the amount of the amenity beyond this threshold will no longer increase satisfaction given that one’s needs are already met. This implies a curvilinear relationship between certain household or neighborhood characteristics and neighborhood satisfaction. For instance, increasing the size of the house (relative to the number of household members) will increase satisfaction up until a satiation point is reached, beyond which greater size of house should have minimal effect (Galster 1987). Of course, there is also the possibility that once such needs are met, that aspiration levels will be revised upwards: Galster acknowledges this as the well-known phenomenon of rising expectations.

Galster’s model implies that the weak findings for the effect of length of residence on neighborhood satisfaction may be due to model misspecification. That is, increasing time in the neighborhood may increase satisfaction up to a point, but beyond this point satisfaction will begin to diminish as awareness of neighborhood problems increases. Analogously, whereas crime and disorder likely reduce satisfaction with the neighborhood, this negative effect may diminish at higher levels as residents become more acclimated to the environment (Sampson & Raudenbush 2004).<sup>2</sup>

### *Moderating effect of context*

Finally, I follow the lead of some scholars in the social disorganization literature in testing whether the neighborhood context moderates the effect of perceptions on neighborhood satisfaction (Rountree & Land 1996a, Sampson & Raudenbush 2004, Warner & Pierce 1993, Warner & Rountree 1997). Some scholars have argued that the level of social disorder is particularly unsettling and can increase the perceived risk of crime (Rountree & Land 1996b). I extend this logic and test whether residents in neighborhoods experiencing social disorder who perceive more crime are particularly

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dissatisfied with the neighborhood. The presence of undesirable persons or many youth out of the labor force hanging out on street corners likely make perceptions of crime particularly salient to residents.

Another important context is economic uncertainty, which may foster an ominous sense of threat to the overall quality of the neighborhood that can be exacerbated by a perception of crime in the neighborhood. The residents in such neighborhoods may sense that the neighborhood is nearing a “tipping point” in which a downward trajectory could ensue (Krivo & Peterson 2000, Rohe & Stewart 1996). This economic uncertainty can be fostered through the level of economic resources in a neighborhood, or through such labor force uncertainty as unemployment. In such neighborhoods, residents may be particularly sensitive to perceptions of crime. This implies that a neighborhood undergoing economic difficulty but not experiencing problems of crime may be less bothersome to a resident, whereas a neighborhood with economic difficulties along with a perception of high rates of crime may be particularly undesirable.

## **Data and Methodology**

### *Data for analyses*

I employed four waves of metropolitan samples of the American Housing Survey (AHS) to address these research questions. Every two years the American Housing Survey (AHS) samples the same housing units in a subset of the metropolitan areas they study: as a result, a given metropolitan area is surveyed approximately every four years. Thus, although I have “waves” for 1987, 1991, 1995, and 1999, these waves actually contain the data for the nearest year in which a particular metropolitan area was surveyed. For instance, whereas in the 1987 wave some of the metropolitan areas were actually surveyed that year, some were actually surveyed in 1985. There are 23 metropolitan areas in the 1987 and 1991 waves, 22 in the 1995 wave, and 21 in the 1999 wave; these are listed in Appendix Table A1. Since each metropolitan survey contains about 4,000 respondents, the total sample contains between 73,000 and almost 88,000 respondents in each of the waves.<sup>3</sup> These households were placed into their

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respective census tracts through special access to data at the Triangle Census Research Data Center. Since these residents are placed into 1980 census tracts, it was necessary to collapse the 1990 and 2000 census tract data into 1980 tracts based on the proportion of the population contained within the 1980 boundaries.

### *Outcome measure: neighborhood satisfaction*

The outcome measure is a single question asking respondents their satisfaction with the neighborhood (on a 0 to 10 scale). Thus several respondents from each tract (nine on average) report their individual level of satisfaction: these can be considered as separate indicators of tract level neighborhood satisfaction. Most prior studies have also captured this construct with a single measure asking respondents about their global satisfaction with the neighborhood (Bolan 1997, Connerly & Marans 1985, Galster 1987, Harris 2001, Hartnagel 1979, Jagun et al. 1990, Lu 1999, McHugh et al. 1990, Parkes et al. 2002, Sampson 1991). Although combining several indicators of global neighborhood satisfaction provides a more reliable measure resulting in more precise estimates of the relationship between the predictors and the outcome than a single measure, the results will be similar as long as the single measure is not *systematically* biased (Blalock et al. 1970). Furthermore, the limited number of prior studies combining several variables into a neighborhood satisfaction index have generally found similar results as those using a single measure (Stipak & Hensler 1983). For instance, two studies that combined 3 or 5 measures in a principal components or factor analysis (Adams 1992, Lee et al. 1991) and one study that used a confirmatory factory analysis approach on three questions (Woldoff 2002) found no relationship between a resident's length of residence and neighborhood satisfaction. One study found a positive effect for a neighborhood residential stability index (Adams 1992).<sup>4</sup>

### *Perceived crime and disorder*

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I included measures of perceived crime, physical disorder, and social disorder. For measuring perceived crime, the AHS asks respondents a series of three questions: is crime a problem, is it so much of a problem that it's a bother, and is it such a bother that the respondent wishes to move. These responses are combined into a four point response where the respondent either replies "no" to all questions, replies "yes" to one, "yes" to two, or "yes" to all three. I also included the squared version of this measure to capture possible nonlinearities. The physical disorder concept is a single yes/no question asking whether "litter or housing deterioration is bothersome." The social disorder concept is a single yes/no question asking whether "people in the neighborhood are bothersome." While an ideal measure would ask residents about various undesirable social dimensions of the neighborhood, I am limited to this single question. In addition to these individual-level measures, I also calculated the tract-level mean values for each of these measures.

### *Household-level demographic characteristics*

Guided by the theoretical specifications discussed above, I constructed several individual- and household-level demographic measures. SES is captured with measures of household income in \$1,000's (logged), logged household income squared, and years of education of the respondent.<sup>5</sup> To account for racial/ethnic differences, I included dichotomous indicators for African-Americans, Latinos, and other race (with whites as the reference category). To measure economic investment I included an indicator of whether the respondent owned their residence. Social investment is measured by the length of time in the residence (log transformed), dichotomous indicators for marital status (married, divorced, widowed, with single as the reference category), and an indicator for the presence of children less than 18 years of age at home. To capture diminishing effects, length of residence squared was also included.<sup>6</sup>

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I also included several additional household-level measures to minimize the possibility of spurious findings. An indicator for those who have lived less than a year in the residence tests whether new residents have preconceived notions of the neighborhood that color their evaluation. Measures of the age of the respondent and age squared account for life course effects. Gender differences are accounted for with a dichotomous measure coded one for females. Measures of the persons per room and the squared term capture over-crowding that may color the respondent's assessment of the neighborhood.

### *Measures of Social-demographic Characteristics of Neighborhoods*

To test the theories outlined above, I also constructed measures of the social demographic characteristics of the census tract using data from the U.S. Census from the nearest year. Residential stability is measured as the average length of residence in the tract (using midpoint values from binned length of residence).<sup>7</sup> The average income in the tract accounts for economic resources. Racial/ethnic heterogeneity (EH) in a tract  $k$  was measured by an identity based on a Herfindahl index (Gibbs & Martin 1962: 670) of five racial/ethnic groupings, as follows:

$$(1) \quad EH_k = 1 - \sum_{j=1}^{j=J} G_j^2$$

where  $G$  represents the proportion of the population of ethnic group  $j$  out of these  $J$  racial/ethnic groups. Subtracting from 1 makes this a measure of heterogeneity. This measures the degree of racial/ethnic mixing in the neighborhood. To test whether the presence of minorities is undesirable (Harris 2001), I included measures of these same five racial/ethnic groups: the percent African-American, percent Latino, percent Asian, and percent other races (with percent white as the reference category).<sup>8</sup>

Measures of the proportion divorced and the proportion with children less than 18 years old in the tract account for the presence of broken families. Including these two measures separately allows testing whether the simple presence of more households with children has an aggregate effect on neighborhood satisfaction.

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In additional models, I replaced the aggregated measures of the residents' perceptions of social and physical disorder with proxies from an independent source. Social disorder is proxied with a measure of disengaged teens: the percent of youth (aged 16-19) in the tract not in the labor force and not enrolled in school from the U.S. Census, since the presence of youth hanging out on street corners fosters a sense of disorder that may be undesirable. And physical disorder is proxied by vacant units with a measure of the percentage occupied units in the tract.

To minimize the possibility of detecting spurious effects, I accounted for several additional neighborhood characteristics that may affect satisfaction. Average persons per room in the tract accounts for overall crowding. Since the lack of jobs may be undesirable, the unemployment rate in the tract is included. To capture possible cultural capital effects that come with higher education (Bourdieu 1984) and might make a neighborhood more desirable, I included a measure of the percentage with at least a bachelor's degree in the tract. The desirability of economic vitality is captured with a measure of the number of employees per 10,000 population working in restaurants or recreation services from the U.S. Economic Census, log-transformed.<sup>9</sup> I used the number of employees rather than the number of establishments since this likely provides a more accurate measure of the possible services available to the resident of a neighborhood. Since bars and liquor stores are likely disamenities, I included a similar measure from the Economic Census of these employees per 10,000 population, log-transformed. The quality of local schools is proxied with a measure of the completion rate of students in the local school district.<sup>10</sup> Since the presence of a body of water may be desirable, I included a measure of the percentage of the tract that is water. Finally, since toxic waste sites are likely undesirable (Mohai & Saha 2006, Pastor et al. 2001), I included a measure of the pounds of toxic waste emitted in an area, weighted by the inhalation toxicity.<sup>11</sup> The summary statistics for the variables used in the analyses are shown in Table 1. The variance inflation values (VIF) generally below 6 (well below the cut-off of 10 suggested by some) along with no evidence of problematic coefficient estimates or standard errors when estimating models without the variables with the highest VIF values, suggest no collinearity problems. There was also no evidence of outliers in these large samples.



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<<<Table 1 about here>>>

### Methodology

Multilevel models account for the nesting of households in tracts. Thus, at each time point I am estimating the following level one equation:

$$(2) \quad y_{ik} = \eta_k + \mathbf{X}_{ik}\Gamma + \varepsilon_{ik}$$

where  $y_{ik}$  is the combined ten-point response in the AHS regarding the level of satisfaction with the neighborhood reported by the  $i$ -th respondent of  $I$  respondents in the  $k$ -th tract,  $\eta_k$  is the latent variable of common perception of neighborhood satisfaction in the tract,  $\mathbf{X}_{ik}$  is a matrix of exogenous predictors with values for each individual  $i$  in neighborhood  $k$ ,  $\Gamma$  is a vector of the effects of these predictors on the subjective assessment, and  $\varepsilon_{ik}$  is a disturbance term. Note that here the outcome measure is *each individual's assessment* of neighborhood satisfaction.<sup>12</sup>

The level two equation incorporates the neighborhood characteristics described above, and is represented as:

$$(3) \quad \eta_k = \mathbf{Z}_k\beta + (\text{METRO})\beta_{\text{METRO}} + \varepsilon_k$$

where  $\eta_k$  represents the overall satisfaction with neighborhood  $k$ ,  $\mathbf{Z}$  represents a matrix of variables measured at the level of neighborhood  $k$ ,  $\beta$  is a vector of the effects of these measures on overall satisfaction, METRO is a series of  $M-1$  indicator variables for the  $M$  metropolitan areas in that wave of data,  $\beta_{\text{METRO}}$  is a vector of the effects of these SMSA's on neighborhood satisfaction, and  $\varepsilon_k$  is a disturbance for tract  $k$ . I simply include indicator variables for these SMSA's, rather than including this as an additional level of analysis in the multilevel model, since these metropolitan areas are not a random sample and therefore there is not a population of metropolitan areas to which to make inferences.

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### Results of multilevel models

#### *Social disorganization hypotheses*

I begin by considering the hypotheses of the social disorganization model. One particularly strong finding over these four waves of data is that households perceiving more crime, social disorder, or physical disorder are considerably less satisfied than are other households. Households that perceive social disorder report about 1.29 fewer units of neighborhood satisfaction, on average, over these four waves of data, while households that perceive physical disorder report about 1.1 fewer units of neighborhood satisfaction, on average, over these four waves. Given that the average standard deviation of the neighborhood satisfaction within tracts is 1.83, these are strong effects indeed.<sup>13</sup> That is, perceiving physical disorder decreases neighborhood satisfaction .61 standard deviations of the within-neighborhood variability and perceiving social disorder decreases it .70 standard deviations. And there is an increasingly strong negative effect on neighborhood satisfaction as crime increases. The average effect of perceived crime on neighborhood satisfaction over the four waves is plotted in Figure 1, and shows that whereas reporting that crime exists as a problem reduces neighborhood satisfaction .39 points compared to those who do not perceive it as a problem, saying that it also is a bother reduces it another .76 points, and reporting that it is such a bother that one wishes to move reduces it yet another 1.14 points.

<<<Table 2 about here>>>

<<<Figure 1 about here>>>

There is some evidence that tract-level perceived crime reduces overall satisfaction with the neighborhood. Beyond the individual-level effect of perceived crime, individuals living in tracts with more reported crime have significantly less overall neighborhood satisfaction in three of the four waves. On the other hand, while the findings for tract-level social and physical disorder are consistently negative, these findings are more modest and occasionally do not reach statistical significance. In ancillary models, I substituted two proxy measures from the Census for the aggregated neighborhood measures of perceived social and physical disorder, but these showed little effect. For instance, the measure of percentage

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vacant units as a proxy for physical disorder did not achieve statistical significance at  $p < .05$  in any of the four waves (results not shown). And the measure of percentage youth out of the labor force and school as a proxy for social disorder only had a significant negative effect on satisfaction in the first wave (results not shown).

Turning to the neighborhood structural characteristics specified by the social disorganization model, we see that the presence of broken households reduces neighborhood satisfaction. This can be seen in the results that a higher proportion of divorced households and a higher proportion of households with children reduce satisfaction. These twin findings in this additive model imply that more divorced households with children in the tract have a particularly strong negative effect on reported neighborhood satisfaction.<sup>14</sup> For instance, a one standard deviation increase in the proportion divorced reduces neighborhood satisfaction .134 units ( $-.818 * .164 = -.134$ ), whereas a one standard deviation increase in the proportion of households with children less than 18 years of age reduces neighborhood satisfaction .032 units ( $-.003 * 11.2 = -.032$ ). Combining these marginal effects, this implies that the most satisfying tract will have a high proportion of married households with no children (a marginal effect of .166), the next satisfying is a tract with a high proportion of married households with children (a marginal effect of .102), whereas tracts with a high level of divorced households with no children (-.102) or divorced households *with* children (-.166) have the strongest negative effect on neighborhood satisfaction.<sup>15</sup> Thus, this model implies that greater numbers of single-parent families in a tract have a direct negative effect on neighborhood satisfaction, above and beyond any effect they may have on perceived crime and disorder—which is accounted for in this model.

As hypothesized, we see that racial/ethnic heterogeneity consistently reduces overall satisfaction over these four waves of data. This is consistent with the hypothesis that such heterogeneity reduces the number of social ties in such tracts and hence reduces satisfaction. The perhaps surprising finding that the percent African-American increases neighborhood satisfaction can be explained by recalling that these are marginal effects *holding constant* the other measures in the model. For instance, estimating models with only the race measures as predictors shows that increasing levels of blacks, Latinos, and ethnic

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heterogeneity result in lower levels of satisfaction (results not shown). It appears that the measure of broken households is particularly important for explaining the change in the effect of African-Americans in the full model from the bivariate results (given its strong effect on satisfaction and its correlation with percent African-American). However, it is not reasonable to consider this a mediating relationship given that there is little reason to expect that being black *causes* broken households. Rather, the correlation between percent black and percent divorced households simply suggests that it is the presence of broken households (and the possibility of unsupervised children) that creates dissatisfaction in the neighborhood, and nothing about the race/ethnicity of those households. We are aware of only one other study that tested the effect of the percent African-American in the neighborhood on reported satisfaction, and while it found a negative effect while controlling for the economic resources of the neighborhood, the study failed to account for the presence of broken households (Stipak & Hensler 1983).

The evidence for SES is mixed. There is no evidence of an aggregate effect of higher income households, as tracts with higher average income do not have any greater neighborhood satisfaction. However, we see consistent support for the cultural capital hypothesis as neighborhoods with more highly educated persons report more satisfaction. A one standard deviation increase in the percent highly educated increases neighborhood satisfaction .114 points, on average, over these four waves ( $.006 * 18.8 = .114$ ). Note that there is no concomitant individual-level effect, as those with higher levels of education are no more satisfied with the neighborhood than their tract neighbors. This suggests that this is a contextual effect.

### *Systemic model hypotheses*

In contrast to the strong support for the social disorganization model, there is little support for the systemic model's hypothesis that residential stability will lead to greater neighborhood satisfaction. Only in the first wave is there a significant positive relationship between neighborhood residential stability (average length of residence) and neighborhood satisfaction. This relationship is nonsignificant over the approximately 10,000 tracts in each of the other three waves. There is also little evidence that increasing length of residence of an individual household increases neighborhood satisfaction.<sup>16</sup> Plotting this

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nonlinear effect actually showed a general downward trend, though the effect size was modest enough that this effect can effectively be considered a null one.

### *Place stratification model hypotheses*

We see some evidence in support of the place stratification model. Residents with higher levels of income consistently report higher levels of satisfaction. This finding is observed in all four waves, suggesting that past studies failing to find this effect were either hampered by the use of a sample from a single city, or failed to appropriately account for the neighborhood's characteristics. However, there is little evidence that minority households are less satisfied with the neighborhood. Whereas African-American households report less satisfaction with their neighborhood in two of the waves, there is no such evidence in the other two waves. Furthermore, Latinos consistently report *more* satisfaction with their neighborhood over these four waves, controlling for the other measures in the model.

### *Community of limited liability model hypotheses*

We see evidence that those with more economic and social investment in the neighborhood report greater satisfaction. Those with an economic investment have greater satisfaction, as homeowners report on average over these four waves about .33 units more satisfaction with the neighborhood than do renters in the same tract. This is a particularly strong effect—about .17 standard deviations of the within tract variability in neighborhood satisfaction—observed in all four waves. And those with greater social attachment to the neighborhood based on marital status and the presence of children are more satisfied as married households report about .15 points more satisfaction than singles, on average, over these four waves of data. In contrast to prior research, the presence of children in the household consistently increases neighborhood satisfaction compared to other households in the same tract.

### *Satiation effect*

There is minimal support for the law of diminishing marginal utility. On the one hand, there was evidence that crowding in the household (as measured by persons per room) had a diminishing negative effect on reported neighborhood satisfaction as the quadratic term was positive (results not shown). On the other hand, age and household income generally showed a linear effect over these four waves,

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whereas perceived crime had an *accelerating* negative effect on reported satisfaction. Likewise, the effect of length of residence also did not show such a diminishing increasing effect.

### *Interaction of perceived crime and tract economic conditions*

Given the importance of perceived crime for a household's reported neighborhood satisfaction, I next ask whether this perception of crime affects satisfaction more strongly given the neighborhood context. To test for a moderating effect of tract economic conditions, I created cross-level interactions between a household member's perception of crime and 1) the percent unemployed in the tract; 2) the tract's average family income. To test for a moderating effect of tract social disorder, I created cross-level interactions between a household member's perception of crime and 1) the aggregated perception of undesirable persons in the neighborhood; 2) the percentage of disengaged teens (teens out of the labor force and school) in the tract.<sup>17</sup>

The findings suggest that the tract's social disorder and economic conditions do indeed moderate this relationship. Table 3 highlights that perceiving more crime in the neighborhood particularly affects neighborhood satisfaction when it occurs in tracts with economic dislocation as measured by higher levels of unemployment, or in tracts with higher social disorder as measured by disengaged teens.<sup>18</sup> Since the pattern is consistent over these four time points, I plot the average moderating effect of tract-level unemployment on the relationship between perceived crime and neighborhood satisfaction over these four waves of data in Figure 2. As the level of unemployment increases in a tract (from one standard deviation below to one standard deviation above the mean), the perception of crime has a stronger impact on reported neighborhood satisfaction. Those living in a high unemployment tract who perceive a relatively high level of crime (a value of 2 for the perceived crime measure) are consistently less satisfied with the neighborhood than similar individuals in a low unemployment tract. This suggests that the economic uncertainty of high unemployment is particularly distasteful when it is combined with a perception of high crime in the neighborhood.

<<<Table 3 about here>>>

<<<Figure 2 about here>>>

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The pattern is similar and equally consistent over the four waves for the moderating effect of disengaged teens, producing results almost identical to those plotted in Figure 2. For residents who do not perceive crime in the neighborhood, the presence of this form of social disorder does not decrease their satisfaction. However, among residents who do perceive crime, the presence of disengaged teens has a particularly pronounced negative effect on their reported satisfaction.

## Conclusion

The present study has contributed to our knowledge of neighborhood satisfaction by utilizing a multilevel framework to simultaneously test the relationship between neighborhood satisfaction and both household- and neighborhood-level social-demographic characteristics on a large sample of households nested in tracts within 24 metropolitan areas over four waves. This study thus provides a more general test of these theorized associations between a household's characteristics and their reported neighborhood satisfaction while simultaneously taking into account the context of the tract in which they reside.

This study highlighted that the social disorganization model provides insight into the desirability of neighborhoods. Neighborhood satisfaction is lower in tracts with high levels of racial/ethnic heterogeneity or greater numbers of broken households, and for residents who perceive more crime and social or physical disorder. These results were not only very strong at each time point, but were also consistent over all four waves. It is notable that racial/ethnic heterogeneity and broken households reduce neighborhood satisfaction even when controlling for perceived neighborhood crime and disorder, suggesting that these constructs are capturing something undesirable in the neighborhood beyond their effect on crime and disorder. There was also some evidence of an aggregate effect in which the general perception of crime in the tract had an additional negative effect on neighborhood satisfaction beyond the effect of an individual's perception of crime. The weaker effects for neighborhood social and physical disorder may imply that aggregating these measures to census tracts is too large a unit of analysis for capturing these neighborhood effects (Hipp 2007a). Perceptions of crime and disorder may have

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important implications for neighborhood trajectories if they cause residents to simply abandon the neighborhood or withdraw from efforts to improve the neighborhood.

There was also considerable support for the community of limited liability model. Households with more economic investment in the neighborhood through home ownership, and households with greater social investment in the neighborhood through marriage or the presence of children, reported greater satisfaction. Such residents may not live in any “better” neighborhoods as measured by objective measures, but are simply more satisfied with the particular neighborhood in which they reside. In part, this is consistent with this theory’s prediction that satisfaction is less place specific, and more rooted in the broader networks one maintains in the community. Such individuals may have a differential willingness to involve themselves in the institutions and organizations within the community, which then heightens their attachment to, and satisfaction with, the neighborhood. Indeed, prior work has found that homeowners (Miner & Tolnay 1998, Oliver 1984, Taub et al. 1977), those who are married (Miner & Tolnay 1998) and those with children (Beyerlein & Hipp 2006, Bolan 1997, Miner & Tolnay 1998) are more likely to involve themselves with such voluntary organizations.

On the other hand, the evidence was mixed for the place stratification and systemic models. While there was strong support for the place stratification hypothesis that households with more economic resources are better able to attain residence in neighborhoods they prefer, there was minimal evidence that minority households are any less satisfied with their neighborhoods, once taking into account the social characteristics of the neighborhood. Whereas minority residents clearly live in less desirable neighborhoods—as evidenced by the fact that the mean level of satisfaction reported by minorities in the sample was lower than that of whites (results not shown)—the models specified here take into account the neighborhood characteristics that explain this difference.

There was little evidence for the systemic model hypothesis that tract-aggregated residential stability affects neighborhood satisfaction: in only one of these four waves did neighborhoods with more residential stability report more satisfaction. It may be that residential stability only works at certain geographic levels of aggregation (Hipp 2007a), or in certain social contexts (Warner & Pierce 1993,



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Warner & Rountree 1997), or that it is more important for *attachment* than for *satisfaction*. This may suggest a need for future work to modify the scope conditions of this theoretical model. There was also virtually no evidence that longer-term residents reported any more satisfaction in any of these four waves.

A final contribution of this study was discovering that the relationship between perceived crime and neighborhood satisfaction is accentuated in tracts experiencing economic upheaval or social disorder. The perception of crime in the neighborhood is more bothersome to residents who are living in tracts experiencing economic upheaval as measured by high unemployment rates, or in neighborhoods with high rates of disengaged teens. These findings imply that general economic uncertainty can be tolerated if it is not accompanied by a sense that the neighborhood is disintegrating--as measured by the presence of crime—but that this sense of disintegration will induce a strong downward cycle. I highlight that this relationship is not simply an artifact of a single wave of data in a single city, but was in fact observed in all four waves of this large sample.

While this study has provided important insights for the literature on neighborhood satisfaction, certain limitations should be acknowledged. First, a key challenge to neighborhood studies is the possibility of selection effects: certain types of people may choose to move to more desirable neighborhoods. The cross-sectional analyses presented here cannot account for this. Second, this study has focused more on which characteristics—both household and tract-level—are related to neighborhood satisfaction, rather than testing the mechanisms explaining these relationships. Measuring the neighborhood networks posited to mediate these effects is a daunting challenge if one hopes to collect network measures more sophisticated than simple counts of neighbors known. Third, this study employed a measure of neighborhood satisfaction consisting of a single question about global satisfaction. Although a common approach, these findings should be interpreted as the effects of these structural characteristics on global neighborhood satisfaction. Fourth, the measure of social disorder was a single indicator of “undesirable persons”: while this measure showed a strong effect on neighborhood satisfaction, future research will ideally employ measures capturing separate undesirable social dimensions of the neighborhood. Fifth, this study has assumed that the census tract represents a

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reasonable choice for measuring contextual “neighborhood effects,” an assumption that should be kept in mind (Hipp 2007a). While the use of census tracts to measure neighborhoods is common in contextual studies, future research should assess whether this is truly an appropriate aggregation for the question of neighborhood satisfaction.

Despite these caveats, this study provides considerable empirical evidence about the relationship between certain household and tract-level characteristics and neighborhood satisfaction. The robust findings for the measures of economic and social investment in the neighborhood in contrast to the mixed results from prior research suggest the importance of taking into account the neighborhood context. Not only does taking into account these neighborhood structural characteristics clarify the effects of these individual- or household-level measures, but the structural characteristics specified by the social disorganization model—as well as the crime and disorder they foster—also play an important role in fostering neighborhood dissatisfaction.

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### Tables and Figures

**Table 1. Summary statistics of variables used in analyses**

	Households		Tracts	
	Mean	Std. Dev	Mean	Std. Dev
<b>Neighborhood measures</b>				
Neighborhood satisfaction	7.85	2.17		
Perceived crime	0.58	0.99	0.60	0.55
Perceived physical disorder	0.17	0.37	0.17	0.18
Perceived social disorder	0.05	0.23	0.05	0.11
African-American	11.42	31.80	17.72	28.33
Latino	6.71	25.01	15.19	20.96
Asian			5.07	8.19
Other race	0.64	7.97	1.53	1.72
Ethnic heterogeneity			32.96	19.51
Household income in \$1,000's (logged) / Family income	1.09	0.55	60,807	33,628
Years of education / Percent with a bachelor's degree	14.01	5.68	25.83	18.81
Average length of residence	7.96	10.12	10.56	3.52
Owner	45.95	49.84		
Married	52.93	49.91		
Divorced	17.04	37.60	26.83	16.43
Widowed	8.64	28.09		
Presence of children, 0-18 years old	27.26	44.53	48.65	11.22
<b>Proxies for social and physical disorder</b>				
Percent teens not in the labor force or school			7.09	7.94
Percent occupied units			93.40	6.41
<b>Control variables</b>				
First year in residence	11.55	31.96		
Female	39.94	48.98		
Age	44.10	17.57		
Persons per room	0.49	0.28	0.41	0.21
Percent unemployed			7.12	6.64
Graduation rate of local schools			67.98	17.61
Weighted pounds of toxic release (logged)			11.28	3.81
Percentage of the tract that is water			2.94	10.91
Bar and liquor store employees in tract, per 10,000 population (logged)			4.08	2.40
Restaurant and recreation employees in tract, per 10,000 population (logged)			8.59	2.68

*Note:* Sample size is 73,421 households in 1987, 73,214 in 1991, 87,831 in 1995, and 84,651 in 1999. There are 10,091 tracts in 1987, 9,994 in 1991, 10,015 in 1995, and 9,840 in 1999

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**Table 2. Determinants of neighborhood satisfaction, including tract-level measures of neighborhood characteristics. American Housing Survey metropolitan samples, 1987, 1991, 1995, 1999**

<i>Household measures</i>	<b>1987</b>	<b>1991</b>	<b>1995</b>	<b>1999</b>	<b>Average</b>
Perceived crime	-0.213 ** (-5.91)	-0.084 ** (-2.81)	-0.109 ** (-4.45)	-0.398 ** (-15.93)	-0.201 ** (-7.27)
Perceived crime (squared)	-0.172 ** (-13.35)	-0.228 ** (-21.30)	-0.215 ** (-21.92)	-0.133 ** (-12.76)	-0.187 ** (-17.33)
Perceived physical disorder	-1.361 ** (-31.36)	-1.352 ** (-31.67)	-1.286 ** (-28.25)	-0.459 ** (-6.89)	-1.114 ** (-24.54)
Perceived social disorder	-1.570 ** (-55.28)	-1.327 ** (-52.46)	-1.389 ** (-56.02)	-0.868 ** (-15.34)	-1.289 ** (-44.77)
African-American	0.013 (0.45)	-0.114 ** (-4.18)	-0.047 * (-2.01)	-0.026 (-1.07)	-0.044 † (-1.70)
Latino	0.306 ** (9.78)	0.188 ** (6.63)	0.212 ** (8.92)	0.218 ** (8.49)	0.231 ** (8.46)
Other race	-0.055 (-0.47)	-0.129 (-1.20)	-0.009 (-0.13)	0.051 (0.92)	-0.036 (-0.22)
Household income	0.250 ** (6.10)	0.325 ** (8.22)	0.266 ** (7.50)	0.070 * (2.55)	0.228 ** (6.09)
Household income (squared)	-0.019 (-1.34)	-0.039 ** (-3.30)	-0.014 (-1.31)	0.014 † (1.75)	-0.015 (-1.05)
Education	-0.007 * (-2.41)	-0.002 (-0.46)	0.001 (0.48)	-0.002 (-0.67)	-0.002 (-0.76)
Length of residence (logged)	0.199 ** (4.53)	0.105 * (2.39)	0.166 ** (4.05)	0.111 ** (3.20)	0.145 ** (3.54)
Length of residence (logged and squared)	-0.050 ** (-4.85)	-0.037 ** (-3.64)	-0.052 ** (-5.52)	-0.036 ** (-4.57)	-0.044 ** (-4.65)
First year in residence	0.218 ** (4.98)	0.040 (0.95)	0.152 ** (3.67)	0.075 * (2.02)	0.121 ** (2.91)
Owner	0.324 ** (16.94)	0.379 ** (19.24)	0.327 ** (19.24)	0.291 ** (16.96)	0.330 ** (18.10)
Married	0.172 ** (7.33)	0.169 ** (6.37)	0.173 ** (8.86)	0.138 ** (6.11)	0.163 ** (7.17)
Divorced	-0.053 † (-1.94)	-0.043 † (-1.65)	-0.037 † (-1.79)	-0.057 * (-2.36)	-0.048 † (-1.94)
Widowed	0.117 ** (3.45)	0.109 ** (3.07)	0.117 ** (4.23)	0.093 ** (2.98)	0.109 ** (3.43)
Presence of children 0-18 years old	0.056 ** (2.67)	0.124 ** (6.11)	0.109 ** (5.80)	0.062 ** (3.29)	0.088 ** (4.47)

(continued)



## Neighborhood satisfaction

<i>Tract measures</i>	<b>1987</b>	<b>1991</b>	<b>1995</b>	<b>1999</b>	<b>Average</b>
Perceived crime	-0.086 ** (-2.66)	-0.058 * (-2.53)	-0.085 ** (-3.77)	-0.177 ** (-6.76)	-0.102 ** (-3.93)
Perceived physical disorder	-0.248 * (-2.18)	-0.187 (-1.64)	-0.230 * (-2.21)	-0.043 (-0.23)	-0.177 (-1.56)
Perceived social disorder	-0.162 * (-2.28)	-0.070 (-1.04)	-0.103 † (-1.76)	-0.126 (-0.85)	-0.115 (-1.48)
Proportion African-American	0.411 ** (6.18)	0.260 ** (3.57)	0.241 ** (3.60)	0.151 * (2.50)	0.266 ** (3.96)
Proportion Latino	-0.095 (-1.04)	-0.036 (-0.38)	0.051 (0.55)	-0.072 (-0.90)	-0.038 (-0.44)
Proportion Asian	0.253 (1.60)	-0.198 (-1.22)	0.043 (0.30)	-0.252 * (-2.55)	-0.039 (-0.47)
Proportion other race	0.801 (1.39)	0.449 (0.65)	0.206 (0.38)	-0.175 (-0.52)	0.320 (0.47)
Ethnic heterogeneity	-0.519 ** (-7.70)	-0.387 ** (-5.93)	-0.411 ** (-6.66)	-0.211 ** (-3.36)	-0.382 ** (-5.91)
Average income	3.464 (0.34)	1.944 (0.41)	0.964 (0.25)	1.917 (0.79)	2.072 (0.45)
Education	0.007 ** (9.10)	0.007 ** (9.92)	0.005 ** (7.73)	0.006 ** (9.96)	0.006 ** (9.18)
Average length of residence	0.010 ** (3.16)	0.004 (1.06)	0.002 (0.80)	0.004 (1.52)	0.005 (1.64)
Proportion divorced	-1.412 ** (-10.45)	-0.836 ** (-6.69)	-0.725 ** (-5.12)	-0.525 ** (-5.15)	-0.874 ** (-6.85)
Proportion with children, 0-18 years old	-0.003 ** (-3.11)	-0.002 † (-1.78)	-0.003 ** (-2.61)	-0.001 (-1.38)	-0.002 * (-2.22)
Variance explained at level one	0.318	0.320	0.325	0.249	0.303
Variance explained at level two	1.000	1.000	1.000	1.000	1.000
Households	73,421	73,214	87,831	84,651	79,779
Tracts	10,091	9,994	10,015	9,840	9,985

\*\*  $p < .01$  (two-tail test), \*  $p < .05$  (two-tail test), †  $p < .05$  (one-tail test). *T*-values in parentheses. Multilevel models. Models also include tract-level measures of persons per room, percent unemployed, percentage of tract that is water, logged bar and liquor store employees per capita, logged restaurant and recreation employees per capita, graduation rates of local schools, weighted pounds of toxic release (logged). Models also include individual- and household-level measures of female, age, age squared, persons per room, and persons per room squared.

Neighborhood satisfaction

**Table 3. Determinants of neighborhood satisfaction, including tract-level measures of neighborhood characteristics. American Housing Survey metropolitan samples, 1987, 1991, 1995, 1999. Accounting for moderating effect of tract characteristics on relationship between perceived crime and neighborhood satisfaction**

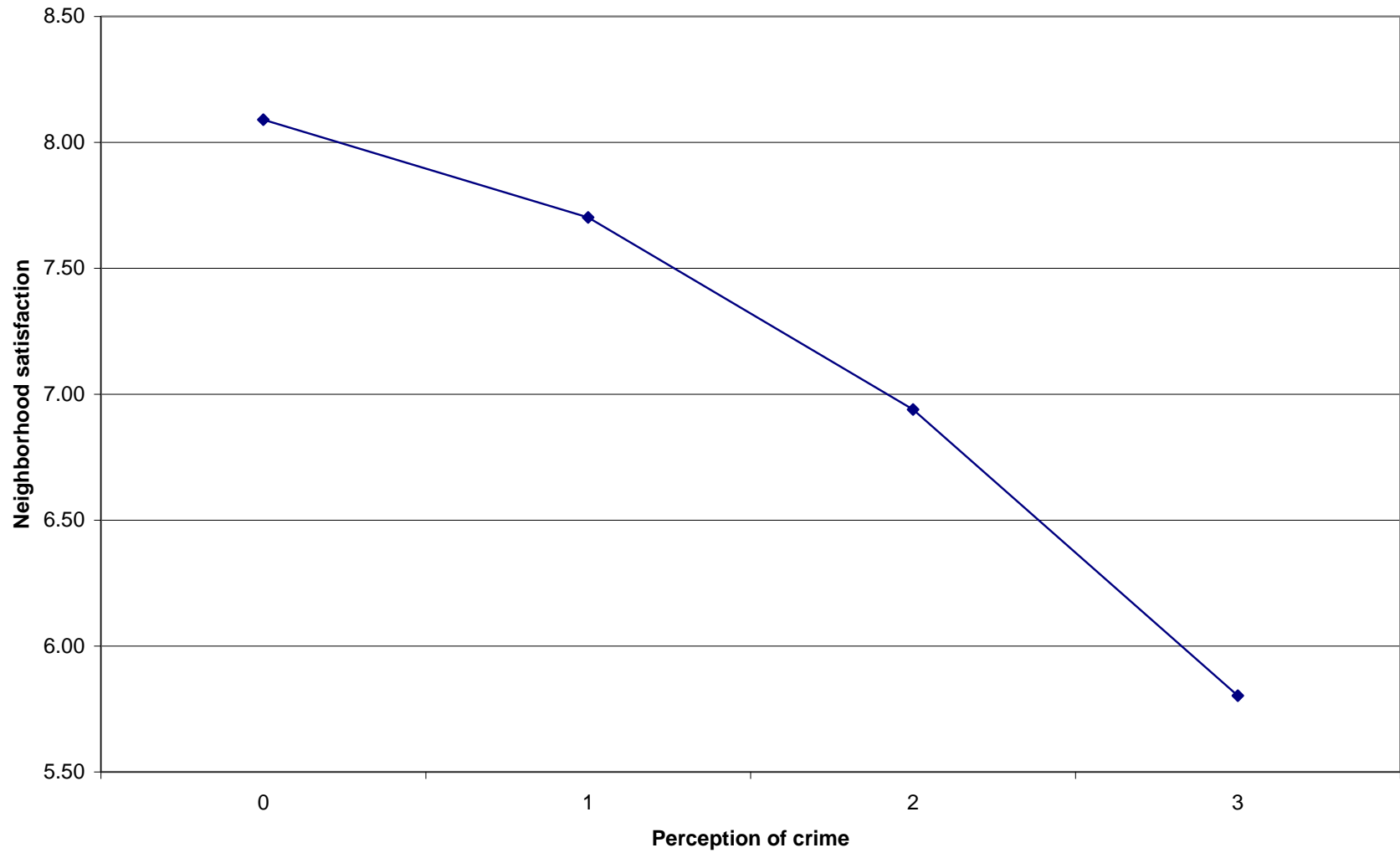
	<b>1987</b>	<b>1991</b>	<b>1995</b>	<b>1999</b>	<b>Average</b>
<b>Neighborhood measures</b>	<b>Tract</b>	<b>Tract</b>	<b>Tract</b>	<b>Tract</b>	<b>Tract</b>
Average income	2.375 (0.34)	-7.272 † (-1.68)	-0.480 (-0.15)	-1.962 (-0.82)	-1.835 (-0.58)
Percent unemployed	0.013 ** (3.10)	0.005 (1.25)	0.009 * (2.46)	0.007 * (2.52)	0.008 * (2.33)
Percent teens not in the labor force or school	-0.001 (-0.37)	0.003 * (2.09)	0.004 * (2.19)	0.002 (1.24)	0.002 (1.29)
<b>Household measures</b>					
Perceived crime	-0.426 ** (-20.31)	-0.480 ** (-27.97)	-0.430 ** (-29.76)	-0.550 ** (-33.42)	-0.472 ** (-27.87)
<b>Cross-level interactions</b>					
Perceived crime x tract unemployment rate	-0.020 ** (-7.22)	-0.016 ** (-9.87)	-0.020 ** (-9.73)	-0.016 ** (-9.51)	-0.018 ** (-9.08)
Perceived crime x tract percent teens not in labor force or school	-0.005 ** (-3.47)	-0.006 ** (-5.44)	-0.008 ** (-5.20)	-0.005 ** (-3.51)	-0.006 ** (-4.41)
Perceived crime x tract average family income	4.358 (0.50)	9.991 * (2.27)	6.549 † (1.96)	5.094 (1.47)	6.498 (1.55)
Variance explained at level one	0.319	0.320	0.325	0.249	0.303
Variance explained at level two	1.000	1.000	1.000	1.000	1.000
Households	73,421	73,214	87,831	84,651	79,779
Tracts	10,091	9,994	10,015	9,840	9,985

\*\*  $p < .01$  (two-tail test), \*  $p < .05$  (two-tail test), †  $p < .05$  (one-tail test). *T-values in parentheses. Multilevel models. Models also include all variables in models in Table 2*

Neighborhood satisfaction

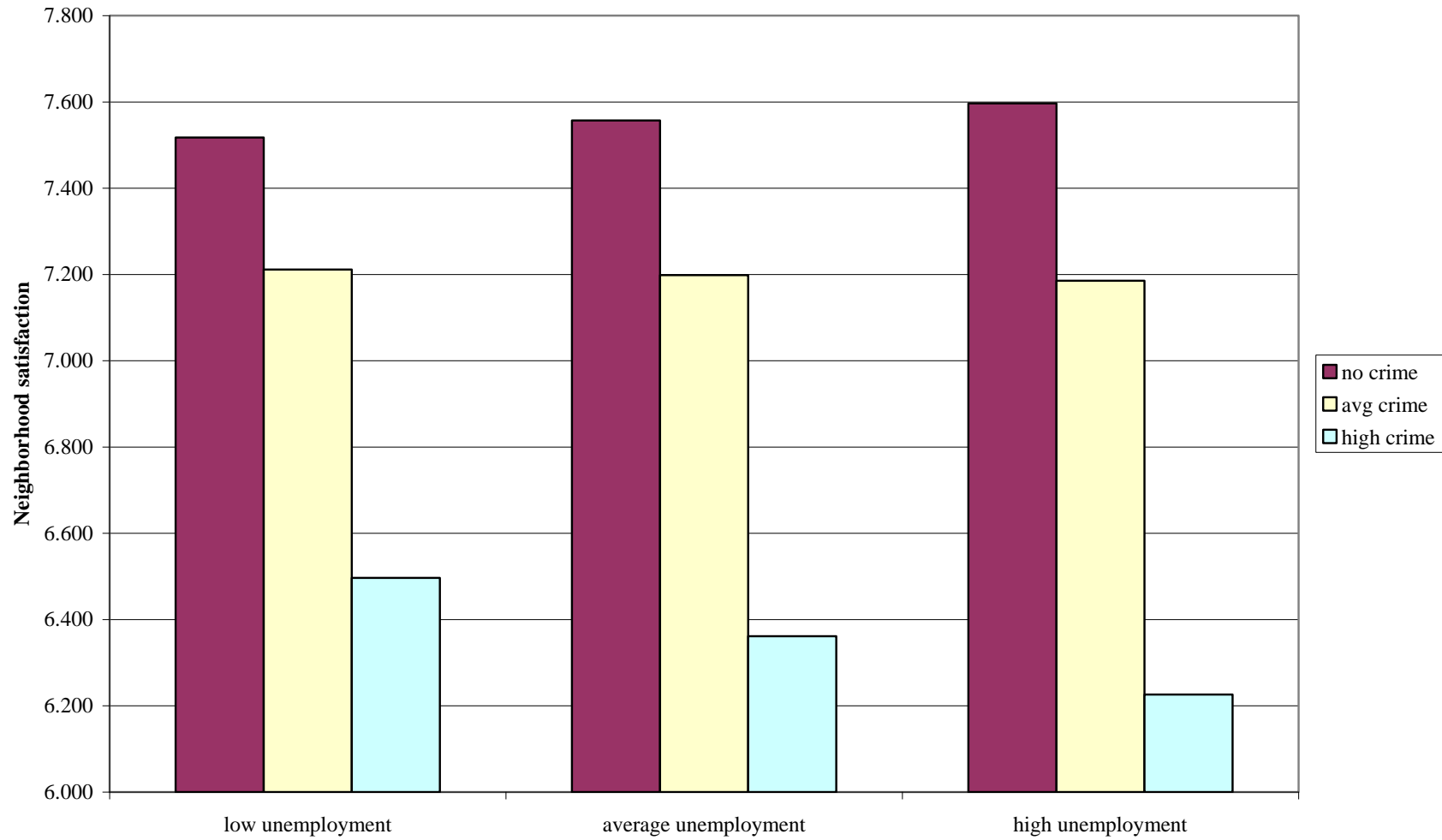
**Figures**

**Figure 1. Marginal effect of perceived crime on neighborhood satisfaction**



Neighborhood satisfaction

**Figure 2. Effect of perceived crime on neighborhood satisfaction given the context of unemployment in the tract, 1987-99 averaged**



## Appendix

**Table A1. American Housing Survey metropolitan samples, 1987, 1991, 1995, 1999**

SMSA Name	1987	1991	1995	1999
360 Anaheim	86	90	94	02
720 Baltimore	87	91		98
1280 Buffalo	84	88	94	02
1600 Chicago	87	91	95	99
1680 Cleveland	84	88	92	96
1920 Dallas	85	89	94	02
2080 Denver	86	90	95	
2800 Fort Worth	85	89	94	02
3360 Houston	87	91		98
3480 Indianapolis	84	88	92	96
4480 Los Angeles	85	89	95	99
5080 Milwaukee	84	88	94	02
5120 Minneapolis	85	89	93	98
6160 Philadelphia	85	89	95	99
6200 Phoenix	85	89	94	02
6440 Portland OR	86	90	95	02
6780 Riverside, San Bernardino	86	90	94	02
6920 Sacramento			96	02
7040 St. Louis	87	91	96	
7320 San Diego	87	91	94	02
7360 San Francisco	85	89	93	98
7600 Seattle	87	91	96	
8280 Tampa	85	89	93	98
8840 Washington DC	85	89	93	98

*Note: shows actual two-digit indicator of year surveyed.*

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### Endnotes

<sup>1</sup> Galster also proposed that not all residents may respond similarly to various neighborhood characteristics. For instance, one's position in the stage of the life course may affect how important it is to have a large yard at the residence. However, whereas his models showed some strong interaction effects when viewing satisfaction with the *dwelling* unit, there were no consistently significant effects across the two cities in his study for affecting *neighborhood* satisfaction. As a consequence, given the minimal theoretical justification for such interactions, they are not pursued in the present study.

<sup>2</sup> While Galster also suggested that some neighborhood characteristics may have a diminishing negative effect on satisfaction, the theoretical rationale for such contextual effects were less clear, and indeed he empirically detected no such effects in his study. I nonetheless tested in ancillary models and found no evidence that neighborhood average perceived crime, social disorder, and physical disorder exhibited a nonlinear relationship with neighborhood satisfaction

<sup>3</sup> The AHS also provides a national sample. However, the more saturated samples of the metropolitan surveys (given that each metropolitan area is sampling from a relatively smaller geographic area than the national sample) allows placing about 9 residents in the same tract, whereas the national sample does not have such clustering in tracts (given the large geographic area), precluding estimating multilevel effects. The metropolitan samples are therefore more appropriate for my purposes given that they allow fully estimating multilevel effects, despite the fact that they are limited to larger metropolitan areas.

<sup>4</sup> Another approach would focus on selected subdimensions of neighborhood satisfaction. However, given the limited theoretical guidance in the literature regarding which subdimensions of global neighborhood satisfaction might be differentially affected by certain neighborhood structural characteristics, scholars have generally focused on overall neighborhood satisfaction.

<sup>5</sup> Though the theoretical rationale seems less clear, a quadratic specification for years of education was also tested. As expected, no significant effect was detected. Additionally, a model was estimated that included the untransformed income measure and the squared version, but these measures were not significant over the four waves of data.

## Neighborhood satisfaction

<sup>6</sup> Note that it is somewhat unusual to log a measure and then to square the logged term. It should be noted that including the untransformed measure and its squared term in the models resulted in non-significant effects. Squaring the logged term provided a relatively flexible specification that allowed for any possible nonlinearities to be exhibited.

<sup>7</sup> Using the alternative measure of residential stability of the percentage of households living in the same home five years previously yielded similar results.

<sup>8</sup> There may be concern that simultaneously including the racial/ethnic composition measures as well as the racial/ethnic heterogeneity measure induces collinearity. Such is not the case. The racial/ethnic heterogeneity measure is correlated .51 with percent Latino, -.35 with percent white, .28 with percent Asian, .15 with percent African-American, and .06 with percent other race. There is also no evidence of multicollinearity for these race/ethnicity measures, as the highest variance inflation factor (VIF) was 1.6 for racial/ethnic heterogeneity. An alternative specification including quadratic terms for each of the racial/ethnic composition measures showed a general heterogeneity effect, and did not demonstrate any considerable differences across the heterogeneity created by specific groups. Furthermore, ancillary models showed the same effects (a negative effect for racial/ethnic heterogeneity and a positive effect for percent African-American) when estimating models excluding: 1) the racial/ethnic composition measures, or 2) the racial/ethnic heterogeneity measure.

<sup>9</sup> Given that this economic census data is reported for zip codes, I apportioned it into the constituent 1980 census tracts based on the proportion of the zip code contained within a given tract.

<sup>10</sup> This information is taken from the Local Education Agency (School District) Universe Survey Longitudinal Data File: 1986-1997 (U.S. Department of Education 2001).

<sup>11</sup> The data for the presence of toxic waste sites was obtained from the Toxic Release Inventory (TRI), which contains information on the quantity of certain chemicals released into the environment for large emitters (obtained at <http://www.rtknet.org/triabout.html>). For each site, the location was geocoded based on latitude and longitude, and then one-mile buffers were drawn around each site as an approximation of the geographic dispersion of its impact. I took into account the toxicity of the particular chemical being



## Neighborhood satisfaction

released by multiplying the pounds of the chemical released by an inhalation toxicity score constructed by the Risk Screening Environmental Indicators (RSEI) study conducted by the United States Environmental Protection Agency (United States Environmental Protection Agency 2004).

<sup>12</sup> In tests, the following individual-level variables were found to vary randomly over tracts and thus were allowed to do so in all models: race (African-American, Latino, other race), divorced, persons per room, perceived crime, perceived physical disorder, perceived social disorder.

<sup>13</sup> This is calculated by first computing the standard deviation of the reported neighborhood satisfaction of the residents within each of the tracts in the sample for a particular wave, and then computing the average value of this standard deviation over all tracts in that particular wave of data. This is appropriate since in a multilevel model the individual-level measures generally are accounting for the variance of the outcome measure *within* tracts.

<sup>14</sup> In additional models, replacing percentage divorced with the percentage single parent households showed a strong negative effect for single parent households in each of these four waves, whereas the percentage of households with children was reduced to insignificance in all four waves (results not shown). The results were unchanged in models excluding the households with children measure. Thus, the conclusions are identical regardless which model specification is employed.

<sup>15</sup> For each of these calculations, I assume that a “high” value on the variable is one standard deviation above the mean, whereas a low value is one standard deviation below the mean.

<sup>16</sup> To test whether including the indicator of homeownership in the model impacts the findings of the length of residence measure, I estimated additional models without the homeowner indicator. The size of the negative effect for length of residence was only reduced, not reversed (results not shown).

<sup>17</sup> The quadratic perceived crime measure was not included as it caused multicollinearity issues.

<sup>18</sup> In ancillary models, I also tested whether neighborhood racial/ethnic heterogeneity moderates this relationship between perceived crime and neighborhood satisfaction by creating cross-level interactions between a household’s perception of crime and tract racial/ethnic heterogeneity. No significant effects were detected (results not shown). Additionally, the models testing the interaction between undesirable

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persons in the tract and the household's perception of crime showed no significant effect on neighborhood satisfaction (results not shown).