

## Research Statement

Ignacio Sarmiento Barbieri

The driving force behind my work is understanding how institutions and public policies affect economic outcomes and urban life. Two critical factors that shape a neighborhood -and the focus of my research- are crime and discrimination. I am an applied microeconomist that uses quasi-experimental and experimental data and expands the traditional econometric tools with advances in computer science, big data, and machine learning.

In my Job Market Paper, *Can't Stop the One-Armed Bandits: The Effects of Access to Gambling on Crime and Property Values*, I focus on the consequences of a law that expanded access to gambling had on neighborhood crime and property values. In 2012, the state of Illinois passed the Video Gambling Act that granted liquor license holding establishments permission to add at most five gaming machines, e.g., video poker. The law also allowed cities to opt-out. Chicago opted out. As a result, a large set of bars and restaurants at the city border added video gambling. Our main results show an increase of eight percent on violent crimes and a six percent increase in property crimes after the adoption of gambling within two block-groups from these establishments. Moreover, these crimes appear to be new rather than displaced ones. From a policymaker perspective, allowing video gambling is quite appealing: a seemingly costless way to add tax revenue that is generally well-received by the electorate. However, in this paper, we show that it generates negative externalities like an increase in crime. These externalities are not only be limited to crime but include other nuisances that can also affect property values. We find that this is the case. Properties adjacent to these establishments sell on average at a three percent discount after the adoption of gambling. These results are robust to a battery of traditional tests but also to more recent ones such as Oster's selection on unobservables and Athey's machine learning matrix completion method. For local governments, this implies that the reduction in property tax revenues due to video gambling can potentially offset the increases in gambling tax revenues. The policy implications are straight forward: even from a pure tax revenue perspective, gambling is undesirable.

The interaction between gambling and crime brought to my attention the complementary role that may exist between amenities and safety. In the paper, *Unlocking Amenities: Complementarities in Public Good Consumption* (Accepted at Journal of Public Economics), my coauthors and I explore complementarities between public goods. We focus on the complementarity between public safety and urban parks in three major U.S. cities. Our hypothesis is intuitive: parks are less valuable when they are dangerous. Using data for over ten years of housing transactions and detailed geo-located crime data, we show evidence of a park premium in safe areas. However, at higher levels of crime, we find evidence of a park-discount, suggesting that parks may become a public bad. These results have direct implications for public policy and investments: the value of public goods may depend critically on complementary relationships. Ignoring these may lead to (i) undervaluing the potential value of public goods, (ii) misinterpreting heterogeneity in preferences, and (iii) understating the value of public goods to minority households that tend to live in unsafer neighborhoods.

I believe that understanding why crime happens and ways to increase public safety is central to improve neighborhood life. In the paper, *Emotional Cues and Crime: Spatial and Temporal Evidence from Brazilian Soccer Game* (R&R at Economic Inquiry), we explore the role of that emotion may play in the decision of committing a crime. With coauthors, we leverage emotional cues elicited by soccer games to study violent and non-violent crime around soccer stadiums. Our findings not only confirm the role of emotions in crime but also suggest that emotionally cued perpetrators of non-violent crimes may also respond to rational incentives compared to their violent crime counterparts. Understanding why crime and where it happens can also give insights on policies to reducing it. In the article *Do More Eyes on the Street Reduce Crime? Evidence from Chicago's Safe Passage Program* (Journal of Urban Economics, 2019), with coauthors, I examined

the effectiveness of a program designed to reduce crime around schools. Most of the previous research had focused on how to increase or reassign police forces to reduce crime. This paper, in contrast, explores an alternative way of policing: hiring community members to guard schools for a few hours each day. We show that this program is not only an efficient and cost-effective way of reducing crime but also of increasing school attendance.

As I made progress on my research of crime, a continuous feature that I encountered is that minorities tend to live in lower opportunity neighborhoods and be more exposed to crime. This naturally evolved in the curiosity to understand the factors behind neighborhood location choices by minorities. During my postdoctoral position at the National Center of Supercomputing Applications, I focused my research on the role that discrimination plays in the location choices of minorities.

Although housing discrimination is illegal, minorities in the US still face many obstacles when searching for quality housing in a high opportunity neighborhood. For example, minorities tend to live in more polluted neighborhoods when compared to white households. Using observational data to identify the root causes of location decisions brings the challenge of disentangling discriminatory behavior from differences in preferences, income, information, etc. In the paper, *Housing Discrimination and the Pollution Exposure Gap in the United States*, we conduct a large-scale experiment to identify the role of discrimination in the pollution exposure gap between minority and white households. We run a correspondence study by using a virtual machine computer bot capable of operating at large scales. The bot can gather all apartment listings available in a given market, with information about the property and neighborhood amenities. We deploy the bot on a sample of rental housing markets that contain major sources of toxic emissions throughout the United States. We find that while minorities receive, on average, substantially lower response rates, there is a substantial amount of heterogeneity depending on the toxic concentration within the corresponding market. Within-property tests indicate that minority renters are forty-one percent less likely than white to receive responses in low exposure locations. At the same time, there are no differential response rates at high exposure locations in the same market. By providing direct evidence on the link between housing discrimination and the racial gap in pollution exposures, this study suggests that reducing illegal, discriminatory behavior could be important for reducing the racial disparity in exposures to airborne chemical toxins.

This paper is part of a broader collaboration on discrimination in housing markets with Peter Christensen and Chris Timmins. As part of this project, I will be studying the heterogeneity in discrimination in the rental market in major metropolitan markets in the US, both across cities and in the central city versus suburban neighborhoods. Researchers have documented a shift in amenities, young, more affluent, and high skilled population into central cities. Our initial evidence from Atlanta suggests that minorities face higher discrimination rates in high amenity central areas than in suburban neighborhoods. These factors play an important role in location decisions and are essential to understand if minority renters face constraints to locate in central cities due to discrimination.

Looking forward, I plan on exploring more the role of discrimination in neighborhood exposure to crime. Moreover, I am at the early stages of designing a second large scale experiment. I plan on using the experimental data and structural estimation methods to understand and identify willingness to pay for crime. By using non-deceiving exogenous variation on information about past, present, and future crime, I can recover willingness to pay for housing. I am in the preliminary stages of building a pilot study and testing it. This study will not only provide a new method for recovering estimates of willingness to pay for crime. But will also shed light on how homeowners' subjective beliefs about local crime coincide with more objective measures, and how they incorporate expectations about the future evolution of local-crime levels on purchase/sales decisions.