



# The Impact of the Built Environment on Crime and Fear of Crime in Urban Neighborhoods

**John H. Schweitzer**

**June Woo Kim**

**Juliette R. Mackin**

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Since 1994, there has been a dramatic decline in urban crime in the United States. Of course, crime has not been eliminated from cities, and for residents of some urban neighborhoods, crime and the fear of crime are still facts of life. Indeed, the second of these—the fear of crime—may have more effect on some urban residents than actual crime. Because of their fear of crime, many citizens suffer psychological distress and remain prisoners in their homes. Being fearful of crime can be as problematic for an individual as being a victim of or witness to crime.

Researchers have found crime and the fear of crime to be related to demographic and other social variables. Previous research has found that the level of crime in a community is significantly related to its members' education, income, racial makeup, age, and length of residency. Crime is more prevalent in areas where residents have lower levels of education and income, are young, are members of minority groups, and are highly mobile. Skogan and Maxfield found that fear of crime is less likely among young and middle-aged persons who own their homes and have lived in their neighborhoods for a long time. Braungart et al. reported that fear of being victimized is especially prevalent among those segments of the population who are the most isolated and vulnerable, most notably the elderly. Liska et al. found that crime rates did not affect the fear of crime for nonwhites. Donnelly concluded that the elderly, women, blacks, and those persons who live alone are more afraid of crime than others.

Crime and the fear of crime may also be related to the sense of community that exists in a neighborhood. Greenburg et al. argue that emotional attachment, the affective component of social cohesion, is an important element of territorial control. Even though that research did not distinguish between perceived and actual crime, it may be inferred that because sense of community makes people feel more in control of their communities, they may, therefore, feel their neighborhoods are safer than they actually are. Merry found, in her ethnographic study of a multi-ethnic housing project, that residents who lacked any social connection to neighborhood youth were the most fearful. Fischer also found a strong relationship between the fear of crime and distrust of neighbors and other city residents. We hypothesize that a stronger sense of community might make people feel safer than expected given the actual crime rates. We also expect that certain physical characteristics of the built environment in neighborhoods, by their effect on social interactions, might be related to crime and the fear of crime.

There is, of course, a considerable body of research investigating the effect of the built environment on crime and the fear of crime. In 1972, Oscar Newman formulated a theory of defensible space as a means of reducing crime in urban areas. The theory stated that spaces that convey likelihood of observation and difficulty of escaping are less apt to attract potential criminals. Since then, his theory has been examined and supported by numerous research studies. At the neighborhood level, spatial settings are favorite subjects in defensible space theory. Fences and hedges can be regarded as physical barriers, and neighborhood watch signs symbolize people watching out for each other. Porches and mailboxes at the street can be regarded as physical configurations that can increase opportunities for surveillance.

Even though the defensible space perspective has been quite popular among researchers in the field, some scholars have criticized the theory with the accusation that it ignores the social aspect of crime prevention. They have argued that the attitudes and behaviors of the residents are related to the defensibility of the space. According to them, when there is a strong sense of community among the residents, the physical aspects of the

space may be more effective in deterring crime than when the residents do not know and trust one another.

A second area of research into the impact of the built environment on crime has been stimulated by the "broken window" thesis of James Q. Wilson and George Kelling, which states that neighborhoods characterized by signs of neglect and decay as accumulation, uncared-for building exteriors, and broken windows are evidence that residents of the area feel vulnerable and have begun to withdraw from community involvement and upkeep. These indicators may serve as a signal to would-be criminals that residents are not likely to respond to criminal activity, making the area less risky for criminal activity. The physical deterioration also results in a greater fear of crime among the residents. Increased fear of crime results in greater withdrawal and diminution of the sense of community, which then makes crime even more likely.

Finally, Jacobs focused on diverse land use, arguing that neighborhoods with different functions, that is, residential, commercial, institutional, and leisure, may be safer than single functional areas. Multi-functional areas attract a continual flow of people throughout the day and evening, ensuring informal surveillance. In contrast, criminal activity is likely to occur in places that are quiet and deserted. Although the impact of the built environment on both crime and the fear of crime has been studied, the difference between perceptions of crime and actual crime has been overlooked because most scholars have not made a distinction between the two. Vrij and Winkel accurately noted that discussions of urban crime prevention, including defensible space, multiple-functional land use for better surveillance, and signs of incivility, do not distinguish the locations where crimes actually take place (and are, therefore, really unsafe) from locations that are *perceived* as unsafe, but where not much crime has occurred. We have tried to make this distinction.

Our study examines the relationship of the built environment to crime and the fear of crime in urban neighborhoods, controlling for other relevant demographic and social variables. Our research questions are as follows: (1) What is the relationship of the built environment to crime and the fear of crime in urban neighborhoods? (2) How does the built environment compare to the social and demographic characteristics of a neighborhood in predicting crime and the fear of crime? (3) Is the fear of crime predicted by the same set of physical, social, and demographic variables that predict actual crime?

## **Research Design**

This research was carried out in 44 urban residential neighborhoods in Lansing, Michigan, the state's capital city. With a population of about 130,000, Lansing faces similar rates and types of crime as many other small or medium-sized cities in the Midwestern United States. Crime rates, along with other common urban problems, make the city a less desirable residential location than the surrounding suburban areas. In order to study crime and the fear of crime in the city, 44 face blocks were selected to be broadly representative of the residential neighborhoods of the city. Face blocks were defined as consisting of the households facing each other on both sides of the street between the adjacent cross streets. The advantage of using face blocks as the unit of analysis was articulated by Perkins et al.: (1) clear boundaries, (2) cultural homogeneity, (3) high participation, and (4) effectiveness in community action. It is not just on theoretical grounds that we chose face blocks as our unit of analysis. During 1994 and 1995, we completed several exploratory neighborhood surveys and focus group meetings in Lansing. The survey results showed large within-group variance when we

examined neighborhoods that consisted of many streets or blocks. Focus group meetings clarified the issue: the residents identified the face block they live on as their neighborhood community, and there were large differences in the perceptions of residents on different blocks.

During 1995 and 1996, face-to-face interviews were conducted with one adult resident of each household on each of the 44 blocks to measure the sense of community and the fear of crime that existed on the blocks. A total of 540 interviews were completed. The block-level response rate ranged from 29 percent to 88 percent with an overall response rate of 61 percent. As the unit of analysis in this paper is the face block, data were aggregated to the block level. For variables such as age, the mean of the respondents on each block was computed. Physical characteristics, such as the presence of front porches, were aggregated by computing the percent of houses on the block having those characteristics.

## **Variables & Measurement**

### ***Perceptions of Crime***

In previous studies on the fear of crime, researchers have typically asked just one item—about being afraid to go out at night. For this study, we added two additional questions following Will and McGrath's suggestion that a multiple indicator model of neighborhood fear is preferable. The perceived crime level of the block was measured through three survey items. The first two— "It is fairly safe to walk on this block at night" and "People on this block feel that it is a safe place to live"—were asked using a five-point response scale, from "strongly agree" to "strongly disagree." The third item—"What is your feeling about the amount of criminal activity on this block?"—had three response options that compared the block to other blocks in the neighborhood or city (less crime on this block, about the same amount of crime, or more crime on this block). The level of residents' perception of crime was computed by summing the standardized item scores for each block.

### ***Actual Crime***

Archival crime data were collected from records of the Lansing Police Department. These data included block-level information about the types and number of crimes that occurred on the selected blocks during a six-year period—from October 1989 through September 1995.

Block-level crime rates represented the number of crimes committed on a block of the sort that might trigger fear in residents. These crimes included robbery, assault, burglary, larceny, motor vehicle theft, stolen property, malicious destruction of property, alcohol violations, obstructing police, riot situation and disorder, and miscellaneous offenses. Categories of crimes that were not likely to cause fear at the block level such as treason or embezzlement were not included.

These 11 categories are quite similar to the kinds of crimes that cause fear in any community as illustrated by Garofalo and Laub:

There is no doubt that the occurrence of a particularly heinous murder or sex crime will heighten fears in a community at least temporarily. However, such crimes are relatively rare and do not account for the ongoing anxiety. It appears that the fear of direct predatory criminal attack is intimately connected with concern about a whole range of "misbehaviors." That is, the same factor seems to be at least partially responsible for, as an example, the

elderly woman's concern about having her purse snatched and her concern about having to walk past a group of noisy adolescents drinking beer on a street corner (248).

The total number of crimes in the 11 categories were combined to make a scale of actual crimes that we used throughout this paper.

### ***Characteristics of the Built Environment***

The physical characteristics of the blocks and residences were measured by direct observation. Characteristics were recorded that were thought to affect either potential social interaction between physical characteristics that were recorded for individual residences included the following:

- driveways that were shared by adjacent homes
- front porches
- mailboxes located on the street
- visible recycling bins
- open garage doors
- visible toys bikes
- windows that face the street
- drawn blinds
- fences or hedges.

The percentage of residences having each of these physical characteristics was calculated for each block. Additionally, each block was rated on whether or not the following were present:

- sidewalks
- neighborhood watch signs
- a public bus stop within two blocks
- a grocery/convenience store within two blocks
- a park/playground within two blocks.

An additional measure of the built environment was the density of the houses on the block, measured by computing the number of houses per one hundred feet. Finally, each block was recorded as being either a dead end or a through street.

### ***Sense of Community***

The items used to measure the sense of community were based on previously developed definitions and studies that measured "sense of community," "community attachment," "neighborhood attachment," "residential attachment," and "neighborhood cohesion." The theoretical basis for our sense-of-community scale most closely parallels discussions by McMillan and Chavis and Perkins et al.

The sense-of-community used in this study was composed of 16 questions relating to the degree of connection, support, and belonging that exists among the residents on a block. Residents indicated their response on a five-point scale ranging from strongly agree to

strongly disagree. The eight items measuring connection asked whether people on the block:

- know each other
- talk about community problems
- feel connected with each other
- trust each other
- like each other
- feel isolated from each other (reverse coded)
- influence each other's behavior.

The four items measuring support asked whether people:

- take care of each others' plants, pets, or children
- watch out for each other
- comfort each other in times of need
- give rides to each other if needed.

To measure their sense of belonging, respondents were asked whether people on the block:

- think of them selves as a community
- feel like a family
- share values
- have a feeling of community spirit.

Mean item scores for each block were computed, and the item scores were summed to obtain an overall "sense-of-community" score for each block.

### ***Demographic Variables***

The demographic variables were self-reported by each respondent for his or her household and included income, education, age, race, length of residency on the block, and home ownership. Individual responses for each of the demographic variables were aggregated to obtain block-level measures. Mean scores were computed for income, education, age, and length of residence. The racial diversity of each block was calculated by computing the percentage of nonwhites on each block, and home ownership was the percentage of households on the block that owned their homes.

### **Findings**

Table 1 shows the bivariate correlations of the community, demographic, and physical variables with actual crime and the fear of crime. There was a small negative association between sense of community and actual crimes, but the correlation was not statistically significant. However, sense of community showed a very strong and significant correlation with fear of crime in the negative direction ( $r = -.597$ ). Blocks with a strong sense of community had significantly less fear of crime than those without it.

**TABLE 1**  
Correlations of Community, Demographic, and Physical Variables with Actual Crime and Fear of Crime

<i>Variable Type</i>	<i>Variables</i>	<i>Actual Crime</i>	<i>Fear of Crime</i>
<i>Community</i>	<i>Sense of Community</i>	NS	—
Demographic	Mean Income Level of the Residents (e.g., 1=low ... 5=well-off)	—	—
	Percentage of Nonwhite Residents	++	NS
	Mean Age of Respondents	-	—
	Mean Years of Residency on the Block	-	NS
	Percentage of Families Owning Home	—	NS
Built Environment	Percentage of Households Sharing Driveways	+	++
	Percentage of Households Having Porches	++	NS
	Neighborhood Watch Signs/Stickers (I=Yes, O=No)	NS	+
	Grocery/Convenience Store within 2 Blocks (I=Yes, O=No)	++	+
	++ indicates a positive correlation significant at the 0.01 level		
	+ indicates a positive correlation significant at the 0.05 level		
	— indicates a negative correlation significant at the 0.01 level		
	- indicates a negative correlation significant at the 0.05 level		
	NS indicates the correlation was not significant		

Only three of the 17 physical variables measuring aspects of the built environment were significantly related to the actual crime rate. The percentage of households sharing driveways, the percentage of houses having porches, and the presence of a nearby grocery/convenience store were positively correlated with actual crimes. (See Figure 1.) Two of the same variables, percent of houses sharing driveways and the presence of a nearby convenience store, were also positively related to fear of crime. In addition, the fear of crime was greater on blocks that had the presence of neighborhood watch signs.

Demographic variables were also found to be significant indicators of crime and fear of crime. They were generally more strongly related to actual crime than to fear of crime. Income level and age of the residents both correlated negatively with crime and fear of crime. The percentage of home owners was strongly correlated with actual crime in the negative direction, but homeownership was not related to fear of crime. Percentage of nonwhites on the block showed a positive association with the actual crime rates, but it was not related to fear of crime on the block. Also, length of residency was negatively associated with the number of actual crimes but was not correlated with fear of crime.

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**FIGURE 1**  
**Houses with Porches and Shared Driveways in Lansing, Michigan**



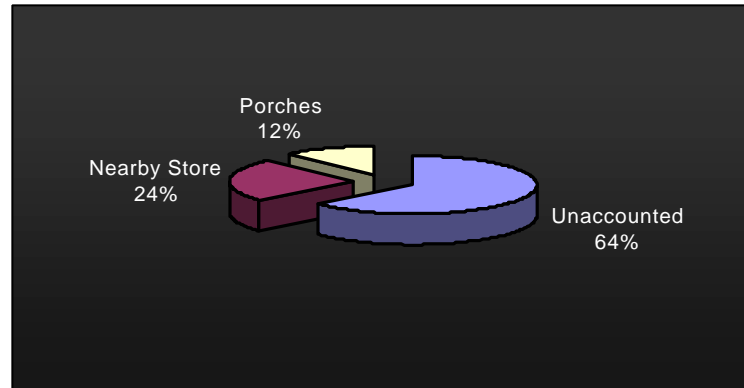
In order to further explore the relationship of the built environment to crime and fear of crime, regression analyses were performed with the purpose of predicting the dependent variable. The analyses used the sense of community, the physical characteristics, and the demographic descriptions of the block as independent variables. In this way, a model containing the best subset of variables for predicting actual crime was developed. (See Figure 2.) The existence of nearby stores is strongly related to actual crime, accounting for 24 percent of the variance in actual crime. Addition of the existence of front porches increases the variance by 12 percent, with the two variables accounting for 36 percent of the actual crime rate. It is interesting that the model for predicting actual crime only includes physical characteristics of the block. None of the demographic variables were included in the model, although length of residence, income, age, and race were each related to crime at the bivariate level.

A similar analysis was conducted to generate a model for predicting fear of crime. The variables included in the regression analysis to predict fear of crime were the same physical, demographic, and sense of community variables as used in the previous analysis with the addition of the actual crime rate as an independent variable. Results of this model, presented in Figure 3, indicate that fear of crime at the block level is best predicted by a model including sense of community and three physical characteristics of the blocks: presence of a nearby store, shared driveways, and neighborhood watch signs. Surprisingly, the actual crime rate was not included in the model predicting fear of crime, and again none of the demographic variables were included in the model.

Fear of crime is more strongly related to low sense of community than to actual crime, with a more strongly felt sense of community resulting in less fear. Characteristics of the built environment including nearby stores, shared driveways, and neighborhood watch signs also contribute to fear of crime.

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**FIGURE 2**  
**Variance in Actual Crime Accounted for by Factors**  
**in the Regression Model**

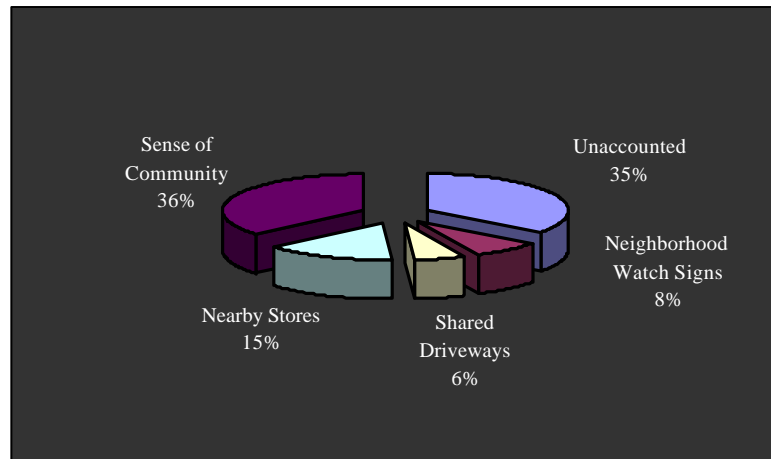


### **Discussion and Conclusion**

Fear of crime was found to be significantly related to various social, demographic, and physical variables at the bivariate level. Blocks having a high fear of crime are characterized as having shared driveways, crime watch signs, and nearby stores. People living on these blocks tend to be younger, have lower incomes, and lack a collective sense of community. The actual crime rate was related to certain elements of the built environment as well as to some demographic indicators, but not to a sense of community. Actual crime is higher on blocks where households have porches, share driveways, and are near stores. The residents on higher crime blocks are more likely to be renters, nonwhite, lower income, and new to the block.

The demographic variables that were found to be related to crime and fear of crime are generally consistent with the findings of previous studies. However, the findings relating to the built environment are somewhat surprising and warrant some discussion. The presence of a nearby convenience or grocery store was related both to actual crime and fear of crime, contrary to what would be predicted by the Jacobs diverse land-use argument. Perhaps such stores attract persons who are more likely to commit crimes, such as teenagers, gang members, or the unemployed. The presence of porches and shared driveways also gave unexpected results. It was expected that their presence would seem opportunities for surveillance and interaction among neighbors, resulting in less crime. And yet the presence of each was related to more crime, with shared driveways also resulting in greater fear of crime. Further research is needed to help explain this unexpected finding. The causal direction of the relationship between fear of crime and the presence of neighborhood watch signs is unclear. Fear of crime could lead residents to form a neighborhood watch group, or the neighborhood signs could actually make people more fearful.

**Figure 3**  
**Variance in Fear of Crime Accounted for by Factors in the Regression Model**



The use of regression analysis to develop models for predicting actual crime and fear of crime using a combination of social, demographic, and physical variables as potential predictors resulted in three interesting findings. First, it was found that fear of crime is more predictable than actual crime at the block level. The model for actual crime predicts only 36 percent of the variance, while the model for fear of crime predicts a total of 65 percent of the variance.

A second finding is that crime at the block level is best predicted by elements of the built environment. The model for actual crime includes two physical characteristics of the built environment, the presence of front porches and nearby stores. The addition of demographic and community variables does not significantly increase the prediction of actual crimes at the block level.

The third major finding, on the other hand, indicates that fear of crime is most strongly related to a lack of community. This variable alone accounts for 36 percent of the variance of fear of crime. However, the addition of three physical characteristics of the block—the presence of nearby stores, shared driveways, and neighborhood watch signs—accounts for an additional 29 percent of the variance in fear of crime. These physical characteristics and the sense of community are more important, finally, than actual crime in predicting fear of crime.

The results of this study indicate that at the level of the face block in urban neighborhoods, the physical characteristics of the block and the residences are more important than the demographic characteristics of the people living on the block in predicting levels of crime and fear of crime. Although the sense of community among residents is not significantly related to actual crime rates, it is the most important variable in predicting fear of crime. These findings suggest that successfully reducing crime will only partially reduce the fear of crime in urban neighborhoods. To reduce that fear, efforts must be made to develop a sense of community among a neighborhood's residents and to create a built environment that promotes safety and reduces crime.

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