How Valuable are Civil Liberties? Evidence from Gang Injunctions, Crime, and Housing Prices in Southern California

Emily Owens[1]
Michelle D. Mioduszewski[2]
Christopher J. Bates[2]

February 2019

Abstract

Despite the increased use of civil gang injunctions in California since the late 1980's, little is known about their effectiveness on crime, and even less is known about their broader social impact on targeted and surrounding communities. This study assesses the impact of civil gang injunctions on crime and housing prices in the Southern California region, providing evidence on both the crime reducing benefits of these policies and the costs imposed on affected communities. We utilize a geographic regression discontinuity design and three datasets to answer this question: Zillow housing data, gang injunction attributes and shapefiles, and crime data from the Southern California Crime Study. Focusing on the sharp discontinuity of targeted police enforcement within the gang injunction boundaries, and temporal variation in when the injunctions were imposed, we find limited evidence suggesting that crimes within safety zones, consistent with existing research. In spite of the increase in safety, home values appear to fall discreetly at the borders of the injunction. We conclude that this reflects individual willingness-to-pay for the civil liberties affected by the injunction. The magnitude of this net decline, roughly 3% of home values between 2002 and 2015, casts doubt on the assertion that gang injunctions are a cost-effective way to reduce crime.

[1] Department of Criminology, Law and Society and Department of Economics, University of California, Irvine, Irvine CA 92697. egowens@uci.edu
[2] Department of Criminology, Law and Society, University of California, Irvine, Irvine CA 92697. mmiodusz@uci.edu

1. *Introduction*

Crime is costly. While crime rates in the United States are at historic lows, violent and property crimes still cost society over $376 billion in 2017.[3] There are many mechanisms through which governments can reduce the crime rate, and there is a large empirical literature quantifying the effects of various interventions (Nagin, 2015). One particular type of policy that has been a subject of increasing interest from academics and practitioners is place-based policing. Place-based policing broadly involves identifying particular areas, sometimes as small as one street block, where crimes are disproportionately likely to occur. Police are then proactively deployed to those places in order to identify and correct the source of crime. A large body of research in applied social science, including randomized control trials and well identified quasi-experimental studies, has shown that geographically targeting police activity in this way can generate substantial reductions in crime, with little evidence of crime displacement.[4]

Of course, finding that a policy reduces crime is necessary, but not sufficient, to conclude that an intervention provides a net social benefit. Ethnography, history, and legal research has highlighted the fact that many crime control policies, particularly place-based ones that encourage aggressive police and citizen interactions, can impose large costs on affected communities.[5] To date, however, the magnitude of these costs, which range from poor health outcomes to perceived racial oppression, has not been quantified in a way that can be compared to the benefit these same communities receive through reduced crime. This study assesses the

[3]This is based on the 2017 Uniform Crime Reports and the RAND Cost of Crime calculator, available at https://www.rand.org/jie/justice-policy/centers/quality-policing/cost-of-crime.html

[4] See National Academies of Sciences and Medicine (2018) for a recent review, and Bowers, Johnson, Guerette, Summers, and Poynton (2011) or D. Weisburd et al. (2006) for specific examples.

[5] This disconnect is also highlighted by National Academies of Sciences and Medicine (2018). See Hinton (2016), Meares (2015), Muñiz (2015), or Rios (2011) for specific examples.

impact of a particular type of place-based policy, civil gang injunctions, on crime and housing prices in the Southern California region. To the extent that housing values reflect the net social willingness-to-pay for both the positive, and negative, effects of civil gang injunctions, we provide some of the first evidence on both the crime reducing benefits of these policies and the costs imposed on affected communities.

Civil gang injunctions aim to reduce crime in certain areas identified by police, prosecutors, and community members. While used throughout the country, gang injunctions were originally used in Southern California, and continue to be a common form of crime control in the region. The first gang injunction, against the Playboy Gangster Crips, was adopted in 1987 in the Cadillac-Corning neighborhood of west Los Angeles. The first injunction in San Diego was institutionalized in 1997, and in 2006 in Orange County. Since that time, the use of gang injunctions has drastically increased. Until recently, there were 46 active injunctions in the city of Los Angeles alone, and an additional 15 in Orange County. In Los Angeles, it is estimated that all the injunction areas cover 75 square miles, or 15 percent of the total city area (Queally, 2016).

Public discourse about gang injunctions reflects that of place-based policing in general; Advocates of this intervention point to their crime reduction benefits, although empirical research on this is relatively scant and conflicting (ACLU, 1997; Carr, Slothower, & Parkinson, 2017; Grogger, 2002; Maxson & Allen, 1997; Ridgeway, Grogger, Moyer, & MacDonald, 2018). Opponents argue against their draconian surveillance of disadvantaged communities, generating a potentially large cost in terms of civil liberties and racial disparities which outweigh any benefit from reduced crime. Two areas of particular concern are the impact injunctions have

on residents' legal recourse for police abuse and on their individual rights otherwise protected by the US Constitution (Muniz & McGill, 2012; Queally, 2016).

In this paper, we provide the first estimates of citizen's willingness to pay for the potential reduction in civil liberties associated with place-based crime control policies, specifically civil gang injunctions. We utilize a geographic regression discontinuity design and three datasets to answer this question: parcel and transaction level housing data from Zillow, geocoded, incident level crime data from the Southern California Crime Study (SCCS) and gang injunction attributes and shapefiles obtained from legal documents filed in Los Angeles city, Orange County, and San Diego County. Combining the sharp discontinuity of legal constraints on police behavior at the gang injunction boundaries and temporal variation in the implementation of 117 injunctions, we estimate the impact of these injunctions on local crime, as well as the willingness-to-pay for homes both within, at, and outside the boundary.

We find that, at a micro level, there is weak evidence that gang injunctions cause a reduction in crime. In the three years following a gang injunction, we observe a slight reduction in violent crimes, on average, inside a safety zone relative to the immediately adjacent areas. This is consistent with existing, more aggregate, research on the crime impacts of gang injunctions (Grogger, 2002; Ridgeway et al., 2018). However, our data provide only limited evidence that creation of a safety zone creates a spatial discontinuity in crime rates. Regardless, this reduction in crime should place upward pressure on housing prices inside gang injunctions.

In contrast, our data suggest that when an area is designated as a "safety zone" by a gang injunction, housing prices just inside the boundary immediately fall by approximately 3% on average, or roughly $14,000, relative to houses just a few blocks away. Alternate functional form specifications suggest the reduction in value could be as large as $40,000. We find no

evidence that the volume of housing transactions falls, but these transactions are occurring at a lower sales price. Variations in the rules governing the exact boundaries of the injunction allow us to shed some light on what is driving this reduction in value – a subset of the injunctions also specifies a 100 yard extension[6] around the boundary of the safety zone where civil liberties are also limited. When we treat these areas as part of the safety zone, we observe a similar drop in prices, but one that occurs approximately 3 years after the injunction is in place, suggesting that people learn that these houses, which are otherwise not identified as being under injunction, are considered de facto safety zones by police. Note that, unlike the boundaries of the safety zones themselves, which are defined using street names or clear geographic markers (e.g. 18th street, a park, or a lake), these 100 yard buffers do not clearly correspond to any visible spatial feature or street that would alert citizens, without access to mapping software, when their civil liberties are curtailed.

The observed reduction in housing values that we estimate is actually a lower bound on the value that people place on the civil liberties affected by place-based crime control policies, as we cannot definitively rule out the possibility that people perceived a sharp increase in safety within the safety zone. Using the estimated annual crime impact from Ridgeway et al. (2018), our more conservative estimates suggest that gang injunctions are unlikely to be cost effective in police reporting districts with more than 1,220 housing units, and may be ineffective in districts with as few as 430 units. Given that police reporting districts in LA are slightly larger than

[6] While we were unable to verify why some injunctions had these buffers and others did not, there are some possible explanations regarding this legal stipulation. First, it is possible that legal standards for the placement of a safety zone were met, so a judge may have been willing to give additional leeway for police intervention in these areas. Alternately, since gang injunctions originate in civil courts, they may mimic other types of restraining, or protective, orders. Other types of restraining orders typically include a 100 yard buffer (Euclidean distance). But, this means the original specified boundary, and not the 100 yard buffer, are the main intervention of interest.

Census tracts, which in Los Angeles County contain approximately 1,404 housing units on average, we conclude that most civil gang injunctions are unlikely to pass a cost-benefit test.[7]

The remaining sections of the paper proceed as follows: in section 2 we provide institutional background information on gang injunctions. In Section 3 we describe our data on injunctions, crime, and housing prices, and in section 4 we present our analytic framework. Our estimates of the social impact of gang injunctions are presented in section 5, along with a series of robustness tests. Section 6 concludes with a discussion of policy implications and suggestions for future research.

2. Gang Injunctions: Legal and Theoretical Background

2.1 Legal Background

Gang injunctions are civil restraining orders issued by state or district attorneys against specific gangs that are found to be public nuisances. The injunctions specify a set of activities that gang members are prohibited from participating in within a specific geographic area, referred to as a "safety zone," whose boundaries are defined in the legal order. For an example, see the map below. Figure 1 displays is a 1.59 square mile area showing parcels overlaid with a safety zone boundary (green line) and single family home sales price ranges at the parcel level (dark red parcels indicate higher prices). This gang injunction is located next to Disneyland and is the second to be passed in the city of Anaheim, CA, and the 8th to be passed in Orange County as of 2010.

[7] Ridgeway et al. (2018) estimate that, on average, gang injunctions in LA results in 9 fewer crimes, primarily aggravated assaults, per reporting district, per year. Using the estimated cost of aggravated assault in Heaton (2010), we estimate this crime reduction generates $785,000 in value per year. Assuming a real interest rate of 2.2%, the present value of annual $785,000 payments over 30 years is $17.1 million, which is approximately equal to $13.6 thousand (our low estimate) times 1,220, or $40 thousand (our high estimate) times 430.

Commonly prohibited activities within such safety zones include associating with known gang members, hanging out in groups of more than two people, intimidating witnesses, fighting, trespassing, wearing certain colors, carrying a cell phone, involvement with drugs, weapons, alcohol, being outside at night, and carrying a cellphone (see O'Deane (2011) for more examples, p.6-7). Note that some of these activities are already illegal- in these cases gang injunctions serve to increase the punishment for these offenses- but injunctions also criminalize otherwise legal behavior within the safety zone boundaries, and may restrict routine activities such as socializing with friends and family and going to work or church (Maxson, Hennigan, & Sloane, 2003). A violation of these terms results in an automatic fine of $1,000, jail time of 6 months, and potentially swifter processing through the criminal, rather than civil, justice system[8]. Gangs are treated as corporate entities, meaning that both current and any future gang members are affected.

Convincing a judge to issue a gang injunction requires prosecutors and police departments to build a case that a street gang is a public nuisance, defined as a group whose activities are "obstructing the comfortable enjoyment of life and property" of others (Genelin, 1998; Maxson et al., 2003; Vannoy, 2009). The legal process itself, from initial prosecutorial evaluation to final judicial hearing, usually lasts a few months to just over one year (Maxson, Hennigan, & Sloane, 2005; O'Deane, 2011). Law enforcement officials must present compelling evidence of the gang's nuisance activities, identify members or gangs, and specify a target area based on past criminal activity and resident complaints. Prosecutors, law enforcement, and community members are all involved; "most gang injunction cases have numerous, sometimes

[8] An illustration of steps in the gang injunction process provided by the San Diego Attorney's office may be found here: https://www.sdcda.org/preventing/gangs/gang-injunction-workflow.pdf

hundreds, or declarations from police officers and community members that articulate the nuisance behavior of the gang and its members, including examples of crimes members have engaged in, and why particular members were selected for inclusion into the court order" (O'Deane, 2011). Notably, requests for injunctions are rarely denied, in part because there is infrequently formal legal opposition to them. One potential reason for this is that, unlike in criminal matters, individuals do not have the right to counsel in the civil courts where the injunctions are issued. Another reason is that establishing that you have standing to challenge an injunction requires identifying yourself in civil court as a member of the named criminal organization (Muñiz, 2015).

Since their initial adoption, gang injunctions have been the subject of active criticism about the difficult process of removing oneself from the set of people under injunction and violations of due process rights. Researchers and advocates have raised particular concerns about the validity of the process by which individuals are identified by law enforcement as gang members, generally through a state wide database known as CalGangs, which is itself the target of some controversy, particularly after the release of a highly critical state audit in 2016 (Howle, 2016). In 2017, an audit by the Los Angeles city Attorney's office and the LAPD resulted in the release of 7,300 individuals from gang injunctions, although the geographic safety zones were left in place. More recently, a federal judge has put a hold on the enforcement of gang injunctions in the city of Los Angeles on grounds of due process violation (Youth Justice Coalition v. City of Los Angeles),[9] and similar cases in Orange County are underway.

[9] Read the court order here: https://www.aclusocal.org/sites/default/files/aclu_socal_yjc_v_la_20180315_order_granting_mtn_expand_pi.pdf

Whether or not the enforcement of gang injunctions infringe on civil liberties is a separate issue from whether or not they reduce crime. From a social efficiency perspective, the relevant question is whether the harm suffered is outweighed by the benefit provided. This is the specific gap this paper seeks to address: can the harms alleged by community members be quantified and compared to the crime reducing benefits reported by law enforcement officials and credibly identified by existing quantitative research?

2.2 Theoretical Background

2.2.a Gang Injunctions and Crime

There are two primary ways in which gang injunctions could reduce crime. First, to the extent that specific individuals are named as police targets in the injunction, these individuals should be less likely to offend, and not necessarily just in the specific geographic location identified by the courts. Of course, as documented in Muniz and McGill (2012), gang injunctions in Southern California generally name organizations; in practice, it is extremely difficult, and at times impossible, for individuals to verify whether or not the State of California officially considers them to be a member of a particular gang. The size of the organization subject to injunction is not static, and may expand over time as new individuals join the gang, or are believed to be affiliated with the gang by police. As a result, all individuals living in an area subject to the injunction may reasonably consider themselves to be subjected to heightened police scrutiny and additional criminal justice penalties (Muniz & McGill, 2012).

Second, another probable feature of gang injunctions is increased police presence. However, police officers must travel to the area for patrol, and their beats may not perfectly follow the injunction boundaries. Further, increased police presence in an area under injunction

will likely reduce police response times in surrounding areas, which should also have a deterrent effect (S. Weisburd, 2016). This increase police presence would lead to crime falling in a safety zone, but also create crime reductions in nearby areas not technically under injunction. Increased police presence may also impact perceptions, of higher safety or more crime, of residents nearby as well.

Third, gang injunctions may reduce crime by altering police behavior; by construction gang injunctions encourage officers to interact with citizens in a more aggressive, and frequently proactive way, which can reduce crime. A recent review of the research by the National Academy of Sciences concluded that there is some evidence that changing police tactics in a particular place has positive crime reducing spillover effects in neighboring areas (National Academies of Sciences & Medicine, 2018).

For all of these reasons, we expect that crime may fall in an area under gang injunction. Further, the theoretical mechanisms that link gang injunctions to crime, and available empirical evidence, do not clearly support the idea that treatment, or the probability of treatment, varies sharply at the geographic boundary. Indeed, not only may the precise boundaries of the injunction be unclear to residents or passers-by, places outside gang injunctions are likely to be "treated" by additional police presence as more officers travel to areas in the injunction, or are visible while patrolling the treated areas. Crime may also fall in neighboring areas due to incapacitation if individuals arrested because of the injunction would have committed crimes in those places. With regards to gang injunctions specifically, there is some evidence to support these mechanisms; for example, Grogger (2002) found that while areas within gang injunctions experienced crime reductions of as much as 10%, and some evidence of smaller reductions in

neighborhoods adjacent to those targeted by the injunctions. It is therefore an empirical question as to whether or not crime changes continuously or discreetly at these borders.

2.2.b Gang Injunctions and Civil Liberties

What does vary sharply at the border of gang injunctions is the legal constraints on the behavior of police officers. Specifically, the 4th amendment of the US Constitution states: "The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized." Legally, a "seizure" is specifically when an officer forces (physically or otherwise) a person to submit to their authority, in a way that restricts that individual's liberty, and a "search" happens when an officer intrudes on a person's reasonable expectation of privacy or trespasses on their property to gather information (National Academies of Sciences & Medicine, 2018). The 4th amendment therefore is one of the primary legal constraints the federal government places on police behavior, as essentially all arrests or police stops constitute seizures or searches (National Academies of Sciences & Medicine, 2018). In our case, the specific issue of legal concern is whether or not stop conducted by a law enforcement officer met a specific threshold of individualized suspicion.

In general, there are roughly three different types of police stops that could be commonly understood as "seizures" or "searches," and in order to comply with the 4th amendment, an officer must have different levels of justification. The first category is a consensual search, where an individual voluntarily complies with an officer's request for additional information. The voluntary and consensual nature of the interaction means that this stop is not covered by the 4th amendment. At the other extreme is a full search or arrest, for which an officer has probable

cause to believe this person was involved in a crime. The middle category, and most relevant to place-based policing strategies, is an investigative stop (sometimes referred to as Terry stop, in reference to Terry v. Ohio, 1967), where an officer briefly detains someone, perhaps involving a cursory search or "frisk". This category of stop requires the office have a reasonable, individualized, articulable suspicion that the person in question has engaged in criminal behavior.

In other words, police are not legally allowed to stop and frisk any person on the street; they must have a reasonable suspicion that that specific individual is in violation of a law. In 2000, the Supreme Court held that the location of an incident could constitute part of an officer's reasonable decision about suspicion (Illinois v. Wardlow 2000). To provide an example of what this means for citizen and police interactions: suppose an officer observes a young man walking past her. She asks the young man to stop and identify himself, but he continues to walk away.

While most states require that individual people comply with police orders, they are not required to voluntarily comply with police requests or invitations to comply. Further, the US constitution protects the right of individuals to decline to cooperate with an officer's request for compliance, and choosing to exercise that right cannot be legally used by a police officer to deem you individually as specifically suspicious.[10] In other words, legally, the young man walking away should be the end of the police-citizen encounter in most situations.

Critically, however, the courts have held that in areas identified as high crime, citizens do not have the same protection of their civil liberties (Harris, 1998). Inside an area under gang injunction, if an officer requests that you stop, and you decline to comply with that request, this

[10] Of course, police officers could ignore these constitutional protections, but doing so would place them and their department at risk of sanction, and any evidence obtained in such a search would not be admissible in court.

is considered appropriate grounds for the officer to suspect you have committed a crime - specifically, being in a safety zone and "evasive" behavior. Therefore, the officer may conduct a legal search (a Terry stop) under the 4th amendment (Illinois v. Wardlow 528 US 119, 2000).

A reduction in civil liberties is a theoretically possible consequence of gang injunctions. Whether or not this is an unintended consequence of gang injunctions is up for debate. A recurring theme among scholars and practitioners alike is the potential use of gang injunctions as tools of gentrification and displacement. The privileged adjacency hypothesis was first documented as a speculative statement in Alonso (1999) as the "pattern of using gang injunctions to benefit nearby affluent areas." For example, an injunction in Oxnard, California actually contained a neighborhood redevelopment effort within its boundaries (Barajas, 2007). Arnold (2011) argues that gang injunctions are "something that developers wanted" to change the demographics of affected neighborhoods. Arnold (2011) also notes that gang injunctions may lower home values, noting that median neighborhood home values are lower in places with more safety zones. Whether the co-location of safety zone boundaries and gentrification processes occurred by chance, or if it is a causal process, remains to be empirically assessed both for any individual injunctions and injunctions over a larger geographic area over time.

2.2.c. Gang Injunctions and the Value of Neighborhood Amenities

Public neighborhood amenities and social spaces may capitalize into home values differently based on their location in a gang injunction. Safety zones pose implications for land use types beyond just residential (e.g. recreational, educational, religious) within their boundaries. For example, while parks typically function as an amenity in lower crime areas, they may be a disamenity if they are viewed as dangerous crime hot spots (Troy & Grove, 2008). Gang injunctions may decrease crime in parks and thus increase park quality and home values.

Or, injunctions may impede the use of parks for fear of over-surveillance by police, or if family members of a gang member are unable to utilize them due to the non-association condition in injunctions. This non-association condition may also impact the use of other public amenities such as bus stops, shopping areas, or after school programs. On the other hand, residents that may have organized for and supported gang injunctions may be more inclined to frequent local areas inside the boundaries because of decreased crime and fear.[11] The interaction of land use, injunctions, and crime is complex, however they each have the potential to influence home prices and residential mobility. Importantly, though, while the social value of a neighborhood feature inside a safety zone may be sharply different than a similar one outside, the extent to which that feature is capitalized into housing values should not vary discontinuously at the injunction boundary.

3. Existing Empirical Literature on Gang Injunctions

There is some evidence that some gang injunctions reduce some types of crime. Maxson and Allen (1997) identified a small reduction in serious crimes after the imposition of one gang injunction in Inglewood, California. Grogger (2002) used a differences-in-differences approach to evaluate 14 gang injunctions imposed in Los Angeles in the 1990s. Relative to otherwise similar areas, he identified statistically significant reductions in violent crime, although no change in property crimes known to police. Ridgeway, Grogger, Moyer, and MacDonald (2018) found that most of the short and long term impacts of injunctions in Los Angeles city on crime came from reductions in assault. Carr et al. (2017) examine the impact of four different gang

[11] In theory, community support is central to the creation of a gang injunction. However, in practice it is not clear that this is necessary. Allen (1997, p.i) states "community involvement in the decision making process was decidedly weak, primarily due to the lack of community organizations in gang plagued neighborhoods, the low-profile nature of the initiatives, and the concern for gang retaliation against community participants."

injunctions, imposed at various times in England and Wales, on the criminal behavior of 36 individuals and find evidence that the criminal activity of the affected individuals declined during the injunction. Anecdotal evidence from many law enforcement officials tend to support these aggregate findings (Maxson et al., 2005).At the same time, a frequently cited case study by the ACLU (ACLU 1997) found a small short-term increase in violence in a Los Angeles neighborhood under injunction, accompanied by adverse spillover effects in nearby areas. Goulka et al. (2009) evaluate the Santa Nita gang injunction in Orange County also using a differences-in-differences and matching approach. They find evidence of a short run increase in violent crimes and a decrease in property crimes after the injunction went into effect.

Any change in crime caused by the gang injunction will likely be capitalized into house prices by altering the demand for a particular building or location. Housing values appear to be strongly responsive to even small changes in the probability of victimization (Linden & Rockoff, 2008). More recent studies of housing and crime find a statistically significant relationship between crime and several dimensions of housing demand; housing volume turnover (Boggess, Greenbaum, & Tita, 2013), types of homeowners (Chamberlain, Wallace, Pfeiffer, & Gaub, 2016) and homeowner stability (Boggess & Hipp, 2010). As we will show, there appears to be a small impact of gang injunctions on crime at a highly disaggregate level; this is consistent with many of the mechanisms linking the injunctions to criminal behavior, such as increased police presence and incapacitation of mobile individuals, being relatively geographically diffuse.

The nuisance gang activity itself may not be concentrated within the safety zone. For example, using an ecological behavioral model, Smith, Bertozzi, Brantingham, Tita, and Valasik (2012) found that gang members frequently travel on the boundaries of other gang territories, and that gang related violence tends to occur outside of these target area boundaries. Given this

finding, and the probability that injunctions and the locations of previous gang crimes overlap, areas right outside the injunctions should be similar to areas just inside the boundaries on many key characteristics. One exception to this is the legal constraints on police officer behavior, as the injunction establishes administrative boundaries within which gang members are subject to heightened restrictions.

Besides providing a metric of net willingness to pay for civil liberties, any change in housing values associated with gang injunctions is important to document on its face, as housing wealth is a major component of overall individual wealth, and many times the only asset an individual possesses (Skinner, 1989). To the extent that gang injunctions are predominantly implemented in low income areas, this has implications for the persistence of geographically concentrated poverty by reducing the value of the assets owned by members of these communities.

4. Data

4.1 Gang Injunctions.

Our data on the location and timing of gang injunctions was compiled from a series of sources. First, the legal documents associated with the gang injunctions were obtained from District Attorney's offices (county of San Diego, county of Orange, city of Los Angeles) and coded for the following information for 70 unique injunctions: complaint date, file date of preliminary injunction, date of permanent injunction, city, county, safety zone street boundaries, and the name of the gangs implicated in the safety zone areas. The legal filings themselves generally contained pdf maps of the affected areas, which were digitized using Google Earth Pro and ArcGIS. If pdf maps were not readily available, we relied on other sources, including official

county district attorney press releases, reports, and news coverage, to retrieve the boundary street names and locations (see appendix A1 for a list of all injunctions, and A2 for a description of all data source). An important caveat for our analysis is that it is possible for one gang injunction to include two, or more, separate non-contiguous safety zones. Therefore, the same gang injunction may apply to more than one geographically designated area. In this case, for the sake of conceptual simplicity, we will refer to each non-contiguous area as its own injunction. Therefore, 70 injunctions correspond to 117 unique injunction areas. Figure 2 displays the locations of all of the gang injunctions in our sample.

4.2 Crime.

Crime data were obtained from the Southern California Crime Study (SCCS) provided by the Irvine Laboratory for the Study of Space and Crime (ILSSC). Crimes known to the police in 219 of the 341 cities in Southern California, covering 83% of the Southern California population, are recorded at the street segment level, and we focus on serious property (larceny, motor vehicle theft, burglary) and violent crime (homicide, robbery, aggravated assault) for the years 2007-2015. These street segments were mapped onto the location of the gang injunctions, allowing us to determine whether or not the crime occurred inside or outside of an area under injunction, and how far the crime was to the closest injunction boundary. Table 1 displays summary statistics of crime in our full sample, inside and outside of injunctions, and in areas immediately surrounding the boundaries of these injunctions.

At first glance, the summary statistics in table 1 suggest that crime is actually lower in injunction areas than outside of safety zones. However, looking at the average number of parcels in the areas inside and outside of gang injunctions reveals these areas are generally smaller, containing 14 thousand distinct real estate parcels rather than 38 thousand. In relative terms,

concentric rings inside injunction boundaries have about half the crime incidents than expanding rings outside the boundaries, but they contain 36% of the housing parcels that the rings outside the injunctions contain. The 8 rings within 400 meters of the injunctions boundaries are more similar, both in terms of crimes and housing density, but there is still more crime, both in level and per-parcel terms, inside the safety zones than outside.

4.3 Home Prices.

The Zillow data is a national level dataset officially known as ZTRAX Transaction and Assessment Dataset[12]. This database contains two separate datasets that contain data at the transaction and parcel level. Variables about the physical characteristics of individual property units are provided for the year 2015, including total number of rooms, square feet of living space, and age of housing unit. Information on housing transactions and prices at the coordinate level are provided for 2002-2015. The coordinates of each single family home transaction were geocoded and mapped onto the injunction areas.[13] Table 2 displays summary statistics of housing characteristics and values. To best represent the impacts on home sales, we adjust for inflation by normalizing all prices to the 2012 dollars based on GDP deflators from the St. Louis Federal Reserve.

On average, the single family homes in our sample were sold for just over $440 thousand, well below the average estimated value of the existing housing stock, which is $532 thousand. The 36% of the home sales which were inside safety zones were $60 thousand below home sales on average, a difference which is slightly larger than the average difference in surrounding house

[12] Data provided by Zillow through the Zillow Transaction and Assessment Dataset (ZTRAX). More information on accessing the data can be found at *http://www.zillow.com/ztrax*. The results and opinions are those of the author(s) and do not reflect the position of Zillow Group.

[13] We observe housing prices for more areas than we observe crime incidents. An important future robustness test will involve limiting our sample to places for which we observe both crime and housing information.

value ($490 for houses inside safety zones, $40 thousand less than the full sample). That said, the homes sold inside the injunction area are slightly smaller, with 0.5 fewer rooms and about 270 fewer square feet than houses on average. The homes are also older, almost 70 years old at the time of sale versus 61 years old over all. Looking in a narrower band around the injunctions, homes inside and outside the injunction areas are more similar, although the houses outside the injunction area are still larger and newer, the differences in total rooms, square footage, age, and surrounding home values fall by 33% to 68%.

4.4 Gang Injunctions, Crime and Home Values: Graphical Discontinuity Evidence

The mean values reported in tables 1 and 2 suggest that there is a negative correlation between being located in an area currently under gang injunction and housing prices. Of course, this does not necessarily reflect the cost of reduced civil liberties in those areas, as the housing stock or neighborhood amenities within the injunction area may be fundamentally different from untreated areas. The weak positive relationship between being in a safety zone and crimes per real estate parcel is only one example. However, variation in other amenities that are capitalized into housing values, such as distance to parks and beaches, community centers, or grocery stores, age of construction, and lot size, will all diminish as the set of homes inside and outside of the safety zone become physically closer together.

4.4.a Crime

As a first step in our regression discontinuity analysis, we graphically describe how crime rates vary relative to the boundaries of the safety zones. As a first pass, we divide the city of Los Angeles, and Orange and San Diego counties into 100 meter wide rings around, and inside of safety zones. This allows us to evaluate how crime changes within a consistently defined

geographic segment, but the size of these segments is positively correlated with the distance from the center point of the safety zone itself. As a result, there is a mechanical relationship between the number of crimes and the distance of a place from an injunction boundary that is positive outside of the safety zone and negative inside of the safety zone. While this is not a violation of the assumptions underlying the regression discontinuity per se, it does result in counterintuitive average values of crime across different values of the running variable- specifically lower levels of crime deeper inside the safety zone, and higher levels outside.

In order to adjust our estimates for this varying geography, we extract from our Zillow data the total count of parcels (in 2015) that fall, at least in part, of each 100 meter wide ring.[14] Scaling the total number of crimes in each bin outside and within the safety zone by the number of parcels touching the bin allows us to construct a rough crime rate that, in theory, is not mechanically linked to distance from the safety zone boundary. The total number of crimes, per parcel, in 100 meter bins inside and outside of safety zone boundaries is displayed in Figure 3.

Two patterns are immediately apparent in Figure 3. First is that crime is, on average, higher inside of gang injunction boundaries than outside, with crime rates decreasing as one moves further away from a safety zone. There are also clear spikes in crime occurring on both sides of the boundary. While suggestive of a causal effect of proximity to the injunction on crime, this is potentially due to a feature of the crime geolocation process. Recall that injunction boundaries frequently correspond with streets. Crimes taking place outside generally are

[14] Note that we count how many parcels are within any given distance from all safety zone boundaries ever used in our sample. The count of crimes, however, is based on the location of safety zones when the crime occurred, which is a subset of all injunctions that ever occur. This overstatement of the denominator will vary smoothly across the injunction boundary, but does have a quadratic relationship to the running variable. In our regression framework, we will define the unit of analysis as a ring/month, meaning that we can identify the location of crimes, and parcels, relative to the safety zones that existed in that month. We are in the process of re-estimating these parcel counts, by month. In addition, we will also exclude from our analysis any crimes occurring in the same month the injunction goes into effect.

recorded as occurring on sidewalks, or at intersections. This mechanically creates the appearance of heightened crime very close to injunction boundaries; as you increase the distance from a safety zone boundary, an increasing number of non-sidewalk areas are included in the crime counts. Scaling the crime counts by total number of parcels in an area will exacerbate this spike.

Overall, excluding the two points closest to the threshold would suggest that crime rates begin decreasing from points 400 meters within a safety zone through 1000 meters outside, with a roughly 25% drop in crime occurring at the safety zone boundary. Including these two points, which are highly influential in the RDD context, makes the magnitude of the reduction at the boundary much more typical of general variation in the data. Appendix figures A3 and A4 replicate figure 3 for violent and property crimes, respectively, and display the same spatial pattern.

4.4.b House Values

In figure 4 we plot the relationship between the mean natural log of sales price (in 2012 dollars) of housing transactions relative to how far that house in question was from a safety zone boundary at the date of sale. We plot the mean of real sales price in figure 5; the majority of the hedonic price literature examines the natural log of house values. However, given the dispersion in house values across southern California, estimating an average dollar value of a change civil liberties, rather than an average percentage change in price associated with a change in civil liberties has conceptual appeal. We also include simple quadratic lines of best fit inside and outside of the injunction boundary. Houses generally increase in value as one moves from the center of a safety zone outwards, and there is a clear break in prices at the boundary, with houses

100 meters inside the safety zone selling for approximately 11%, or $70 thousand less than houses 100 meters outside of the safety zone.

In figure 6, we produce a standard test for another assumption of RDD analysis, the absence of perfect manipulation around the threshold. In this context, a specific concern might be the injunction boundaries were drawn in a way that excluded high value houses, or if homes were more likely to change hands without a sales price being recorded to Zillow.[15] We find no evidence that this is the case, although the number of transactions follows the same unusual patterns as the crime data.

4.5 "Diff-in-Disc" – Gang Injunctions, Crime and Home Values: Graphical Discontinuity Evidence Over Time

Of course, the boundaries of a safety zone may correspond with a discontinuity in another geographic feature that may be capitalized into housing values and affect our measure of crime rates.[16] In order to address this concern, in figures 7, 8, 9, and 10 we replicate figures 3 , 4, 5, and 6 in the set of crimes, and home sales, occurring in the 5 years leading up to and after an injunction was enacted. Further, we also examine how the characteristics of houses sold varies across the boundary of a gang injunction, both before and after it goes into effect, as well as average home values in the local area (surrounding tracts), as reported in the American Communities Survey.

[15] We observe these transactions in our data, but as the sales price is missing, they are excluded from our primary analysis.

[16] One possibility includes historic districts. We checked for overlap between historic district boundaries (shapefiles from National Register for Historic Places) and safety zones, and found little to no spatial overlap. There is substantial overlap between injunction boundaries and "Gang Resistance and Youth Development" or "GRYD" site boundaries. GRYD sponsors community events (like outdoor movie screenings and film festivals) in GRYD sites, and young people who "spend a substantial amount of time" in GRYD zones are eligible for a variety of services.

Beginning with crime, the lower rate of crime occurring outside the boundary of the safety zone is apparent 5 years before a gang injunction goes into effect. Note that the denominator in each of these rates is identical to the denominator in the total crime figure, so the sum of the crime rates in each bin, across the second row of the figure 7, is roughly equal to the crime rate in figure 3. Not only are these annual figures noisier than the average, but it is also the case that the relative drop in crime at the safety zone boundary is clearly present, and perhaps larger, before the injunction goes into effect. In appendix figures A5 and A6, we reproduce these figures for violent and property offenses. These figures are consistent with the results of Grogger (2002); averaging violent crime rates inside and outside of the safety zones before and after the injunctions go into effect would suggest the injunction caused a decrease in violent crime, and there is less evidence of any change in property crime rates. However, with our spatially disaggregated data, it is clear that crime rates just inside and just outside of the boundaries are nearly identical, and in fact are closer together after the injunction goes into effect. Appendix figures A11-A14 show that the same pattern is evident for housing characteristics and number of homes sold; we observe some discontinuity in the total number of rooms and square footage of houses sold just inside and just outside the boundary, but this gap is time invariant.

We observe a very different pattern in housing values. There is little evidence of a jump in housing prices, in log (figure 7) or level (figure 8) terms, around the boundaries of future gang injunctions. However, starting in the first year the injunction is in effect, houses just inside the boundary are sold at lower prices than houses sold just outside of the boundary. Because the break in housing prices appears only after the boundaries of the safety zone are legally defined, there is a very limited scope for alternate explanations of the observed patterns. Any feature

must not only vary sharply at the gang injunction boundary, the typical identifying assumption for RDDs, but also has to be something that was only capitalized into housing values after the boundary was legally defined, which is not the case for actual crime rates or characteristics of homes sold. We propose that the only possible explanation that fits these two categories is a direct result of the gang injunction: the official designation of a particular house as being located in a high crime area, and the subsequent reduction in the civil liberties of people in those places.

5. Empirical Framework

Based on the graphical evidence, it seems to be the case that housing prices are negatively affected by gang injunctions at the injunction boundary. Crime rates, on the other hand, do not appear to fall discreetly at the border. If it is true that no other factor affecting housing prices discontinuously changes at the injunction boundary, comparing the limits of housing prices as one moves closer to the boundary will provide an unbiased local estimate of the effect of the gang injunctions on house values.

The graphical evidence suggested that the social value of the civil liberties affected by the gang injunctions is roughly $70,000, or 11% of the value of a home on average. However, the standard assumption of continuity in other relevant variables at the threshold is not true in a cross sectional sense. That said, the impact of the injunctions on housing prices can still be identified under the assumption that these discontinuous factors are equally discontinuous, and equally capitalized into house prices, before and after the injunction goes into effect, an identification strategy referred to as a "difference-in-discontinuities" (Grembi, Nannicini, & Troiano, 2016). More formally, in a standard RDD, identification of a treatment effect β is based on the difference in values of an outcome as one approaches the limit of a running variable from above or below, or

$$\hat{\beta} = \lim_{r \downarrow 0} Y - \lim_{r \uparrow 0} Y$$

Following the Rubin causal framework, this can be re-written as

$$\hat{\beta} = \lim_{r \downarrow 0}(\beta + \theta X_{it} + \varepsilon_{it}) - \lim_{r \uparrow 0}(\theta X_{it} + \varepsilon_{it})$$

$$\hat{\beta} = \beta + \theta\,[\lim_{r \downarrow 0}(X_{it}) - \lim_{r \uparrow 0}(X_{it})] + [\lim_{r \downarrow 0}(\varepsilon_{it}) - \lim_{r \uparrow 0}(\varepsilon_{it})]$$

The assumption of continuity of all characteristics, besides treatment, at the threshold identifies $\hat{\beta}$. In the case of Southern California, this assumption clearly does not hold. However, as long as there is a constant relationship between prices and relevant characteristics X_{it} over time, an unbiased estimate of β can be obtained by comparing the traditional RDD with an estimate from a falsification test: how did housing prices vary around the border of gang injunctions that had not yet gone into effect? Specifically, for each housing transaction, we calculate *r*, the distance from that house to the closest gang injunction at the date of sale, and then *f*, which is the distance from that house to the closest gang injunction boundary that would be imposed by the end of our sample period. We use these alternate distances to calculate a difference in discontinuities, or DiDisc, estimate:

$$\hat{\beta} = \beta + \theta\,[\lim_{r \downarrow 0}(X_{it}) - \lim_{r \uparrow 0}(X_{it})] + [\lim_{r \downarrow 0}(\varepsilon_{it}) - \lim_{r \uparrow 0}(\varepsilon_{it})]$$

$$- \theta^{f}\,[\lim_{f \downarrow 0}(X_{it}) - \lim_{f \uparrow 0}(X_{it})] - [\lim_{f \downarrow 0}(\varepsilon_{it}) - \lim_{f \uparrow 0}(\varepsilon_{it})]$$

under the assumption that the relationship between X_{it} and home prices at the gang injunction boundary does not depend on the imposition of an injunction, (i.e. $\theta = \theta^{f}$), then the DiDisc,

estimate of the impact of gang injunctions on house prices will produce an unbiased estimate of β.

In practice, we provide four estimates of β. First, we estimate a naïve cross-sectional RDD, where we estimate a standard OLS model of gang injunctions on home values, assuming a parametric relationship between distance from a boundary and price, adjusting for covariates and allowing the unobserved determinants of sales prices to be correlated within census tracts.

$$SalesPrice_{pnt} = \alpha + \beta Injunction_{pnt} + \theta X_{pnt} + \gamma Dist_{pnt}^{Inside} + \pi Dist_{pnt}^{Outside} + \varepsilon_{pnt}$$

Here, $SalesPrice_{pny}$ is the sales price of the house (in levels or logs) located on parcel *p* in neighborhood (census tract) *n* sold on date *t.* As in the previous figures, we define "distance" as positive outside injunctions and negative inside injunctions. The outcome of interest is our estimate of *β,* which reflects the average conditional difference in $Salesprice_{pnt}$ at the boundary. We include a matrix *Xpnt* of housing characteristics; the number of rooms, the age of the house, square feet of living space, and the year and month of sale. Recent papers that use spatial RDDs have included boundary fixed effects, which is particularly important for large geographical areas where home values might vary dramatically. We propose a more parsimonious approach to preserve degrees of freedom by including controls for the average house values in individual and adjacent census tracts where the transaction took place, as reported in the 2010-2015 ACS. While allowing us more degrees of freedom, this average house value should also capture any unobserved neighborhood amenities that are capitalized into the transaction price.

We then estimate a more robust RDD, a local linear regression where we allow for a nonparametric relationship between how far a house is from a boundary and price.[17] Since individual housing characteristics and area home values are important, we follow Calonico, Cattaneo, and Titiunik (2014) and Calonico, Cattaneo, Farrell, and Titiunik (2018) and adjust our estimates to reflect the inclusion of covariates, and use a data driven, MSE-optimal bandwidth selector, and construct confidence intervals using a cluster-robust nearest neighbor variance estimation, where clusters are defined by census tracts.

The next step is to implement the DiDisc estimate. We first show the DID analogue of our OLS estimates, created by generating two observations per transaction: one where distance is measured using the injunctions in effect at the date of sale, and a second distance based on future gang injunctions. We define the dummy variable T_{pnt}=1 if the distance calculation was based on the actual, rather than future, injunction boundaries.

$$SalesPrice_{pnt} = \alpha + \beta\left(T_{pnt} x\ Injunction_{pnt}\right) + \varphi T_{pnt} + \delta Injunction_{pnt} + \theta X_{pnt} + \gamma Dist_{pnt}^{Inside} + \pi Dist_{pnt}^{Outside} + \upsilon_{pnt}$$

In this model, β represents the jump in housing prices at active injunction boundaries over and above the jump we see at inactive ones.

Finally, we provided DiDisc local linear regressions by replacing actual distance with future distance. Our nonparametric DiDisc estimate is the difference between our cross sectional RDD and this estimate, with standard errors of this difference estimated by bootstrapping.[18]

[17] See Fan (1992) and Porter (2003). This approach to RDD is becoming increasingly common in applied work (e.g. Cook, Kapustin, Ludwig, and Miller (2017)).

[18] Note that the actual distance and future distance are negatively correlated (as places just outside gang injunctions are less likely to be subject to future gang injunctions), meaning that the square root of the sum of the estimated variances from our two LLR estimates will overstate the standard error of the difference.

When we estimate the impact of these injunctions on crime, as well as the number of transactions taking place, we follow the same general framework, but adapt our spatial units of analysis. Specifically, rather than measure crime (or count of housing transactions) at the parcel level, we identify all crimes happening (or number of houses sold) within 50 (1) meter bins of injunction boundaries.[19] The unit of observation is therefore a bin-tract-year-month.

6. Results.

6.2.a Crime

Table 3 presents our preliminary estimates of the relationship between gang injunctions and crimes known to police, estimated using a parametric RDD.[20] In the cross-section, we do not observe any relationship between being inside of a safety zone and total, property, or violent crime. When we compare the change in crime across injunction boundaries before and after they go into effect, our data do suggest that crime may increase outside of the safety zone relative to inside of it. However, the magnitude of this effect is sensitive to the functional for assumptions about our running variable, casting doubt on the validity of the result. Notably, our results are consistent with Grogger (2002) and Ridgeway et al. (2018). We find that moving outside of the safety zone is associated with 0.024 (se = 0.003) additional crimes per month, a roughly 3% increase over the sample mean. We observe similar reductions in both property (0.013) and violent (0.01) crime, meaning that proportionately, we observe a larger increase in violent offending – a relative 6% increase in violence outside the safety zone relative to inside, and a 2% increase in property offending. Including tract fixed effects does not alter our results.

[19] Specifically, we round the distance from the parcel to a boundary to be in single meter units. For crimes, which are not obviously recorded with precise geographical accuracy, we use 50 meters as the unit of measurement.
[20] Nonparametric estimates are forthcoming.

There are two reasons why we are cautious about interpreting these results. First, the finding that crime increases outside of safety zones is based on a parametric RDD where we assume that the relationship between the running variable and crime follows a third order polynomial above and below the threshold. Second, our overall goals is to estimate how residents value changes in crime relative to civil liberties. Actual crime, in some sense, is actually a proxy for how crime is capitalized into housing values. It is possible that people living 50 meters away from a crime do not perceive any change in their victimization risk, but it is also plausible that actual crime is capitalized into housing values in the same way that other neighborhood amenities, such as parks or pools are. In the absence of survey data on resident's perceptions of safety, we conclude that the actual increase in the cost of crime outside of injunction boundaries is an upper bound on the extent to which housing prices should fall, ceteris paribus.

6.2.b Home Values

Tables 4 and 5 presents our preliminary point estimates of the impact of gang injunctions on housing values. We present five sets of results for each specification: conventional cross sectional RDD estimates, bias-corrected cross sectional RDD estimates with the robust variance estimator developed in Calonico et al. (2014), and then Diff-in-Disc estimates where the discontinuity observed in the cross section is compared to the discontinuity at not-yet-enacted boundaries; two parametric estimates, and one based on the difference in two bias-corrected local linear regressions, with standard errors estimates via bootstrapping.[21]

[21] Specifically, the reported point estimate is the estimated impact of crossing a gang injunction boundary using the actual injunctions at the date of sale, minus the estimated impact of crossing an injunction boundary using only future injunctions. This difference is calculated in 2000 randomly drawn samples (with replacement), and the reported standard errors are the standard deviation of this distribution of these estimates.

Using the natural log of housing prices as our outcome, we estimate that moving just outside of a safety zone is associated with a 4% increase in home values, with an estimated standard error of about 2 percentage points. About 25% of that difference is due to time invariant features, as our difference in difference estimates suggest a 3% reduction in house values. The nonparametric regressions are less precise, and approximately 6% of those estimates are less than zero, but given the general stability of the point estimate across specifications, and the fact that these regressions allow for complete flexibility in all parameters, we might expect these estimates to be underpowered.

In level terms, our data suggest that people are willing to pay between $20 thousand (se=$17 thousand,) and $58 thousand (se=$28,000) to not live inside of a safety zone. When we compare this level difference to the jump in prices we observe at injunctions that are not yet in effect, the parametric estimates actually increase to $43,000 (se=9,400), while the nonparametric estimates fall by $1000 – statistically indistinguishable from the cross-sectional estimates. Note that these two different assumptions about how civil liberties are capitalized into housing values yields substantively different estimates, as a 3% increase in house value is roughly $12,000.

In tables 6 and 7, we re-estimate our cross sectional and parametric diff-in-disc estimates where we replace the original gang injunction boundaries with 100 yard buffer boundaries around the original injunction. This additional buffer area was not included in all injunctions, so we replaced this boundary only when specified in the original injunction. This re-estimation effectively treats the outer boundary of the 100 yard buffer, where specified, as the intervention of interest. Recall that the legal constraints on officers in these 100 yard buffer zones is unclear, as the injunction language does differentiate these areas from the actual safety zone, but a close reading of the injunction suggests that individuals named in the suits are subject to the same

restrictions on their activity even in this buffer area. As such, it may also be the case that officers might expect similar leeway in their actions in these buffer areas. It is unknown to us that the equivalence of these buffer zones and the safety zones, in terms of their implications for citizen and officer behavior, themselves had been legally tested.[22]

Graphically, it appears to be the case that when these buffer zone boundaries are included as part of the safety zone, house values appear to take 3 years to adjust. However, once they do, we actually estimate slightly larger impacts of boundaries on house prices; the cross sectional estimates suggest a 5% (se = 2.2 percentage points) increase in price, and the diff-in-disc estimates are 3.7% increase in prices (se=0.013). Notably, in level terms, we estimate no increase in prices (and in fact point estimates are negative) outside the boundaries which include the buffer zones, by the diff-in-disc estimates suggest that this is a $38,000 increase in value (se=9,700) relative to the previous difference in price at that boundary. While not conclusive, the finding that including legally gray areas as "treated" does not appreciably change our results, along with the graphical evidence on when the changes become most apparent, suggests that whatever the mechanisms driving the disutility associated with living in a safety zone are, they are at least in part likely to accrue over time.

6.2.c Frequency of Housing Transactions

As a final step, we explore whether or not the presence of gang injunctions affected the probability that a home was sold. Consistent with the graphical evidence, in table 8 we show that there is no statistical or substantively meaningful change in the probability a home is sold just inside or outside of a safety zone. On average, there are roughly 0.75 transactions per bin-

[22] This specific point was independently raised by two of the criminal defense attorneys we spoke with.

neighborhood-year-month, meaning that our estimates of roughly -0.03 and standard errors of around 0.04 correspond to relatively precisely estimated zeros.

7. *Conclusion*

Civil gang injunctions are one of many policing strategies that try to reduce crime by targeting criminal justice resources on a specific subset of the population in a specific place. By proactively criminalizing behaviors that may be precursors to crime, and enhancing the penalties for criminal behavior, these injunctions are intended to reduce the social harm from crime, specifically gang violence. However, the structure of gang injunctions, specifically the designation of a particular area as a "high crime" one, and the ease at which officers are able to add individuals to the injunction, has potentially important negative consequences for all people living inside the gang injunction's boundaries. Previous research has found evidence that crime rates fall in safety zones, but ours is the first to directly estimate the overall impact on social welfare, net of any change in crime, by evaluating how home prices vary across gang injunction boundaries.

While we are able to qualitatively replicate existing evidence of the impact of injunctions on crime using incident level data, we find that, on net, gang injunctions cause housing prices to fall, not rise. If perceptions of crime are smooth across these boundaries, we can interpret our estimates as the social willingness to pay for the aggressive policing that generates the aggregate crime reductions. If perceptions of crime are correlated with actual crime rates, and thus also jump discontinuously at the boundary, then our estimates are a lower bound of the true social cost of civil liberties.

Overall, these results call into question the social efficiency of gang injunctions, and place-based proactive policing policies more generally. The magnitude of our estimates, a roughly 3% reduction in home prices, most conservatively suggest that the injunctions fail to pass a cost-benefit test if they include more than 1,200 housing units, and using our larger estimates suggest that gang injunctions containing more than 430 houses provide a net cost, rather than benefit, to society. A relatively large body of field experiments suggest that place-based policing strategies, in particular identifying crime "hot spots," can lower crime rates. The results of this paper suggest that this finding is insufficient to conclude these are good policies.

References

ACLU. (1997). *False Premises, False Promises: The Blythe Street Gang Injunction and Its Aftermath*. Retrieved from Los Angeles:

Alonso, A. A. (1999). *Territoriality among African-American street gangs in Los Angeles.* (MA), University of Southern California.

Arnold, E. K. (2011). Oakland Gang Injunctions: Gentrification or Public Safety? *Race, Poverty & the Environment, 18*(2).

Barajas, F. P. (2007). An invading army: a civil gang injunction in a Southern California Chicana/o community. *Latino Studies, 5*(4), 393-417.

Boggess, L. N., Greenbaum, R. T., & Tita, G. E. (2013). Does crime drive housing sales? Evidence from Los Angeles. *Journal of Crime and Justice, 36*(3), 299-318. doi:10.1080/0735648X.2013.812976

Boggess, L. N., & Hipp, J. R. (2010). Violent Crime, Residential Instability and Mobility: Does the Relationship Differ in Minority Neighborhoods? *Journal of Quantitative Criminology, 26*(3), 351-370. doi:10.1007/s10940-010-9093-7

Bowers, K. J., Johnson, S. D., Guerette, R. T., Summers, L., & Poynton, S. (2011). Spatial displacement and diffusion of benefits among geographically focused policing initiatives: a meta-analytical review. *Journal of Experimental Criminology, 7*(4), 347-374.

Calonico, S., Cattaneo, M. D., Farrell, M. H., & Titiunik, R. (2018). Regression Discontinuity Designs Using Covariates. *The Review of Economics and Statistics*. doi:10.1162/rest_a_00760

Calonico, S., Cattaneo, M. D., & Titiunik, R. (2014). Robust Nonparametric Confidence Intervals for Regression-Discontinuity Designs. *Econometrica, 82*(6), 2295-2326. doi:10.3982/ECTA11757

Carr, R., Slothower, M., & Parkinson, J. (2017). Do Gang Injunctions Reduce Violent Crime? Four Tests in Merseyside, UK. *Cambridge Journal of Evidence-Based Policing, 1*(4), 195-210. doi:10.1007/s41887-017-0015-x

Chamberlain, A. W., Wallace, D., Pfeiffer, D., & Gaub, J. (2016). Housing Disinvestment and Crime in a Phoenix Suburb: Exploring the Differential Effects of Investors and Owner-Occupants. *Urban Affairs Review, 54*(1), 190-224. doi:10.1177/1078087416640126

Cook, P. J., Kapustin, M., Ludwig, J., & Miller, D. L. (2017). *The Effects of COPS Office Funding on Sworn Force Levels, Crime, and Arrests: Evidence from a Regression Discontinuity Design*. Washington, DC: Office of Community Oriented Policing Services.

Fan, J. (1992). Design-adaptive Nonparametric Regression. *Journal of the American Statistical Association, 87*(420), 998-1004. doi:10.2307/2290637

Genelin, M. (1998). Community Prosecution: A Difference. *Prosecutor's Brief, 10*(3), 13-17.

Goulka, J., Heaton, P., Tita, G., Matthies, C. F., Whitby, A., & Cooper, A. (2009). *FY2006 Anti-Gang Initiative Grants in the Central District of California: Report to the U.S. Attorney*. Retrieved from Santa Monica, CA: https://www.rand.org/pubs/working_papers/WR660.html

Grembi, V., Nannicini, T., & Troiano, U. (2016). Do Fiscal Rules Matter? *American Economic Journal: Applied Economics, 8*(3), 1-30.

Grogger, J. (2002). The Effects of Civil Gang Injunctions on Reported Violent Crime: Evidence from Los Angeles County. *The Journal of Law & Economics, 45*(1), 69-90. doi:10.1086/338348

Heaton, P. (2010). *Hidden in Plain Sight: What Cost-of-Crime Research Can Tell Us About Investing in Police*. Retrieved from Santa Monica, CA: http://www.rand.org/pubs/occasional_papers/OP279.html

Hinton, E. (2016). *From the War on Poverty to the War on Crime: The Making of Mass Incarceration in America*. Cambridge, MA: Harvard University Press.

Howle, E. M. (2016). *The CalGang Criminal Intelligence System: As the Result of Its Weak Oversight Structure, It Contains Questionable Information That May Violate Individuals' Privacy Rights*. (2015-130). Sacramento, CA.

Linden, L., & Rockoff, J. E. (2008). Estimates of the Impact of Crime Risk on Property Values from Megan's Laws. *American Economic Review, 98*(3), 1103-1127. doi:doi: 10.1257/aer.98.3.1103

Maxson, C. L., & Allen, T. L. (1997). *An Evaluation of the City of Inglewood's Youth Firearms Violence Initiative*. Retrieved from Los Angeles, CA:

Maxson, C. L., Hennigan, K. M., & Sloane, D. C. (2003). For the Sake of the Neighborhood?: Civil Gang Injunctions as a Gang Intervention Tool in Southern California. In S. Decker (Ed.), *Policing Youth Gangs and Violence* (pp. 239-266). Belmont, CA: Wadsworth.

Maxson, C. L., Hennigan, K. M., & Sloane, D. C. (2005). "It's Getting Crazy Out There": Can A Civil Gang Injunction Change A Community? *Criminology & Public Policy, 4*(3), 577-605.

Meares, T. L. (2015). Programming Errors: Understanding the Constitutionality of Stop-and-Frisk as a Program, Not an Incident. *University of Chicago Law Review, 159*(82), 20.

Muñiz, A. (2015). *Police, Power, and the Production of Racial Boundaries*. New Brunswick, UNITED STATES: Rutgers University Press.

Muniz, A., & McGill, K. (2012). *Tracked and Trapped*. Retrieved from Los Angeles, CA: http://www.youth4justice.org/wp-content/uploads/2012/12/TrackedandTrapped.pdf

National Academies of Sciences, E., & Medicine. (2018). *Proactive Policing: Effects on Crime and Communities*. Washington, DC: The National Academies Press.

O'Deane, M. D. (2011). *Gang Injunctions and Abatement: Using Civil Remedies to Curb Gang-Related Crimes*. Boca Raton, FL: CRC Press.

Porter, J. (2003). *Estimation in the Regression Discontinuity Model*.

Queally, J. (2016, 11/06/2016). LAPD gang injunctions deny targets due process, ACLU lawsuit says. *The Los Angeles Times*. Retrieved from http://www.latimes.com/local/lanow/la-me-ln-aclu-gang-lawsuit-20161024-snap-story.html

Ridgeway, G., Grogger, J., Moyer, R. A., & MacDonald, J. M. (2018). Effect of Gang Injunctions on Crime: A Study of Los Angeles from 1988–2014. *Journal of Quantitative Criminology*. doi:10.1007/s10940-018-9396-7

Rios, V. M. (2011). *Punished: Policing the Lives of Black and Latino Boys*: NYU Press.

Skinner, J. (1989). Housing wealth and aggregate saving. *Regional Science and Urban Economics, 19*(2), 305-324. doi:https://doi.org/10.1016/0166-0462(89)90008-2

Smith, L., Bertozzi, A., Brantingham, P. J., Tita, G., & Valasik, M. (2012). Adaptation of an Ecological Territorial Model of Street Gang Spatial Patterns in Los Angeles. *Discrete and Continuous Dynamical Systems, 32*, 2.

Vannoy, B. (2009). Turning Their Lives Around: California Cities Pioneer Injunction Removal Procedures. *J. Nat'l Ass'n Admin. L. Judiciary, 29*, 283.

Weisburd, D., Wyckoff, L. A., Ready, J., Eck, J. E., Hinkle, J. C., & Gajewski, F. (2006). DOES CRIME JUST MOVE AROUND THE CORNER? A CONTROLLED STUDY OF SPATIAL DISPLACEMENT AND DIFFUSION OF CRIME CONTROL BENEFITS*. *Criminology, 44*(3), 549-592. doi:10.1111/j.1745-9125.2006.00057.x

Weisburd, S. (2016). Police Presence, Rapid Response Rates, and Crime Prevention. *Working Paper*.

Zillow. 2017. "ZTRAX: Zillow Transaction and Assessor Dataset, 2017-Q4." Zillow Group, Inc. http://www.zillow.com/ztrax/

Figure 1: Anaheim Safety Zone and Home Sales

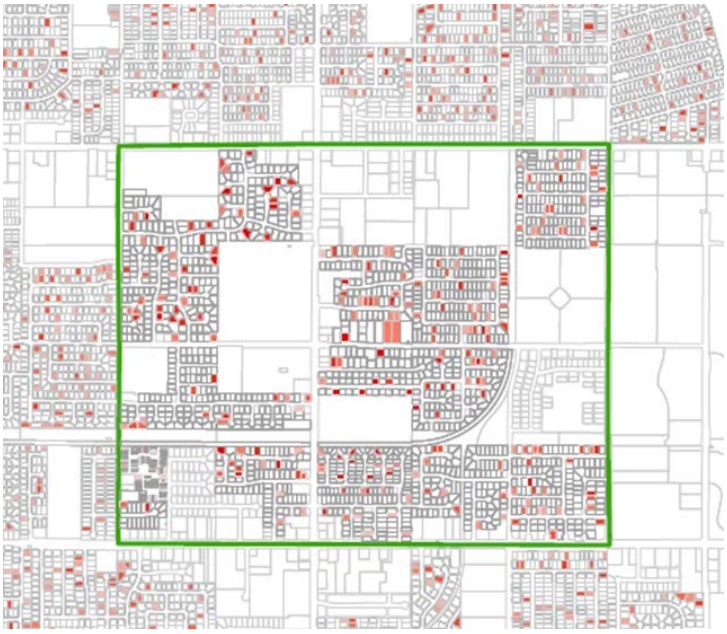


Figure 2: Gang Injunctions in Southern California

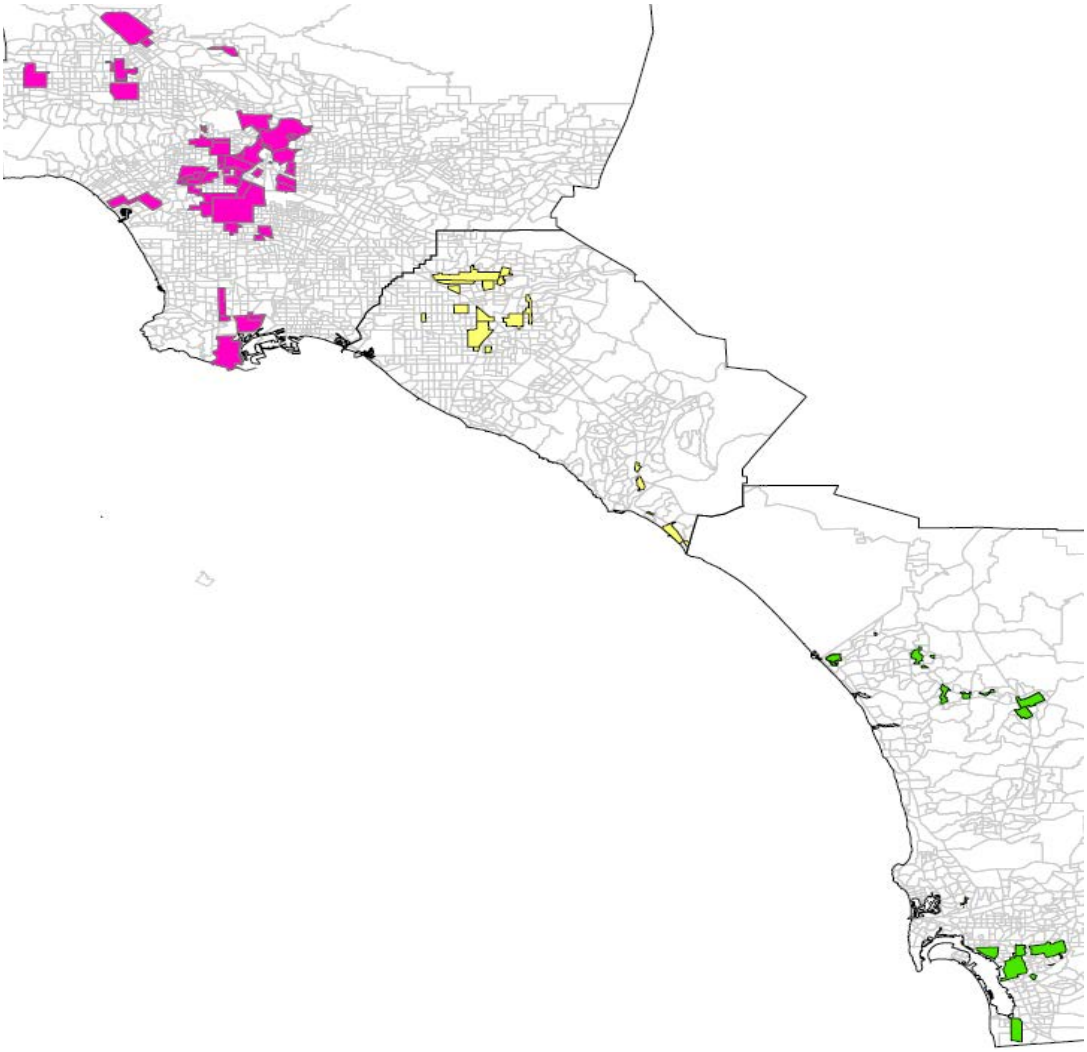


Figure 3: Gang Injunctions and Serious Crime Rates in Southern California

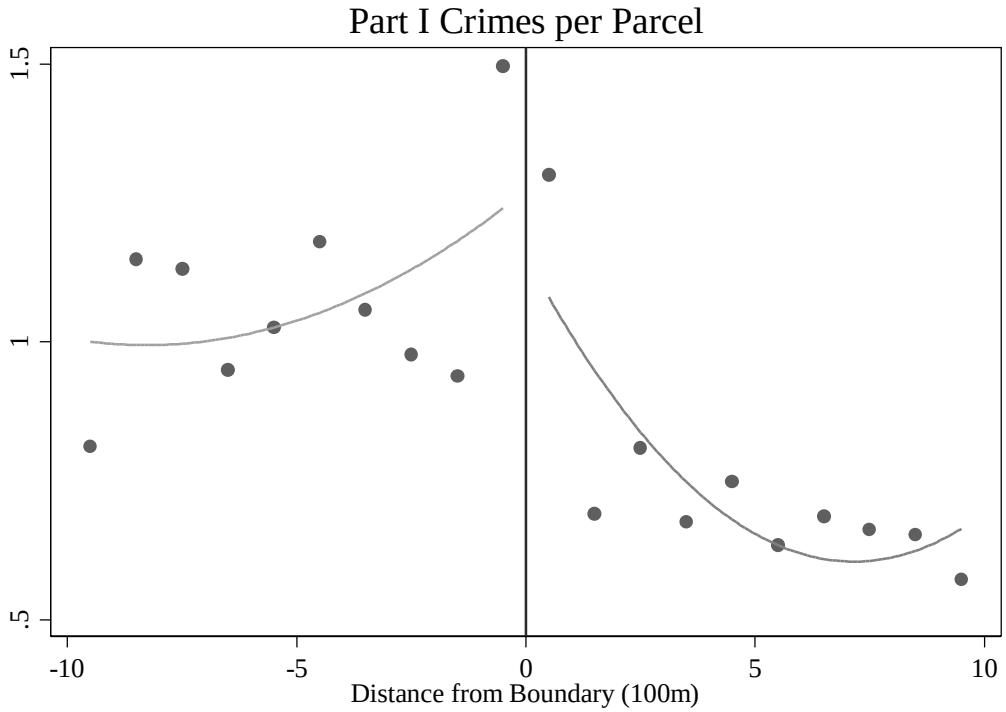


Figure 4: Gang Injunctions and Ln(Home Sales) in Southern California, 2002-2015

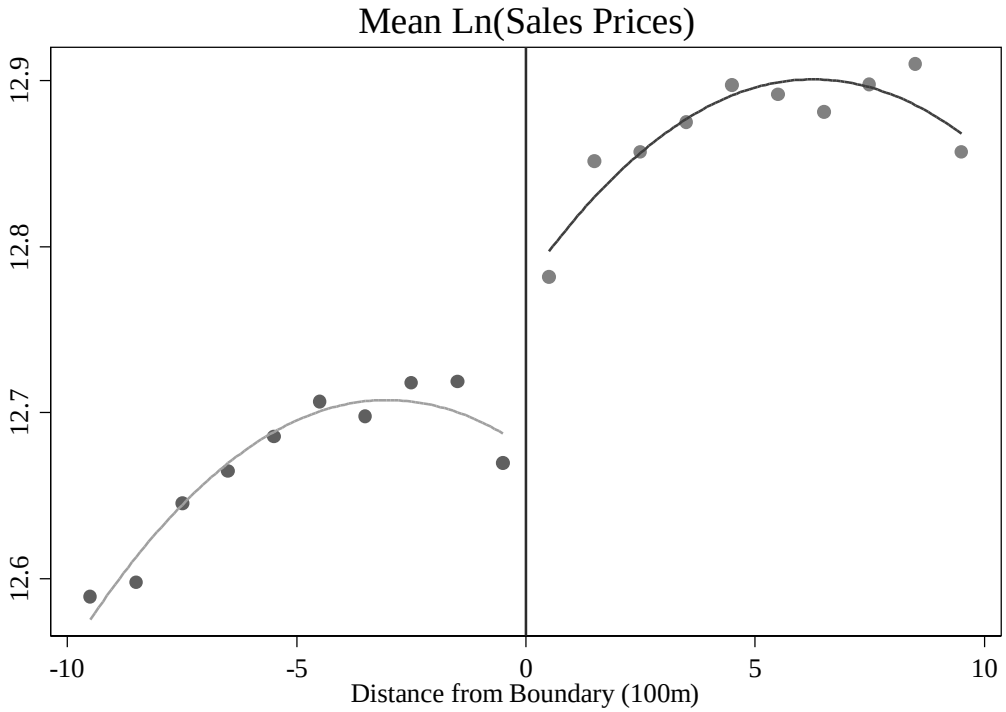


Figure 5: Gang Injunctions and Average Home Sales in Southern California, 2002-2015

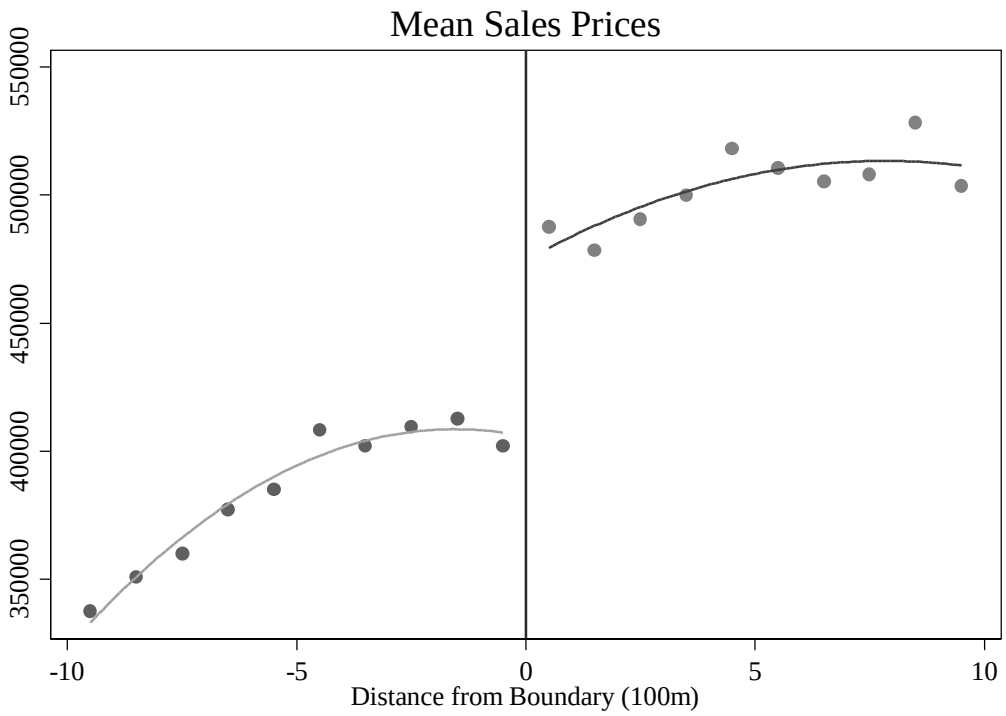


Figure 6: Gang Injunctions and Serious Crime Rates in Southern California, by Year

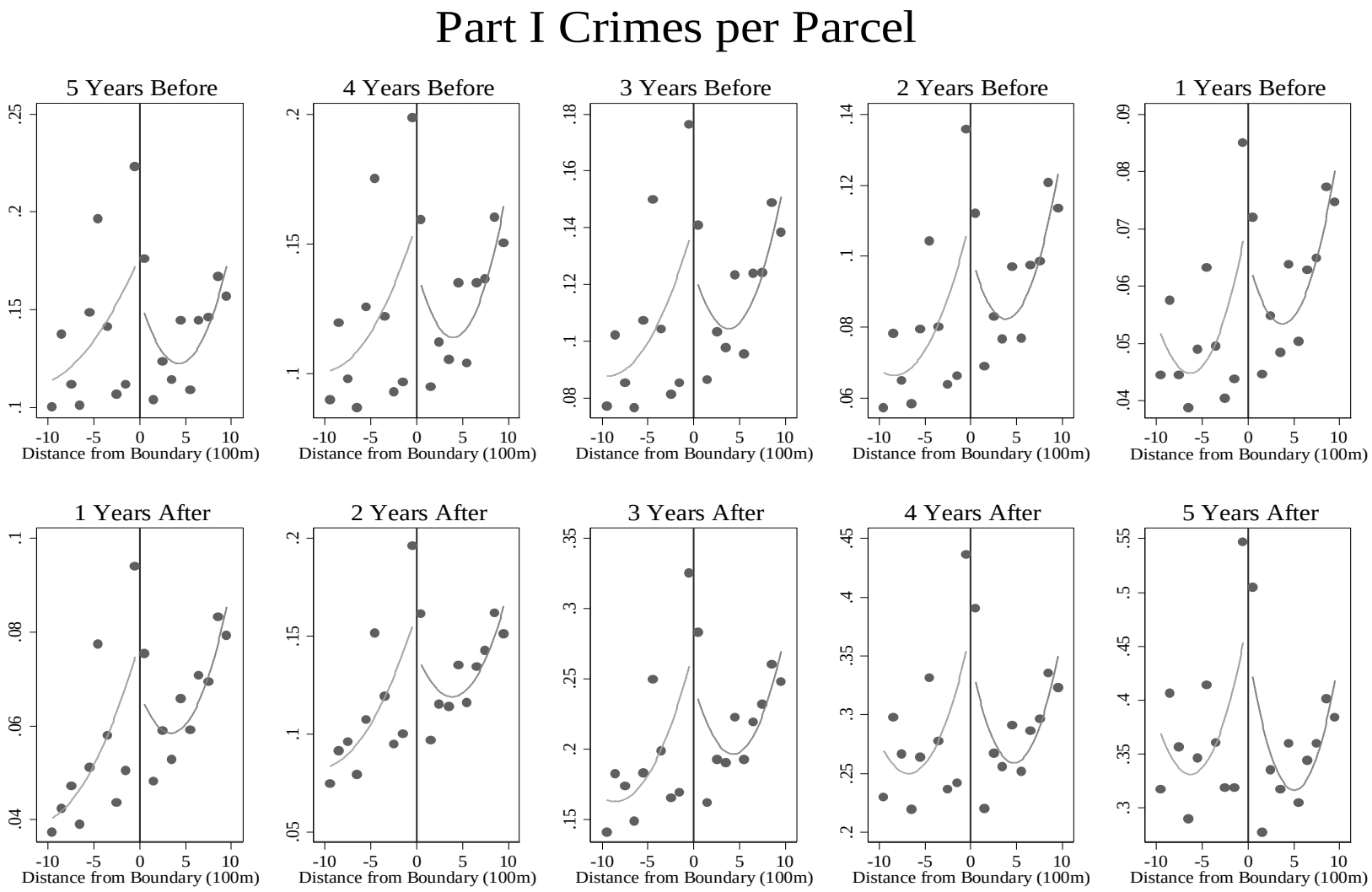


Figure 7: Gang Injunctions and Ln(Home Sales) in Southern California, by Year

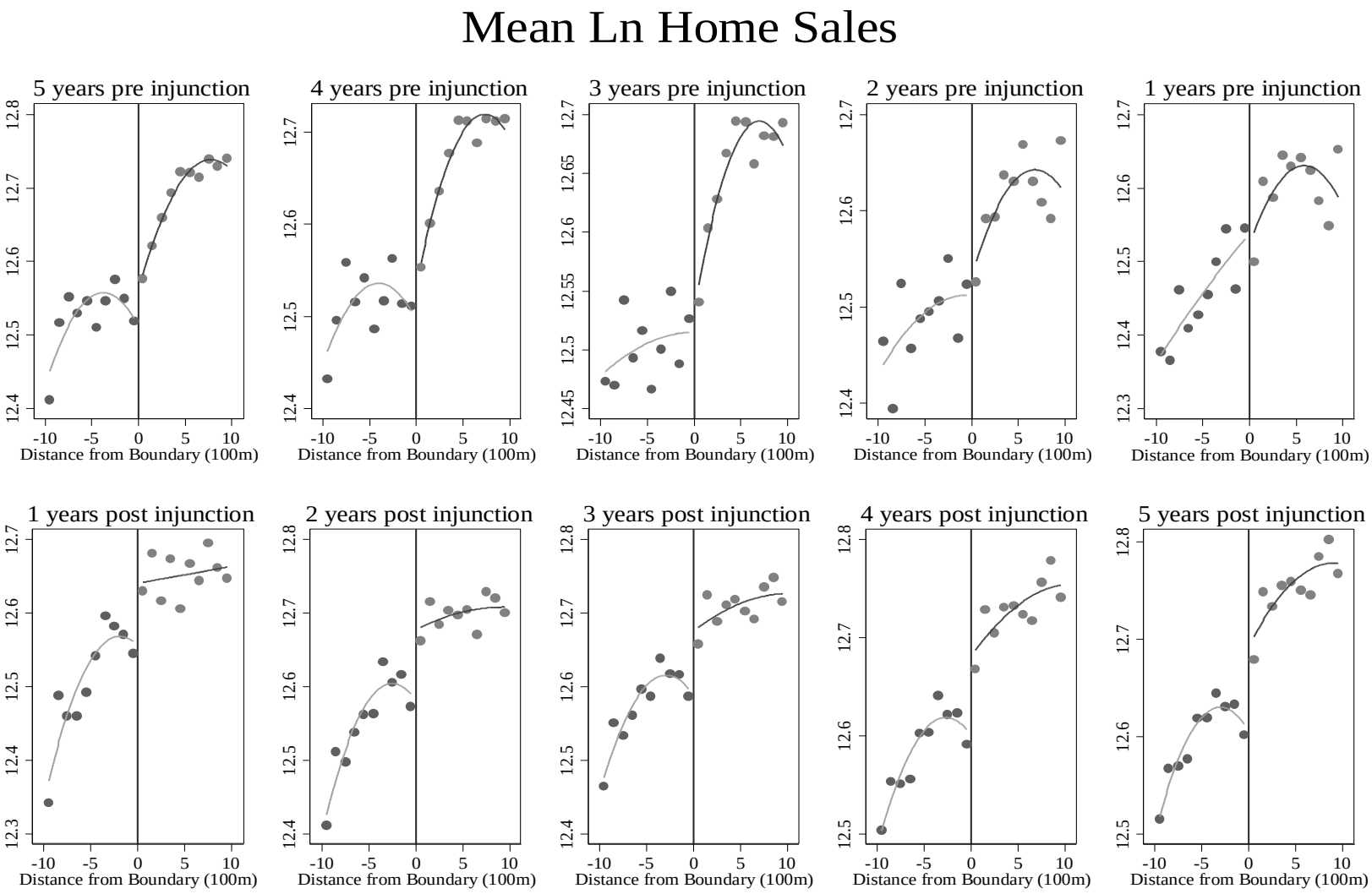


Figure 8: Gang Injunctions and Home Sales in Southern California, by Year

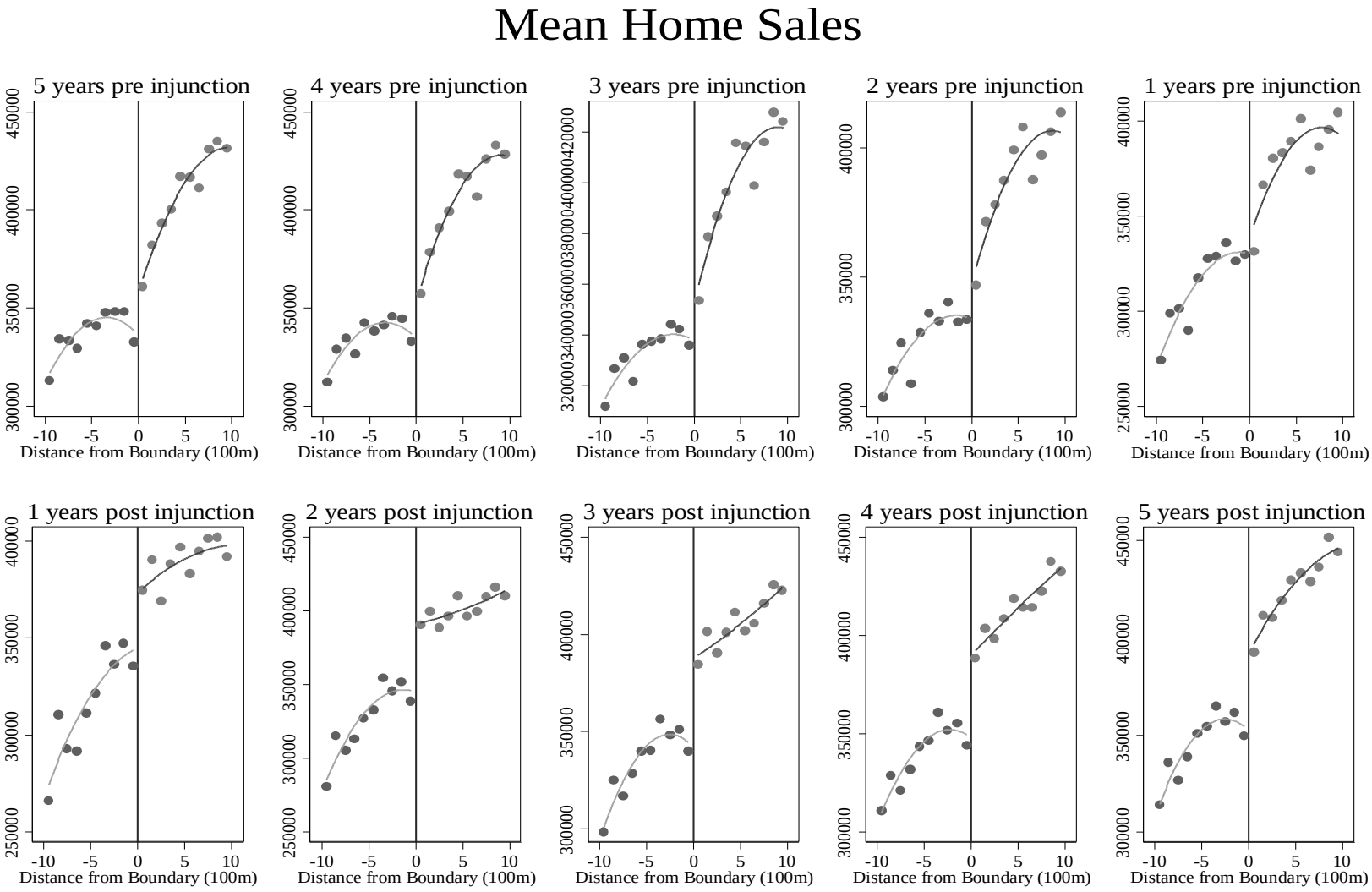


Table 1: Crimes in Southern California, 2007-2015

				400m from Boundary	
	Full Sample	Injunction Areas	Non-Injunction Areas	Injunction Areas	Non-Injunction Areas
All Part I	19,565.86	14,793.04	26,584.71	48,472.75	37,748.5
	(16,062.55)	(18,189.22)	(8,771.01)	(11,434.47)	(8,811.32)
Violent	3,761.07	3,068.28	4,779.88	9,440.25	7,330.25
	(3,099.03)	(3,524.84)	(2,029.93)	(2,491.89)	(2,222.98)
Property	15,804.79	11,724.76	21,804.82	39,032.5	30,418.25
	(13,002.82)	(14,677.7)	(6,770.32)	(8,972.28)	(66,13.61)
Parcels	23,563.9	13,744.64	38,004	43,473.2	44,392
	(17,878.92)	(15,866.8)	(8,323.63)	(3,968.09)	(3,875.16)
N	42	25	17	4	4

Notes: Unit of observation is a 100 meter wide ring around a safety zone boundary. Standard deviations in parentheses. Number of parcels is measured in 2015, using all gang injunction boundaries. Crime is measured based on gang injunction boundaries at date of offense.

Table 2: Housing Characteristics and Values in Southern California, 2002-2015

				400m from Boundary	
	Full Sample	Injunction Areas	Non-Injunction Areas	Injunction Areas	Non-Injunction Areas
House Price	$440,463	$381,132	$459,796	$405,375	$487,740
	($574,956)	($314,398)	($636,052)	($636,052)	($1,229,256)
Number of Rooms	5.12	4.66	5.26	4.79	5.1
	(1.69)	(1.56)	(1.70)	(1.57)	(1.67)
Building Size	1,550	1,383	1,605	1,420	1,567
	(716.6)	(540.6)	(757.4)	(571)	(710)
Housing Age	61.0	69.4	58.3	66.5	63.0
	(23.6)	(25.6)	(22.3)	(25.4)	(23.3)
Area Home Value	$532,617	$489,108	$546,794	$519,519	$558,179
	($245,957)	($214,246)	($253,835)	($250,317)	($273,500)
N	347,685	126,242	221,443	59,488	59,116

Notes: Unit of observation is a Housing Transaction. Housing Characteristics measured in 2015. All prices measured in 2012 dollars. Standard deviations in parentheses.

Table 3: RD Estimates of the Impact of Gang Injunctions on Crime in Southern California

	Cross Section		Difference in Discontinuities			
Total Crime $\bar{x}$*= 0.774*	Linear RD		Linear RD		3rd order RD	
Effect of Leaving Gang Injunction	-0.004	-0.006	0.001	0.001	0.024 ***	0.024 ***
	[0.005]	[0.005]	[0.005]	[0.005]	[0.003]	[0.003]
Bandwidth	1000 m	1000 m	1000 m	1000 m	1000 m	1000 m
Tract FE		X		X		X
Sample Size	978,506	978,506	1,821,314	1,821,314	1,821,314	1,821,314
R-Squared	0.01	0.01	0.01	0.01	0.01	00.01.01
Violent Crime $\bar{x}$*= 0.154*						
Effect of Leaving Gang Injunction	-0.002	0.0001	0.002	0.002	0.01 ***	0.01 ***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.001]	[0.001]
Bandwidth	1000 m	1000 m	1000 m	1000 m	1000 m	1000 m
Tract FE		X		X		X
Sample Size	978,506	978,506	1,821,314	1,821,314	1,821,314	1,821,314
R-Squared	0.01	0.01	0.01	0.01	0.01	0.01
Property Crime $\bar{x}$*= 0.621*						
Effect of Leaving Gang Injunction	-0.002	-0.006	-0.001	-0.001	0.013 ***	0.013 ***
	[0.005]	[0.005]	[0.005]	[0.005]	[0.003]	[0.003]
Bandwidth	1000 m	1000 m	1000 m	1000 m	1000 m	1000 m
Tract FE		X		X		X
Sample Size	978,506	978,506	1,821,314	1,821,314	1,821,314	1,821,314
R-Squared	0.01	0.01	0.01	0.01	0.01	0.01

All estimates include controls for year and month of sale fixed effects. Standard errors in brackets allow for clustering at the tract level.

+ = p <0.1 , * = p < 0.05 , ** = p < 0.01, *** = p < 0.001

Table 4: RD Estimates of the Impact of Gang Injunctions on Ln(Housing Prices) in Southern California

	Cross Section		Difference in Discontinuities		
	Linear RD	Robust LLR	Linear RD	3rd order RD	Robust LLR
Effect of Leaving Gang Injunction	0.041 + [0.022]	0.040 ** [0.017]	0.029 * [0.013]	0.030 * [0.013]	0.034 [0.022]
Bandwidth	1000 m	366.33 m	1000 m	1000 m	
Effective Sample Size		66,156			
Sample Size	156,873	305,426	273,818	273,818	
R-Squared	0.49		0.44	0.44	

All estimates include controls for the natural log of the average home price in surrounding census tracts, the age of the house, total number of rooms, square footage, and year and month of sale fixed effects. Standard errors in brackets allow for clustering at the tract level. 95% confidence intervals in braces based on 2,000 bootstrapped replications.
+ = p <0.1 , * = p < 0.05 , ** = p < 0.01, *** = p < 0.001

Table 5: RD Estimates of the Impact of Gang Injunctions on Housing Prices in Southern California

	Cross Section		Difference in Discontinuities		
	Linear RD	Robust LLR	Linear RD	3rd order RD	Robust LLR
Effect of Leaving Gang Injunction	20,173 + [16,846]	58,298 * [28,121]	43,572 *** [9,458]	43,739 *** [9,420]	57,117 * [25,037]
Bandwidth	1000 m	385.20 m	1000 m	1000 m	
Effective Sample Size		70,143			
Sample Size	156,873	305,426	273,818	273,818	
R-Squared	0.18		0.21	0.21	

All estimates include controls for the natural log of the average home price in surrounding census tracts, the age of the house, total number of rooms, square footage, and year and month of sale fixed effects. Standard errors in brackets allow for clustering at the tract level. 95% confidence intervals in braces based on 2,000 bootstrapped replications.
+ = p <0.1 , * = p < 0.05 , ** = p < 0.01, *** = p < 0.001

Table 6: RD Estimates of the Impact of Gang Injunctions on Housing Transactions in Southern California

	Cross Section		Difference in Discontinuities	
	Linear RD	Robust LLR	Linear RD	3rd order RD
Effect of Leaving Gang Injunction	-0.032	-0.017	-0.016	-0.029
	[0.038]	[0.038]	[0.055]	[0.025]
Bandwidth	1000 m	1000 m	375 m	1000 m
Effective Sample Size			90725	
Sample Size	208,830	208,830	394,512	344,718
R-Squared	.25	.25		.22

The unit of observation is distance-tract-year-month bin, and the outcome is the number of home sales with valid price information. All estimates include controls for the natural log of the average home price in surrounding census tracts, the age of the house, total number of rooms, square footage, and year and month of sale fixed effects. Standard errors in brackets allow for clustering at the tract level. 95% confidence intervals in braces based on 2,000 bootstrapped replications.

+ = p <0.1 , * = p < 0.05 , ** = p < 0.01, *** = p < 0.001

Appendix A1: Southern California Gang Injunctions

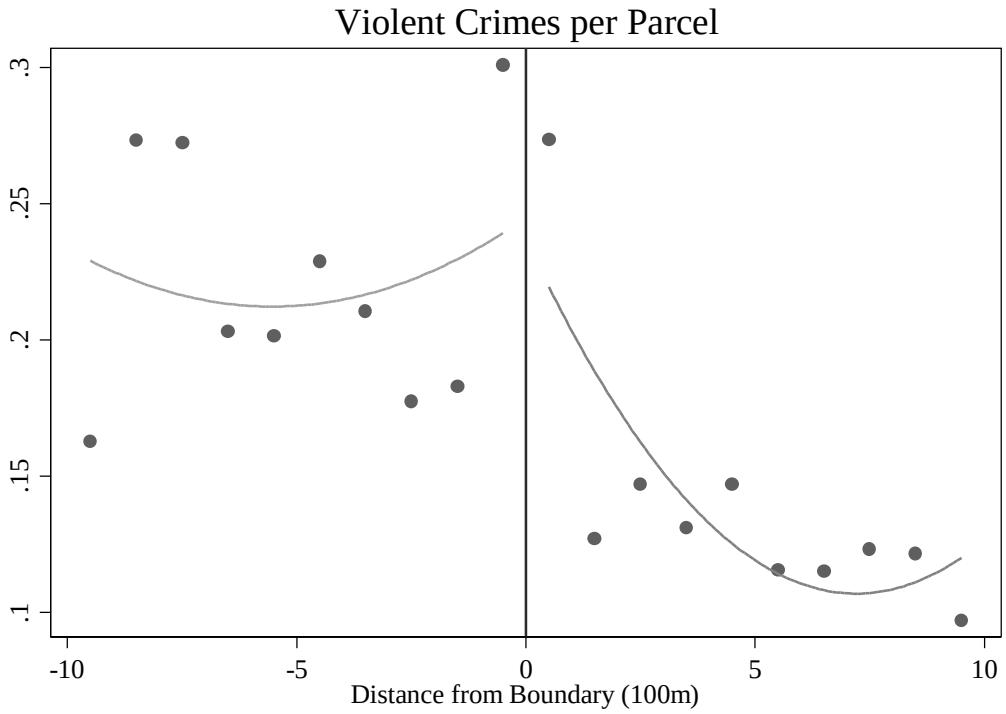
Orange County Gang Injunctions		
Injunction	City	File Date of Preliminary Injunction
West Trece	Westminster	6/30/1993
Santa Nita	Santa Ana Garden Grove	7/14/2006
Boys from the Hood	Anaheim	10/16/2006
Varrio Chico	San Clemente	11/1/2007
Varrio Viejo	San Juan Capistrano / Mission Viejo	11/1/2007
Orange County Criminals	Orange	6/4/2008
Orange Varrio Cypress (OVC)	Orange	2/1/2009
Hard Times	Garden Grove	12/03/2009
Jeffrey Street	Anaheim	4/15/2010
FOLKS	Anaheim	
Tokers Town	Fullerton	2/14/2011
Big Stanton	Stanton	10/12/2012
Eastside Anaheim	Anaheim	3/01/2012
Townsend	Santa Ana	6/12/2014
Plas	Placentia	09/21/2015
La Jolla	Placentia	09/21/2015
San Diego County Gang Injunctions		
Varrio Posole Locos	Oceanside	November 25, 1997
Varrio San Marcos	San Marcos	November 1, 1999
Varrio Mesa Locos	Oceanside	June 1, 2000
Linda Vista 13	Linda Vista	March 23, 2001
Westide & Diablos	Escondido	July 13, 2001
Nestor	San Diego	July 15, 2002
Logan Red Steps	San Diego	April 10, 2003
Center Street Gang	Oceanside	December 3, 2003
Vario Posole Locos	Oceanside	March 2, 2004
Eastside Piru	San Diego	May 14, 2004
Vista Home Boys	Vista	September 30, 2005
Old Town	National City	October 31, 2005
Varrio San Marcos	San Marcos	November 28, 2007
Westside & Diablos	Escondido	September 5, 2007 March 22, 2010
Center Street Gang	Oceanside	May 24, 2010
Varrio Posole Locos	Oceanside	January 11, 2011
Los Angeles City Gang Injunctions		
Blythe Street Gang		2/22/1993
18th Street Gang Southwest (Alsace Clique, Jefferson Park)		3/21/1997
18th Street (Pico-Union) I (Pico Union II)		8/1/1997
Mara Salvatrucha I (Mara Salvatrucha II)		3/4/1998
18th Street Gang (Shatto Park Locos, Columbia Little Cycos) (10 Gang)		5/1/1998
Harpys		6/16/1998

Langdon Street Gang	3/26/1999
Culver City Boys	4/23/1999
Venice Shoreline Crips	5/21/1999
Harbor City & Harbor City Crips	11/12/1999
Venice 13 Gang	2/4/2000
Pacoima Project Boys	3/20/2001
Eastside Wilmas Gang & Westside Wilmas Gang	5/23/2001
Canoga Park Alabama	1/29/2002
18th Street - Pico Union II (Hoover St, Red Shield)	4/16/2002
KAM	10/3/2002
Avenues	12/17/2002
Rolling 60 Crips	7/8/2003
Bounty Hunters	8/26/2003
18th Street - Hollywood	11/4/2003
Mara Salvatrucha II	3/9/2004
Wilshire 18th Street	4/6/2004
38th Street	7/28/2004
Varrio Nuevo Estrada	8/12/2004
42nd Street, 43rd Street & 48th Street Gangster Crips	12/16/2004
Grape Street Crips	3/10/2005
Hoover & Trouble	3/15/2005
18th Street, Crazy Riders, Down in Action, Krazy Town, La Raza Loca, Orphans, Rockwood Street Locos, Varrio Vista RIFA, Wanderers, Witmer Street Locos	5/2/2005
Big Hazard	6/28/2005
School Yard Crips & Geer Street Crips	3/23/2006
Playboys	5/8/2006
Black P Stones	5/25/2006
White Fence (Hollywood)	6/8/2006
Clover, Eastlake & Lincoln Heights	9/20/2006
Dogtown	10/6/2006
Highland Park	10/6/2006
Rolling 40, 46 Top Dollar Hustler & 46 Neighborhood Crips	11/5/2007
5th & Hill	11/16/2007
204th Street & Eastside Torrance	12/7/2007
San Fer	4/10/2008
All for Crime, Barrio Mojados, Blood Stone Villains, Florencia, Oriental Boyz, Pueblo Bishops	9/5/2008
Eastside Pain	10/10/2008
Temple Street	11/3/2008
Toonerville	11/24/2008
Barrio Van Nuys	5/6/2009
Fremont (Swan Bloods, Florencia 13, Main Street Crips, 7 Trey, Hustlers/Gangster Crips_	6/12/2009
Grape Street Crips (Central)	4/7/2010
Rancho San Pedro	4/27/2011
Columbus Street	2/20/2013
Glendale Corridor (Big Top Locos, Crazys, Diamond Street Locos, Echo Park Locos, Frog Town Rifas, Head Hunters)	6/11/2013

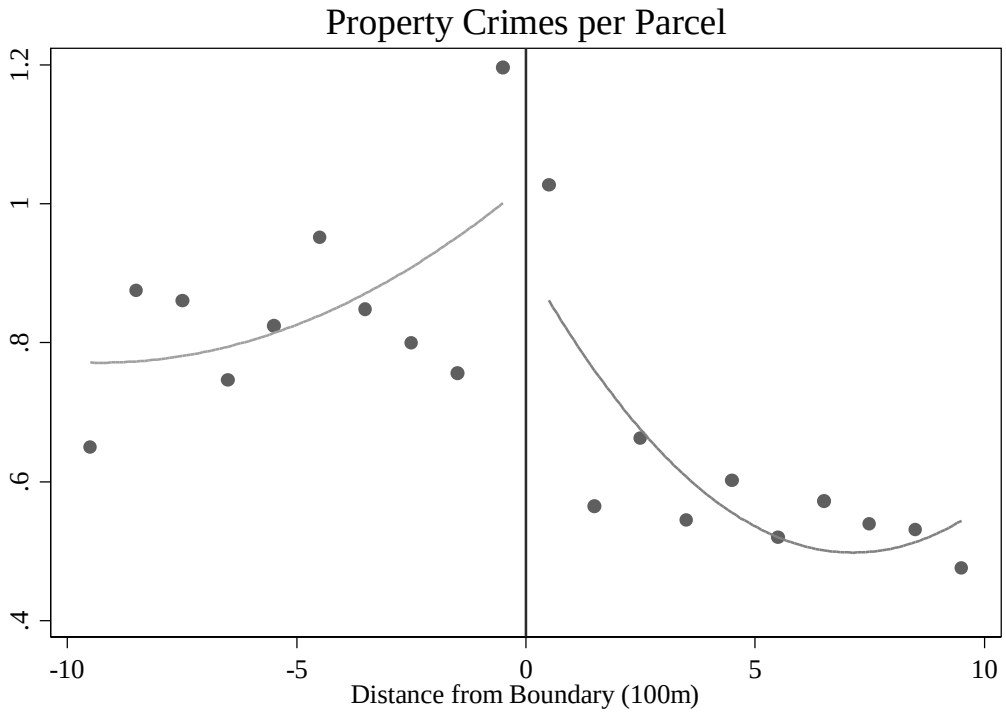
Appendix A2: Sources used to create injunction boundaries and retrieve dates

San Diego County District Attorney	https://www.sdcda.org/preventing/gangs/injunctions.html
Los Angeles City Attorney	https://www.lacityattorney.org/gang-injunction
Orange County	Data were not made freely available by the Orange County District Attorney's Office, so data were obtained from a combination of sources: legal documents, press releases, news stories, and maps.
Gang Injunctions and Gang Abatement Book	O'Deane, Matthew D. Gang injunctions and abatement: Using civil remedies to curb gang-related crimes. CRC Press, 2011.

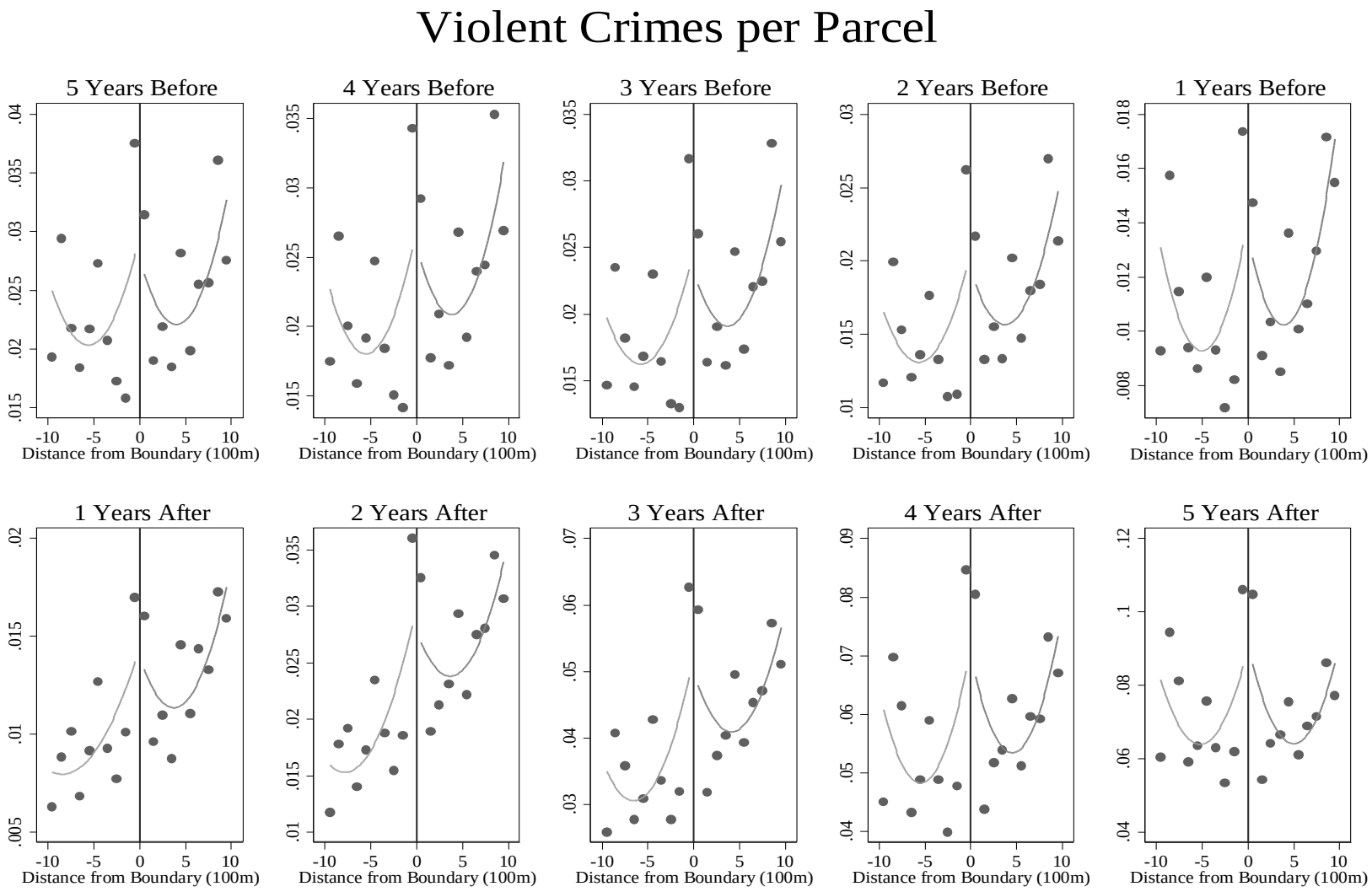
Appendix Figure A3: Gang Injunctions and Violent Crime



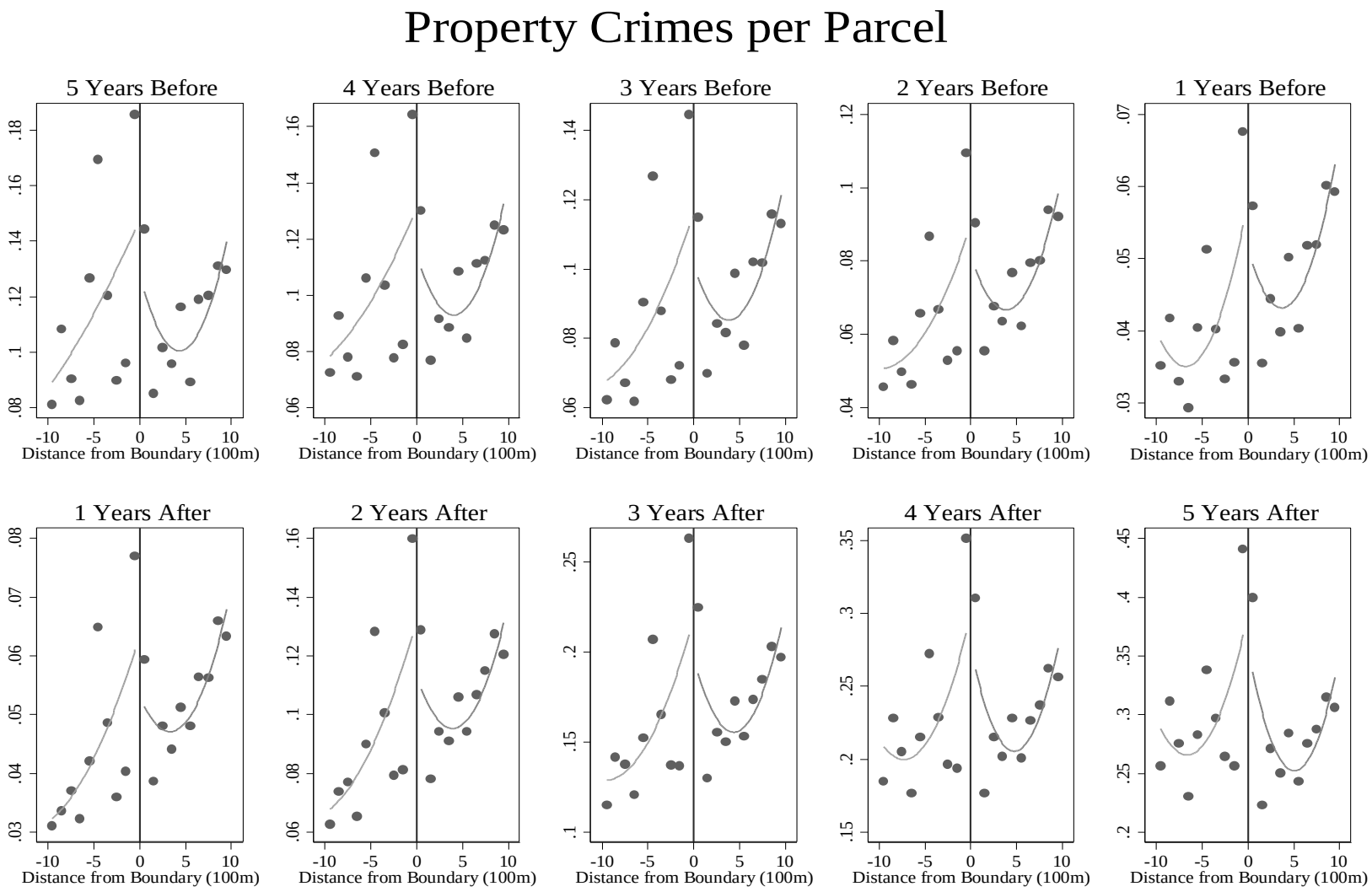
Appendix Figure A4: Gang Injunctions and Property Crime



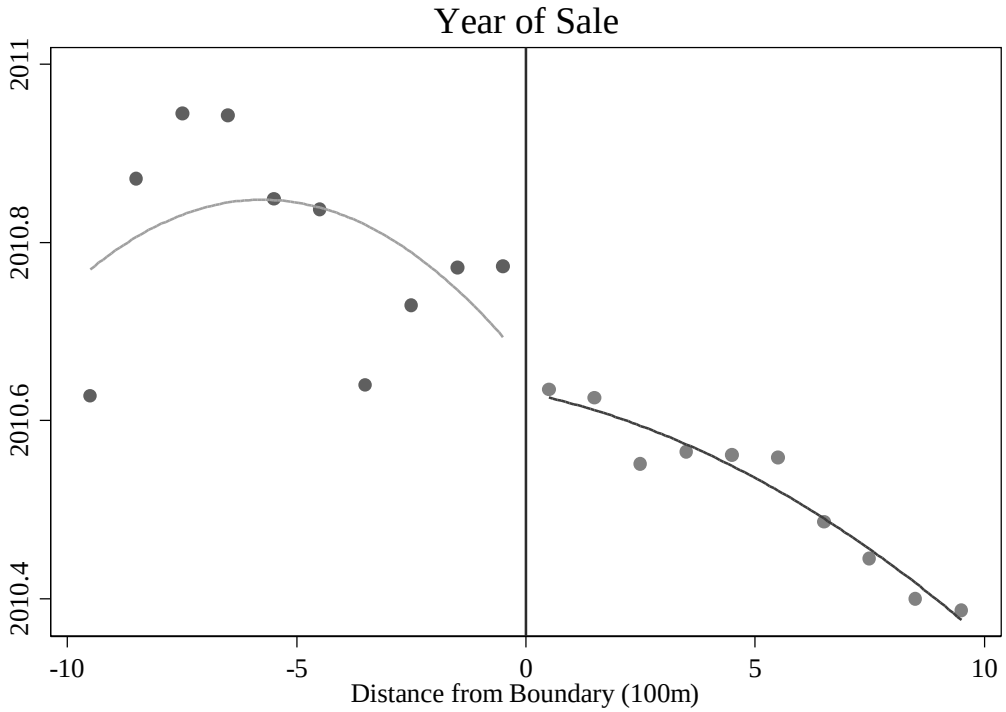
Appendix Figure A5 Gang Injunctions and Violent Crime, By Year



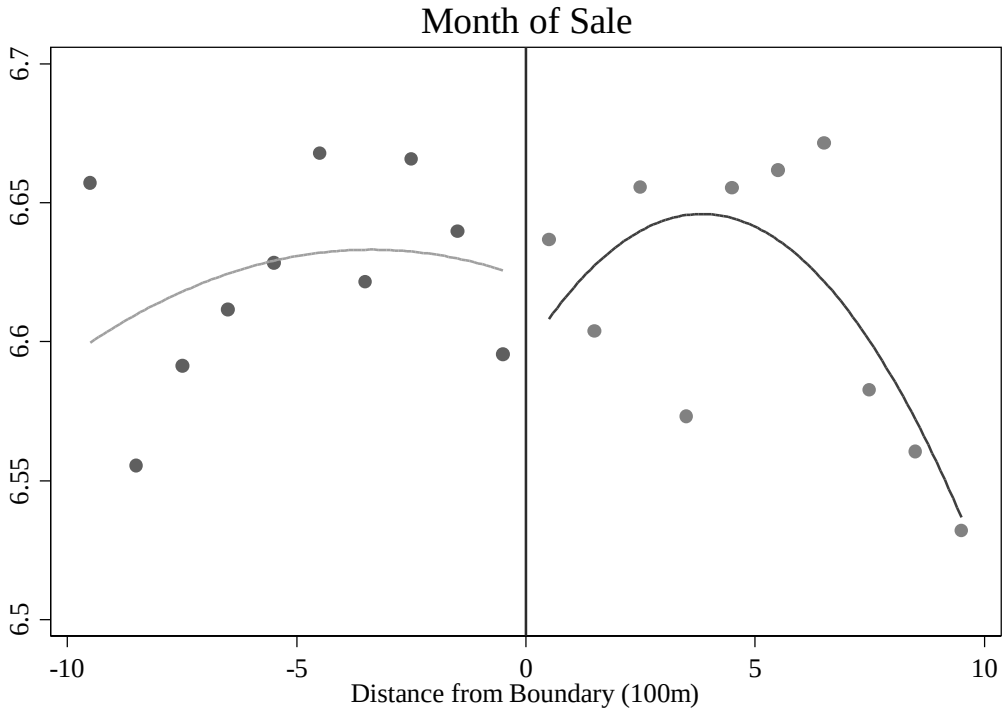
Appendix Figure A6 Gang Injunctions and Property Crime, By Year



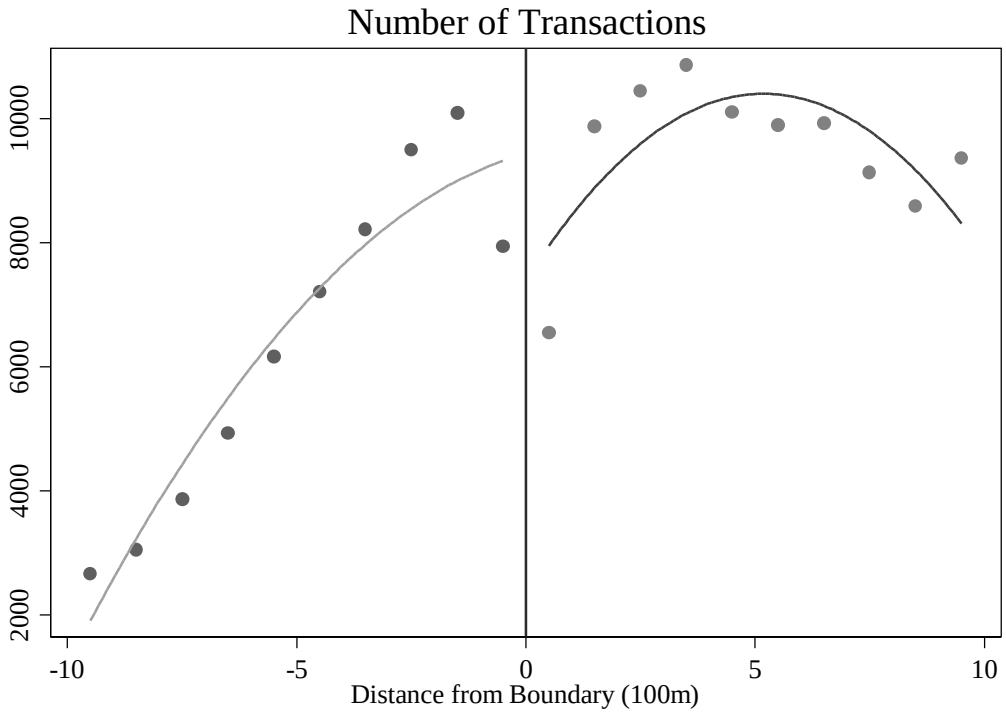
Appendix Figure A7 Gang Injunctions and Year of Sale



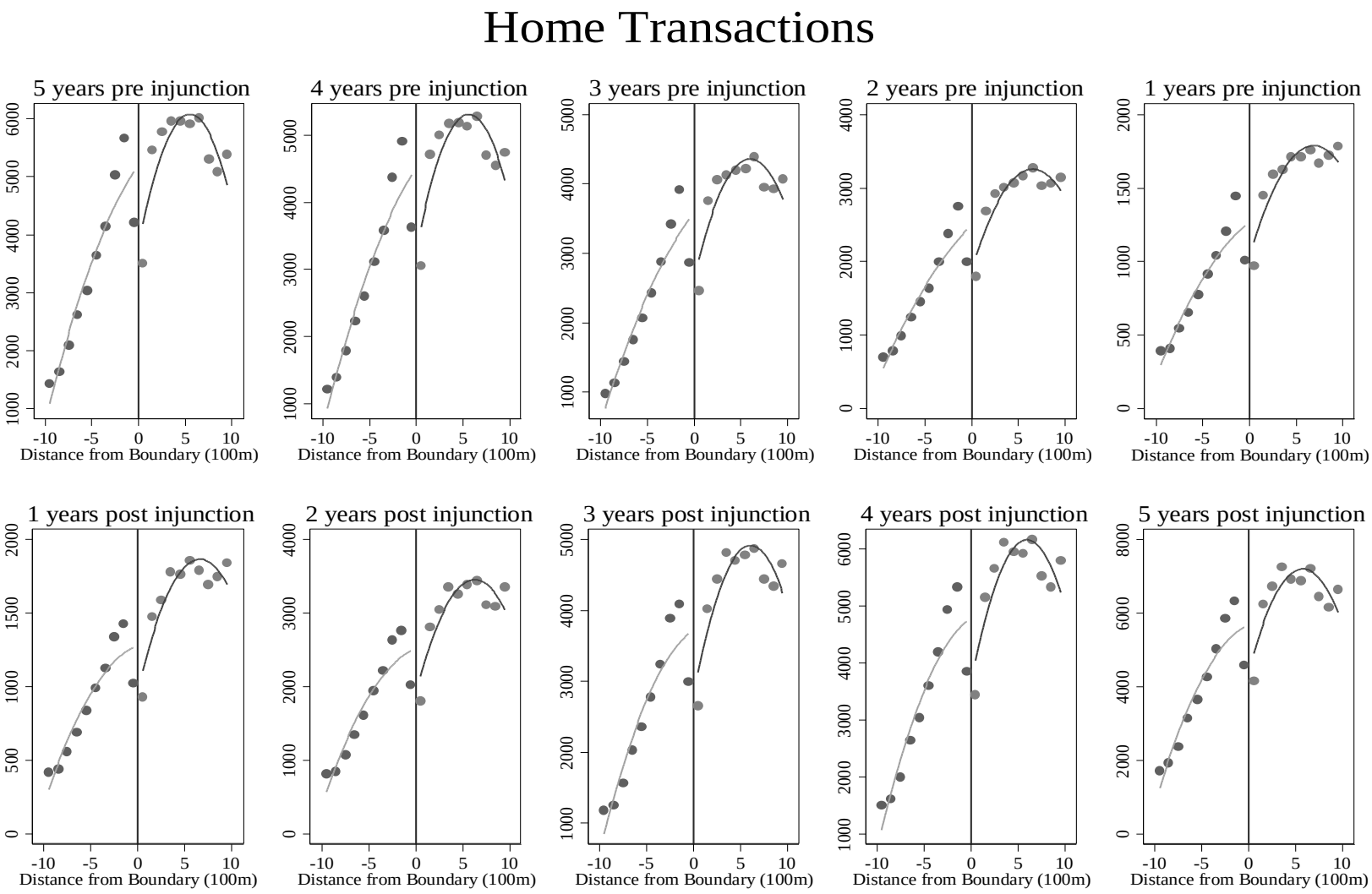
Appendix Figure A8 Gang Injunctions and Month of Sale [1-12]



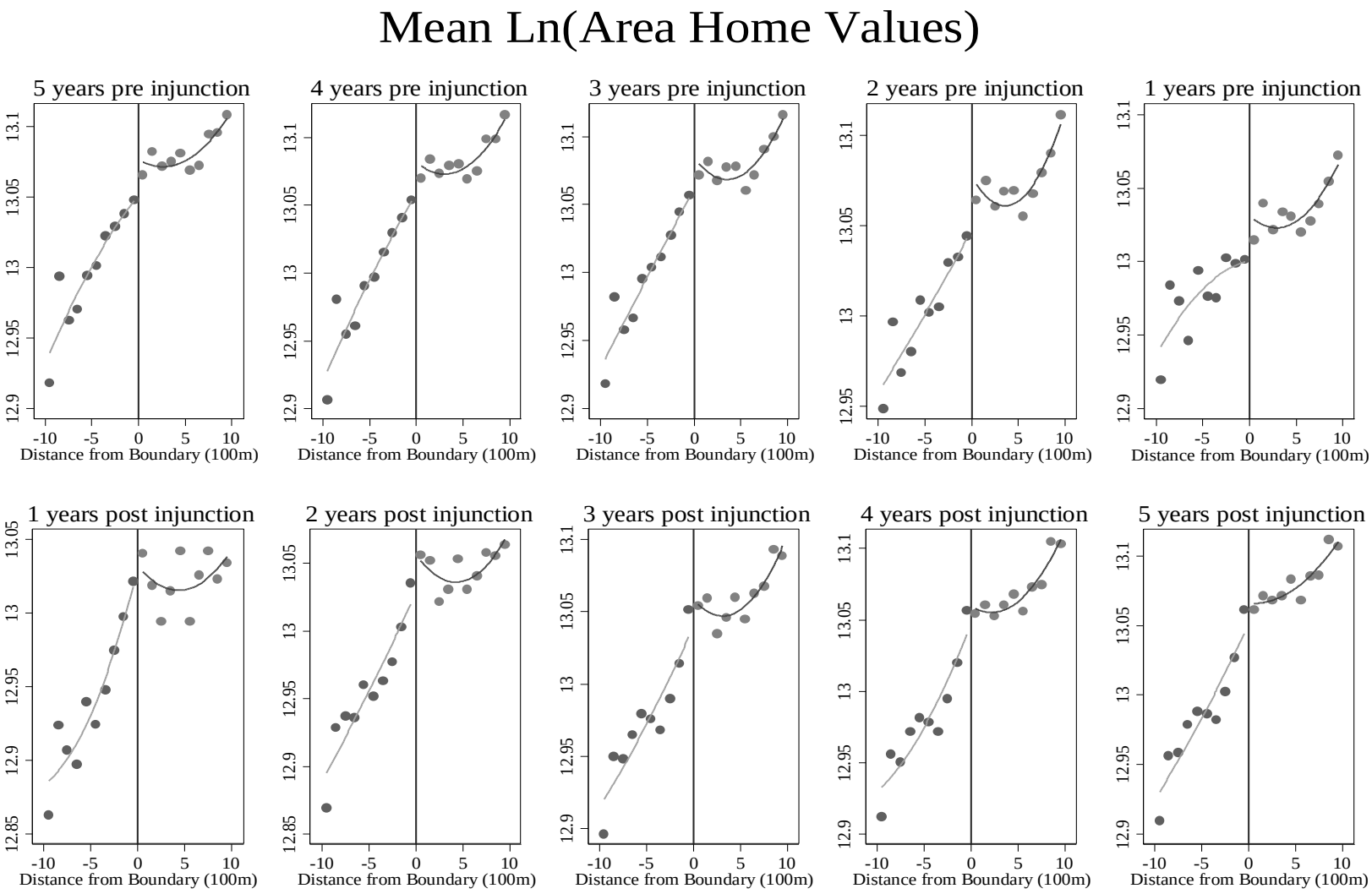
Appendix Figure A9 Gang Injunctions and Number of Transactions



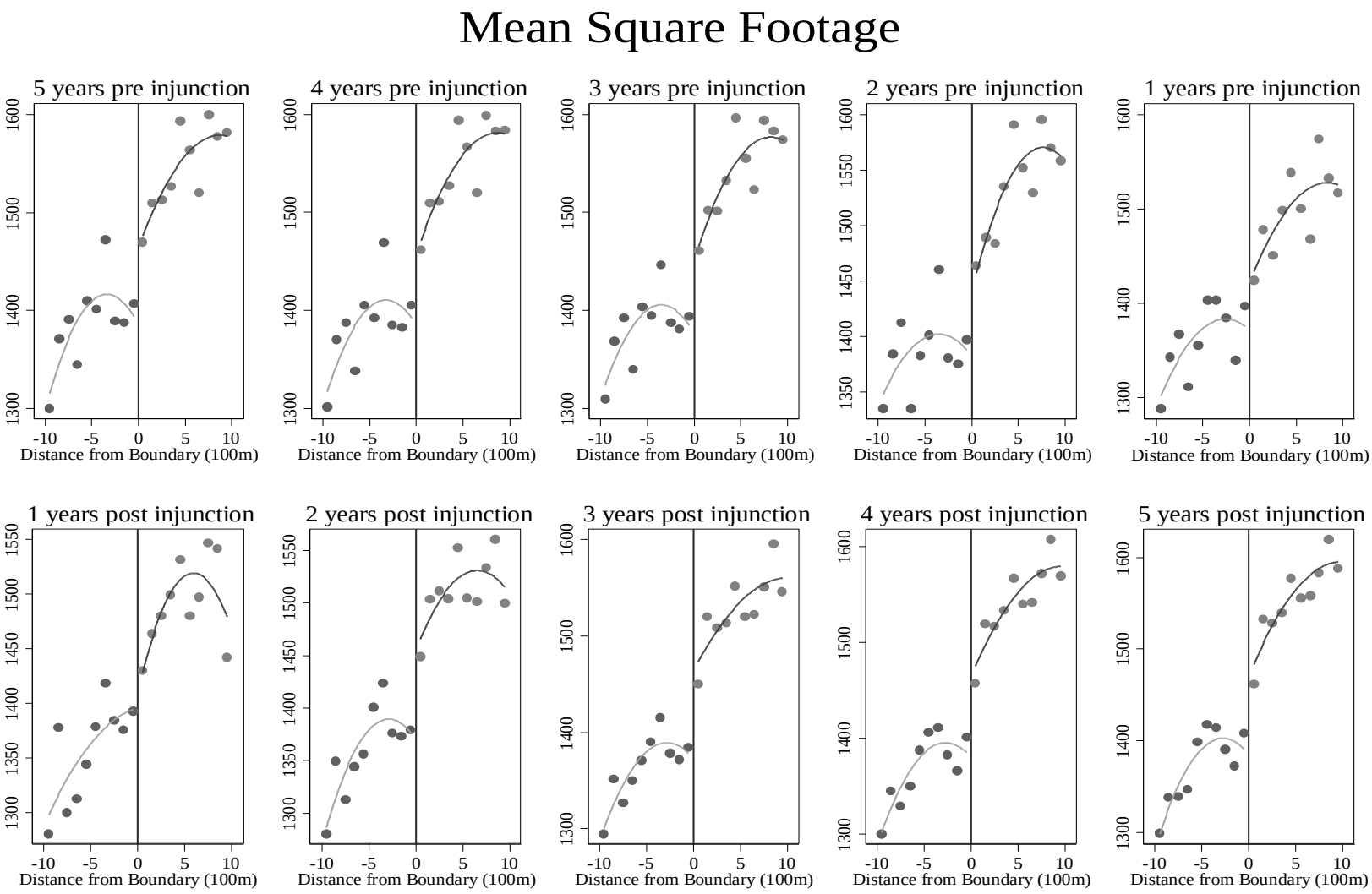
Appendix Figure A10 Gang Injunctions and Number of Transactions, By Year



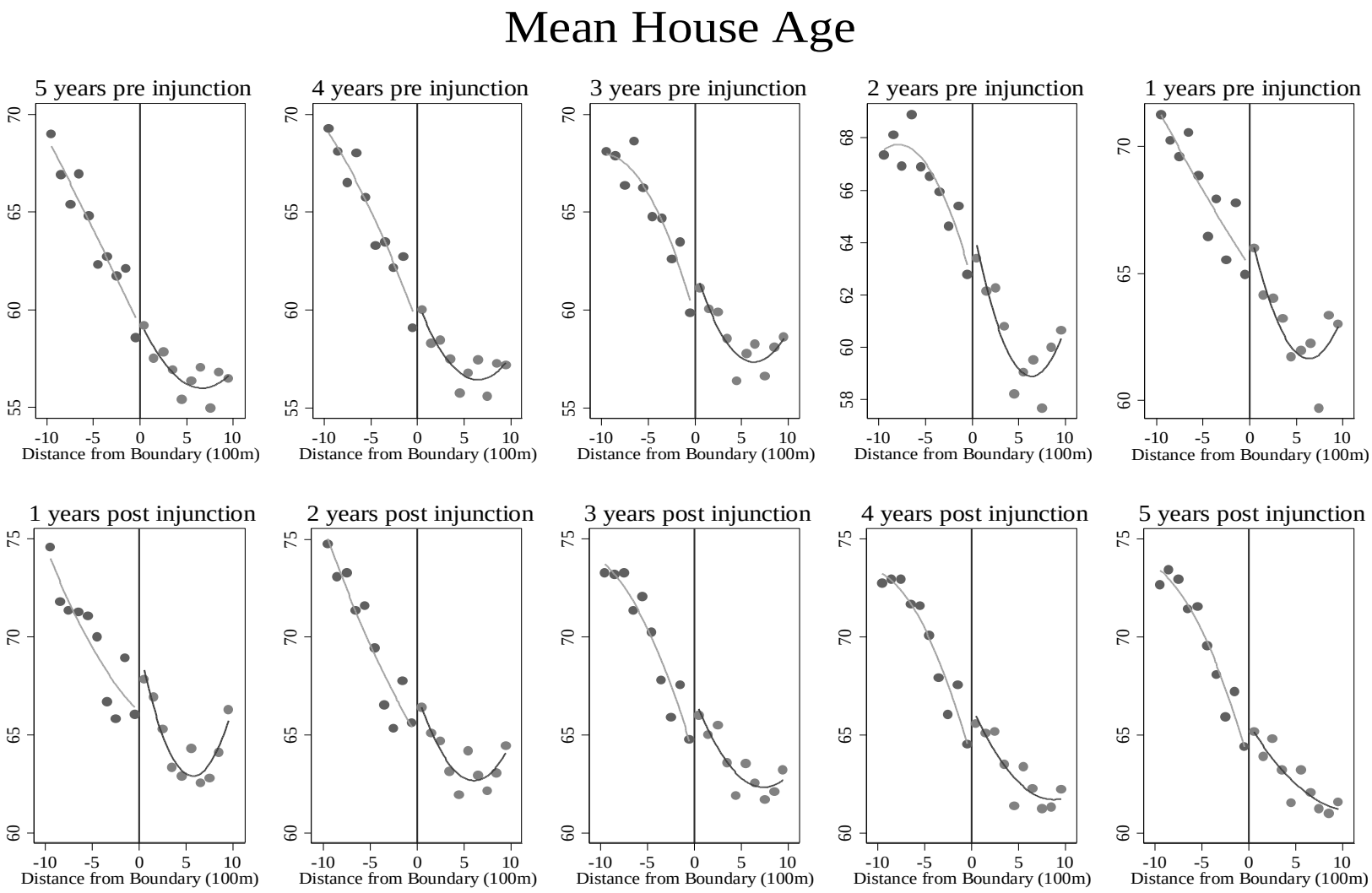
Appendix Figure A11 Gang Injunctions and Area Home Values, By Year



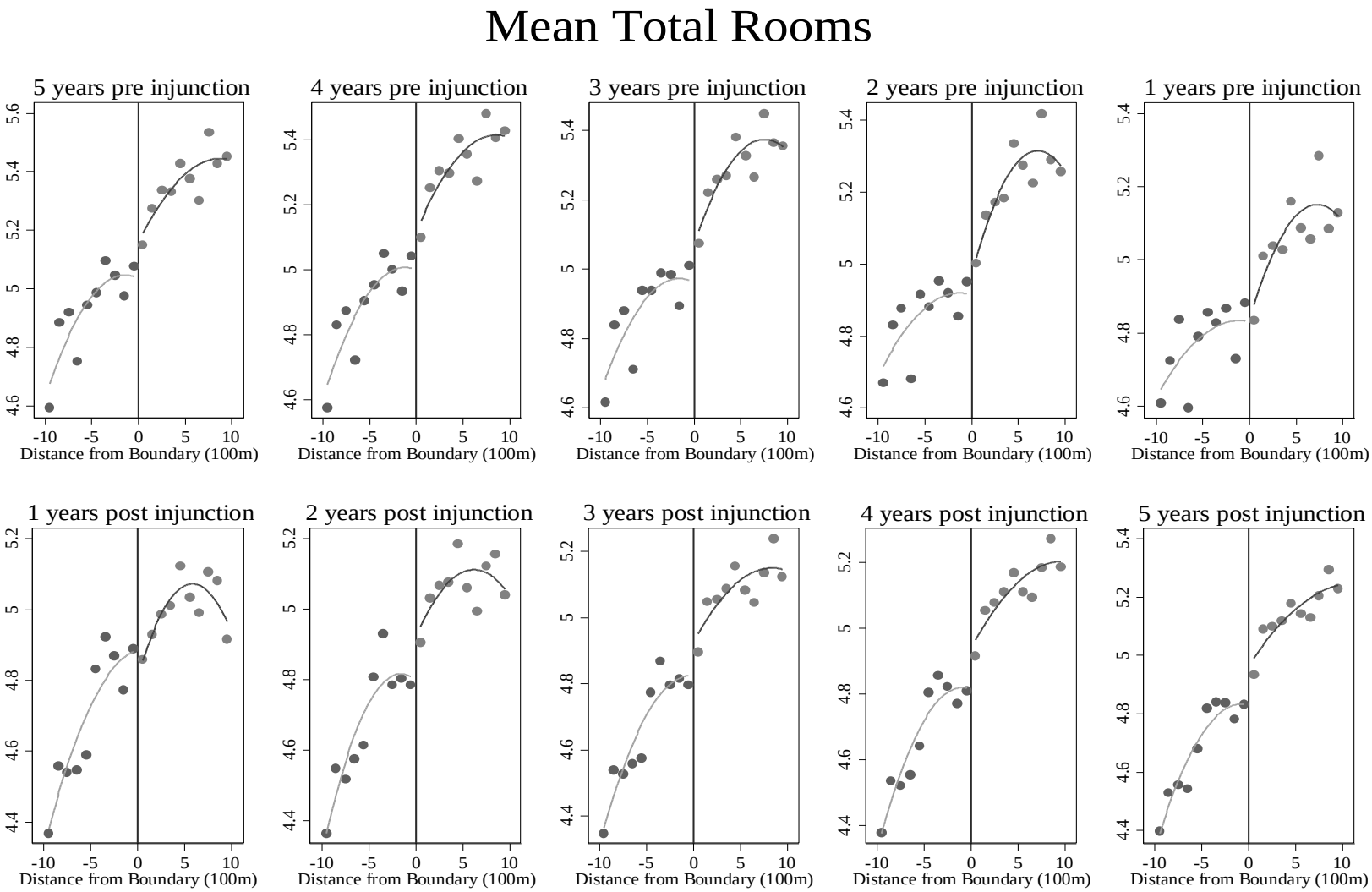
Appendix Figure A12 Gang Injunctions and Square Footage, By Year



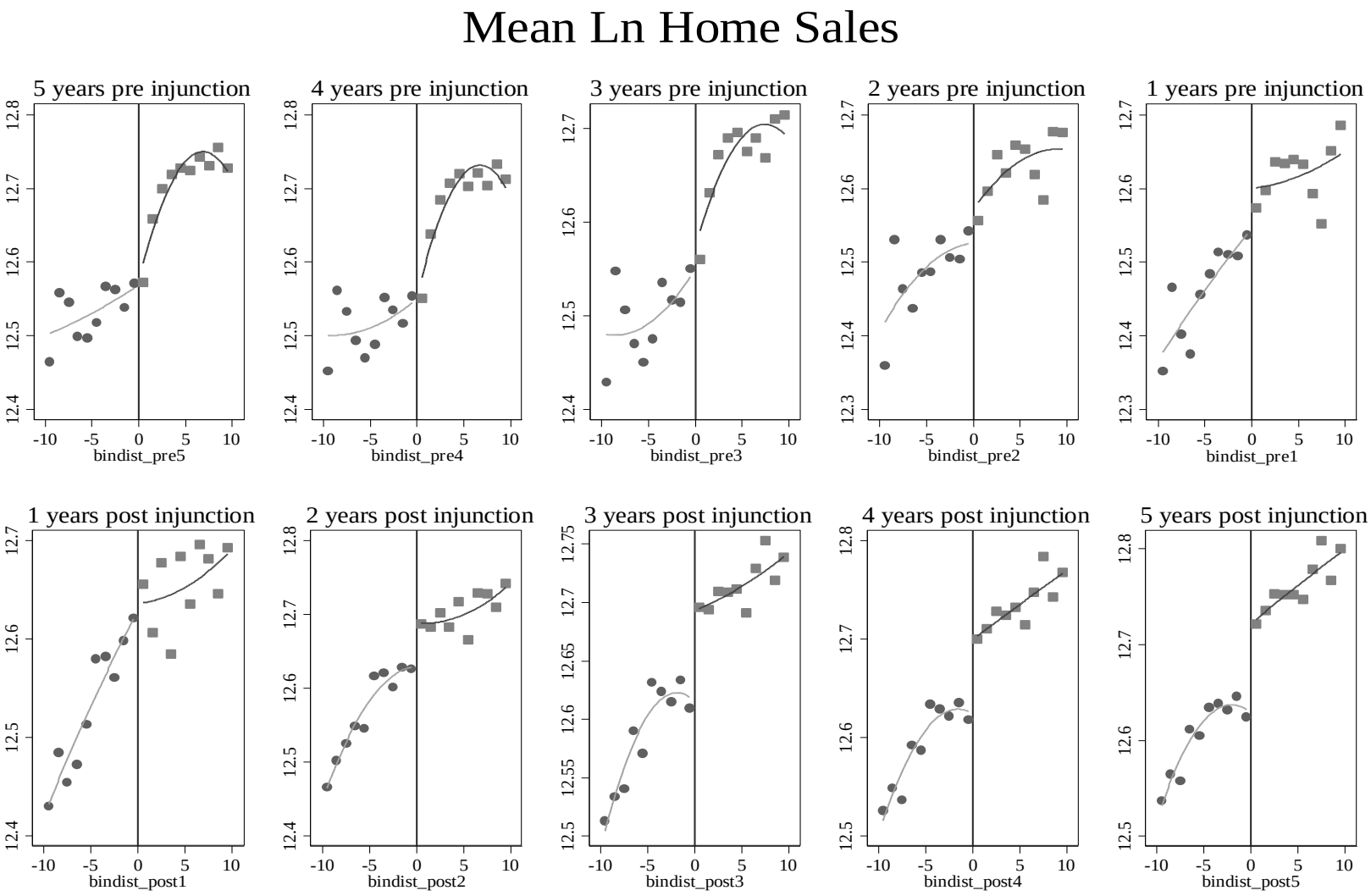
Appendix Figure A13 Gang Injunctions and House Age, By Year



Appendix Figure A14 Gang Injunctions and Total Rooms, By Year



Appendix Figure A15 Gang Injunctions and Ln(Home Sales), with 100 Yard Buffers



Appendix Figure A16 Gang Injunctions and Home Sales, with 100 Yard Buffers