Title

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Journal

Justice Quarterly, 33(5)

ISSN

0741-8825

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Publication Date

2016-07-28

DOI

10.1080/07418825.2014.959036

Peer reviewed

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Post-print. Published in Justice Quarterly 2016 33(5): 755-784

Do Fringe Banks Create Fringe Neighborhoods?:

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In the aftermath of one of the worst recessions in U.S. history, high unemployment and underemployment have placed millions of Americans in precarious financial positions. At the same time, more Americans than ever are opting out of traditional financial services (Damar 2009; FDIC 2012). Traditional financial services are offered by regulated financial institutions, such as banks and credit unions, and include checking and savings accounts as well as home mortgage and auto loans. According to a recent national survey conducted by the Federal Deposit Insurance Corporation (FDIC), over 8% of U.S. households are "unbanked" (i.e., they lack any kind of deposit account at an insured depository institution) and over 20% are "underbanked" (i.e., they hold a bank account but also rely on alternative financial service providers).

As these statistics suggest, individuals and households are turning elsewhere to take care of their banking needs. More and more, they are relying on "fringe lenders" to manage their finances. Fringe lenders offer different financial services provided by non-traditional financial institutions, such as check cashers, payday lenders, and pawnshops. The services they offer include small loans, check cashing, payday loans, auto title loans, pawnshop transactions, rent-to-own financing, and income tax refund anticipation loans, among others. Common to all fringe lenders, however, are the exorbitantly high interest rates and fees associated with the business transactions.

Given the concern that consumers who can least afford to pay for high-cost, high-risk financial products are the most likely to use them (Fox 2007), fringe lenders have attracted scrutiny by state regulators and legislators, and have generated substantial media attention. Well-documented are the detrimental effects of fringe banking on minorities (Stegman and Faris 2003) and the working poor (Fox 2007; Melzer 2011), as well as the growing web of fringe banking largely concentrated in low-income and disproportionately minority communities (Cover and Kleit 2011; Damar 2009; Gallmeyer and Roberts 2009; Graves 2003; Li et al. 2009; Prager 2009; Stegman 2007). Much less well-documented,

however, are the *effects* of fringe lenders on the communities where they are located. As just noted, fringe lenders are highly spatially concentrated in certain areas within cities, typically low to moderate income neighborhoods with greater concentrations of racial and ethnic minorities—areas that typically have higher crime rates. These patterns raise the question of whether fringe lenders themselves may be criminogenic; that is, whether the presence of fringe banking establishments is associated with crime rates in neighborhoods.

To date, we are aware of only one published study that has examined this issue. In a study of neighborhoods in Seattle, Washington, Kubrin et al. (2011) find that a concentration of payday lending establishments is associated with higher crime rates, controlling on a range of factors traditionally linked to neighborhood crime. Kubrin and colleagues conclude there are broader community costs—namely higher crime rates—that all residents incur in those neighborhoods where payday lenders are concentrated.

We build on this foundational study in several ways. First, we broaden the focus to incorporate several types of fringe banking establishments beyond payday lenders, considering the impact of payday lenders, check cashers, and pawnshops on neighborhood crime rates. In particular, we assess fringe lenders' collective impact as well as determine which lenders are most associated with crime. Second, we capture what is arguably a micro spatial process by measuring crime and fringe banks at the block (not census tract) level. Third, we take into account the possible spatial effects of fringe banks located on adjacent blocks and up to three blocks away. And fourth, we assess whether the socio-demographic context of the block or block group moderates the fringe bank-crime relationship. Our study examines the association between fringe lending and violent and property crime rates in neighborhoods in Los Angeles—a city that has witnessed typical growth in fringe lenders.

Fringe Lenders: Check Cashers, Payday Lenders, and Pawnshops

Check cashing outlets are the most commonly used fringe financial service (Fox 2007:143). These outlets cash government benefit checks and payroll checks, and provide immediate cash without

waiting for the check to clear. Consumers pay a percentage of the check's face value as a fee. Check cashing outlets were originally designed to serve consumers who did not have a traditional bank account however a growing number of Americans are turning to check cashers to access their funds more quickly. Today, check-cashing outlets cash more than 180 million checks worth more than $55 billion annually (Fox 2007:138). A fee of 2.52% is typically charged to cash computer-generated paychecks but fees can reach as high as 5% (Fox 2007:138).

Some consumers who find themselves short of funds turn to payday lenders to secure a loan. Payday loans are small cash advances extended to borrowers in exchange for a postdated check (or automatic withdrawal authorization) for the amount of the advance plus a lender's fee, typically around $15 per $100 borrowed. The lender holds the check or authorization for an agreed upon period of time, usually a few weeks. At that point, the borrower may pay off the loan, allow the lender to deposit the check or debit the borrower's account, or renew the loan (referred to as a "roll over"), resulting in another lender's fee (Burt et al. 2006:12). When annualized, interest rates on payday loans are well in excess of the rates for conventional use. The cost of borrowing, expressed as an annual percentage rate (APR), can range from 300 to 1,000%, according to the FDIC. To obtain a payday loan, a borrower must have a bank account, identification, and a source of income but is not required to demonstrate an ability to repay or possession of sound credit. According to the Consumer Federation of America, at the end of 2010, payday lenders extended $29.2 billion in loan volume annually, with $4.7 billion in revenue for loans made by payday lenders (Consumer Federation of America).

At pawnshops, consumers obtain a loan for a stated term and in return pledge some collateral with the pawn broker, typically tangible personal property such as jewelry, consumer electronics, tools, musical instruments, or firearms. If the customer does not repay the loan by the specified date, s/he forfeits the collateral and extinguishes the debt. The average size of a pawn loan is quite small—around $100—and its term is typically one month. Pawnbrokers do not assess the creditworthiness of their customers. Rather, they rely upon the estimated value of the collateral in making their loan decisions (Prager 2009). Fees charged for pawn loans are typically stated as a percentage of the loan amount, and

can vary from as low as 12% to as high as 300% annually, depending, to a large degree, on legal limits imposed by the state in which the loan is made. The National Pawnbrokers Association (NPA) estimates there are over 13,000 pawnshops, or one for every 23,750 residents (Cover et al. 2011), constituting a $14.5 billion dollar industry.

Fringe lenders are controversial for several reasons—they are concentrated in distressed communities and there is evidence of adverse economic consequences for those who rely on these institutions for financial services, in particular, borrowers risk becoming mired in a "debt trap" (Fox 2007:139; Stegman and Faris 2003). A counter-argument is that the industry is growing so rapidly precisely because it provides services that consumers want. Moving beyond this debate is the less-well studied question regarding the effects of fringe lenders on the communities where they are concentrated, including increased crime and victimization. Below we offer a theoretical argument for why fringe lending is likely to be associated with neighborhood crime rates.

Theoretical Perspectives on Fringe Banking and Neighborhood Crime Rates

Our theoretical approach incorporates a land use perspective grounded in environmental criminology, and which also draws from social disorganization theory. This focus directs attention to specific types of land uses and suggests that they shape the quality of life for residents and contribute to neighborhood local reputation, housing market values, perceived incivilities and disorder, informal social control, and of course, local crime and victimization rates (McCord et al. 2007; Taylor and Gottfredson 1986; Stucky and Ottensmann 2009; Wilcox et al. 2004). Of particular interest is criminogenic land use, or nonresidential land uses thought to facilitate criminal victimization. We consider fringe lenders to be one type of criminogenic land use.

We theorize two paths through which fringe lenders may impact crime: direct and indirect. Unfortunately, due to data limitations, in the current study we only measure associations in our examination of direct effects, and are even more limited in our examination of indirect effects. Still, given the importance of fully theorizing fringe lending's potential impact, we also theorize potential indirect

effects below. We return to this issue in the Discussion and Conclusion section, where we acknowledge this as a weakness of the study and encourage future researchers to empirically examine both direct and indirect paths.

Concerning the direct path, it is argued that land use activity itself generates variations in risks for criminal victimization across areas. This argument considers two types of criminogenic land uses: crime generators and crime attractors (Brantingham and Brantingham 1995; Bernasco and Block 2011). As the names suggest, these types of land use are expected to attract criminals and generate crime in an area. Crime generators are "businesses, institutions, and facilities that bring large numbers of different kinds of people into a locale. Among those brought to the locale are some potential offenders and some potential victims" (McCord et al. 1997:299). Crime generators may become crime hot spots because the presence of large groups of people creates occasions for crime (Bernasco and Block 2011:35). Examples of crime generators are shopping precincts, high schools, and subway stops.

Crime attractors, like generators, draw in users but given the purposes of these land uses and the composition of those drawn there for those purposes, a higher fraction of potential offenders or victims is likely with attractors (McCord et al. 1997). In other words, crime attractors are places that do not necessarily bring together large groups of people at the same time, but their function makes them well suited for motivated offenders to find attractive and weakly guarded victims or targets (Bernasco and Block 2011:35). Examples of crime attractors are bars, homeless shelters, halfway houses, and drug-treatment centers. In line with others (Bernasco and Block 2011; McCord et al. 1997), we suggest that pawnshops, check cashing stores, and payday lending outlets are also crime attractors.

A defining aspect of crime attractors is that they almost always involve cash economies; that is, they represent places where numerous transactions occur and where the majority of these transactions involve cash, as opposed to payments by credit card or electronic payment systems (Bernasco and Block 2011:35). In their study of robbers' motives and methods, Wright and Decker (1997:76-78) provide examples of how robbers are attracted to places where cash flows. And in a similar study using data on roughly 13,000 robberies, Bernasco, Block, and Ruiter (2013) find that robbers "attack near their own

homes, on easily accessible blocks, where legal and illegal cash economies are present…" (pg. 199). Cash economies are characteristic of fringe lending establishments; consumers routinely exit check cashing, payday lending, and pawnshop outlets with fairly large sums of cash in their pockets, drawing potential criminals who find these targets attractive to the area. Thus, victims and commercial premises that carry large amounts of cash are attractive targets, and places where such targets are abundant are likely to be attractive places for robbery. This is characteristic of fringe lending outlets, which Bernasco and Block (2009:101) describe as "good hunting grounds for robbers" (pg. 101).

Another example of how fringe lenders serve as crime attractors can be seen with respect to pawnshops, which are linked with facilitation of traffic in stolen goods (Fass and Francis 2009:158; McCord et al. 1997:299). As criminals frequently use pawn brokers to exchange stolen goods for money, pawnshops have been referred to as the modern thief's automatic cash machine (Glover and Larubbia 1996). Cromwell's (1991) interviews of apprehended burglars in Texas showed that 18% used pawnshops as a primary method of disposal. Fass and Francis' (2009) analysis of transcripts from interviews by Wright and Decker (1993) of 100 burglars in St. Louis, Missouri suggests that 42% used pawnshops for goods disposal, half of them regularly (pg. 159). They conclude, "…pawnbrokers, as omnipresent today as McDonald's restaurants, offer thieves a potentially convenient method of disposing of merchandise, especially items with no obvious markings. Another fact…is that the population of prolific pawners contains a large segment of people with robust arrest records. …this strongly intimates that the population contains a substantial corps of habitual thieves who actually do rely on pawnbrokers for their recurrent service needs." (Fass and Francis 2009:170).[1]

Note an interesting distinction is that there may be a different mix of persons who patronize pawnshops compared to those who patronize check cashers and payday lenders. Whereas the former may be more likely to be patronized by those who are at some times offenders, the latter would not disproportionately attract offenders. This may impact crime patterns around such establishments, as

[1] Research finds that criminals generally prefer to sell stolen goods locally (Sutton 2010:7; Wellsmith and Burrell 2005:743).

patrons of pawnshops may be seen as "harder" targets than those patronizing the other fringe establishments.

The above discussion becomes especially relevant when considering the economic forces behind criminal activity. For example, given the increased likelihood of debt traps associated with fringe lenders, desperate individuals may turn to crime as a way to pay off their loans. It is also reasonable to assume that the ready supply of cash and the illicit drug trade are happy partners in neighborhoods with large concentrations of fringe lenders. In particular, some increase in crime could be attributable to the manner in which fringe lenders might lubricate the cash-only drug trade. In places where cash is available on a moment's notice to anyone with a job or government check, those wanting to fuel an addiction need not wait until payday with ample loan opportunities (Kubrin et al. 2011:441). In essence, we argue criminal target choice is spatially structured and that part of that structuring involves the presence of crime attractors in an area, which could include the presence of fringe lenders. We also argue that the effect of fringe lenders is likely to be strongest for robbery, burglary, and drug-related crimes.

In line with this argument, research has found that specific land uses, and crime attractors in particular, are associated with heightened crime rates in areas, although this research examines the presence of retail establishments and commercial land uses more generally (Bernasco and Block 2009; Bernasco and Block 2011; Stucky and Ottensmann 2009; Wilcox et al. 2004). Still, as Bernasco and Block (2011) show, "…it was empirically demonstrated that blocks that host crime attractors and generators not only have elevated numbers of robbery themselves but also radiate their elevated crime risk to adjacent blocks. Thus, they do not function as lightning rods that reduce the risk of damage in their immediate environment but instead infect their immediate environment with increased risk" (pg. 51; see also Bernasco, Block and Ruiter 2013). In sum, to the extent that nonresidential land uses provide criminal opportunity, the effects should be direct such that we argue a concentration of fringe lending establishments should be associated with heightened crime rates.

The second path through which criminogenic land use may impact crime is indirect, and draws upon social disorganization theory, which suggests that crime rates are higher in socially disorganized

neighborhoods with weakened social ties and decreased informal social control. According to the theory, weakened social ties and decreased informal control are presumed to stem from the social-structural qualities of a community, such as its socioeconomic status, ethnic and racial heterogeneity, and residential mobility patterns. Yet land use can also influence community disorganization, and thus, crime. Wilcox et al. (2004:186) point out that ineffective neighbor networks are related to physical structural qualities of an area, including the use of land. And criminogenic land uses can impede the ability of residents to maintain social control by generating street traffic, which increases the number of strangers in an area, reducing residents' ability to tell locals from outsiders (Stucky and Ottensmann 2009:1226). Informal social control in the form of surveillance, communication, supervision, and intervention is thus thought to be one of the mechanisms intervening between land use and crime (Wilcox et al. 2004:188). Although their focus is not on fringe lenders per se, Wilcox et al. (2004) find that non-residential land use (e.g., stores or gas stations, bars or nightclubs, fast food restaurants, shopping centers or malls) contributes to heightened crime rates in Seattle, Washington neighborhoods.

It is also possible that criminogenic land uses can influence crime by increasing actual or perceived neighborhood deterioration, disorder, or incivilities (Stucky and Ottensmann 2009:1226). Residents make inferences and assumptions and gather information from others about the places through which they move and nearby locations; from these, they generate more general ideas about crime and disorder locally (McCord et al. 2007:298). The closer someone lives to criminogenic land uses, the more likely his or her awareness space would be affected by those land uses and the activities and events surrounding them and, thus, the more crime and disorder he or she might perceive and report. Research finds there is more extensive physical deterioration, in the form of litter, vandalism, dilapidated properties, and abandoned properties, on street blocks with more nonresidential land use (Taylor et al. 1995). Indeed, in their study on the link between commercial land use and perceived incivilities and perceived crime, McCord et al. (2007) found that, controlling for neighborhood context, residents living closer to more crime attractors than their neighbors perceived more disorder and crime in their neighborhoods. This effect remained largely unchanged after controlling for residents' characteristics,

stability, racial composition, and local crime rates. As this discussion hints, the effects of fringe lenders on crime rates may be at least partially indirect. We theorize these indirect effects would be strongest for property crime.[2]

A final theoretical point is warranted. As Stucky and Ottensmann (2009:1224) argue, studies generally assume that land use impacts crime irrespective of social context. As such, the effect of criminogenic land use is expected to be the same in all types of communities. We agree with Stucky and Ottensmann (2009) that such an assumption seems unwarranted, because the potential for land uses to create opportunities for crime likely depends on, among other factors, the willingness and/or capacity of occupants in an area to exercise informal social control, something also likely to vary based on neighborhood context. We theorize, therefore, that any impact of fringe banks on crime should differ depending on the neighborhood context. In particular, we suggest four characteristics that are likely to condition the fringe lending-crime relationship based on the arguments discussed above: concentrated disadvantage, residential (in)stability, racial heterogeneity, and population density.

One expectation is that any positive effect of fringe lending on crime is likely to be amplified in more socially disorganized neighborhoods given such areas have relatively fewer social ties and less informal social control, and relatively higher levels of disorder and incivilities. We thus theorize a stronger relationship between fringe lenders and crime in neighborhoods with more concentrated disadvantage, residential instability, and racial heterogeneity—all markers of disorganization. In line with this expectation, while only a handful of studies have examined whether the effects of land uses on crime may be conditioned by socioeconomic characteristics of the area, these studies report that, in varying ways, disadvantaged context magnifies the criminogenic impact (cf Wilcox et al. 2004). For example, in their study of face blocks in a mid-sized southeastern U.S. city, Smith, Frazee, and Davison (2000) find that the influence of some commercial land uses (e.g., hotels, motels, bars, restaurants, gas stations) on

[2] These arguments help explain why the impact of fringe lenders on crime is likely to be qualitatively different compared to, say, conventional banks or ATMS, both of which provide immediate cash to customers, thus creating criminal opportunity. Although like fringe lenders conventional banks and ATMs perform similar functions, unlike fringe lenders, banks and ATMS in a community are not associated with reduced informal social control, deterioration, disorder, and incivilities.

robbery is greater as the number of single-parent households in a face-block increased. And in their analysis of 1,000 X 1,000-feet square grid cells in Indianapolis, Indiana, Stucky and Ottensmann (2009) not only show that certain land uses are associated with crime but that the effect of some are dependent on the level of disadvantage (and vice versa). Thus, whereas high-density residential units enhanced the impact of disadvantage on violent crime, commerce, industry, and busy roads dampened the effect of disadvantage.

Our expectations regarding population density are more mixed. On the one hand, our discussion of crime generators and attractors suggests that the effect of fringe lenders on crime should be amplified in highly populated or dense areas. Stated alternatively, if the function of fringe lenders makes them well-suited for motivated offenders to find attractive targets, then the fringe lending-crime relationship should be stronger in high population neighborhoods where there are presumably more attractive targets. On the other hand, if the presence of more people in highly populated or dense areas also serves to increase the number of capable guardians in the area, as routine activities theory would suggest, the effect of fringe lenders on crime could be alleviated—rather than amplified—in highly populated areas. This is due to the associated social control benefits through encouraging a steady stream of "eyes on the street" (Browning et al. 2010:5).

In conclusion, we theorize that fringe lending establishments will be associated with heightened crime rates both because the presence of these establishments increases opportunities for crime and because they contribute to social disorganization in areas where they are located. We expect the effects to be conditioned by the socioeconomic characteristics of the area.[3]

Data and Methods

To investigate the fringe banking-crime relationship across communities, we compiled data on fringe lenders (check cashers, payday lenders, and pawnshops), crime rates, and socio-economic and demographic characteristics of neighborhoods for the city of Los Angeles. We examine Los Angeles

[3] We are careful to avoid claims of causality in the current study given our data are not longitudinal.

because it is a representative U.S. city (with a population of more than 3.7 million, of which non-whites, including Latinos, account for roughly 50%) and is located in a state where fringe banking has grown substantially since the early 1990s.

We use census blocks as the unit of analysis to capture what we believe is a process that likely occurs at a small spatial scale. In geographic criminology, it is increasingly recognized that the appropriate spatial unit of analysis must be carefully chosen, matching the theoretical perspective that guides the analysis (Bernasco and Block 2011:36; Hipp 2007). Given that crime attractors and generators are, without exception, smaller than a neighborhood (Bernasco and Block 2011:36), we argue it is necessary to utilize such small-scale units in the analyses.

Whereas an advantage of small units is that they better allow researchers to unpack spatial processes, a well-known consequence is that small units are more strongly influenced by their spatial environment than are larger ones (Bernasco and Block 2011:35). We therefore include in our analyses measures constructed at three geographic units of analysis: blocks; block groups (neighborhoods); and the five mile area surrounding the block group with an inverse distance decay function. This strategy allows us to account for socio-demographic processes at various scales that might impact the fringe banking-crime relationship.

Variables

Our outcome measures are counts of the number of events of six Part 1 crime types in the block: homicide, robbery, aggravated assault, burglary, larceny, and motor vehicle theft.[4] The crime data were obtained from the Los Angeles Police Department and the incidents were geocoded to the block in which they occurred. Our key independent variable is the number of fringe lenders in each block. To identify fringe lenders, we used an on-line version of the Yellow Pages (see McCord et al. 2007:303). After the initial "scrape" of fringe outlets in Los Angeles and after eliminating duplicates (based on the same address), we verified the accuracy of the data using Google Street View, which provides up-to-date photos of the exact location (and surrounding areas) for each fringe lender. If the Google Street View

[4] We don't analyze rape given well-known reporting issues with this crime type (e.g., Jensen and Karpos 1993).

image did not match what was listed in the Yellow Pages (e.g., the photo identified a restaurant rather than fringe lender), we excluded the case from the sample (n = 33). In cases where it was unclear (e.g., the image of the establishment on Google was blocked by a tree or other obstruction, n = 34), we called the phone number provided in the Yellow Pages to verify the establishment was indeed a fringe lender. Our final sample included 340 lenders located on blocks with nonzero population, which were aggregated to blocks and block groups to capture the number of lenders in each area. We also computed the number of lenders within a series of spatial buffers: 0 to 399 feet; 400 to 799 feet; and 800 to 1200 feet (approximately ¼ mile). Finally, we constructed measures which disaggregate lenders into the three types: payday lenders, check cashers, and pawn shops.

To minimize the possibility of obtaining spurious effects, we included control variables at three levels of analysis: blocks, block groups, and a 5-mile buffer around the block group. Block data were obtained from the U.S. Census FTP website (http://www2.census.gov/census_2010/04Summary_File_1/); block group data from the American Community Survey (2007-11 5-year summary) were obtained from the U.S. Census FTP website (http://www2.census.gov/acs2011_5yr/summaryfile/20072011_ACSSF_By_State_All_Tables/). We constructed a measure of *concentrated disadvantage*, which is a factor score computed after a factor analysis of four measures: 1) % at or below 125% of the poverty level; 2) % single-parent households; 3) average household income; and 4) % with at least a bachelor's degree.[5] The last two measures had reversed loadings in the factor score.[6] We accounted for the presence of racial/ethnic minorities in the area with two measures, the *% African American* and the *% Latino*. To capture the possible effect of racial mixing we constructed a measure of *racial/ethnic heterogeneity*—the Herfindahl Index based on

[5] We also constructed an index of concentrated disadvantage using other variables sometimes employed in such indices (e.g., percent divorced, per capita income, the poverty rate, the unemployment rate). The correlations among the various factor scores ranged from .94 to .99. Thus, the choice of variables is not crucial.

[6] Given that only the percent single-parent households variable is available for blocks, we used an aerial interpolation technique utilizing ancillary data based on the technique of Flowerdew, Green, and Kehris (1991). The other variables used in the imputation model were: percent owners, racial composition, percent divorced households, percent households with children, percent vacant units, population density, and age structure (percent aged: 0-4, 5-14, 20-24, 25-29, 30-44, 45-64, 65 and up).

five racial/ethnic groupings (white, African-American, Latino, Asian, and other races) (Gibbs and Martin 1962), which has been used in prior neighborhoods and crime research (Hipp 2007).

We constructed a measure of *residential stability* by computing the mean of the standardized values of % homeowners and average length of residence. We used the % homeowners as a proxy for residential stability in blocks given that the length of residence measure is not available at the block level. Given their possible criminogenic effect, we computed the *% vacant units*. Given that the presence of residents can affect crime by increasing the number of potential offenders, targets, and even guardians, we also included a measure of *logged population* at the block level, as well as the *population density* of the larger units. (As blocks are typically similarly sized, calculating density for these small units is not necessary). We account for the age/crime curve by including a measure of the *% residents aged 16 to 29*.

We also accounted for other land use in the area to minimize the possibility that any detected fringe banking effects are not reducible to the physical characteristics of the area. Moreover, because zoning and other restrictions limit where fringe lenders can locate, it is important to account for the more general presence of retail establishments in the area. In particular, we constructed measures of the *% of land use* in the following categories: 1) *industrial* (both light and heavy industry); 2) *office space* (both low rise and high rise buildings); 3) *residential* (e.g., single family, multi-family); 4) *retail* (e.g., shopping centers, strip malls, restaurants, hair stylists, conventional banks); and 5) *other* (the reference category, including for example, parks, parking lots, open space, roads, etc.).

We also calculated the socio-demographic measures in the 5-mile area around the block group.[7] We accomplished this by constructing a spatial weights matrix with an inverse distance decay capped at five miles (beyond this point block groups are assumed to have no additional effect on the focal block),

[7] We also constructed measures based on smaller (2.5 mile) buffers, and the results for our fringe bank measures were unchanged. The use of larger buffers makes little difference given the inverse distance decay function used to weight the data.

and multiplied this matrix by the values in the block groups for our variables of interest.[8] Summary statistics for the variables used in the analyses are displayed in Table 1.

<<<Table 1 about here>>>

We assessed and found no evidence that multicollinearity adversely impacted our estimates. As Goldberger (1991) observed, the true concern of multicollinearity is the imprecision of estimates as captured in the standard errors, and O'Brien (2007) noted that VIF's are only one of four elements when computing standard errors (the others are the sample size, the variance of the variable of interest, and the variance of the residuals, i.e., the r-square). Thus, although the largest VIF observed was 24.7 for the spatial lag of concentrated disadvantage, using O'Brien's techniques and adjusting for the model R-square (.2 in an ancillary OLS model) and sample size (22,000), the standard error for this coefficient was approximately the same as one from a simple regression with a *single* predictor variable (thus no collinearity, by definition), a sample size of 925, and an R-square of .2 (a model that would not normally be considered problematic). Thus, our very large sample size mitigates what might otherwise be considered large VIF values; indeed, this highlights why Goldberger (1991) somewhat tongue in cheek proposed renaming multicollinearity as an problem of *micronumerosity* given that the imprecision of estimates can be overcome by a large sample size. Using O'Brien's techniques make this clear.

Methods

Given the nature of our outcome variables (i.e., crime counts) and the exhibited overdispersion in these counts, we estimated negative binomial regression models. In all models we included the control variables described earlier. The first set of models for the six crime types includes the measures of the number of fringe banks in the block and the block group. The second set of models adds the three small-scale spatial measures of nearby fringe banks (within 0-399 feet, 400-799 feet, and 800-1200 feet). The third, fourth, and fifth sets of models substitute the measures of the three types of fringe banks for the

[8] By using these buffers we avoid the boundary problem. These buffers include information on all blocks within 5 miles given that we have Census data for all blocks (both inside and outside the city). If we had instead constructed spatial buffers of crime we would encounter the boundary problem given that we do not have crime data outside the city boundaries.

total fringe bank measures included in the second set of models. The final set of models includes interactions between the presence of fringe banks on the block or block group and the neighborhood measures of residential stability, concentrated disadvantage, racial/ethnic composition, and population density.[9]

Before discussing the results, two analytical issues merit attention. First, we assessed whether there was any additional spatial autocorrelation in the residuals from our models after including our spatial measures and found no such evidence. Note that whereas the Moran's I values for the crime types ranged from .02 for homicide and larceny to .19 for aggravated assault, suggesting some spatial clustering of crime events, the Moran's I values for the *residuals* of our models were all less than .04, implying that our models effectively account for the spatial clustering in the data. That is, the residuals assess how much spatial clustering remains after accounting for our explicit spatial modeling approach.

A second issue relates to identifying the causal direction of the fringe banking-crime relationship. One concern is that the level of crime in an area might impact the location of fringe lenders, which would bias our results. Although this is possible, we argue it is less of a concern for our analyses for two reasons. First, given that our analysis focuses on the spatially precise location of fringe banks in blocks, it is implausible to presume that fringe banks would choose to locate on the precise block in a larger area with the highest crime rate. Given that fringe lenders do not want their customers to be victimized, they would arguably avoid higher crime blocks to the greatest extent possible. Moreover, whereas rents are lower in higher crime areas, we are aware of no evidence that rental rates fluctuate considerably from block to block based on the local crime level. And, whereas fringe bankers arguably prefer the lowest rents (indeed, all businesses do), it is nonetheless the case for them (as for all businesses) that there is a tradeoff between lower rents and locating in a high crime area. For these reasons, we argue endogeneity is unlikely in our study (see also Stucky and Ottensmann 2009:1229).

[9] We tested ancillary models in which we also included interactions between fringe banks and block or block group concentrated disadvantage. These interactions were never statistically significant, suggesting that the economic context does not constitute an important moderating effect of these relationships.

Second, the previous fringe lending-neighborhood crime study by Kubrin et al. (2011), which used larger units of analysis (tracts), conducted an instrumental variables analysis to test for reciprocal effects and found that the results for violent crime were unchanged compared to a model ignoring endogeneity, and found that the property crime results were *even stronger* for payday lenders when accounting for endogeneity. Due to the spatial complexity of the models in our analyses (e.g., fringe banks in blocks, nearby blocks, and block groups), it is nearly impossible to identify instrumental variables for each of the fringe bank measures in the models. We, therefore, cannot fully estimate instrumental variable models. However, as an approximate approach to assess the robustness of our models, we followed the strategy of Kubrin et al. (2011) and used conventional banks as an instrumental variable; in our case we used the block-level measure of conventional banks to instrument block-level fringe banks. The results for these instrumental variable models remained robust.[10]

Results

We begin our discussion with the models that include counts of the number of fringe lenders in the block and the broader block group, along with our set of control variables. As seen in Table 2, and consistent with our predictions, the presence of more fringe banks on the block is positively associated with all crime types. This relationship exhibits statistical significance for all crime types excluding homicide (for which we have limited statistical power to detect differences for this rare crime). Our models show that each additional fringe bank on a block is associated with 50% more robberies, even after controlling for other types of land use in the area as well as for other socio-demographic characteristics in the block, block group, and surrounding 5 mile area (exp(.403)=1.496). Our results also suggest that each additional fringe bank is associated with 22% more aggravated assaults, 14% more burglaries, 27% more larcenies, and 9% more motor vehicle thefts.

<<<Table 2 about here>>>

[10] The coefficients for the instrumented block-level fringe banks were: 8.46 (t-value = 6.76) for robbery; 4.44 (t-value = 3.28) for aggravated assault; 6.18 (t-value =8.23) for burglary; 9.71 (t-value = 14.67) for larceny; 6.89 (t-value = 9.58) for motor vehicle theft; 6.78 (t-value = 1.37) for homicide.

It is notable that in these models there is minimal additional effect from the number of fringe banks in the entire block group. Each additional fringe bank in the block group is associated with only 4.5% more robberies on a focal block—a finding that underscores the micro-spatial effect of fringe lenders. As further evidence of this, we estimated ancillary models in which we aggregated crime to block groups and estimated more common "neighborhood level" models (only including the block group and spatially lagged measures). These results suggest that more fringe banks in a block group are consistently associated with higher crime rates in block groups. Our more spatially precise models, however, demonstrate that this is in fact a micro-spatial process.

We next assessed whether the spatial effect of fringe banks extends beyond the local block to adjacent blocks. For these models we included measures of fringe banks within 400 feet of the focal block (generally within one block), within 401-800 feet, and within 801-1200 feet (about ¼ mile). The results are displayed in Table 3. There are several noteworthy results. First, the effect of fringe banks on crime in the focal block generally remains robust in these models. Second, the effect of fringe banks in the block group is not statistically significant in any of these models when we account for the presence of fringe banks in nearby blocks. In fact, we now see that whereas blocks with a fringe bank are associated with more larcenies, blocks that *do not* have a fringe bank but are within a block group which *does have* a fringe bank are associated with somewhat fewer larcenies. This may indicate a displacement effect in which such crimes are being pulled towards blocks with fringe banks.

<<<Table 3 about here>>>

We find even stronger spatial effects for robberies and aggravated assaults. A fringe bank on a neighboring block increases the level of aggravated assault in the focal block by 14%. The spatial effect extends two blocks for robberies: a lender within 400 feet increases the robbery rate by 19%, whereas a lender from 400 to 800 feet increases it by yet another 7%. Note that this is in addition to the effect of a

fringe bank in the focal block, which increases the robbery rate by 56%. Thus, we see that fringe banks are associated with crime not only on their local block, but also in adjacent blocks as well.[11]

Types of Fringe Lenders

We next examined whether the fringe lender-crime association differs across the three types of lenders in our study. Turning first to the results for pawnshops (see 2nd panel of Table 3) we find that this type of fringe lender has the weakest effect on crime. The presence of a pawnshop on a block is associated with 23% more larcenies but is not significantly related to the other crime types. Moreover, there is no evidence that more pawnshops in the broader block group are associated with more crime of any type.

We do, however, find a strong association between the presence of check cashers and crime rates (see 3rd Panel of Table 3). A check casher on a block is associated with 70% more robberies, roughly 40% more aggravated assaults and larcenies, and about 15% more burglaries and motor vehicle thefts. There are also micro-spatial effects, especially for robbery and larceny. For both these crime types, there is a distinct spatial decay process; a check casher within 400 feet increases the robbery rate by 16%, one from 400 to 799 feet increases it by 5%, and one from 800-1200 feet increases it by 3%. For larcenies, these values are 8%, 4%, and 2%, respectively. There is also evidence that check cashers on the adjacent block are associated with 11% more aggravated assaults. Note that whereas we observe strong micro-spatial effects, there is not an additional effect of check cashers in the *block group* on block crime rates. Thus, check cashers are associated not just with crime in the block in which they are located, but also with crime in nearby blocks.

Turning to the 4th Panel of Table 3, we find a strong association between the presence of payday lenders and crime rates, consistent with the results reported in Kubrin et al. (2011). A payday lender on a

[11] Because of the completeness of our model, any one individual variable's share of the variance explained will typically not be very large. Furthermore, pseudo r-squares are not an exact analogue to variance explained. Nonetheless, we assessed that, on average, the inclusion of the fringe bank measure increased the pseudo r-square 0.24%. With the exception of the population measures which had a larger impact on the pseudo r-square, the inclusion of the other variables in the model one at a time only increased the pseudo r-square between 0.12% and 3.06%.

block is associated with 94% more robberies, 53% more aggravated assaults, 41% more larcenies, and 22% more burglaries. Similar to the results for the other fringe lenders, there is no evidence that the presence of payday lenders in the block group is associated with crime in a focal block. There is, however, evidence that payday lenders impact nearby blocks: a payday lender within 400 feet is associated with about 40% more robberies and aggravated assaults, and over 20% more motor vehicle thefts.

Moderating Effect of Social Context on Fringe Bank and Crime Relationship

In our final set of analyses, we examined whether the fringe bank-crime association differs depending on the neighborhood context. We assessed this by including interactions between fringe banks and the block and block group measures of concentrated disadvantage, residential stability, racial composition, and population density. We only present the significant interactions in the final models, which are displayed in Table 4. It is notable that both the racial composition and the economic context of the block did not moderate the fringe lending-crime relationship. Instead, as indicated in Table 4, we found significant interactions for residential stability (measured at the block level as percentage owners), and population density (measured at both the block and the block group level). The population density effects were the most consistently present, and of the greatest magnitude, suggesting that the presence of residents nearby is a salient context for moderating the fringe lending-crime relationship. That is, the positive association of fringe banks with crime rates is strongest in areas with low population density, but weakest in areas with high population density, indicating that the presence of nearby persons may reduce the impact of fringe banks.

<<<Table 4 about here>>>

We graphed these effects to visually display their magnitude. For all graphs we plotted the predicted crime rate from the model for a block with or without a fringe bank from one standard deviation below the mean to one standard deviation above the mean for the moderating variable (and at the mean on all other variables in the model). Figure 1 plots the relationship between the percentage of homeowners in the block and the robbery rate for blocks both with and without a fringe bank. This figure reveals that

first, blocks with a fringe bank have higher robbery rates regardless of the percentage homeowners present (given that the lines do not cross), and second, although there is a negative association between the percent owners on the block and the robbery rate when there is *not* a fringe bank (the bottom line), this is actually a positive association for blocks *with* a fringe bank (the top line). Thus, the usual protective effect of homeowners on crime rates is not evident for blocks with a fringe lender.

<<<Figure 1 about here>>>

We see in Figure 2 that denser population in the surrounding block group *ameliorates*, to some degree, the impact of fringe banks on robbery. Whereas there is little relationship between block-group population density and the block-level robbery rate in blocks without a fringe bank (the bottom line in the Figure), the fringe lender-robbery association is noticeably reduced as the population density of the block group increases (the top line in the Figure). The gap in the robbery rate between blocks with and without fringe lenders is more than cut in half when the block is in a high population density block group rather than a low one.

<<<Figure 2 about here>>>

The effect of block group population density is similar for aggravated assaults. Although not shown, the plotted figure is very similar to Figure 2. Thus, whereas increasing population density has no effect on the aggravated assault rate for a block without a fringe bank, the deleterious impact of a fringe bank on the aggravated assault rate is greatly diminished as block group population density increases.

Although not presented here, we see a similar interaction patterns for the property crimes of larceny and motor vehicle theft; in particular, the effect of fringe banks for each crime type is increased as the percentage owners on the focal block increases, but it is diminished as the population density of the block group increases. The one additional pattern we find with the property crime interactions is that population density in the focal block also diminishes the fringe lending-crime association, though this is a less dramatic relationship than the others graphed. When plotted, the percentage gap in the motor vehicle theft rate between a block with and without a fringe bank narrows as the block population increases.

Discussion and Conclusions

More Americans than ever are leaving conventional banking behind. From 2009-2011, 821,000 households opted out; during this same time period, 17 million adults were without a checking or savings account and 51 million adults had a bank account but continued to patronize payday lenders, check cashers, pawnshops and other fringe outlets (Douglas 2012). This raises the question of whether this has consequences for neighborhood crime, and the results of our study suggest this is a legitimate concern. One key takeaway point of the study is that the presence of fringe banks on a block is consistently related to higher levels of crime, even after controlling for concentrated disadvantage, different types of land use, and other correlates. Consistent with expectations, this relationship was strongest for the crime of robbery, which implies that the customers of fringe banks may be at higher risk of robbery victimization. Although we cannot say for sure who is being robbed, it is nonetheless the case that such establishments often appear to be located near a robbery hot spot. There are also elevated levels of other types of crimes near fringe banks, such as larcenies and aggravated assaults, indicating a relatively high crime environment.

A second important takeaway point is the spatial impact of fringe lenders. On the one hand, we found no evidence that fringe banks within a block group are associated with crime, after taking into account their more micro spatial presence. On the other hand, not only did the presence of a fringe bank impact crime on the local block, but it also often impacted crime on adjacent blocks. This effect was most pronounced for robberies, which conforms to our expectations. Elevated robbery levels are consistent with the notion that customers of fringe banks are carrying large sums of cash and therefore are suitable targets both on the block on which the fringe bank is located, as well as on nearby blocks where customers may pass through. There was also some evidence of elevated aggravated assault rates on blocks adjacent to those with fringe banks.

A third key takeaway point is that the relationship with crime varies by type of fringe lender. We found that pawnshops are not associated with crime. In contrast, payday lenders and check cashers appear to be more strongly associated with crime rates. We suggest this difference may be due to the mix of

persons patronizing pawnshops compared to payday lenders and check cashers, if offenders indeed more frequently utilize pawnshops. This is clearly speculative, but suggests an avenue for future research. The presence of a check casher or a payday lender is associated with elevated levels of robbery and larceny on the focal block, as well as in blocks up to 800 feet away. There are also more aggravated assaults on the block where a check casher or payday lender is located, again suggesting a crime hot spot. These results demonstrate the importance of measuring these processes at a precise spatial scale.

Our fourth important takeaway point is that the fringe lender-crime association is moderated by the local context. Most notably, the presence of more residents nearby—as measured by population density—moderates this relationship. As a consequence, the positive relationship between fringe lenders and crime is somewhat ameliorated if the lender is located in a neighborhood with high population density, perhaps because there are more "eyes and ears" on the street. Likewise, the strongest increase in crime occurs when a fringe bank is located in a low population density neighborhood. These contextual effects highlight that whereas the direct effect of fringe banks is a spatially micro one, the larger context of the neighborhood nonetheless has important consequences. In sum, our collective findings suggest that communities with fringe banks are at an "ecological disadvantage" (St. Jean 2007) relative to their counterparts. This disadvantage equates with significantly higher crime rates in communities where payday lenders, check cashers, and pawnshops are located.

Our findings should be interpreted in the context of the study's weaknesses. We examine neighborhoods in only one city, Los Angeles. Although it is unlikely that the fringe lending establishments examined here would have a different relationship with crime in other cities (indeed our findings are consistent with those reported in Kubrin et al. 2011, the only other published study on fringe lending and neighborhood crime rates of which we are aware), such comparisons with other cities in future research would help clarify the generality of our findings.

Perhaps more importantly, however, our cross-sectional approach does not allow us to establish causal ordering. Although our theoretical framework emphasizes the criminogenic impact of fringe lenders, our cross-sectional analysis constrained us to examining the association between fringe lenders

and crime. While one strategy with cross-sectional data is to use instrumental variables to tease apart such effects, it is exceedingly difficult to detect instruments for models with measures at so many spatial aggregations. Given the difficulty of locating instruments for our spatially-complex model, we suggest caution in interpreting causal effects in the absence of longitudinal data. We did, however, estimate ancillary models including an instrument for just the block-level fringe banks, and the results were robust; but these are only suggestive given the need to instrument the other spatial fringe bank measures as well. Although we have suggested it is unlikely that fringe lenders would choose to locate on the specific high crime block in a neighborhood (which is what would be necessary to explain our findings), it is nonetheless an empirical question that should be addressed in the future with longitudinal data.

Finally, as is the case with most research on land use and crime more generally, we were unable to directly measure the mechanisms hypothesized to be associated with heightened crime rates in areas with concentrations of fringe lenders: opportunity, informal social control, or incivilities. As such, while our results indicate that the presence of fringe lenders is associated with neighborhood crime rates, we cannot ascertain the mechanisms that account for this association. Fully explicating the role of fringe banking in generating crime awaits a study that can incorporate measurements of these key intervening variables (see also Stucky and Ottensmann 2009:1252).

We offer several additional important avenues for future research beyond empirically examining both the direct and indirect mechanisms behind the fringe lending-crime association. Certainly expanding the investigation beyond single cities is an important next step as is examining the relationship between fringe lenders and neighborhood crime rates in a longitudinal framework. Concerning the latter, this is critical both for fully determining causality as well as recognizing the extreme growth in fringe lending that has occurred over the decades. For example, while check cashing outlets first came into existence in the 1930s in Chicago and New York City, and the industry did not expand beyond the five or six largest urban areas of the U.S. until the 1990s, the number of check-cashing outlets grew quite rapidly from the early 1980s through the mid-1990s (Prager 2009). Likewise, while payday lenders were virtually nonexistent in 1990, by 2006 more than 15,000 outlets extended $25 billion in credit to consumers

(Lawrence and Elliehausen 2008:299) and by 2009, more than 22,000 locations originated more than $27 billion in loan volume annually (Parrish and King 2009:11). Given these statistics, it is important to determine how changes in the industry may be associated with changes in crime rates over time—although the nature of this relationship is not so straightforward. Given that fringe banking rapidly increased over a period of time when crime, particularly violent crime, rapidly decreased, an interesting puzzle for researchers involves determining how the two trends co-vary in light of other changes that occurred during the crime drop. Related to this, also of interest is the linkage between fringe lending and broader banking-related dynamics like foreclosures, conventional home mortgage lending, and subprime lending, which have increasingly become the focus of researchers, and their impacts on crime.

One last future direction involves investigating the impact of the most recent trend in fringe lending—the migration from storefront fringe banking stores to online lenders. This migration has occurred most extensively with payday lenders who, in an attempt to avoid unfavorable state regulation, are turning to Internet-based payday loans. Online payday lenders incorporate in states with less restrictive payday lending laws, operate from states that do not require licensing, or locate themselves outside the U.S. and purport to make loans subject to the laws of their "home country" (Burt et al. 2006). With 15 states currently banning payday loans, a growing number of lenders have set up online operations in more hospitable states or in off-shore locales such as Belize, Malta, and the West Indies. Unbeknownst to many, major banks like JPMorgan, Chase, Bank of America, and Wells Fargo have quickly become behind-the-scenes allies of Internet-based payday lenders that offer short-term loans with interest rates sometimes exceeding 500 percent (Silver-Greenberg 2013). While the loans are not made by these banks per se, they serve as a critical link for the lenders, enabling them to withdraw payments automatically from borrowers' bank accounts, even in states where the loans are banned entirely. While there are no exact measures of how many lenders have migrated online, a report by the Pew Charitable Trusts estimates that roughly three million Americans obtained an Internet payday loan in 2010. This disturbing trend calls for more research on fringe lenders generally, as well as the implications of this trend for the

customers who use them. In particular, we would be interested in determining how this may change the nature of the spatial relationship between fringe lenders and crime.

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Table 1. Summary statistics of variables used in analyses, split by blocks with and without fringe banks

	No Fringe banks			Has fringe banks	
Blocks	Mean	SD		Mean	SD
Concentrated disadvantage	0.0	13.0		10.4	9.4
% owners	54.8	33.2		23.7	26.6
Racial/ethnic heterogeneity	41.2	19.9		40.8	22.9
% black	10.3	19.6		14.8	23.6
% Latino	40.1	32.1		52.8	31.6
% vacant units	5.8	7.4		7.1	8.6
% aged 16 to 29	20.6	10.9		24.3	12.8
Fringe banks	0.0	0.0		1.1	0.4
% industrial	4.7	15.1		5.1	16.8
% offices	4.7	12.0		7.0	15.3
% residential	64.2	35.8		52.5	37.4
% retail	10.6	19.4		22.0	27.2
Block groups					
Concentrated disadvantage	1.2	12.2		6.1	9.4
Residential stability	-0.1	0.9		-0.5	0.7
Racial/ethnic heterogeneity	44.5	18.1		45.4	18.6
% black	10.3	17.4		10.7	16.6
% Latino	44.4	30.5		54.9	27.6
Population density	16.4	14.3		17.5	13.9
% vacant units	6.6	6.6		6.9	6.9
% aged 16 to 29	22.8	10.5		24.8	7.8
Fringe banks	0.0	0.0		1.4	0.7
Surrounding 5 miles					
Concentrated disadvantage	0.1	1.0		0.3	0.8
Residential stability	-0.1	0.9		-0.3	0.9
% black	9.6	9.3		9.4	8.9
% Latino	47.2	18.1		52.2	15.8
% vacant units	6.9	1.2		6.8	1.2

Table 2. Predicting levels of crime in blocks using measures in blocks, block groups, and the surrounding area.

	Homicide		Robbery		Aggravated assault		Burglary		Larceny		Motor vehicle theft	
Block measures												
Fringe banks	0.1460		0.4029	**	0.1951	*	0.1290	*	0.2417	**	0.0886	†
	(0.64)		(5.12)		(2.38)		(2.34)		(5.24)		(1.68)	
% industrial land use	-0.3834		-0.3400	**	-0.2314	†	0.1400		0.0651		0.5159	**
	-(0.79)		-(2.61)		-(1.67)		(1.57)		(0.91)		(6.19)	
% office space land use	-0.7383		-0.2266	†	-0.4864	**	-0.2628	**	-0.1721	*	-0.0408	
	-(1.41)		-(1.70)		-(3.35)		-(3.21)		-(2.49)		-(0.49)	
% residential land use	-0.4119		-1.2479	**	-1.0316	**	-0.5337	**	-1.1309	**	-0.4255	**
	-(1.54)		-(17.19)		-(13.15)		-(11.93)		-(30.68)		-(8.98)	
% retail land use	0.6517	†	1.9049	**	1.0164	**	0.4552	**	1.3386	**	0.6101	**
	(1.83)		(18.65)		(9.44)		(6.71)		(24.58)		(9.01)	
Concentrated disadvantage	0.0046		0.0041	†	0.0060	*	0.0051	**	0.0016		-0.0023	
	(0.51)		(1.69)		(2.32)		(3.48)		(1.29)		-(1.53)	
Racial/ethnic heterogeneity	0.0052		0.0029	**	0.0044	**	0.0014	*	0.0017	**	0.0027	**
	(1.21)		(2.79)		(3.93)		(2.34)		(3.35)		(4.10)	
% black	0.0100		0.0019		0.0096	**	0.0003		0.0002		0.0024	*
	(1.59)		(1.19)		(5.59)		(0.30)		(0.20)		(2.15)	
% Latino	0.0062		0.0030	**	0.0062	**	-0.0041	**	-0.0051	**	0.0032	**
	(1.19)		(2.70)		(4.90)		-(6.23)		-(9.63)		(4.56)	

% owners	-0.0050	†		-0.0025	**		-0.0048	**		0.0034	**		-0.0025	**		-0.0047	**
	-(1.70)			-(3.48)			-(5.97)			(7.83)			-(6.94)			-(10.35)	
% vacant units	0.0166	*		0.0102	**		0.0178	**		0.0090	**		0.0064	**		0.0057	**
	(2.42)			(5.12)			(8.42)			(6.89)			(6.17)			(4.32)	
Population (logged)	0.5600	**		0.5152	**		0.6086	**		0.6423	**		0.6297	**		0.6425	**
	(8.46)			(30.21)			(33.03)			(61.94)			(75.65)			(59.72)	
% aged 16 to 29	0.0123	†		0.0006			-0.0017			-0.0022	†		0.0029	**		0.0026	*
	(1.72)			(0.32)			-(0.87)			-(1.95)			(3.23)			(2.19)	
Block group measures																	
Fringe banks	0.1079			0.0436	†		0.0158			0.0035			-0.0154			-0.0409	*
	(1.49)			(1.79)			(0.62)			(0.22)			-(1.12)			-(2.57)	
Concentrated disadvantage	0.0010			0.0053			0.0128	**		-0.0012			-0.0021			0.0044	*
	(0.07)			(1.52)			(3.46)			-(0.62)			-(1.25)			(2.09)	
Racial/ethnic heterogeneity	-0.0002			0.0011			0.0004			0.0010			-0.0001			0.0014	*
	-(0.05)			(1.02)			(0.32)			(1.54)			-(0.20)			(2.02)	
% black	0.0184	**		0.0017			0.0055	**		-0.0001			-0.0002			-0.0002	
	(2.62)			(0.93)			(2.89)			-(0.06)			-(0.25)			-(0.21)	
% Latino	0.0134	*		0.0027	*		0.0044	**		-0.0015	*		-0.0020	**		0.0010	
	(2.26)			(2.06)			(3.07)			-(2.07)			-(3.22)			(1.24)	
Residential stability	-0.2723	*		-0.0242			0.0172			-0.0074			-0.0546	**		-0.0236	
	-(2.50)			-(0.85)			(0.57)			-(0.47)			-(4.00)			-(1.38)	

% vacant units	0.0018			-0.0045	*		0.0012			-0.0022	†		-0.0018	†		-0.0020	
	(0.24)			-(2.04)			(0.53)			-(1.71)			-(1.67)			-(1.52)	
Population density	-0.0017			0.0029	*		-0.0009			-0.0043	**		-0.0064	**		-0.0040	**
	-(0.37)			(2.01)			-(0.65)			-(4.71)			-(7.86)			-(4.35)	
% aged 16 to 29	-0.0138	†		0.0035	†		0.0003			0.0036	**		0.0010			0.0009	
	-(1.94)			(1.93)			(0.13)			(3.45)			(1.18)			(0.79)	
Area surrounding block group (2 miles)																	
Concentrated disadvantage	0.1758			0.3363	**		0.4350	**		0.2834	**		0.1540	**		-0.0910	*
	(0.69)			(4.75)			(5.94)			(7.12)			(4.49)			-(2.20)	
% black	-0.0044			0.0169	**		-0.0003			0.0088	**		-0.0065	**		0.0167	**
	-(0.25)			(3.56)			-(0.06)			(3.37)			-(2.79)			(5.84)	
% Latino	0.0117			-0.0021			-0.0076	*		-0.0074	**		-0.0029	†		0.0148	**
	(0.99)			-(0.66)			-(2.28)			-(4.19)			-(1.87)			(8.02)	
Residential stability	0.1731			-0.2284	**		0.1257	**		-0.0238			-0.0691	**		-0.1321	**
	(1.56)			-(8.26)			(4.26)			-(1.62)			-(5.42)			-(8.09)	
% vacant units	0.0292			-0.0822	**		0.0101			-0.1198	**		-0.0557	**		-0.0883	**
	(0.37)			-(4.11)			(0.47)			-(10.97)			-(6.12)			-(7.42)	
Intercept	-4.0225			-10.1162	**		-0.9077			-12.7686	**		-5.3673	**		-11.6641	**
	-(0.56)			-(5.68)			-(0.47)			-(13.16)			-(6.65)			-(10.96)	

*Note: ** p < .01; * p < .05; † p < .10. T-values in parentheses. N= 22,151 blocks. Negative binomial regression models*

Table 3. Testing effect of fringe banks in nearby blocks on crime in focal block

	Homicide	Robbery	Aggravated assault	Burglary	Larceny	Motor vehicle theft
Fringe banks						
Block	0.1323	0.4422 **	0.2034 *	0.1249 *	0.2526 **	0.0787
	(0.57)	(5.54)	(2.46)	(2.25)	(5.42)	(1.48)
Block group	0.1172	-0.0050	0.0048	0.0083	-0.0275 †	-0.0299
	(1.37)	-(0.18)	(0.16)	(0.45)	-(1.73)	-(1.63)
Within 400 feet	0.0806	0.1698 *	0.1333 *	-0.0177	0.0548	0.0607
	(0.44)	(2.53)	(2.02)	-(0.38)	(1.38)	(1.42)
Within 800 feet	-0.0819	0.0693 *	-0.0064	-0.0202	0.0250	-0.0382 †
	-(0.84)	(2.31)	-(0.21)	-(1.01)	(1.43)	-(1.96)
Within 1200 feet	0.0326	0.0210	-0.0040	0.0114	-0.0059	-0.0165
	(0.48)	(0.93)	-(0.17)	(0.79)	-(0.46)	-(1.18)

	Homicide	Robbery	Aggravated assault	Burglary	Larceny	Motor vehicle theft
Pawnshops						
Block	-0.0678	0.1977	-0.0784	0.0686	0.2093 *	0.0245
	-(0.14)	(1.10)	-(0.42)	(0.57)	(2.02)	(0.21)
Block group	0.2722	-0.1145 †	-0.0573	-0.0012	-0.0315	0.0204
	(1.48)	-(1.68)	-(0.82)	-(0.03)	-(0.87)	(0.48)
Within 400 feet	-0.0101	0.1212	0.2154	0.0207	-0.1006	-0.1476
	-(0.03)	(0.88)	(1.53)	(0.21)	-(1.21)	-(1.52)
Within 800 feet	-0.0502	0.1877 **	-0.0084	-0.0121	-0.0212	-0.1266 **
	-(0.27)	(3.22)	-(0.14)	-(0.30)	-(0.61)	-(3.11)
Within 1200 feet	0.0293	-0.0105	-0.0077	0.0138	-0.0701 **	-0.0780 **
	(0.22)	-(0.24)	-(0.17)	(0.48)	-(2.76)	-(2.70)

	Homicide		Robbery		Aggravated assault		Burglary		Larceny		Motor vehicle theft	
Check cashers												
Block	0.1868		0.5290	**	0.3120	**	0.1515	*	0.3140	**	0.1198	†
	(0.63)		(5.65)		(3.20)		(2.23)		(5.46)		(1.84)	
Block group	0.0877		0.0263		0.0143		0.0124		-0.0303		-0.0460	*
	(0.80)		(0.79)		(0.41)		(0.56)		-(1.60)		-(2.09)	
Within 400 feet	0.0128		0.1489	*	0.1004	†	-0.0283		0.0745	*	0.0514	
	(0.07)		(2.55)		(1.71)		-(0.67)		(2.21)		(1.35)	
Within 800 feet	-0.0691		0.0506	†	0.0278		-0.0131		0.0430	**	-0.0005	
	-(0.74)		(1.85)		(1.00)		-(0.68)		(2.69)		-(0.03)	
Within 1200 feet	-0.0095		0.0336		0.0097		0.0177		0.0192		-0.0064	
	-(0.14)		(1.62)		(0.46)		(1.29)		(1.63)		-(0.49)	
	Homicide		Robbery		Aggravated assault		Burglary		Larceny		Motor vehicle theft	
Payday lenders												
Block	0.2625		0.6601	**	0.4269	**	0.2015	†	0.3468	**	-0.0313	
	(0.60)		(4.29)		(2.68)		(1.92)		(3.81)		-(0.30)	
Block group	0.3482	†	0.0515		-0.0266		0.0203		-0.0157		0.0121	
	(1.77)		(0.81)		-(0.39)		(0.52)		-(0.47)		(0.32)	
Within 400 feet	-0.2452		0.3526	**	0.3167	*	-0.1070		0.1337	†	0.1933	*
	-(0.55)		(2.93)		(2.57)		-(1.13)		(1.84)		(2.45)	
Within 800 feet	0.0043		0.0696		-0.0326		0.0176		0.0959	**	-0.0156	
	(0.02)		(1.20)		-(0.52)		(0.45)		(3.04)		-(0.43)	
Within 1200 feet	-0.0597		0.0544		-0.0121		0.0101		-0.0051		-0.0083	
	-(0.40)		(1.23)		-(0.26)		(0.36)		-(0.21)		-(0.31)	

*Note: ** p < .01; * p < .05; † p < .10. T-values in parentheses. N= 22,151 blocks. Negative binomial regression models. All models include all control variables listed in Table 2.*

Table 4. Testing effect of fringe banks on crime in focal block based on context of block and block group

	Robbery		Aggravated assault		Burglary		Larceny		Motor vehicle theft	
Block measures										
Fringe banks	0.5409	**	0.3172	†	0.6309	**	0.6637	**	0.8465	**
	(3.24)		(1.78)		(2.58)		(3.05)		(3.13)	
% industrial land use	-0.3382	**	-0.2342	†	0.1418		0.0693		0.5187	**
	-(2.59)		-(1.69)		(1.59)		(0.97)		(6.23)	
% office space land use	-0.2315	†	-0.4872	**	-0.2627	**	-0.1748	*	-0.0466	
	-(1.73)		-(3.36)		-(3.21)		-(2.53)		-(0.56)	
% residential land use	-1.2476	**	-1.0326	**	-0.5323	**	-1.1309	**	-0.4246	**
	-(17.20)		-(13.17)		-(11.90)		-(30.70)		-(8.97)	
% retail land use	1.9021	**	1.0101	**	0.4531	**	1.3265	**	0.5977	**
	(18.63)		(9.39)		(6.68)		(24.37)		(8.83)	
Concentrated disadvantage	0.0041	†	0.0061	*	0.0051	**	0.0016		-0.0022	
	(1.67)		(2.34)		(3.49)		(1.34)		-(1.48)	
% owners	-0.0026	**	-0.0048	**	0.0034	**	-0.0026	**	-0.0048	**
	-(3.63)		-(6.00)		(7.82)		-(7.16)		-(10.49)	
Racial/ethnic heterogeneity	0.0029	**	0.0045	**	0.0014	*	0.0016	**	0.0027	**
	(2.80)		(3.97)		(2.33)		(3.28)		(4.10)	
% black	0.0018		0.0096	**	0.0003		0.0001		0.0022	*
	(1.13)		(5.59)		(0.26)		(0.16)		(2.05)	
% Latino	0.0030	**	0.0063	**	-0.0041	**	-0.0051	**	0.0031	**
	(2.72)		(4.96)		-(6.28)		-(9.76)		(4.46)	
% vacant units	0.0101	**	0.0178	**	0.0090	**	0.0064	**	0.0058	**
	(5.10)		(8.46)		(6.89)		(6.20)		(4.36)	

% aged 16 to 29	0.0005			-0.0018			-0.0022	*		0.0028	**		0.0025	*
	(0.29)			-(0.89)			-(1.99)			(3.15)			(2.11)	
Population (logged)	0.5156	**		0.6087	**		0.6451	**		0.6323	**		0.6470	**
	(30.25)			(33.05)			(61.65)			(75.33)			(59.54)	
Block group measures														
Fringe banks	0.0427	†		0.0151			0.0036			-0.0153			-0.0409	**
	(1.75)			(0.60)			(0.23)			-(1.12)			-(2.58)	
Concentrated disadvantage	0.0052			0.0128	**		-0.0012			-0.0022			0.0044	*
	(1.48)			(3.46)			-(0.61)			-(1.28)			(2.05)	
Residential stability	-0.0220			0.0188			-0.0072			-0.0516	**		-0.0208	
	-(0.77)			(0.62)			-(0.46)			-(3.78)			-(1.22)	
Racial/ethnic heterogeneity	0.0010			0.0003			0.0010			-0.0001			0.0013	*
	(0.90)			(0.22)			(1.54)			-(0.24)			(1.97)	
% black	0.0019			0.0056	**		0.0000			-0.0002			-0.0001	
	(1.04)			(2.92)			-(0.03)			-(0.21)			-(0.11)	
% Latino	0.0027	*		0.0044	**		-0.0015	*		-0.0019	**		0.0011	
	(2.11)			(3.04)			-(2.05)			-(3.09)			(1.34)	
Population density	0.0036	*		-0.0005			-0.0043	**		-0.0060	**		-0.0037	**
	(2.39)			-(0.34)			-(4.71)			-(7.37)			-(3.97)	
% vacant units	-0.0042	†		0.0014			-0.0022	†		-0.0017			-0.0019	
	-(1.94)			(0.61)			-(1.70)			-(1.54)			-(1.42)	
% aged 16 to 29	0.0034	†		0.0003			0.0036	**		0.0010			0.0009	
	(1.91)			(0.18)			(3.46)			(1.18)			(0.81)	

Area surrounding block group (2 miles)														
Concentrated disadvantage	0.3375	**		0.4345	**		0.2822	**		0.1556	**		-0.0920	*
	(4.77)			(5.94)			(7.09)			(4.54)			-(2.23)	
Residential stability	-0.2296	**		0.1257	**		-0.0240			-0.0689	**		-0.1316	**
	-(8.31)			(4.26)			-(1.63)			-(5.42)			-(8.07)	
% black	0.0166	**		-0.0005			0.0089	**		-0.0067	**		0.0167	**
	(3.52)			-(0.09)			(3.38)			-(2.86)			(5.83)	
% Latino	-0.0023			-0.0077	*		-0.0074	**		-0.0030	*		0.0147	**
	-(0.73)			-(2.32)			-(4.16)			-(1.98)			(8.00)	
% vacant units	-0.0820	**		0.0115			-0.1198	**		-0.0556	**		-0.0874	**
	-(4.11)			(0.53)			-(10.98)			-(6.11)			-(7.36)	
Fringe banks X logged population (block)							-0.0934	*		-0.0767	†		-0.1314	**
							-(2.11)			-(1.95)			-(2.81)	
Fringe banks X owners (block)	0.0082	*		0.0054						0.0051	**		0.0047	*
	(2.55)			(1.55)						(2.82)			(2.27)	
Fringe banks X population density (block group)	-0.0172	**		-0.0112	*					-0.0083	*		-0.0079	*
	-(3.27)			-(2.03)						-(2.53)			-(2.04)	
Intercept	-3.2401	**		-4.1488	**		-2.8069	**		-1.8259	**		-3.0660	**
	-(39.14)			-(45.45)			-(54.34)			-(45.29)			-(57.02)	

*Note: ** p < .01; * p < .05; † p < .10. T-values in parentheses. N= 22,151 blocks. Negative binomial regression models*

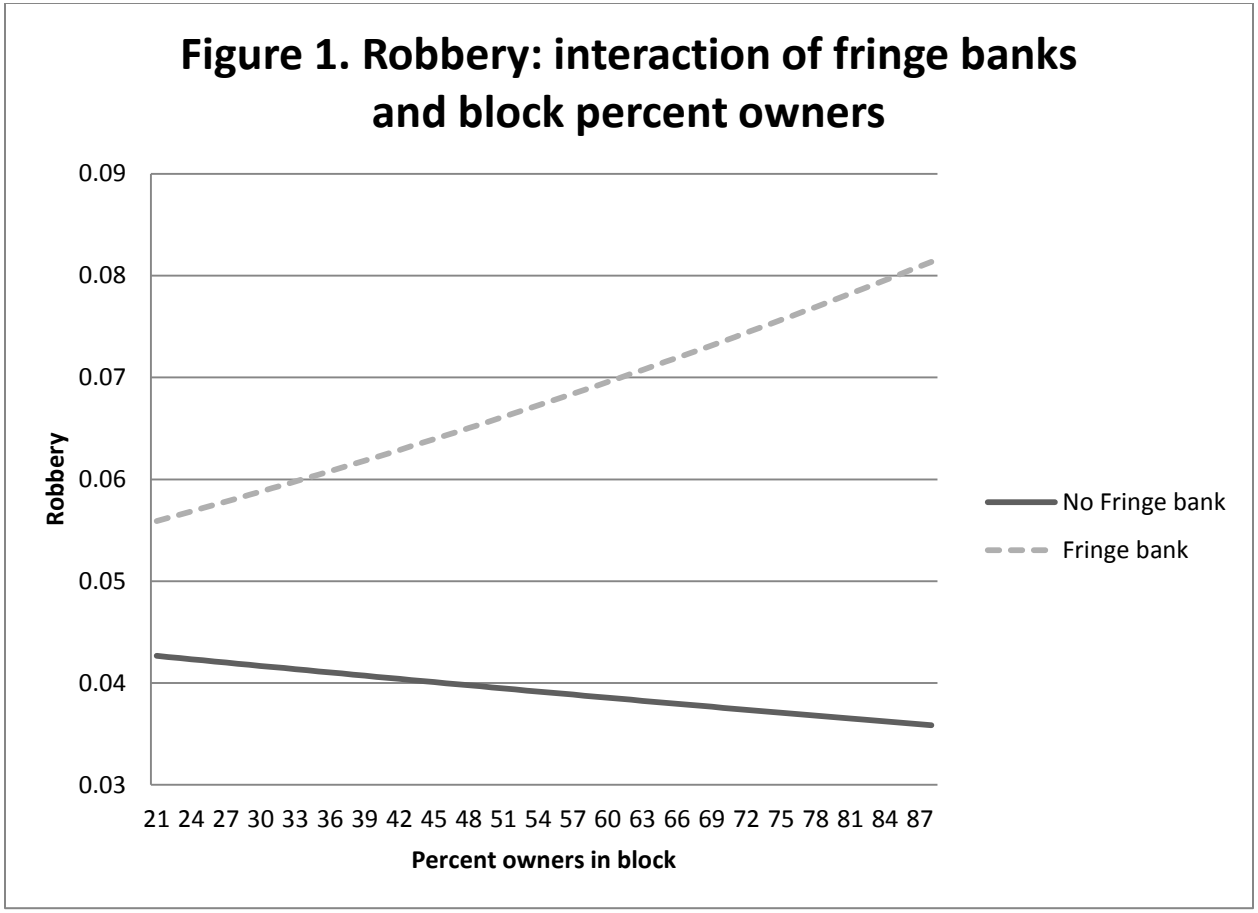
Figure 1. Robbery: interaction of fringe banks and block percent owners
0.09
0.08
0.07
0.06
0.05
0.04
0.03
Robbery
21 24 27 30 33 36 39 42 45 48 51 54 57 60 63 66 69 72 75 78 81 84 87
Percent owners in block
No Fringe bank
Fringe bank

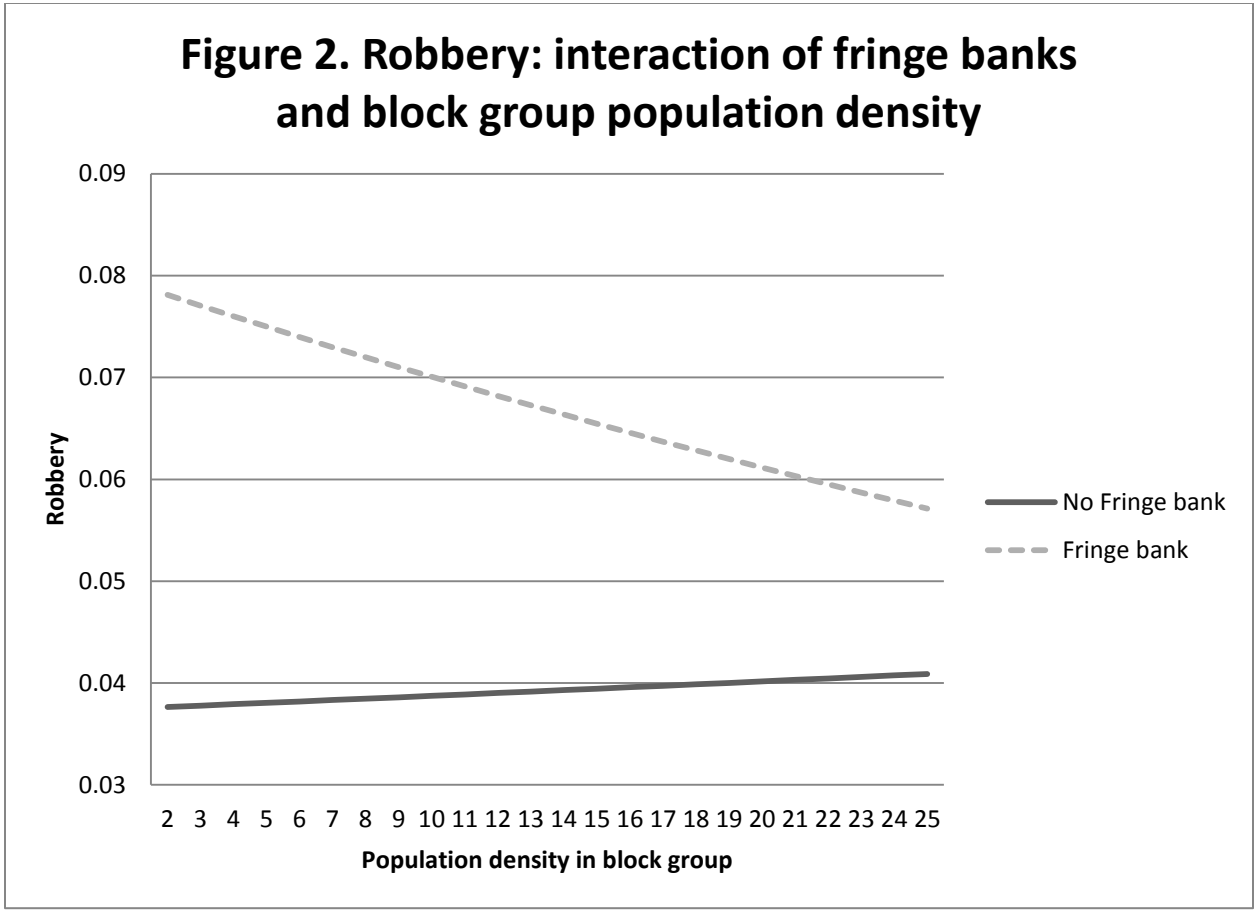
Figure 2. Robbery: interaction of fringe banks and block group population density
0.09
0.08
0.07
0.06
0.05
0.04
0.03
Robbery
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Population density in block group
No Fringe bank
Fringe bank