Gang Crackdowns

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Abstract

What are the economic consequences of restoring state authority in territories governed by criminal organizations? We study El Salvador's 2022 crackdown, which dismantled the territorial control the gangs had exercised over 20 years. Combining household surveys, administrative records, the exact boundaries of formerly gang-controlled neighborhoods, and a field experiment with employers, we examine how the restoration of state authority reshaped socioeconomic outcomes. We present three main findings. First, the removal of gang borders integrated previously segmented labor and consumer markets, increasing mobility and narrowing gaps in employment, income, and financial inclusion. Second, areas with greater pre-crackdown gang exposure experienced larger subsequent increases in business formation, property investment, and household income. Third, the legacy of criminal governance persisted through residence-based discrimination: employers remained less willing to hire otherwise identical applicants from former gang-controlled neighborhoods. Moreover, although support for the crackdown and trust in state institutions were generally high, individuals who witnessed police abuse reported substantially lower trust in the police and the government. Overall, the results show that restoring state authority can rapidly reverse some economic distortions created by criminal governance, while leaving persistent reputational and institutional legacies.

Keywords: gangs, crackdowns, development, mobility, crime

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I Introduction

A defining feature of the state is its ability to exercise territorial authority and maintain a monopoly on violence. Yet in many developing countries, criminal organizations govern substantial territories, regulate mobility, extract payments from firms and households, and determine access to labor markets (Blattman et al., 2025; Lessing, 2021; Brown et al., 2025; Sviatschi, 2022*b*; Melnikov, Schmidt-Padilla and Sviatschi, 2025; Sánchez de la Sierra, 2020). These forms of criminal governance can fragment national economies and limit the reach of state institutions. Despite the centrality of this problem to economic development, we know relatively little about either how states can successfully dismantle entrenched criminal governance and restore territorial authority, or what happens to local economies once these territories are reintegrated into the national economy.

Restoring state territorial authority has proven exceptionally difficult. Governments around the world have attempted to weaken or dismantle entrenched criminal organizations through a wide range of enforcement strategies—from targeted operations against the Medellín and Cali cartels in Colombia, to militarized anti-drug campaigns in Mexico, the war on drugs in the Philippines, and the deployment of Pacifying Police Units in Brazil's favelas. Across these settings, durable recoveries of state control have been rare. Enforcement campaigns have often weakened particular organizations or produced localized improvements in security, but they have also generated geographic displacement of illicit activity, fragmentation of criminal groups, and intensified competition over vacated territories (Dell, 2015; Magaloni, Franco Vivanco and Melo, 2020). Consequently, we have limited evidence on both the conditions under which states can durably recover territory from organized crime and the economic consequences of doing so.

In this paper, we examine the socioeconomic consequences of a unique natural experiment that took place in El Salvador in 2022. For decades, the Salvadoran state had lacked the monopoly on violence in many parts of the country, with as much as 60 percent of its population living under the territorial control of two major criminal organizations, MS-13 and 18th Street (Martínez, 2016). These gangs exercised control over local communities through extortion, recruitment, and restrictions on residents' mobility, thereby severely constraining socioeconomic development (Brown et al., 2025; Melnikov, Schmidt-Padilla and Sviatschi, 2025).

This equilibrium changed on March 27, 2022. Following a series of gang-related homicides that left 87 people dead, the Salvadoran government declared a "State of Exception," granting the police and military sweeping powers to detain suspected gang members and collaborators. In the ensuing months, more than 80,000 people were arrested—over 1% of El Salvador's population. Although the measure was controversial, it largely achieved its immediate objective of restoring state control over areas previously controlled by the gang. Crucially, the crackdown extended beyond the organizations' leadership to their rank-and-file members, local cells, and support networks, thereby

dismantling much of the territorial and operational structure of MS-13 and 18th Street.[1] This paper investigates how this dramatic policy shift reshaped El Salvador's socioeconomic landscape.

Before the 2022 crackdowns on crime, one of the main channels through which gangs constrained development in El Salvador was by restricting the mobility of individuals living in the areas under their control. To maintain territorial dominance, the gangs established a network of checkpoints that limited individuals' ability to move freely across the gang borders, preventing residents of gang-controlled neighborhoods from accessing better-paying jobs in large firms outside gang territory and effectively confining them to low-wage employment within their own communities (Melnikov, Schmidt-Padilla and Sviatschi, 2025). To estimate the effects of the crackdowns on individuals' mobility, we use detailed police data on the exact borders of the neighborhoods previously controlled by MS-13 and 18th Street in San Salvador, the capital of El Salvador. Taking advantage of the stability of these borders over at least two decades, we implement a spatial regression discontinuity design (RDD).

We find that, following the 2022 crackdown, the dismantling of gang territorial control and borders substantially expanded residents' ability to move across San Salvador. Residents of former gang neighborhoods became more likely to go out at night, leave their homes alone, and use public transportation, consistent with both improved security and the removal of gang-imposed restrictions on movement. More importantly, the disappearance of gang borders produced a broad convergence in mobility across former gang and nongang areas. Before 2022, compared with residents of nongang neighborhoods, these individuals were significantly less likely to visit parks, malls, restaurants, cinemas, or engage in recreational activities more broadly. They also reported lower freedom of movement and noted that gang borders prevented them from getting jobs in large firms in other parts of the city. After the crackdown, these disparities largely disappeared, with the mobility of residents from former gang areas converging with that of their peers from nongang neighborhoods. These results indicate that the crackdown removed the internal borders that had fragmented the city and constrained residents' access to labor and consumer markets.

We also show that the removal of gang's mobility barriers was followed by the integration of previously segmented labor markets. In particular, the improvements in mobility contributed to a convergence in labor market outcomes between residents of former gang and nongang areas. Before 2022, individuals from gang-controlled neighborhoods were approximately 50 percentage points more likely to work within gang territory and 12 percentage points less likely to be employed by large firms with at least 100 workers. They also had lower levels of income and wealth. After the crackdown, the sharp spatial segmentation of employment largely disappeared: residents of former gang and nongang areas became equally likely to work in former gang neighborhoods and in large

[1] By targeting the two dominant organizations simultaneously and at scale, the intervention also limited the scope for rival gangs to fill vacated territories, fragment, or compete for control after the crackdown. At the same time, the government also reasserted control over the prison system, which had previously served as an important center of gang coordination, recruitment, and extortion, and subsequently constructed CECOT to incarcerate suspected gang members under a centralized security regime.

firms employing 100 or more people. Economic disparities also narrowed. Although residents of former gang neighborhoods continue to earn lower incomes, the gap is now significantly smaller, and for some economic indicators—such as having enough money for food or owning a mobile phone—it has fully closed. In contrast, for outcomes requiring greater savings, such as purchasing a car or making home improvements, as of 2023, we find little to no convergence.

These changes extended beyond the neighborhoods located around former gang boundaries. To examine the broader economic consequences of restoring state authority in gang controlled areas, we exploit variation across municipalities in their exposure to gangs before 2022. Municipalities with greater pre-crackdown gang presence experienced larger subsequent reductions in extortion and larger increases in household income, business formation, and property investment. We also find evidence of a reallocation of economic activity consistent with greater market integration: activity in location-specific sectors expanded relatively more in previously gang-exposed municipalities, while sectors serving broader markets expanded relatively more in less-exposed areas. Together, these results suggest that the dismantling of gang control was followed not only by the integration of previously segmented labor markets, but also by broader changes in investment and the spatial organization of economic activity.

Despite the rapid removal of physical barriers to mobility and employment, economic reintegration remained incomplete. In 2023, individuals from former gang areas were substantially more likely to report having recently experienced discrimination based on their place of residence—a pattern not observed before the crackdowns. This pattern is corroborated by evidence from a survey we conducted among employers in San Salvador. Individuals responsible for recruitment decisions in their firms were presented with pairs of CVs and asked to select which candidate they would prefer to consider for a position. When the only difference between the two CVs was that one applicant lived in a former gang neighborhood, employers chose the candidate from a nongang area 60% of the time. These differences cannot be explained by the socioeconomic characteristics of the neighborhoods listed on the CVs or by their distance from the firms, as the neighborhoods were deliberately selected to have similar characteristics and to be equidistant from each respondent's firm. Therefore, employers appear less willing to hire workers from former gang areas because of their perceived association with gangs. Thus, although the crackdown dismantled the gang-imposed mobility restrictions that had constrained access to outside labor markets, residence in a formerly gang-controlled neighborhood became a new barrier to employment

This shift is also evident in the changing policy priorities of individuals living in former gang neighborhoods. Following the crackdowns, they became 12 percentage points more likely than their peers from nongang areas to identify employment opportunities as one of the three most pressing problems facing the country. Conversely, they became 10.4 percentage points more likely to name inequality of opportunity, poverty, and vulnerability among the country's top three problems.

The durability of restored state authority may depend not only on whether the state succeeds in removing criminal organizations, but also on whether citizens trust the institutions that replace

them (Owens and Ba, 2021; Ang et al., 2025). We therefore examine the political implications of the 2022 crackdowns. Overall, we find broad public trust in both the police and the national government, with no significant differences between residents of former gang and nongang neighborhoods. However, levels of trust are partly determined by individuals' experiences during the crackdowns. Specifically, we analyze how trust in the police and the national government varies depending on whether respondents personally know someone who was arrested under the State of Exception and whether they witnessed police abuse. The latter includes arrests perceived as unjustified, incidents of physical violence, and arbitrary seizures of property. Knowing someone who was arrested—which applies to about half of all respondents—has little to no effect on trust in the police or the government, suggesting that most arrests are viewed as legitimate. In contrast, witnessing police abuse—which applies to approximately 20% of respondents—reduces trust in the police by roughly 30 percentage points and in the government by about 25 percentage points. These patterns suggest that, while the restoration of state authority enjoys broad public support, trust in the institutions exercising that authority is closely related to how state power is experienced by citizens.

We highlight several caveats for external validity. First, the effectiveness of El Salvador's crackdown may partly reflect the specific characteristics of the gangs operating in the country. MS-13 and 18th Street relied heavily on local extortion, had relatively limited financial resources, and lacked access to the large illicit rents available to drug-trafficking organizations. These features may have reduced their capacity to withstand sustained state pressure or to regenerate after the crackdown. Second, the intervention differed from enforcement strategies that primarily target organizational leaders. It sought to dismantle the gangs' broader territorial structure, including rank-and-file members, local cells, and support networks. This distinction may be important because more narrowly targeted interventions can produce fragmentation, displacement, and competition over vacated territories. Third, the crackdown was part of a broader reassertion of state authority that included renewed control over prisons. Finally, as we showed the recovery of security was followed by increased public and private investment in formerly gang-affected areas. These complementary changes could contribute to the durability of territorial recovery.

This paper contributes to several strands of the existing literature. First, it relates to research on policing, crime prevention, and and the consolidation of state authority. While prior studies generally find that increased police presence reduces local crime (e.g., Blesse and Diegmann, 2022; Di Tella and Schargrodsky, 2004; Draca, Machin and Witt, 2011; Weisburd, 2021), evidence from large-scale campaigns against organized crime (e.g., Castillo, Mejía and Restrepo, 2020; Dell, 2015) reveals more complex dynamics. For instance, Dell (2015) shows that targeting drug kingpins during Mexico's war on drugs created power vacuums that intensified violence as rival groups competed for territory. Similarly, the Pacifying Police Units in Rio de Janeiro failed to consolidate state authority and, in some cases, exacerbated violence (Magaloni, Franco Vivanco and Melo, 2020). More broadly, a related literature emphasizes the importance of the state's ability to establish a

monopoly on violence and displace alternative forms of armed governance (Acemoglu, Robinson and Santos, 2013; Sánchez de la Sierra, 2020). In this sense, El Salvador's crackdown which dismantled gang structures across the country—plausibly due to a combination of the unprecedented resources allocated to fighting crime and the gangs' limited financial capacity—represent a unique natural experiment. We contribute to this literature by studying how restoring state control of gang areas effects on mobility, market integration, investment, and economic activity. We further show that the consolidation of state authority is closely related to how that authority is exercised: while trust in state institutions remained high overall, it was substantially lower among individuals who reported witnessing police abuse during the crackdown.

Second, our work relates to the broader literature examining the social and economic consequences of organized crime (Acemoglu, Robinson and Santos, 2013; Acemoglu, De Feo and De Luca, 2019; Bandiera, 2003; Brown et al., 2025; Daniele and Marani, 2011; Dell, 2015; Gambetta, 1996; Melnikov, Schmidt-Padilla and Sviatschi, 2025; Mirenda, Mocetti and Rizzica, 2022; Murphy and Rossi, 2020; Pinotti, 2015; Sviatschi, 2022*a*,*b*), as well as to the related studies on the organization of society under criminal governance (Blattman et al., 2025; Blattman and Miguel, 2010; Sánchez de la Sierra, 2020; Lessing, 2021; Lessing and Denyer Willis, 2019; Levitt and Venkatesh, 2000). We contribute to this literature by analyzing the consequences of an unprecedented event—the sudden and lasting removal of criminal organizations that had constrained socioeconomic development in the areas under their control for more than two decades. This context enables us to address a fundamental question: which consequences of organized crime can be rapidly reversed (e.g., mobility constraints) and which are likely to persist (e.g., stigma and residence-based discrimination). By examining how the dismantling of criminal governance affected socioeconomic outcomes, we assess the extent to which the legacy of crime continues to shape development patterns even after the restoration of state authority.

Third, our paper contributes to the literature studying group-based employment discrimination. Existing studies have largely focused on discrimination based on salient group identities, such as race, gender, or nationality (e.g., Bertrand and Mullainathan, 2004; Goldin and Rouse, 2000; Lippens, Vermeiren and Baert, 2023; Martínez de Lafuente, 2021). We complement this literature by documenting labor market discrimination based on a characteristic that is not inherent to an individual's identity and can change multiple times throughout their life: their place of residence. In this literature, the paper that is perhaps closest to ours is Doleac and Hansen (2020), which shows that "ban-the-box" policies—preventing employers from asking about applicants' criminal histories—led to increased statistical discrimination against demographic groups with higher average conviction rates. Residence-based discrimination in El Salvador plausibly follows a similar pattern: employers likely perceive individuals from former gang areas as higher-risk hires.

Finally, this paper relates to the literature studying the socioeconomic effects of barriers to geographical mobility. Research on the removal of transportation barriers, such as the construction of roads and railways, shows that increased connectivity fosters market integration and local

economic growth (Asher and Novosad, 2020; Donaldson, 2018). Conversely, borders and checkpoints fragment labor markets and reduce economic welfare (Calì and Miaari, 2018; Melnikov, Schmidt-Padilla and Sviatschi, 2025). In El Salvador, the 2022 crackdowns resulted in the sudden and lasting dismantling of the barriers to individuals' mobility previously imposed by the gangs. This paper examines how the dissolution of these barriers affected the spatial reorganization of economic activity.

The rest of this paper is structured as follows. Section II describes the history of criminal groups in El Salvador and how the 2022 crackdowns dismantled these structures. Section III describes the main data sources and the empirical strategy. Section IV presents the results. Section VIII concludes.

II Gangs in El Salvador

In this section, we provide a brief overview of the history and organizational structures of Salvadoran gangs. We also describe how the 2022 crackdowns dismantled these structures and discuss the factors that made this possible. For a more detailed discussed of gang dynamics prior to the 2022 crackdowns, see Sviatschi (2022*b*) and Melnikov, Schmidt-Padilla and Sviatschi (2025).

II.A Origins and Evolution of Salvadoran Gangs

El Salvador's gang phenomenon traces its origins to the mass deportations of Salvadoran migrants from the United States in the mid-1990s. Following U.S. legislative reforms that broadened the grounds for deportation and intensified immigration enforcement, thousands of Salvadorans—many of whom had fled the country's civil war during the 1980s—were forcibly returned after becoming involved in criminal networks in the United States, particularly in California (Sviatschi, 2022*b*). Among those deported were members of MS-13 (*Mara Salvatrucha*) and 18th Street (*Barrio 18*), two gangs that would come to dominate El Salvador's criminal landscape over the next quarter century.

Upon returning to El Salvador, deported gang members quickly transplanted the organizational model they had developed in California to their new environment. They rapidly expanded their ranks by recruiting local youth, particularly adolescents, offering them identity, protection, and a sense of belonging (Cruz and Portillo Peña, 1998; Martínez and Martínez, 2018). According to local authorities, by the end of 1996, MS-13 and 18th Street together counted at least 20,000 members (Cruz and Portillo Peña, 1998). By the late 1990s, both groups had evolved into structured criminal organizations with defined hierarchies, territorial divisions, and internal codes of conduct (Dudley, 2020).

To protect themselves from the police and their rivals, and to prevent local residents from acting as informants, the gangs established a system of checkpoints to control movement into and out of their territories. The boundaries of gang-controlled areas were often delineated by natural

barriers such as major roads and boulevards, marked with graffiti, and monitored by a network of junior members and local collaborators (*banderas*), who observed border activity and reported outsiders or unauthorized crossings (Boerman and Golob, 2020; ICG, 2018).

As a result of gang-imposed mobility restrictions, most individuals living in gang-controlled neighborhoods were unable to work outside gang territory—where the largest and best-paying firms were located—and were forced to accept low-wage employment within their own communities. Previous work shows that residents of gang-controlled areas were 50 percentage points more likely to work inside gang territory than their peers living just 50 meters away but outside gang control (Melnikov, Schmidt-Padilla and Sviatschi, 2025). They were also 12 percentage points less likely to be employed by firms with at least 100 workers and earned, on average, approximately $350 less per month.

A central feature of Salvadoran gangs was their reliance on local extortion rather than on large international illicit markets. MS-13 and 18th Street extracted extortion payments from households, transport operators, and businesses located in the territories under their control (Brown et al., 2025). Unlike criminal organizations that redistribute substantial illicit rents through employment, patronage, or social services, Salvadoran gangs were largely predatory toward the communities they governed and therefore enjoyed limited local legitimacy. Moreover, the territorial control by gangs allowed them not only to hide from police and rival gangs but also to extort in their territory and nearby areas.

II.B Historic Approaches to Combating Gang Activity

Successive Salvadoran governments have long sought to eradicate gang violence and restore state authority in areas under criminal control. Historically, they have oscillated between two fundamentally different strategies for confronting gang activity: aggressive law enforcement crackdowns, known locally as "mano dura" (iron fist) policies, and direct negotiations or truces with gang leaders.

In the early 2000s, the Salvadoran authorities initially embraced punitive security measures. Policies such as "mano dura" (2003) and its intensified successor, "super mano dura" (2004), sought to dismantle gang structures through mass arrests, harsher sentencing, and expanded military and police patrols (Holland, 2013). Instead of weakening the gangs, however, these measures inadvertently strengthened them. Overcrowded prisons became grounds for recruitment and coordination, reinforcing gang hierarchies and identities, and ultimately intensifying the very violence the government aimed to eradicate (e.g., see Lessing and Denyer Willis, 2019).

Conversely, recognizing the failures of purely punitive measures, governments periodically turned toward negotiation-based approaches. The most notable attempt was the 2012 gang truce brokered under President Mauricio Funes. Initially, this truce appeared promising, substantially reducing homicide rates in the short term (Dudley, 2013*b*). However, due to limited transparency,

allegations of corruption, internal gang rivalries, and insufficient institutional support, the truce rapidly unraveled, demonstrating the complexities and pitfalls of such negotiations (Van der Borgh and Savenije, 2019). More broadly, reductions in violence did not necessarily imply a weakening of the gangs' organizational capacity or territorial control. Several accounts suggest that periods of negotiation and tacit accommodation allowed gangs to consolidate their internal structures and strengthen their presence in local communities (Dudley, 2013*a*; International Crisis Group, 2020). A similar pattern emerged after the decline in homicides beginning in 2016: while violence fell, gang territorial control and predatory extraction persisted, and extortion payments increased (Brown et al., 2025). These episodes illustrate how homicide rates provide an incomplete measure of criminal control. Gangs may reduce visible violence while continuing to regulate mobility, extract rents, recruit members, and exercise territorial authority.

The repeated shifts between punitive and negotiation-based strategies reflected a deeper limitation of El Salvador's pre-2022 approach: neither strategy durably dismantled the organizational and territorial foundations of gang control. Punitive campaigns often strengthened gang structures inside prisons, while negotiated reductions in violence left the gangs' capacity to govern territory and extract rents largely intact. As a result, successive governments reduced particular manifestations of gang activity without restoring an effective state monopoly on violence in many parts of the country.

II.C The 2022 Crackdowns

The most recent chapter of El Salvador's gang policy began with President Nayib Bukele's ascent to power in 2019. Initially, Bukele adopted a less confrontational stance toward the gangs, pursuing informal negotiations aimed at reducing violence. Reports suggested that his administration reached a tacit understanding with the gang leaders—resembling earlier truces—which temporarily lowered homicide rates and ushered in a period of relative calm.

However, this informal agreement collapsed in March 2022, when El Salvador experienced an unprecedented surge of violence: 87 gang-related murders over the span of just three days. In response, President Bukele declared a national state of emergency—the State of Exception (*Régimen de Excepción*)—marking a dramatic shift back to hardline enforcement (González, 2024). The declaration suspended several constitutional protections, granting law enforcement broad authority to conduct mass arrests of suspected gang members without warrants or adherence to due process (Díaz Trujillo Portilla, 2024; González, 2024).

In statistical terms, the de facto rationale behind the policy shift can be understood as a rebalancing of the trade-off between type I and type II errors within the criminal justice system. Before the 2022 crackdowns, the criminal justice system operated with a relatively low tolerance for type I errors (i.e., the probability of arresting an innocent person), which resulted in relatively high incidence of type II errors (i.e., failures to arrest the guilty). The State of Exception sought

to correct this perceived imbalance by dramatically reducing the likelihood of type II errors, at the cost of increasing type I errors.

In the months following the declaration of the State of Exception, more than 80,000 individuals were arrested as part of the gang crackdowns—equivalent to over 1 percent of El Salvador's total population. While about 10 percent of those detained have since been released, as of late 2024, the remainder remain incarcerated for indefinite periods without formal charges (Méndez Dardón and Thale, 2024). It is not possible to determine precisely how many detainees were genuinely involved in gang activities and how many were wrongfully accused due to negligence, misconduct, or flawed intelligence. However, local civil society organizations put the number of "false positives" in the thousands and documented cases of police abuse, arbitrary detention, allegations of torture, and deaths in overcrowded prisons (Cristosal, 2023). Thus, although the 2022 crackdowns effectively dismantled gang territorial control and mobility restrictions—leading to a sharp declines in crime and violence—these security gains came at a substantial societal, institutional, and human rights cost.

The 2022 crackdown also extended beyond arrests in local communities. Before the intervention, prisons had served as important centers of gang organization, recruitment, communication, and extortion, allowing incarcerated leaders to coordinate criminal activity outside prison walls. The government subsequently reasserted control over the prison system and constructed the Centro de Confinamiento del Terrorismo (CECOT) to incarcerate suspected gang members under a highly centralized security regime. Thus, the intervention sought not only to remove gangs from the streets but also to disrupt the prison-based organizational infrastructure that had allowed them to preserve territorial control.

II.D Why the Salvadoran Case May Differ from Other Crackdowns?

While El Salvador's 2022 gang crackdowns were not the first tough-on-crime campaign in Latin America, they were uniquely successful in dismantling criminal structures and substantially improving security across the country. For instance, perhaps the most closely related policy—Mexico's comparably ambitious, militarized "war on drugs"—failed to dismantle cartel networks. Instead, it altered the balance of power among them, intensifying competition over illicit markets and triggering a surge in violence (Castillo, Mejía and Restrepo, 2020; Dell, 2015). What, then, distinguishes El Salvador's crackdowns from earlier approaches to fighting organized crime?

While it is difficult to draw definitive conclusions from a single case study, several factors can help explain the effectiveness of El Salvador's 2022 crackdowns relative to previous tough-on-crime campaigns. First, unlike many other criminal organizations—such as drug cartels or the Italian Mafia—Salvadoran gangs operated with very limited financial resources (Martínez et al., 2016). As a result, although they were capable resisting the police and military, they lacked the financial capacity to sustain a prolonged confrontation with the state. Second, because Salvadoran gangs

depended on the extortion of local residents and businesses as their main source of revenue, they were unpopular among the communities under their control—a fact reflected in the broad public support for the 2022 crackdowns. In contrast, drug cartels in other contexts often channel a part of their illicit profits into building local loyalty through employment, patronage, or social assistance, which can make repressive policies much more difficult to implement (Magaloni et al., 2020). In a similar vein, previous efforts to combat drug-related organized crime frequently reduced the supply of illegal substances (e.g., coca or poppy), driving up prices and creating incentives for new criminal actors to enter the market. This dynamic did not occur in El Salvador. Because the value of extortion remained largely unchanged, the 2022 crackdowns sharply increased the costs of engaging in criminal activity without raising its returns, leaving limited incentives for organized crime to resurface.

Finally, unlike Mexico's war on drugs, which targeted only certain criminal groups, the Salvadoran government implemented a comprehensive and centrally coordinated operation aimed to swiftly incapacitate of all major criminal organizations in the country. This strategy prevented the displacement of crime, in which some criminal groups might otherwise have exploited the relative weakening of their rivals to seize their territories and sources of revenue.

III Data and Empirical Strategy

III.A Data

Boundaries of former gang territory. The map delineating the boundaries of former gang-controlled neighborhoods in San Salvador was published in 2015 by the Salvadoran newspaper *El Diario de Hoy* (EDH), which created it using cartographic materials from the Ministry of Justice and Public Security and the National Civil Police (PNC) (EDH, 2015). Figure 1 presents this map. EDH validated the map's accuracy by confirming that the neighborhoods identified as gang-controlled corresponded to areas its distribution teams could not freely access due to gang checkpoints. In our previous work, we independently verified the reliability of this map, finding it to be nearly identical to the version used internally by the PNC in later years (Melnikov, Schmidt-Padilla and Sviatschi, 2025).

In San Salvador, the borders of former gang-controlled areas were established in the late 1990s, shortly after the first wave of gang member deportations from the United States, and have remained relatively stable since then. Appendix Figure A.1 illustrates this fact using data from our 2023 survey, described in detail below. In the survey, respondents were asked whether their neighborhood had been under gang control 20 years earlier, in the early 2000s. As shown in the figure, respondents from former gang areas were significantly more likely to answer in the affirmative.

Como Vamos surveys. Some of the outcome variables used in this paper are drawn from the Cómo Vamos surveys—large-scale, representative surveys designed to measure socioeconomic

conditions, social behaviors, perceptions of security, and related outcomes in the Metropolitan Area of San Salvador. The surveys were conducted by the Salvadoran Foundation for Economic and Social Development (*Fundación Salvadoreña para el Desarrollo Económico y Social*, FUSADES) with support from USAID in late 2021, several months before the 2022 gang crackdowns, and again in late 2022, approximately half a year after the crackdowns. The two survey waves followed the same structure and methodology.

2023 survey. To measure outcomes not covered by the Cómo Vamos surveys (e.g., individuals' labor market outcomes), we conducted our own survey in 2023, following the sampling procedure used in our previous study Melnikov, Schmidt-Padilla and Sviatschi (2025). Specifically, we divided the census tracts in San Salvador into 30-meter distance bins based on their proximity to gang-territory boundaries, distinguishing between former gang and nongang areas.[2] The goal of this sampling design was to ensure representativeness by distance to the borders of former gang territory. From each bin, we randomly selected 10 census tracts and surveyed between 8 and 10 individuals per tract.[3] When fewer than 10 census tracts were available in a bin, all eligible tracts were included. To be consistent with our previous work (Melnikov, Schmidt-Padilla and Sviatschi, 2025), we conducted the survey in areas within 420 meters of the former boundaries of gang territory. The final sample comprises 2,315 respondents.

CV experiment. To examine employers' attitudes toward hiring individuals from former gang neighborhoods, in 2024, we conducted a CV experiment. Individuals responsible for recruitment decisions in 500 firms were presented with multiple pairs of CVs and asked to choose which candidate they would prefer to consider for a position in their firm. The exercise was introduced as a market research study aimed at understanding employers' hiring preferences, though its main purpose was to assess how employers respond when the only difference between two otherwise identical candidates is that one resides in a former gang-controlled neighborhood. To ensure that results were not driven by neighborhood characteristics or proximity to firms, the neighborhoods listed on the CVs were selected to have comparable socioeconomic profiles and to be equidistant from the participating firms. A subsample of employers was additionally asked to evaluate the perceived competence of selected candidates and the potential risks associated with hiring them.

III.B Empirical Strategy

To analyze the effects of the 2022 crackdowns and the accompanying dismantling of gang territorial control on individuals' socioeconomic outcomes, we employ a spatial regression discontinuity design (RDD). Specifically, for each survey respondent, we compute the distance from the centroid of their census tract to the nearest boundary of former gang territory (measured in tens of meters) and use

[2]Due to uncertainty regarding their treatment status, census tracts located within 15 meters of the gang borders were excluded. Consequently, the tracts closest to the gang boundaries were situated 15–44 meters away from them.

[3]In areas within 250 meters of the gang borders, we surveyed 10 individuals per census tract; in more distant locations, 8 individuals per tract.

this distance as the RDD forcing variable. Then, to determine how the 2022 crackdowns affected socioeconomic outcomes, we estimate the following regression specification, both before and after the crackdowns (Equation 1):

$$y_{ic} = \alpha_0 + \alpha_1 \, distance_c + \alpha_2 \, former \; gang_c \, distance_c + \alpha_3 \, former \; gang_c + \varepsilon_{ic} \tag{1}$$

Depending on the outcome variable, i indexes individuals or households, and c indexes census tracts. y represents the outcome variable of interest, *former gang* is a binary indicator for whether the location was previously under gang control, and *distance*—the distance to the boundaries of former gang territory. The coefficient of interest is α_3, which represents the difference In our baseline specification, standard errors are clustered by 30-meter bins denoting distance to the former gang borders, separately for locations inside and outside former gang areas. The rationale for this way of clustering the standard errors is that the correlation between the error terms is expected to depend primarily on proximity to the former gang boundaries due to differential spillover effects of gang activity prior to the 2022 crackdowns.

IV Dismantling Gang Borders and Market Integration

The crackdown changed two features that had previously constrained residents' ability to move across San Salvador. First, it sharply reduced the security risks associated with moving through the city. Second, and distinct from these improvements in security, it dismantled the gang-imposed territorial restrictions that had prevented residents in gang areas from crossing gang boundaries and accessing jobs, businesses, and amenities elsewhere. We begin by documenting the improvement in security and then show that the removal of territorial barriers produced a much broader integration of mobility and labor markets. Importantly, security and territorial control were distinct dimensions of gang rule. Before 2022, residents on both sides of gang boundaries were exposed to violence and extortion, while only residents inside gang territory faced the full set of gang-imposed mobility restrictions. Thus, improvements in security provide evidence of the broader weakening of gang presence, whereas changes in mobility allow us to identify the consequences of dismantling territorial barriers more directly.

IV.A Recovering the Territory and Mobility

A necessary condition for the recovery of territorial authority was that residents could move across formerly gang-controlled areas without facing the security risks that had characterized these neighborhoods before 2022. We begin our analysis of the consequences of the 2022 crackdowns by examining their effects on the security perceptions of individuals living in former gang-controlled neighborhoods, using data from the Cómo Vamos surveys. Table 1 presents the results of estimating Equation (1) for these outcome variables, both before and after the crackdowns. We find

that, following the crackdowns, residents of former gang neighborhoods became 13.6 percentage points less likely than their peers from nongang areas to avoid going out at night, 5.3 percentage points less likely to avoid leaving their homes alone, and 15.4 percentage points less likely to view public transportation as insecure. The latter reflects the fact that gangs regularly stopped public transport to extract extortion payments from drivers and passengers. None of these differences existed before the 2022 crackdowns, consistent with the analysis in Melnikov, Schmidt-Padilla and Sviatschi (2025), which shows that although gang territorial control substantially restricted the mobility of individuals living in gang areas, residents on both sides of the gang borders were equally exposed to violence and extortion because MS-13 and 18th Street regularly carried out raids into neighboring nongang areas. Appendix Figure A.2 presents the regression discontinuity plots for the average of the three outcomes in Table 1, before and after the crackdowns.

In addition to the improvements in security perceptions within former gang neighborhoods, Table 1 also shows general improvements in individuals' security assessments across San Salvador. Following the crackdowns, the share of respondents avoiding going out at night fell from 28.3 to 17 percent, the share avoiding leaving the house alone declined from 7.8 to 2.7 percent, and the share considering public transport insecure dropped from 63.1 to 27.3 percent. These findings are further supported by results from our 2023 survey, presented in Appendix Table A.I. For example, the table shows that approximately 88 percent of respondents in both gang and nongang areas believe that gang presence in their neighborhood decreased after the State of Exception, and 52.7 percent report that the police are present in their neighborhood at least most of the time.

A defining negative economic consequence of gang territorial control was the fragmentation of the city into local markets controlled by gangs. As mentioned in the background section, gang checkpoints restricted residents' ability to cross neighborhood boundaries, limiting where they could work, shop, and engage in social activities. The 2022 crackdown effectively removed these internal borders. We therefore next examine whether the removal of these borders translated into greater mobility across previously segmented parts of the city.

Table 2 presents the results. The estimates in Columns 1–12 use data from the Cómo Vamos surveys and focus on various measures of recreational mobility, including visits to malls, parks, bars, restaurants, and cinemas. The results show that, before the crackdowns, residents of former gang neighborhoods were significantly less likely to engage in recreational activities, but by the end of 2022, these differences had disappeared. Appendix Figure A.3 presents the regression discontinuity plots for the average of the six outcome variables in Table 2, before and after the crackdowns.

The closure of the gaps in recreational mobility between former gang and nongang areas is highly unlikely to be explained solely by improvements in the socioeconomic conditions or transportation access of residents from former gang areas. For example, before the crackdowns, residents of former gang areas were 17.8 percentage points less likely than individuals from neighboring nongang areas to visit Parque Cuscatlán, a highly rated public park located directly outside former gang territory

and accessible free of charge. Half a year after the declaration of the State of Exception, this gap had fully closed. Taken together, these patterns are much more consistent with the removal of gang-imposed mobility restrictions than with changes in residents' socioeconomic conditions or access to transportation.

We also present direct evidence indicating that the 2022 crackdowns helped dismantle the restrictions on individuals' mobility previously imposed by the gangs. In Columns 13–18 of Table 2, we use data from our 2023 survey to analyze how the crackdowns affected respondents' perceptions of their freedom of movement and the importance of gang borders for their labor market outcomes. In addition to being asked about conditions in 2023, respondents were also asked the same questions retrospectively for the end of 2021, immediately before the 2022 crackdowns. When describing their experiences in 2021, only 32.9 percent of respondents reported having freedom of movement in their neighborhood, with residents of former gang areas being 13.5 percentage points less likely to do so than their neighbors from nongang areas (Column 13). Likewise, 40.7 percent of respondents stated that, in 2021, gang borders prevented them from obtaining jobs in large firms in other parts of the city, with residents of former gang areas being 10 percentage points more likely to face these restrictions (Column 17). However, when describing conditions in 2023, 95 percent of respondents reported having freedom of movement, and only 5.1 percent indicated that gang borders continued to limit their labor market outcomes, with no differences across former gang and nongang areas. The top two panels of Figure 2 present the regression discontinuity plots for the results reported in Columns 13–14 and 17–18 of Table 2.

Overall, two patterns emerge from the findings of the 2023 survey. First, the 2022 crackdowns dismantled the long-standing restrictions on individuals' mobility, leading to substantial improvements in freedom of movement for individuals throughout San Salvador. Residents of nongang neighborhoods were also affected because, although they did not live under gang territorial control, the network of gang-imposed checkpoints had still profoundly limited their ability to move between different parts of the city. Second, because residents of former gang-controlled areas had previously been much more constrained in their movements than individuals from nongang areas, the removal of these barriers had a larger effect on them, resulting in a convergence in mobility between the two groups.

While these changes in recreational mobility show that residents were increasingly able to cross former gang boundaries, in the next section we study whether this new mobility translated into access to previously segmented labor markets.

IV.B Labor Market and Socioeconomic Outcomes

If gang borders had fragmented the urban labor market, their removal should allow workers from former gang areas to access employers and jobs previously beyond their reach. We therefore examine whether the disappearance of mobility restrictions was followed by convergence in where

individuals work, the types of firms that employ them, and their economic well-being.

To analyze the consequences of dismantling the system of gang-imposed mobility restrictions, we examine how this change affected the labor market outcomes and socioeconomic conditions of individuals from former gang neighborhoods. Table 3 presents the results. In Columns 1–10, we compare the RDD estimates from the 2023 survey with those from our earlier 2019 survey (see Melnikov, Schmidt-Padilla and Sviatschi, 2025), focusing on individuals' labor market outcomes.

Before the crackdowns, gang-imposed mobility restrictions prevented residents of gang-controlled areas from working in nongang parts of San Salvador. As a result, they were 49.5 percentage points more likely to work within gang territory and 11.1 percentage points more likely to work in the same neighborhood where they lived, compared to individuals from nearby nongang areas. They were also 12.3 percentage points less likely to work in firms with at least 100 employees, and their monthly household income was approximately 350 USD lower. After the 2022 crackdowns, the labor market outcomes of individuals from former gang neighborhoods markedly changed. By 2023, they were no longer more likely than their peers from nongang areas to work within former gang territory or in the same neighborhood where they lived. The bottom panel of Figure 2 presents the regression discontinuity plots for the outcome variable of working inside gang territory, before and after the crackdowns (Columns 1 and 2 of Table 3). The gap in the likelihood of working in large firms had also closed (top panel of Figure 3). Residents of former gang areas continued to earn approximately 100 USD less per month, but this difference was substantially narrower than before the crackdowns.[4]

In Columns 11–18 of Table 3, we use data from the Cómo Vamos surveys to further examine how the 2022 crackdowns affected other socioeconomic conditions in former gang neighborhoods. Consistent with the narrowing of the income difference, we find that although residents of former gang areas were 18.3 percentage points more likely than their peers from nongang areas to experience financial difficulties before the crackdowns, by 2023, this disparity had disappeared. The middle panel of Figure 3 presents the regression discontinuity plots for this outcome. The crackdowns also resulted in increased financial inclusion in former gang neighborhoods. In 2021, there was a 23.6 percentage point gap between gang and nongang areas in the likelihood of having a bank account. By the end of 2022, this gap had closed (bottom panel of Figure 3). Similarly, after the crackdowns, former gang and nongang areas converged in their access to basic digital technologies. While in 2021 former gang areas had a significantly lower digital access index—defined as the average of owning a smartphone, owning a computer, and having access to the internet—following the crackdowns, these differences disappeared.[5]

Finally, in Columns 17–18 of Table 3, we examine a placebo outcome that should not change in the immediate aftermath of the crackdowns: the availability of sanitary services inside the

[4] After the crackdowns, the 100 USD difference in household income is no longer statistically significant (Column 10 of Table 3), but this likely reflects limited statistical power to detect relatively small differences in income.

[5] We observe a similar pattern for each of the three components of the digital access index.

respondents' homes. Home improvements that involve installing new plumbing systems are costly and slow to complete, making it highly unlikely that residents of former gang neighborhoods would have had the time or resources to undertake such upgrades only half a year after the crackdowns. The results in Columns 17–18 of Table 3 confirm this notion. At the end of 2022, individuals in former gang areas continued to have poorer sanitary services in their homes than residents of nongang neighborhoods. This finding indicates that the observed convergence in other socioeconomic conditions between gang and nongang areas reflects actual changes in those outcomes and is not an artifact of the sampling design.

IV.C Migration

In addition to improving mobility and labor market conditions, the 2022 crackdowns could also have affected individuals' decisions to move elsewhere within the city or abroad. Specifically, the removal of gang territorial control and improvements in economic conditions could have reduced incentives to migrate. Conversely, the lifting of mobility restrictions may have made it easier for individuals to undertake such a move.

To examine this question, we use data from our 2023 survey to estimate Specification (1) for outcomes related to migration and migration intentions. Appendix Table A.II presents the results. Column 1 shows that approximately 90 percent of survey respondents continued to live in the same place as they had at the end of 2021, before the crackdowns, with no difference between former gang and nongang areas. Similarly, we find no differences in the probability of having a family member living abroad (Column 2), having a family member who moved abroad in the preceding six months (Column 3), or respondents' own intentions to migrate (Column 4). Finally, 91.6 percent of respondents reported that their desire to migrate had not increased relative to the end of 2021, again with no difference between former gang and nongang neighborhoods (Column 5).

Overall, the results provide no evidence that the 2022 crackdowns differentially affected migration or migration intentions in former gang and nongang neighborhoods. These findings are consistent with those of Melnikov, Schmidt-Padilla and Sviatschi (2025), who show that, while the gangs were in control, migration patterns did not systematically differ across gang borders.

IV.D Robustness checks

This subsection examines the robustness of our post-crackdowns estimates related to individuals' mobility and labor-market outcomes. The analysis focuses on six key outcomes: freedom of movement, the role of gang borders in restricting labor-market opportunities, employment within former gang territory, employment at a firm with at least 100 employees, employment at a firm with at least 200 employees, and household income.

Selective migration. First, despite the absence of differences in migration and migration intentions across the boundaries of former gang territories (see Appendix Table A.II), some re-

spondents may have selectively relocated within San Salvador following the 2022 crackdowns. Such migration is unlikely to have been extensive, given that our 2023 survey was conducted only one year after the crackdowns and that 90 percent of respondents still lived at the same address as at the end of 2021. Nevertheless, to address this concern, we re-estimate Specification (1) restricting the sample to respondents who reported living at the same address as at the end of 2021. If selective migration were driving our results, the estimates for this subsample would likely differ meaningfully from those for the full sample. Conversely, similar estimates across the two samples would provide evidence against this explanation.

As shown in Appendix Figure A.4 and Appendix Table A.III, the estimates for respondents who lived at the same address as at the end of 2021 are virtually identical to those for the full sample. Thus, selective migration is highly unlikely to explain our results.

Historic center and the special economic zone. We also examine whether the improvements in mobility and labor-market conditions may be driven by place-based policies implemented by the Salvadoran government following the crackdowns. Most notably, in 2023, the government designated an area within San Salvador's historic center, which had previously been controlled by gangs, as a cultural, tourism, and development zone and established tax incentives for new private investment within it. The government also created a dedicated entity, the *Autoridad de Planificación del Centro Histórico de San Salvador* (APLAN), to oversee development within this special economic zone. Because these investments were part of the government's broader effort to establish state control over former gang-controlled areas and reintegrate them into the formal economy, these policies do not pose a direct threat to identification. However, if investments in the historic center or the special economic zone are the primarily drivers of our estimates, they could affect the interpretation of our results.

Our 2023 survey was conducted only four months after the special economic zone was announced and before APLAN issued the implementing regulations for the investment incentives. Nevertheless, we examine whether our results are driven by respondents who live or work in either the special economic zone or the broader historic center of San Salvador. We begin by estimating Specification (1) for indicators of employment in the historic center and the special economic zone.[6] Appendix Figure A.6 presents the estimates. Approximately 5.7 percent of respondents work in the broader historic center, and 1.8 percent work in the special economic zone, with no differences at the boundaries of former gang territory. These findings suggest that *(i)* residents of former gang areas did not disproportionately benefit from the newly created economic zone and that *(ii)* some residents of nongang areas began working in the historic center after the crackdowns, plausibly in response to increased investment in the area.

To directly assess whether investments in the historic center are driving our results for mobility and labor-market outcomes, we re-estimate Specification (1) after excluding respondents who live

[6]Because the historic center was formerly gang-controlled, all respondents residing there are classified as residents of former gang areas.

or work in either the special economic zone or the broader historic center. Appendix Table A.IV presents the results, which are very similar to the baseline estimates reported in Tables 2 and 3.

Overall, we find no evidence that investment in the historic center or the special economic zone is the primary driver of our results.

Sensitivity to potential outliers. We next examine whether our estimates are driven by potential outliers. First, residents of neighborhoods immediately adjacent to former gang borders may have disproportionately benefited from the removal of gang checkpoints and the associated mobility restrictions. A related concern is that a small number of outlier observations near the regression discontinuity cutoff may disproportionately affect the estimates. To address these concerns, we re-estimate Specification (1) after excluding observations within 100 meters of the cutoff. Panel A of Appendix Table A.V presents the results, which are quite similar to the baseline estimates reported in Tables 2 and 3.

A separate concern is that the estimated differences—or lack thereof—between former gang and nongang areas may be driven by a small number of high-income households. We therefore re-estimate Specification (1) after excluding observations in the top decile of the sample household-income distribution. Panel B of Appendix Table A.V presents the results. The estimates for the five non-income outcomes remain essentially unchanged relative to the baseline estimates. The estimated difference in household income declines in absolute magnitude from approximately $100 to $20 and remains statistically insignificant. Thus, among households outside the top decile of the income distribution, household income has almost fully converged across former gang and nongang areas. The reduction in the estimated difference also suggests that the baseline estimate partly reflects the greater prevalence of high-income households in nongang areas.

Estimating the effects separately for former MS-13 and 18th Street areas. As shown in Figure A.7, formerly gang-controlled neighborhoods in San Salvador comprise areas previously controlled by two gangs: MS-13 and 18th Street. Although the two gangs had similar organizational structures, the post-crackdown convergence in mobility and labor-market outcomes may have been driven primarily by areas formerly controlled by one of them. To examine this possibility, we estimate Specification (1), replacing the indicator for former gang territory with separate indicators for areas formerly controlled by MS-13 and 18th Street. As shown in Appendix Table A.VI, the results are very similar for the two gangs. For all six outcomes, the estimates are small, statistically insignificant, and close to the baseline estimates.

Heterogeneity by gender. We also examine whether the crackdowns differentially affected the convergence in mobility and labor-market outcomes among men and women. To do so, we estimate Specification (1), replacing the indicator for former gang territory with its interactions with indicators for male and female respondents and controlling for the direct effect of gender. Appendix Table A.VII presents the results. For all outcomes other than household income, the estimates are small and statistically insignificant for both groups, consistent with post-crackdown convergence among both men and women. For household income, the estimated gap is $181 among

male respondents, marginally significant at the 10 percent level, whereas the estimated gap among female respondents is approximately $46. These differences may reflect sampling variation, modest differences in labor-market adjustment between the two groups, or gender differences in whether respondents interpreted the household-income question as referring to their individual income. Nevertheless, both estimated gaps are considerably smaller than the pre-crackdown difference of approximately $353.

V Persisting Legacies of Gang Control and Potential New Barriers

As shown in the previous sections, the removal of gang territorial control eliminated the physical barriers that had restricted residents' access to labor markets outside their neighborhoods. In this section, we examine whether socioeconomic disparities persisted after the crackdown and whether new barriers to economic integration emerged. We show that reintegration remained incomplete: even after gang control was dismantled, the association between place of residence and gang presence persisted, generating a new barrier to employment through residence-based discrimination.

Persistent differences between gang and non-gang terriotories. Despite experiencing substantial convergence in socioeconomic conditions, certain differences continue to persist between former gang and nongang areas. Table 4 illustrates this fact for several outcome variables. It shows that the mobility improvements in former gang neighborhoods were not determined by increased access to private transportation. Following the crackdowns, residents of former gang areas remained more likely than their peers from nearby nongang neighborhoods to get around San Salvador by bus or on foot (Column 1). They were also less likely to use or own a car (Columns 2 and 3, respectively).[7] Although these patterns are unsurprising given that purchasing a car typically requires a period of sustained savings, they underscore that the convergence in mobility between gang and nongang areas was driven primarily by the dismantling of gang-imposed mobility restrictions rather than by improved access to private transportation.

Residence-Based Discrimination. We also document a new barrier to formal employment experienced by residents of former gang-controlled neighborhoods. Both the Cómo Vamos surveys and our 2023 survey asked respondents whether, during the past year, they had faced labor market discrimination because of their place of residence. In 2021, only 4.6 percent of respondents reported this form of discrimination, and there were no differences across the boundaries of former gang territory (Column 4 of Table 4). After the 2022 crackdowns, however, this share increased to 11.3

[7]The question about respondents' means of transportation was asked in both the Cómo Vamos surveys and our 2023 survey. Therefore, to increase the precision of our estimates, we combine these two data sources. To account for potential differences arising from the timing of the surveys, these regression specifications also include a dummy variable indicating whether the observation comes from the Cómo Vamos surveys.

percent, with residents of former gang neighborhoods 6.5 percentage points more likely to report experiencing it (Column 5 of Table 4). These findings suggest that the gang-imposed mobility restrictions that once limited employment opportunities for individuals from former gang areas have now been replaced by a different obstacle to formal work: residence-based discrimination by employers. The absence of this pattern before the crackdowns is plausibly explained by the fact that residents of former gang areas previously faced severe mobility constraints that limited their ability to search for jobs outside gang territory, and therefore their exposure to this form of discrimination.

To assess whether residents of former gang neighborhoods indeed faced residence-based employment discrimination, in 2024, we conducted a CV experiment in which employers were presented with consecutive pairs of CVs and asked to choose which candidate they would consider more suitable for a position in their firm. As shown in Column 6 of Table 4, employers were 10 percentage points less likely to select the CVs of candidates from former gang areas relative to the random 50–50 benchmark, corresponding to a 40–60 split against those applicants. Figure 4 illustrates these results. These differences cannot be attributed to the socioeconomic conditions of the neighborhoods listed on the CVs or their proximity to the firms, as the neighborhoods were selected to have similar socioeconomic characteristics of gang and nongang areas and to be approximately equidistant from the firms. The subset of employers who were additionally asked to evaluate some of the CVs gave lower assessments to applicants from former gang areas compared with otherwise identical applicants from nongang parts of San Salvador (Column 7 of Table 4). Overall, these results indicate that employers are hesitant to hire individuals from former gang neighborhoods, plausibly due to their perceived association with the gangs.

We find that this shift in employment barriers faced by residents of former gang-controlled neighborhoods is reflected in their policy priorities. Using data from the Cómo Vamos surveys, we examine which issues respondents identified as being among the top three problems facing the country. As shown in Appendix Table A.VIII, following the 2022 crackdowns and the removal of gang-imposed mobility restrictions, residents of former gang areas became less likely to list the availability of employment opportunities among the country's top three problems. At the same time, they became more likely to identify inequality of opportunity, poverty, and vulnerability among their key concerns. A small share of respondents from former gang areas also became more likely to state that the country does not face any major problems, plausibly because the crackdowns addressed the issues they viewed as most important.

VI Aggregate Economic Effects of Restoring State Authority

The regression discontinuity analysis presented so far has primarily focused on the effects of dismantling the gangs' system of territorial control. However, as shown by Melnikov, Schmidt-Padilla and Sviatschi (2025), neighborhoods on both sides of the RD cutoff were still exposed to gang-

related crimes, including homicides and extortion. Similarly, Appendix Table A.I shows that, following the 2022 crackdowns, security improved on both sides of the cutoff. Thus, while the RD setting provides valuable insights into the effects of eliminating gang borders and mobility restrictions, it is less suited to analyzing the socioeconomic consequences of reducing gang presence and associated crime. This distinction is particularly important for outcomes related to investment and economic activity, which may respond more to changes in overall gang presence than to the removal of gang borders.

VI.A Difference-in-Differences: Methodology

To examine the aggregate effects of the crackdowns on socioeconomic outcomes through reductions in gang presence and associated crime, we conduct a difference-in-differences analysis comparing municipalities with greater and lower pre-crackdown gang presence. To do so, we measure exposure to gang activity before the 2022 crackdowns using data from the Salvadoran National Civil Police (PNC) intelligence unit, which produced a detailed registry of all known MS-13 and 18th Street cliques across El Salvador. Appendix Figure A.7 illustrates the corresponding variation in exposure to the two gangs.

$$y_{i,t} = m_i + \tau_t + \sum_{t \neq 2021} \beta_t \times \textit{gang presence}_{i,2021} + \varepsilon_{i,t}, \tag{2}$$

Equation (2) presents the event-study regression specification used in the analysis. $\textit{gang presence}_{i,2021}$ is a dummy for whether a municipality had above-median exposure to gang's networks in the years preceding the crackdowns. m_i represents municipality fixed effects; τ_t—year fixed effects. The coefficients of interest are β_t, which denote the time-specific differences in the outcome variable between areas with greater and lower exposure to gang activity, relative to the 2021 baseline. In the baseline specification, we report Conley standard errors, which account for spatial correlation of the error terms within a 5-kilometer radius.

VI.B Difference-in-Differences: Results

Crime and violence. We begin by validating our empirical design by showing that municipalities with above-median pre-2022 gang exposure experienced more arrests and larger reductions in crime following the crackdowns. We use data from ACLED and annual household surveys conducted by DIGESTYC. In the ACLED data, we analyze the municipality-level monthly number of mass-arrest events and all violent events. In the DIGESTYC surveys, we focus on whether respondents were victims of assault, bodily injury, or extortion—the three types of crime most commonly associated with gangs—during the 12 months preceding each survey. We then construct the first principal component of these three victimization outcomes, measured in standard-deviation units. Figure 6 presents the corresponding event-study estimates. In 2022, during the initial phase of the

crackdowns, municipalities with above-median gang exposure experienced 0.124 more mass-arrest events per month—equivalent to approximately 1.5 additional events per year—than municipalities with below-median exposure. They also experienced a lasting decline in violence: in 2023–2025, municipalities with above-median pre-2022 gang exposure had 0.3 fewer violent events per month.[8] Survey-reported victimization similarly declined. After the crackdowns, respondents in municipalities with above-median gang exposure had a gang-related crime victimization index approximately 0.36 standard deviations lower than respondents in municipalities with below-median exposure.

Income. We then use data from the DIGESTYC surveys to examine how the decline in gang activity affected household and individual income. Figure 7 presents the corresponding estimates. Following the crackdowns, average household income per capita in municipalities with above-median pre-2022 gang exposure increased by approximately 20–25 USD relative to municipalities with below-median exposure, compared with a sample mean of 186 USD. Adults' individual labor income similarly increased by approximately 14 USD, compared with a sample mean of 116 USD. These increases are smaller than the reduction in the RD-based income gap between gang and nongang areas in San Salvador, reflecting the nationwide scope of the difference-in-differences analysis, differences in how income is measured, and, most importantly, the particularly large gains from removing binding mobility restrictions in gang-controlled neighborhoods.[9]

Overall, the income gains reported in the top panel of Figure 7 indicate that the crackdowns did more than redistribute labor market opportunities and income from areas previously subject to gang-imposed mobility restrictions toward neighboring areas that, although not subject to the same restrictions, still experienced substantial gang activity. Instead, the dismantling of gang structures and the associated decline in extortion improved average economic conditions in the more heavily exposed municipalities.

At the same time, the bottom-left panel of Figure 7 shows that labor income among respondents under age 18 began to decline in 2023. This pattern is consistent with a post-crackdown reduction in child labor, plausibly driven by improved household economic conditions, although the disruption of gang recruitment may also have contributed to this decline. The bottom-right panel provides support for this interpretation: following the crackdowns, in municipalities with above-median pre-2022 gang exposure, the share of respondents under age 18 who reported not attending school because they needed to work or their families lacked sufficient financial resources fell by approximately 10 percentage points relative to municipalities with below-median exposure.

Investment. Next, we examine how the crackdowns affected business investment, measured

[8]The data do not include the first three pre-crackdowns months of 2022. Despite this, violence remained elevated during the months immediately following the crackdowns. When the analysis is restricted to the second half of 2022, the estimated coefficient for that year becomes similar to those for 2023–2025.

[9]First, average wages in San Salvador are higher than the national average. Second, the San Salvador surveys measured total household income rather than individual labor income or household income per capita. Finally, residents of fully gang-controlled neighborhoods faced particularly severe constraints on their labor market choices due to gang-imposed mobility restrictions. As a result, removing these restrictions plausibly had a larger effect on their incomes than the broader reduction in violence.

by the opening of new establishments. Using official government records, we assign each formal business established in El Salvador since 2017 to its municipality based on its registered address. The top-left panel of Figure 8 presents the results of estimating Specification (2) for this outcome. Consistent with gang violence and related criminal activity acting as a de facto tax on business investment, the results indicate that, following the crackdowns, municipalities with above-median pre-2022 gang exposure experienced more new business openings than municipalities with below-median exposure.

We complement this analysis using data from OpenStreetMap. Although these data do not provide a comprehensive record of all new firm openings, they classify establishments by type, allowing us to examine which types of businesses expanded following the crackdowns. Perhaps most notably, the top-right and bottom-left panels of Figure 8 show that, in 2022–2024, municipalities with above-median pre-2022 gang exposure experienced greater growth in the number of medical establishments and community centers than municipalities with below-median exposure. These findings suggest that the crackdowns were accompanied by increased investment in social infrastructure, potentially reflecting government efforts to improve socioeconomic conditions in gang-affected communities. The bottom-right panel shows that private investment also increased, possibly with a one-year lag.

We also use data covering the universe of Airbnb listings in El Salvador to examine how the crackdowns affected investment in the short-term rental market. The top panel of Figure 9 shows that, following the crackdowns, municipalities with above-median pre-2022 gang exposure experienced an increase of approximately 0.5 log points in active Airbnb listings relative to municipalities with below-median exposure, equivalent to an increase of about 65 percent. Similarly, by 2025, the corresponding increase in total revenue earned by Airbnb hosts had reached approximately 1 log point, or about 170 percent. The bottom panel of Figure 9 shows that this revenue growth reflected both an increase in the number of reservations and higher average daily rates.

Overall, the results in Figures 8 and 9 indicate that the crackdowns increased investment in areas with greater pre-crackdown gang exposure, both in the form of greater business formation and an expansion of the short-term rental market.

Economic activity. Finally, we examine how the 2022 crackdowns affected overall economic activity using municipal tax records. To motivate this analysis, we consider three channels through which the crackdowns may have influenced economic activity in areas with greater and lower pre-2022 exposure to the gangs. First, the investment channel predicts that increased investment and business openings should increase production in areas previously affected by the gangs, although these effects may take time to materialize. Second, the income channel implies that rising incomes in these areas will increase residents' demand for goods and services. This channel, however, does not determine where those goods and services will be produced: the additional demand may be met by firms located either within formerly gang-affected areas or in areas that were less exposed to gangs. Third, the trade channel highlights the consequences of removing gang-imposed

mobility restrictions. Before the crackdowns, residents of gang-controlled areas were often unable to purchase goods and services elsewhere. Once the mobility restrictions were dismantled, however, they could have shifted their spending toward businesses in nongang areas, where more productive firms were located.

Standard trade theory suggests that, once mobility restrictions (i.e., barriers to trade) are dismantled, each side would increase its exports of the goods and services in which it has a comparative advantage. In the context of this paper, this implies that areas with less exposure to the gangs, which already had many large, productive firms (e.g., retail malls, banks, hospitals), would begin selling more of their goods and services to residents of former gang areas. Conversely, residents of former gang-affected areas, that previously had a relative abundance of cheap labor and real estate, would supply more labor to firms, while their neighborhoods would attract investment in local businesses and property-based services, as shown in Table 3 and Figure 9 of the paper.

Guided by this theoretical framework, when examining the effects of the crackdowns on overall economic activity, we distinguish between two types of economic sectors. The first consists of sectors that predominantly sell tradable goods and services, which can be produced by large firms located outside former gang-controlled areas and consumed by Salvadorans regardless of where they live. Among the sectors listed in municipal tax records, those that best fit this classification are retail, manufacturing, finance and insurance, logistics, and healthcare. The second type, by contrast, consists of location-specific sectors, which include real estate, accommodation and hospitality, local administrative services, and mining.

Figure 10 presents the results from estimating Specification (2) for municipal tax revenue from these two groups of sectors, expressed in standard deviations relative to pre-2022 values. As anticipated, the top panel shows that, following the crackdowns, municipalities with above-median pre-2022 gang exposure experienced a larger increase in tax revenue from location-specific sectors than municipalities with below-median exposure. For tradable, non-location-specific sectors, the pattern is reversed. Notably, the bottom panel of Figure 10 suggests that both groups of municipalities experienced growth in tax revenue from both types of sectors, with the difference lying in the magnitude rather than the direction of this growth. Thus, the crackdowns resulted in broad economic gains across sectors and municipalities.

VII Public Support for the Crackdowns

A key condition for the durability of restored state authority in gang-controlled territories is whether citizens perceive the institutions exercising that authority as legitimate. To examine how the crackdowns affected support for the police and the government, we use data from our 2023 survey to analyze how respondents' attitudes were shaped by their experiences during the State of Exception. Specifically, we assess whether knowing someone who was arrested during the crackdowns influenced respondents' trust in the police and the government. If a substantial share

of those arrested had not been involved in gang-related activities, individuals who knew them would be expected to reduce their trust in the institutions responsible for these unjustified arrests. We also examine how respondents' attitudes were affected by witnessing police abuse, including incidents of physical violence and arbitrary arrests or seizures of property.

Figure 5 presents the results of our analysis for three outcome variables: trust in the police, trust in the national government, and approval of the president. For each outcome, the first of the four bars shows its average value among individuals who neither know anyone arrested during the crackdowns nor witnessed police abuse (45 percent of the sample). These respondents were not directly affected by the crackdowns but benefited from the improved security situation and the removal of gang-imposed mobility restrictions. Unsurprisingly, therefore, they exhibit high levels of trust in government institutions.

The second bar for each outcome shows its average value among individuals who have not witnessed police abuse but who know someone who was arrested during the crackdowns (35.5 percent of the sample). Since our definition of police abuse includes unjustified arrests, this group predominantly consists of respondents who know someone who was arrested but perceive the arrest to have been justified. This group exhibits levels of trust in government institutions that are comparable to those of the first group, which was not directly affected by the crackdowns.

However, once we consider individuals who witnessed instances of police abuse—whether they also knew someone who was arrested during the crackdowns (the fourth bar for each outcome; 13.7 percent of the sample) or not (the third bar; 5.8 percent of the sample)—we observe substantially lower levels of trust in government institutions. Specifically, they are 30-35 percentage points less likely to trust the police, 25-30 percentage points less likely to trust the national government, and 15 percentage points less likely to approve of the president. These results indicate that, while the Salvadoran population generally exhibits high levels of support for the government's tough-on-crime policies when they view its actions as justified and directed at criminal actors, this support can quickly erode if law enforcement abuses its power.

As shown in Appendix Figure A.5, the patterns presented in Figure 5 hold both for former gang and nongang areas, with no distinctive differences between the two. Appendix Table A.IX also shows that trust in government institutions generally does not change at the boundaries of former gang territory, with the possible exception of attitudes toward the police among individuals who witnessed police abuse or who knew someone perceived to have been justly arrested.

Overall, trust in the police and national government remained high, and we find little difference between residents of former gang and nongang areas. However, support was substantially lower among individuals who reported witnessing police misconduct, suggesting that the legitimacy of restored state authority depends not only on improvements in security but also on how state power is exercised.

VIII Conclusion

This paper shows that El Salvador's 2022 crackdowns on crime brought about a profound restructuring of social and economic dynamics in former gang-controlled neighborhoods. The dismantling of gang territorial control eliminated long-standing barriers to individuals' mobility, leading sharp increases in freedom of movement and a rapid convergence in recreational and labor market mobility between residents of gang and nongang areas. These changes, in turn, narrowed the disparities in employment, income, and basic indicators of material well-being. At the same time, individuals from former gang areas now face a new barrier to employment: residence-based discrimination. Finally, we find that, while overall public trust in the government and police remains high, it is much lower among individuals who witnessed police abuse during the crackdowns, highlighting the potential pitfalls of tough-on-crime policies if law enforcement is not held accountable and abuses its power.

We also highlight that the external validity of these findings depends on the institutional features of the Salvadoran case, including the gangs' limited financial capacity, their reliance on local extortion, the comprehensive scope of the enforcement campaign, and the accompanying reassertion of state authority over prisons. The results should therefore not be interpreted as implying that similar crackdowns would generate comparable effects in settings dominated by wealthier or more fragmented criminal organizations.

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Tables

Table 1: Security after the crackdowns, 2022

	(1)	(2)	(3)
	Avoid going out at night	Avoid leaving the house alone	Consider public transport insecure
Former gang neighborhood	-0.136***	-0.053**	-0.154***
	(0.037)	(0.023)	(0.055)
Mean dep. var	0.170	0.027	0.273
Observations	880	880	604

Note: This table presents the results of estimating Specification (1) for the outcome variables related to security perceptions, after the 2022 crackdowns. The unit of observation is an individual. The outcome variables come from Cómo Vamos surveys conducted after the gang crackdowns. Omitted controls include a linear trend in distance to the boundaries of former gang territory, separately for locations on each side of the boundaries. Standard errors in parentheses are clustered by 30-meter bins, denoting the distance to the boundaries of former gang territory, separately for each side of the boundaries. *** p<0.01, ** p<0.05, * p<0.1.

Table 2: Individuals' Mobility, before and after the Crackdowns

	(1)	(2)	(3)	(4)	(5)	(6)
	Been to the mall during past year		Been to cafes, bars, and restaurants during past year		Been to the cinema during past year	
	2021	2022	2021	2022	2021	2022
Former gang neighborhood	-0.243***	0.032	-0.150*	0.028	-0.120***	0.049
	(0.063)	(0.062)	(0.079)	(0.059)	(0.036)	(0.040)
Mean dep. var	0.695	0.732	0.542	0.626	0.162	0.197
Observations	848	880	848	880	848	880
	(7)	(8)	(9)	(10)	(11)	(12)
	Been to a park during past year		Been to Parque Cuscatlán during past year		Participated in recreational activities during past year	
	2021	2022	2021	2022	2021	2022
Former gang neighborhood	-0.135**	-0.034	-0.178***	0.072	-0.202***	-0.006
	(0.060)	(0.087)	(0.044)	(0.086)	(0.056)	(0.054)
Mean dep. var	0.514	0.520	0.363	0.449	0.834	0.848
Observations	848	880	848	880	848	880
	(13)	(14)	(15)	(16)	(17)	(18)
	Freedom of movement where you live		Gang borders prevented you from getting jobs in large firms		Gang borders prevented you from getting jobs in large firms in other parts of the city	
	2021	2023	2021	2023	2021	2023
Former gang neighborhood	-0.135**	0.002	0.088**	-0.004	0.100**	-0.004
	(0.050)	(0.026)	(0.039)	(0.020)	(0.041)	(0.018)
Mean dep. var	0.329	0.950	0.428	0.064	0.407	0.051
Observations	2,315	2,315	2,313	2,313	2,313	2,313

Note: This table presents the results of estimating Specification (1) for the outcome variables related to individuals' mobility. The unit of observation is an individual. In Columns 1–12, the outcome variables come from Como Vamos surveys conducted before and after the gang crackdowns. In Columns 13–18, the outcome variables come from the survey we conducted in 2023. Omitted controls include a linear trend in distance to the boundaries of former gang territory, separately for locations on each side of the boundaries. Standard errors in parentheses are clustered by 30-meter bins, denoting the distance to the boundaries of former gang territory (separately for each side of the boundaries). *** p<0.01, ** p<0.05, * p<0.1.

Table 3: Economic Conditions, before and after the Crackdowns

	(1)	(2)	(3)	(4)	(5)	(6)
	Works in former gang territory		Works in neighborhood where they live		Works in a firm with $\geq$ 100 employees	
	2019	2023	2019	2023	2019	2023
Former gang neighborhood	0.495***	-0.035	0.111***	-0.042	-0.123***	0.030
	(0.039)	(0.054)	(0.031)	(0.045)	(0.019)	(0.034)
Mean dep. var	0.334	0.480	0.302	0.429	0.169	0.184
Observations	1,738	2,200	2,071	2,315	2,071	2,315
	(7)	(8)	(9)	(10)	(11)	(12)
	Works in a firm with $\geq$ 200 employees		Household income		Have financial difficulties	
	2019	2023	2019	2023	2021	2022
Former gang neighborhood	-0.115***	0.048	-352.596***	-98.293	0.183***	0.006
	(0.028)	(0.031)	(112.216)	(74.666)	(0.059)	(0.065)
Mean dep. var	0.133	0.139	625	631.5	0.328	0.295
Observations	2,071	2,315	2,314	2,133	848	877
	(13)	(14)	(15)	(16)	(17)	(18)
	Has bank account		Digital access index		Has sanitary service inside the home	
	2021	2022	2021	2022	2021	2022
Former gang neighborhood	-0.236***	-0.052	-0.172***	-0.019	-0.057**	-0.074**
	(0.077)	(0.090)	(0.045)	(0.034)	(0.025)	(0.031)
Mean dep. var	0.448	0.455	0.646	0.665	0.935	0.923
Observations	848	880	847	877	848	880

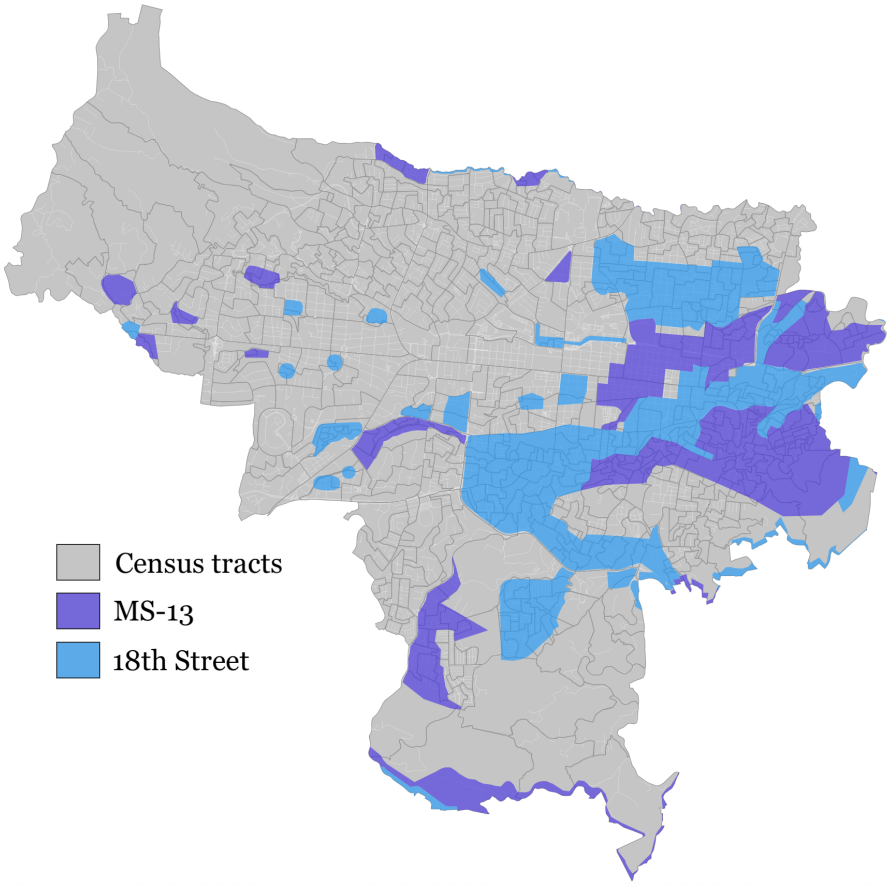
Note: This table presents the results of estimating Specification (1) for the outcome variables related to individuals' mobility. The unit of observation is an individual. In Columns 1–10, the outcome variables come from the surveys we conducted in 2019 and 2023. In Columns 11–18, the outcome variables come from Como Vamos surveys conducted before and after the gang crackdowns. Omitted controls include a linear trend in distance to the boundaries of former gang territory, separately for locations on each side of the boundaries. Standard errors in parentheses are clustered by 30-meter bins, denoting the distance to the boundaries of former gang territory (separately for each side of the boundaries). *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Differences between former Gang and Nongang Areas

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Use bus or walk	Use car	Own a car	Experienced address-based discrimination		Employer choice of CV	Employer evaluation of CV
	2022–23	2022–23	2023	2021	2022–23	2024	2024
Former gang neighborhood	0.084**	-0.062*	-0.070*	0.017	0.065***		
	(0.034)	(0.033)	(0.040)	(0.033)	(0.017)		
CV with former gang address						-0.100***	-0.059*
						(0.017)	(0.035)
Mean dep. var	0.652	0.300	0.334	0.046	0.113		
Observations	3,193	3,193	2,315	848	3,195	1,726	188

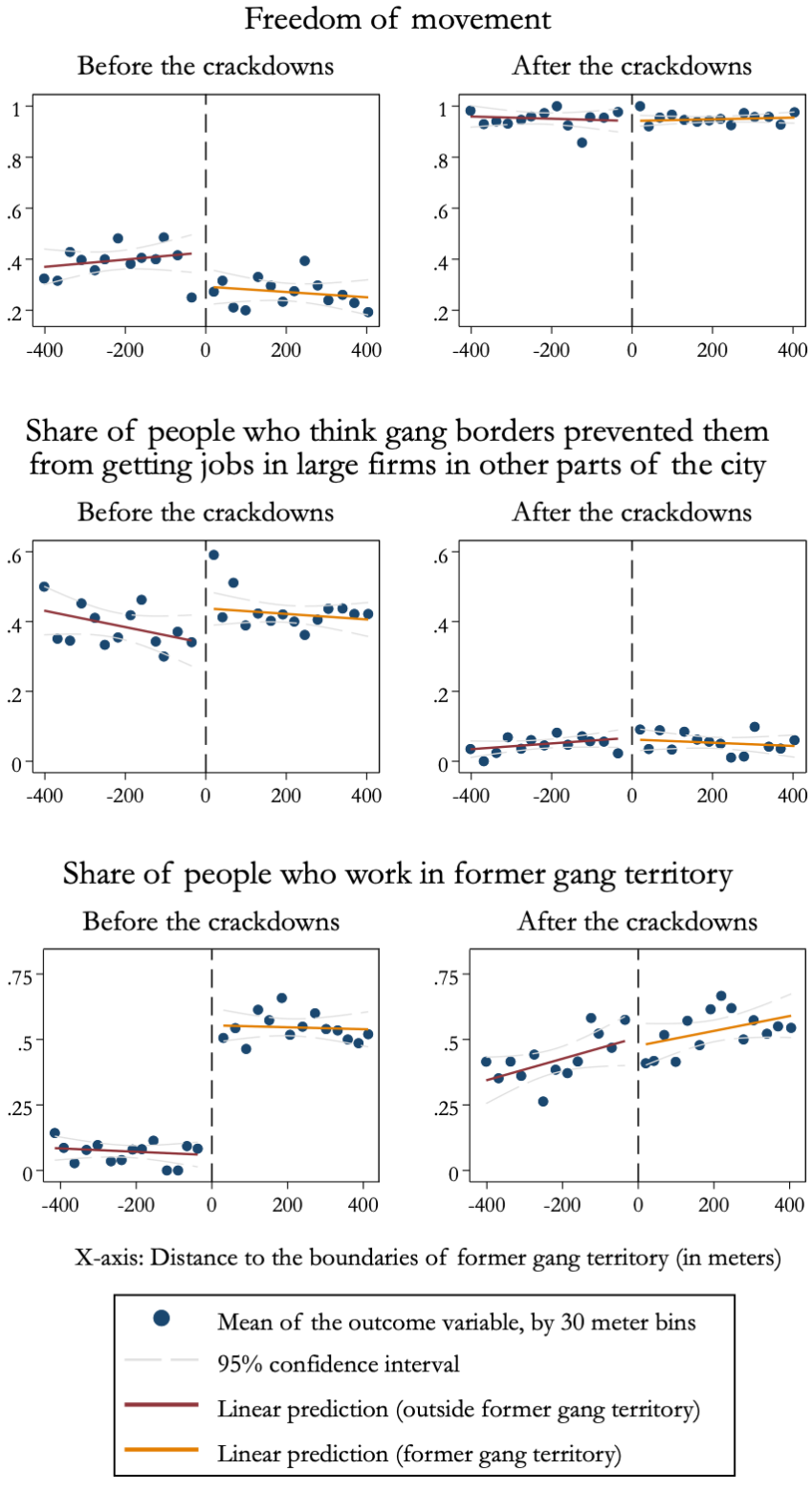
Note: This table presents the results of estimating Specification (1) for the outcome variables related to transportation and employment discrimination. The unit of observation is an individual. In Columns 1, 2, and 5, the outcome variables come from the combined sample of the survey we conducted in 2023 and the 2022 wave of the Cómo Vamos survey. In Column 3, the outcome variable comes from the survey we conducted in 2023. In Column 4, the outcome variable comes from the 2021 wave of the Cómo Vamos survey. In Columns 6 and 7, the outcome variables come from a CV experiment that we conducted with employers in 2024. Omitted controls include a linear trend in distance to the boundaries of former gang territory, separately for locations on each side of the boundaries. In Columns 1, 2, and 5, we additionally include a dummy for whether the variable came from the Cómo Vamos survey. Standard errors in parentheses are clustered by 30-meter bins, denoting the distance to the boundaries of former gang territory (separately for each side of the boundaries). *** p<0.01, ** p<0.05, * p<0.1.

Figure 1: Former Gang Territory in San Salvador



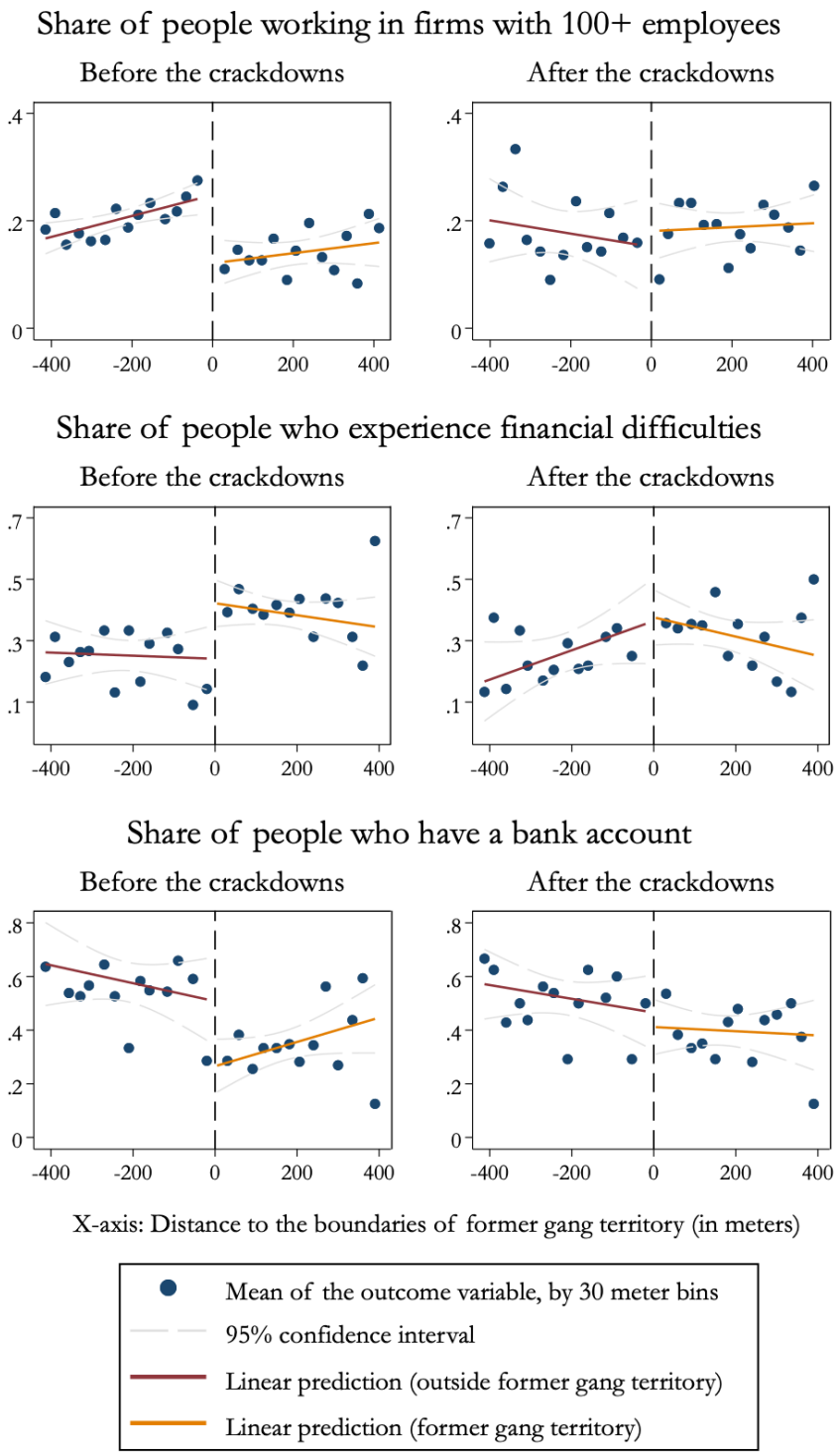
Note: This figure shows the map of San Salvador neighborhoods that were formerly controlled by gangs. The gray areas correspond to census tracts from the 2007 population census, which serve as the sampling units for the surveys used in this study.

Figure 2: Labor Mobility Restrictions, before and after the Crackdowns



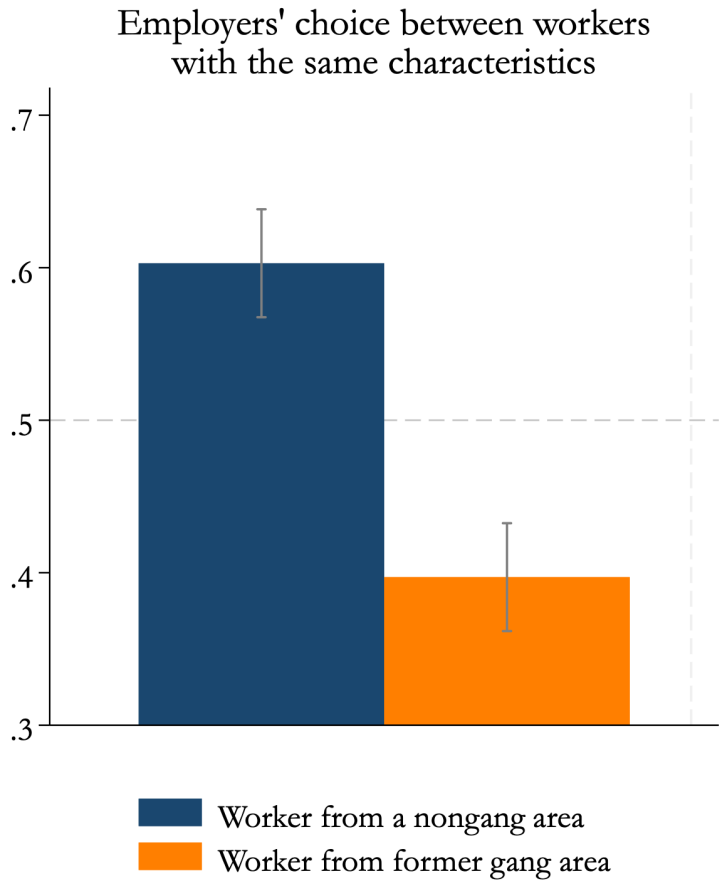
Note: This figure illustrates the results related to individuals' labor mobility. The outcome variables come from the surveys we conducted in 2019 and 2023. The unit of observation is an individual. The vertical axis represents the average value of the outcomes variable; the horizontal axis—distance (in meters) to the boundaries of gang territory. Areas to the left of the dashed line are located outside of former gang territory; areas to the right were formerly controlled by the gangs. The dots represent the averages of the outcome variable, by 30-meter bins.

Figure 3: Economic Outcomes, before and after the Crackdowns



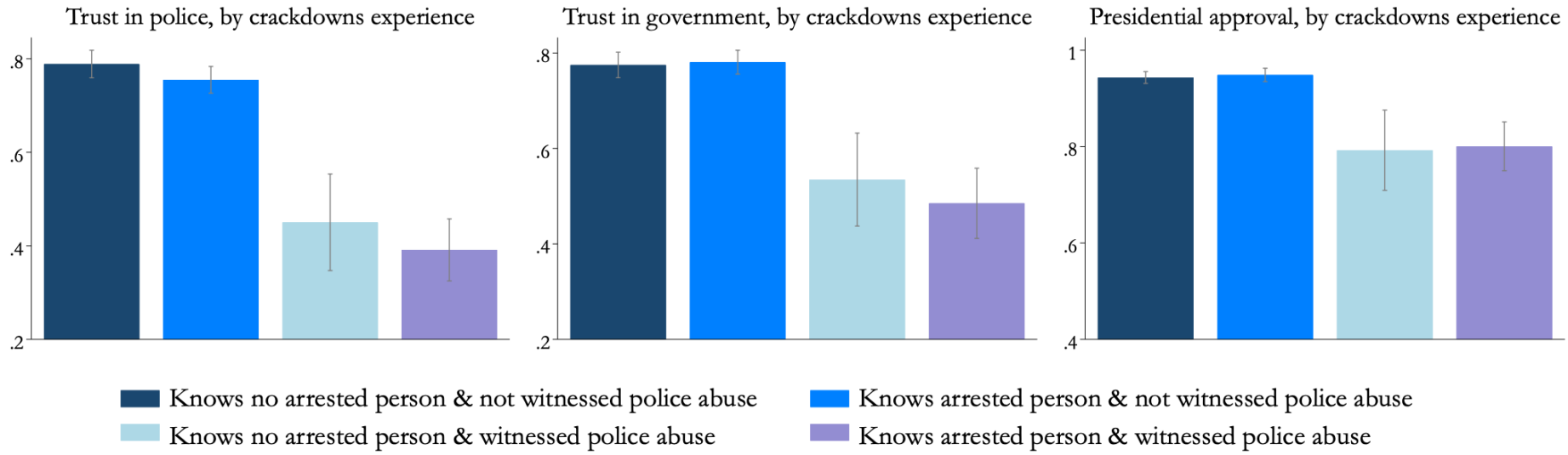
Note: This figure illustrates the results related to individuals' economic well-being. The outcome variables in the top panel come from the surveys we conducted in 2019 and 2023. The outcome variables in the two other panels come from Como Vamos surveys conducted before and after the gang crackdowns. The unit of observation is an individual. The vertical axis represents the average value of the outcomes variable; the horizontal axis—distance (in meters) to the boundaries of gang territory. Areas to the left of the dashed line are located outside of former gang territory; areas to the right were formerly controlled by the gangs. The dots represent the averages of the outcome variable, by 30-meter bins.

Figure 4: Residence-based Discrimination



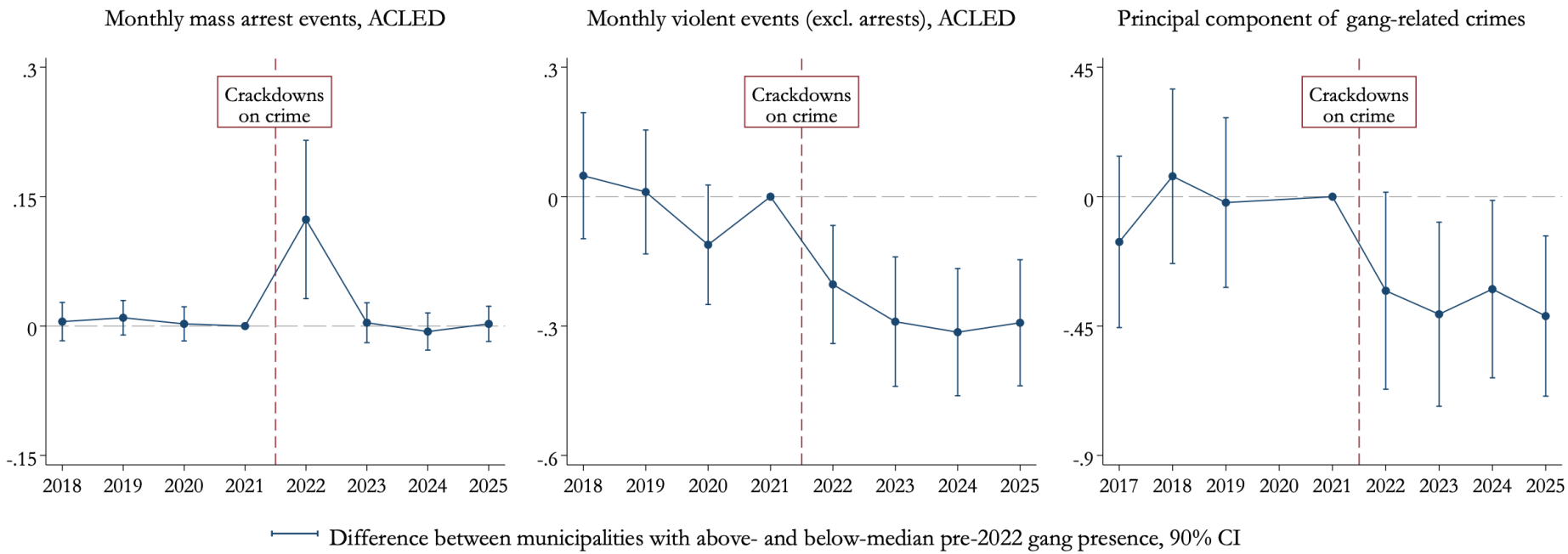
Note: This figure presents the results of the CV experiment conducted in 2024. The left panel shows the share of cases in which employers selected the CV of an applicant from a nongang neighborhood when choosing between two otherwise identical CVs. The right panel shows the corresponding share for applicants from former gang areas. The gray bars represent 95% confidence intervals, with standard errors clustered at the employer level.

Figure 5: Political Views, by Crackdowns Experience



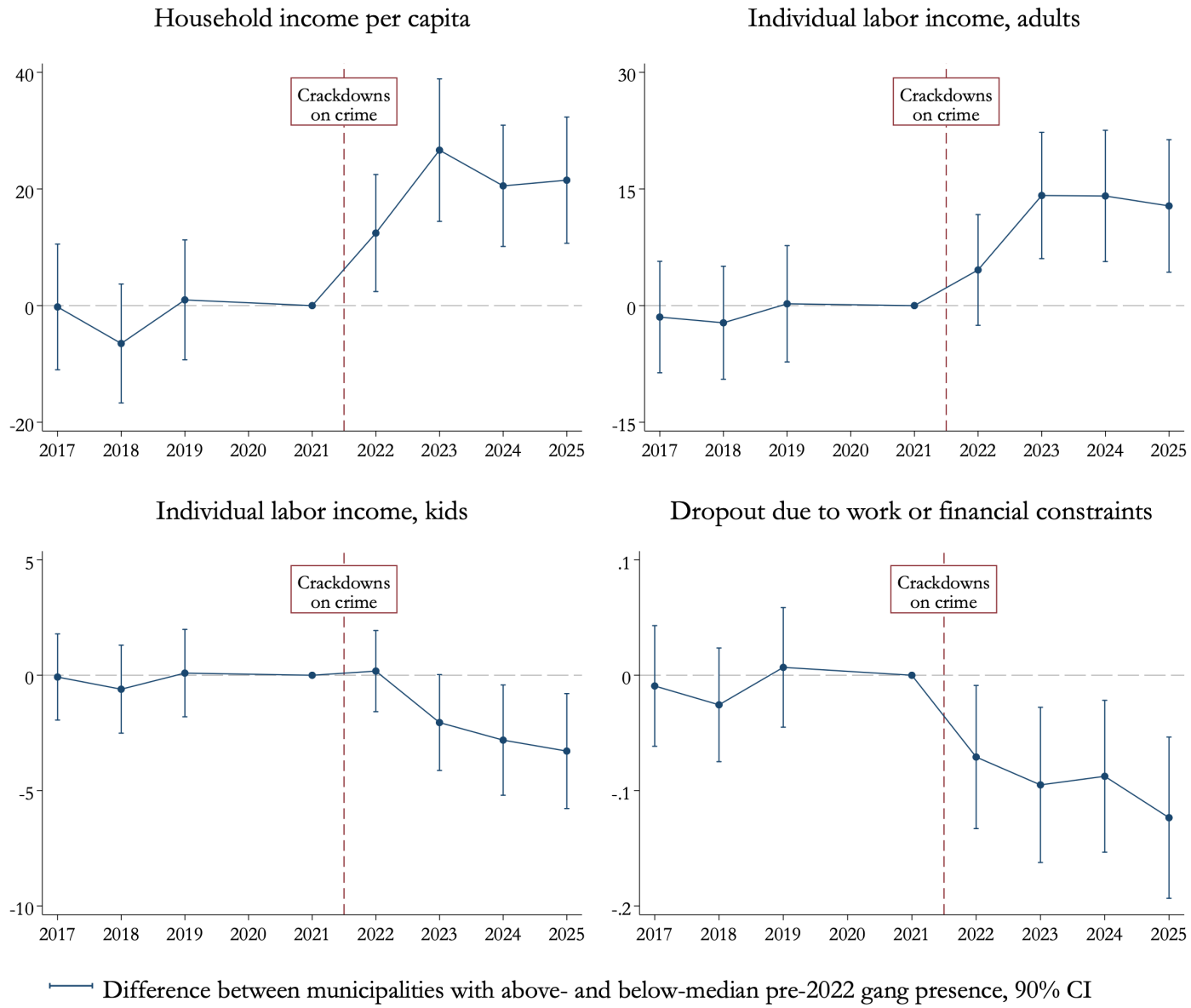
Note: This figure illustrates the results related to individuals' political views, by experience during the crackdowns. The outcome variables come from the survey we conducted in 2023. The unit of observation is an individual. The vertical axis represents the average value of the outcomes variable; the horizontal axis—the respondents' experience during the crackdowns.

Figure 6: Crime Reductions after the Crackdowns



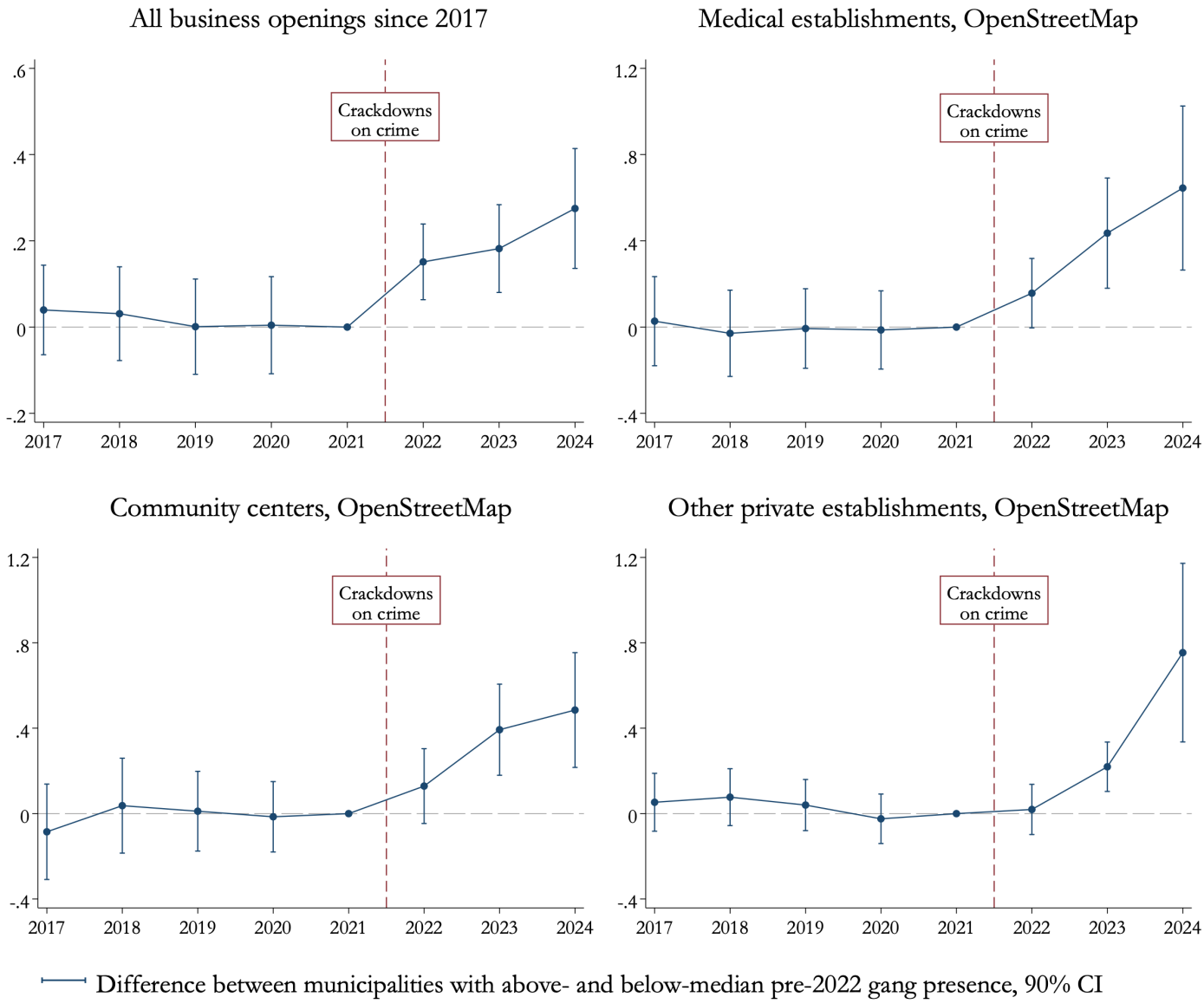
Note: This figure illustrates the results of estimating Specification (2) for crime-related outcomes. The outcome variables in the two left panels come from ACLED; the outcome in the right panel comes from annual household surveys. The unit of observation is a municipality. The figure reports 90% confidence intervals based on Conley (1999) standard errors with a 5-kilometer spatial correlation radius.

Figure 7: Household and Individual Income after the Crackdowns



Note: This figure illustrates the results of estimating Specification (2) for household and individual income, as well as school dropout due to financial constraints. The outcome variables come from annual household surveys. The unit of observation is a municipality. The figure reports 90% confidence intervals based on Conley (1999) standard errors with a 5-kilometer spatial correlation radius.

Figure 8: Business Openings after the Crackdowns



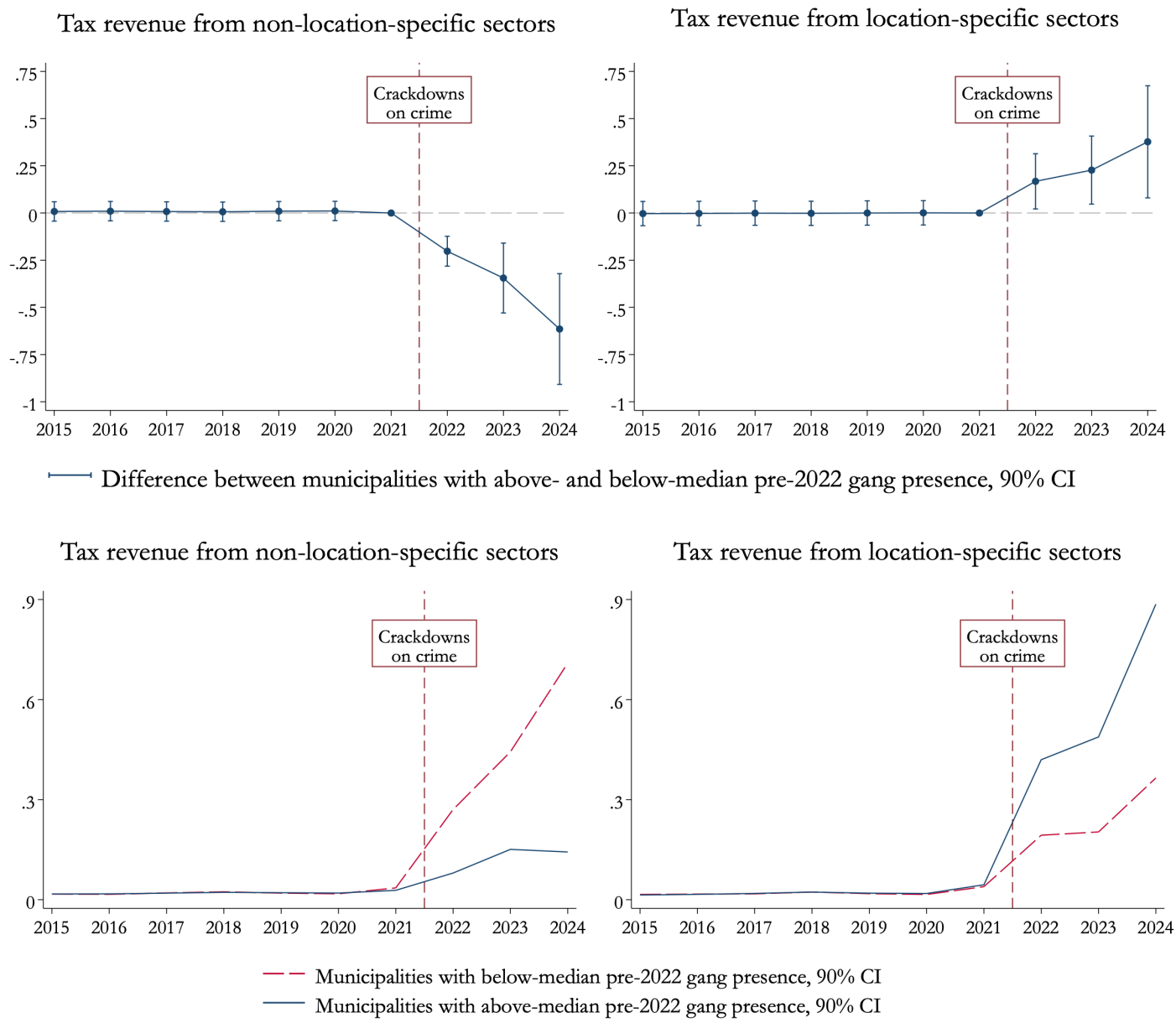
Note: The figure presents the results of estimating Specification (2) for business openings. The outcome variables come from official firm registration records (top-left panel) and OpenStreetMap (remaining panels). The unit of observation is a municipality. The figure reports 90% confidence intervals based on Conley (1999) standard errors with a 5-kilometer spatial correlation radius.

Figure 9: Property investment after the Crackdowns



Note: The figure presents the results of estimating Specification (2) for Airbnb-related outcomes. The outcome variables come from scraped Airbnb data. The unit of observation is a municipality. The figure reports 90% confidence intervals based on Conley (1999) standard errors with a 5-kilometer spatial correlation radius.

Figure 10: Tax Revenue after the Crackdowns, by Sector Type



Note: The figure presents the results of estimating Specification (2) for municipal tax revenue, by sector type. The outcome variables come from official tax records, measured in standard-deviation units and normalized relative to pre-2022 levels. The top panel presents the event-study estimates; the bottom panel—the underlying data. The unit of observation is a municipality. The figure reports 90% confidence intervals based on Conley (1999) standard errors with a 5-kilometer spatial correlation radius.

Online Appendix

A Theoretical framework

Consider a city with two types of locations, defined by the presence of criminal groups: gang (g) and nongang (ng) areas. In each area, a representative firm produces the same numeraire good. Before the crackdown, gang boundaries segment the product market, so that each firm can sell only to consumers in its own part of the city. After the crackdown, these boundaries are removed, and both firms can sell to consumers throughout the city.

The two firms are ex ante identical, but in the initial equilibrium they adopt technologies with different capital intensity. Specifically, let K_j denote the productivity of the technology adopted by firm $j \in \{g, ng\}$. The firm in the gang area avoids capital investment because of the threat of expropriation by gangs, and therefore uses a labor-intensive technology with $K_g = 1$. By contrast, because the firm in the nongang area does not face a comparable expropriation threat, it adopts the capital-intensive technology, with $K_{ng} = \bar{K} > 1$. Importantly, these technology choices are outcomes of the initial equilibrium rather ad hoc assumptions. Melnikov, Schmidt-Padilla and Sviatschi (2025) discuss the conditions under which this equilibrium emerges.

To capture the idea that capital-intensive technologies allow firms to produce at lower cost, assume that the marginal cost of firm j is

$$c_j = \frac{1}{K_j}.$$

Thus, in the initial equilibrium, the nongang firm is more productive with lower marginal costs:

$$c_g = 1 \qquad \text{and} \qquad c_{ng} = \frac{1}{\bar{K}} < 1.$$

Before the crackdowns, product markets are segmented. Each firm serves only its own local market and faces local inverse demand

$$P_j = a - q_j,$$

where q_j denotes the quantity produced by firm j. In the pre-crackdown equilibrium, each firm is a monopolist in its own local market and chooses q_j to maximize

$$\pi_j^0 = (a - q_j - c_j)q_j.$$

The resulting pre-crackdown output of firm j is

$$q_j^0 = \frac{a - c_j}{2}.$$

Now consider the effects of a large-scale government crackdown on crime that removes the barriers separating the two local product markets. We focus first on the short-run equilibrium, in which the technologies adopted by the two firms remain fixed. After the crackdown, both firms can sell to consumers throughout the city. The two firms therefore compete in quantities in an integrated

citywide market, with inverse demand

$$P = 2a - Q, \qquad Q = q_g + q_{ng}.$$

The Cournot equilibrium quantities are

$$q_g^1 = \frac{2a - 2c_g + c_{ng}}{3} \qquad \text{and} \qquad q_{ng}^1 = \frac{2a - 2c_{ng} + c_g}{3}.$$

Since $c_{ng} < c_g$, the nongang-area firm produces more in the integrated market: $q_{ng}^1 > q_g^1$. Moreover, the increase in output is larger for the nongang-area firm than for the gang-area firm. Relative to its pre-crackdown output, the change in output for the nongang-area firm is

$$q_{ng}^1 - q_{ng}^0 = \frac{2a - 2c_{ng} + c_g}{3} - \frac{a - c_{ng}}{2} = \frac{a - c_{ng} + 2c_g}{6}.$$

For the gang-area firm, the corresponding change is

$$q_g^1 - q_g^0 = \frac{2a - 2c_g + c_{ng}}{3} - \frac{a - c_g}{2} = \frac{a - c_g + 2c_{ng}}{6}.$$

The difference between these two changes is therefore

$$(q_{ng}^1 - q_{ng}^0) - (q_g^1 - q_g^0) = \frac{c_g - c_{ng}}{2} > 0.$$

As a result, market integration increases production relatively more for the more productive nongang-area firm.

The same framework captures how the crackdowns changed investment incentives in former gang areas. Before the crackdowns, the firm located in the gang area did not adopt the capital-intensive technology because capital investment was exposed to expropriation risk. Once this risk is removed, the adoption of the capital-intensive technology becomes more profitable. In the notation above, this long-run adjustment increases the firm's technology parameter, reducing its marginal costs.

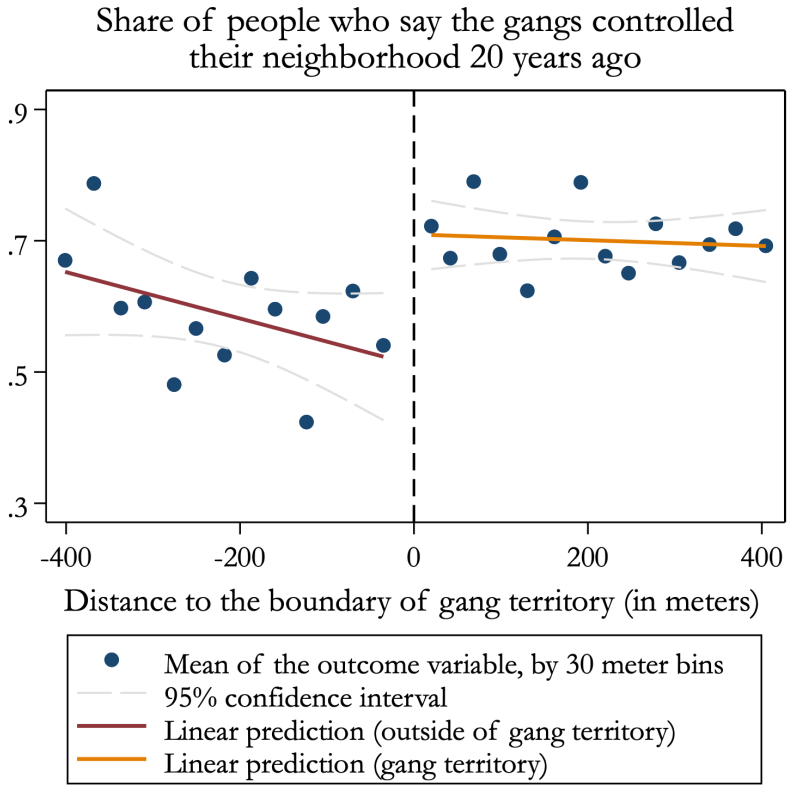
Overall, the theoretical framework generates two testable predictions:

1. In the short run, market integration shifts production of the numeraire good toward the initially more productive firm located in the nongang part of the city.

2. The removal of expropriation risk increases investment by the firm from the former gang area.

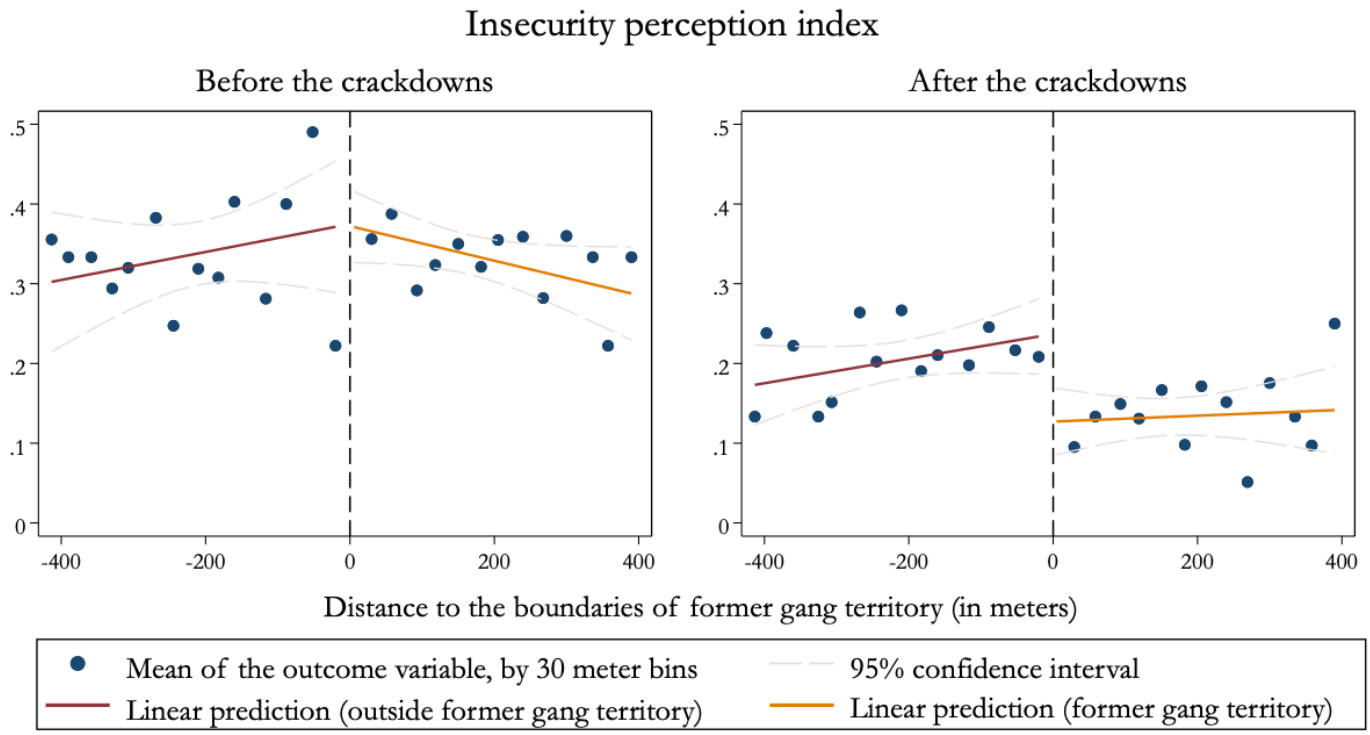
Online Appendix Figures

Figure A.1: Persistence of Gang Borders



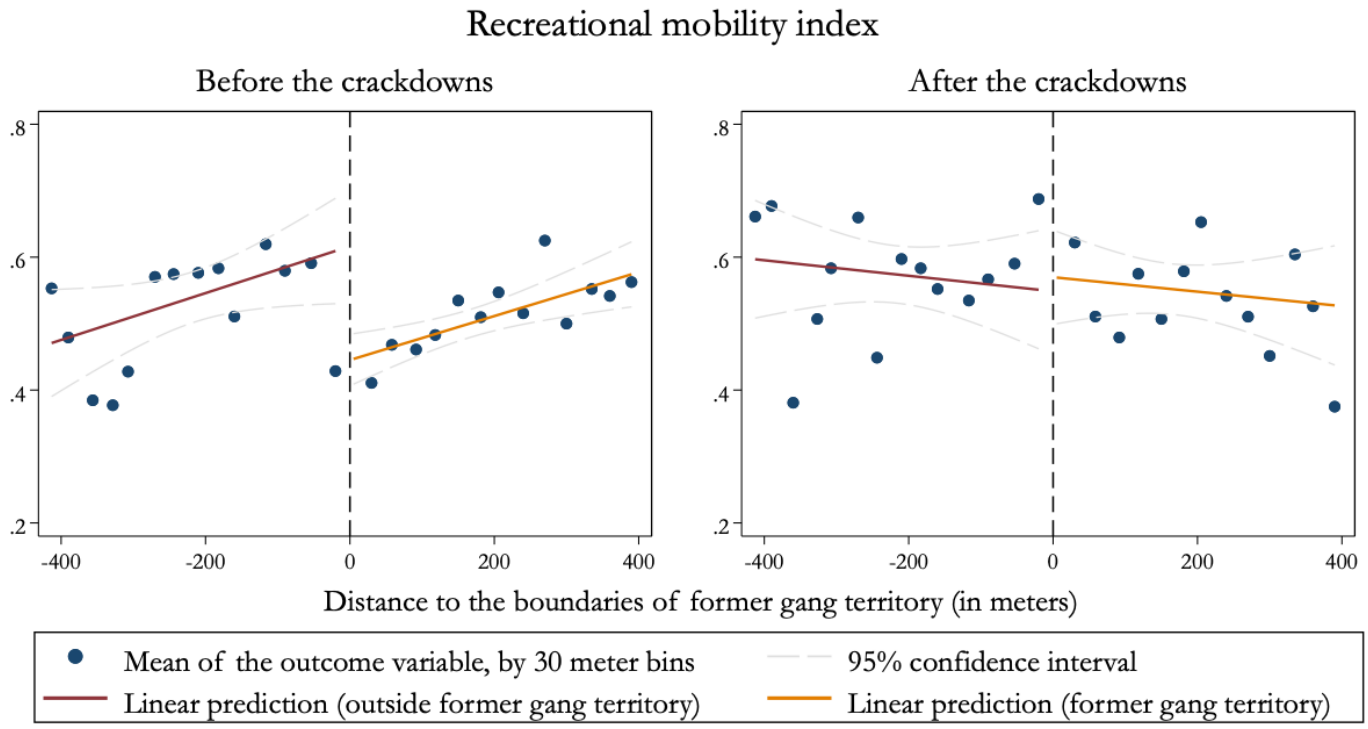
Note: This figure illustrates the stability of gang territorial boundaries. The outcome variable, derived from our 2023 survey, is a binary indicator equal to one if the respondent believes their neighborhood was under gang control twenty years earlier, in the early 2000s. The unit of observation is the individual. The vertical axis represents the average value of the outcome variable; the horizontal axis—distance (in meters) to the boundaries of former gang territory. Areas to the left of the dashed line lie outside former gang territory, whereas those to the right were previously controlled by gangs. The dots display average values of the outcome variable, by 30-meter bins.

Figure A.2: Insecurity Perceptions, before and after the Crackdowns



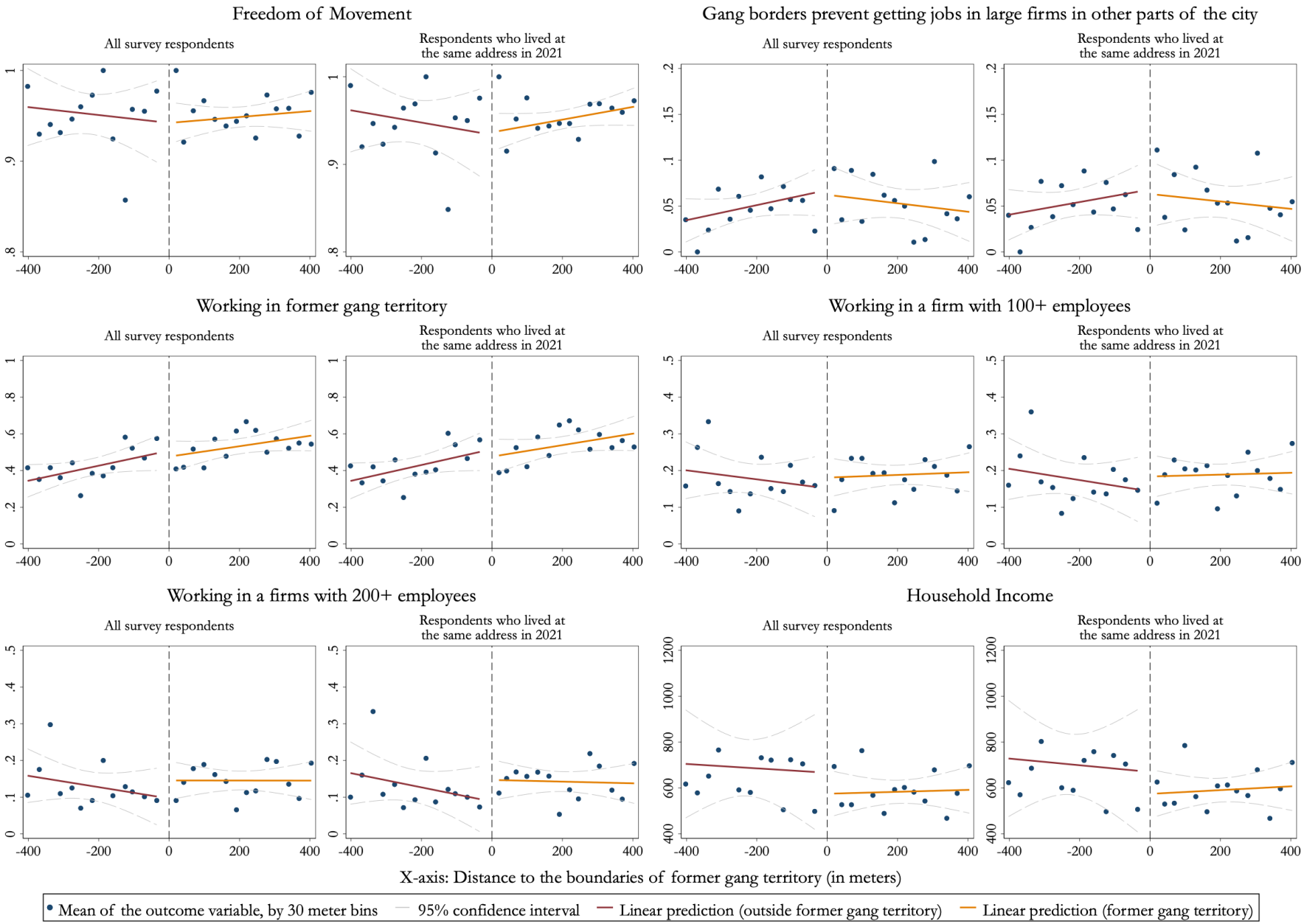
Note: This figure illustrates the results related to individuals' perceptions of insecurity. The outcome variable represents the average of the three outcomes in Panel B of Table 1, before and after the crackdowns. The outcome variables come from Como Vamos surveys conducted before and after the gang crackdowns. The unit of observation is an individual. The vertical axis represents the average value of the outcomes variable; the horizontal axis—distance (in meters) to the boundaries of gang territory. Areas to the left of the dashed line are located outside of former gang territory; areas to the right were formerly controlled by the gangs. The dots represent the averages of the outcome variable, by 30-meter bins.

Figure A.3: Recreational Mobility, before and after the Crackdowns



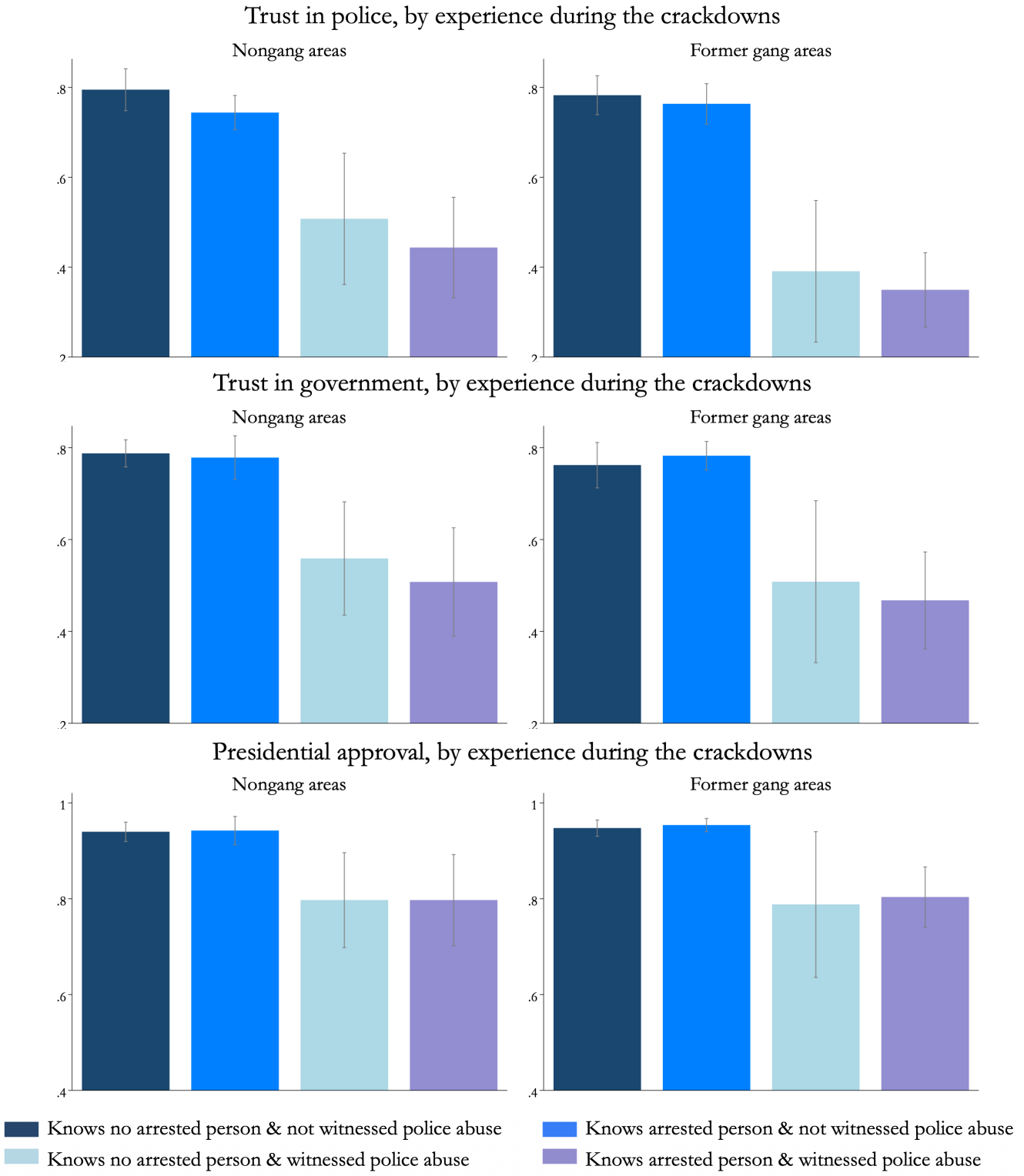
Note: This figure illustrates the results related to individuals' recreational mobility. The outcome variable represents the average of the six outcomes in the two top panels of Table 2, before and after the crackdowns. The outcome variables come from Como Vamos surveys conducted before and after the gang crackdowns. The unit of observation is an individual. The vertical axis represents the average value of the outcomes variable; the horizontal axis—distance (in meters) to the boundaries of gang territory. Areas to the left of the dashed line are located outside of former gang territory; areas to the right were formerly controlled by the gangs. The dots represent the averages of the outcome variable, by 30-meter bins.

Figure A.4: 2023 survey RD plots, full sample and subsample of nonmovers



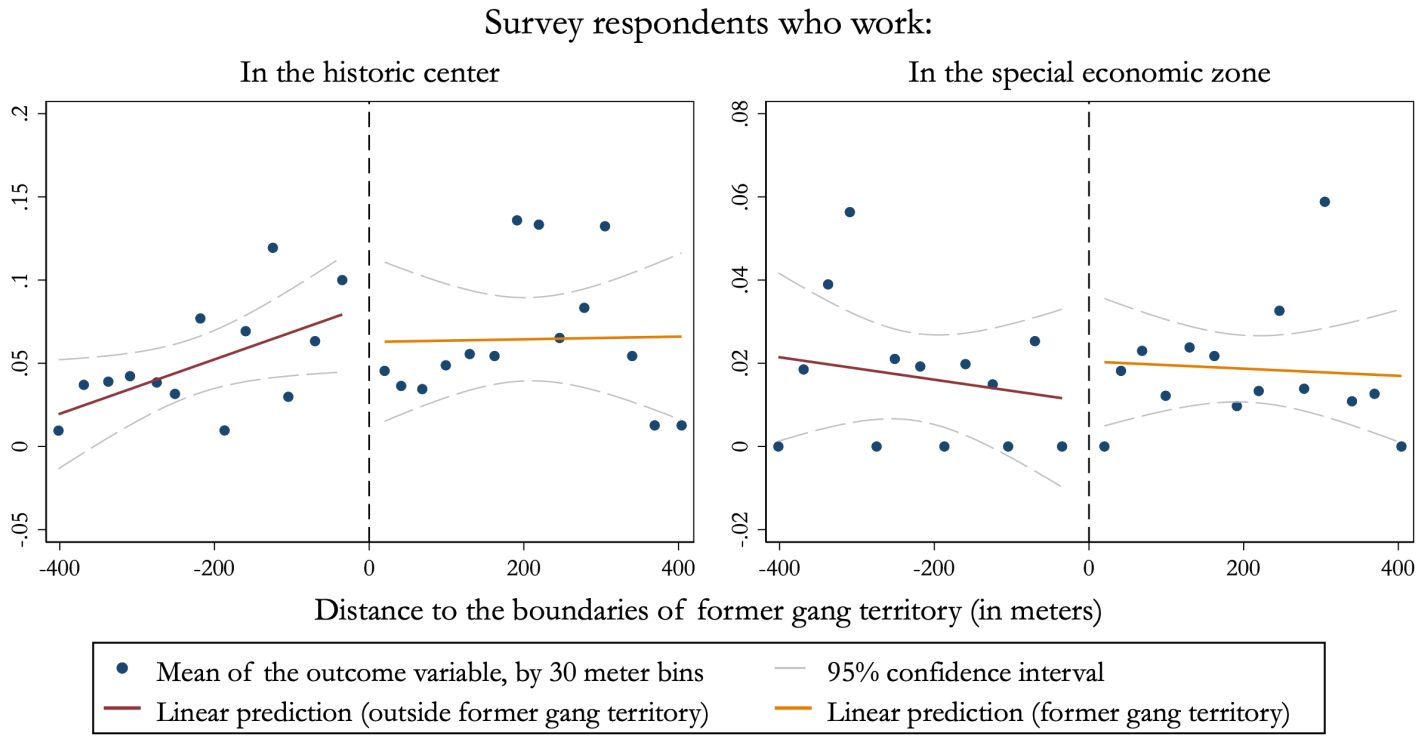
Note: The figure presents the regression discontinuity plots for mobility and labor market outcomes from our 2023 survey. For each outcome, the left-side panel presents the plot for the full sample; the right-side panel presents the plot for the subsample of respondents who have lived at the same address in 2021. Appendix Table A.III presents the corresponding regression estimates. The vertical axis represents the average value of the outcomes variable; the horizontal axis—distance (in meters) to the boundaries of gang territory. Areas to the left of the dashed line are located outside of former gang territory; areas to the right were formerly controlled by the gangs. The dots represent the averages of the outcome variable, by 30-meter bins.

Figure A.5: Political Views, by Crackdowns Experience



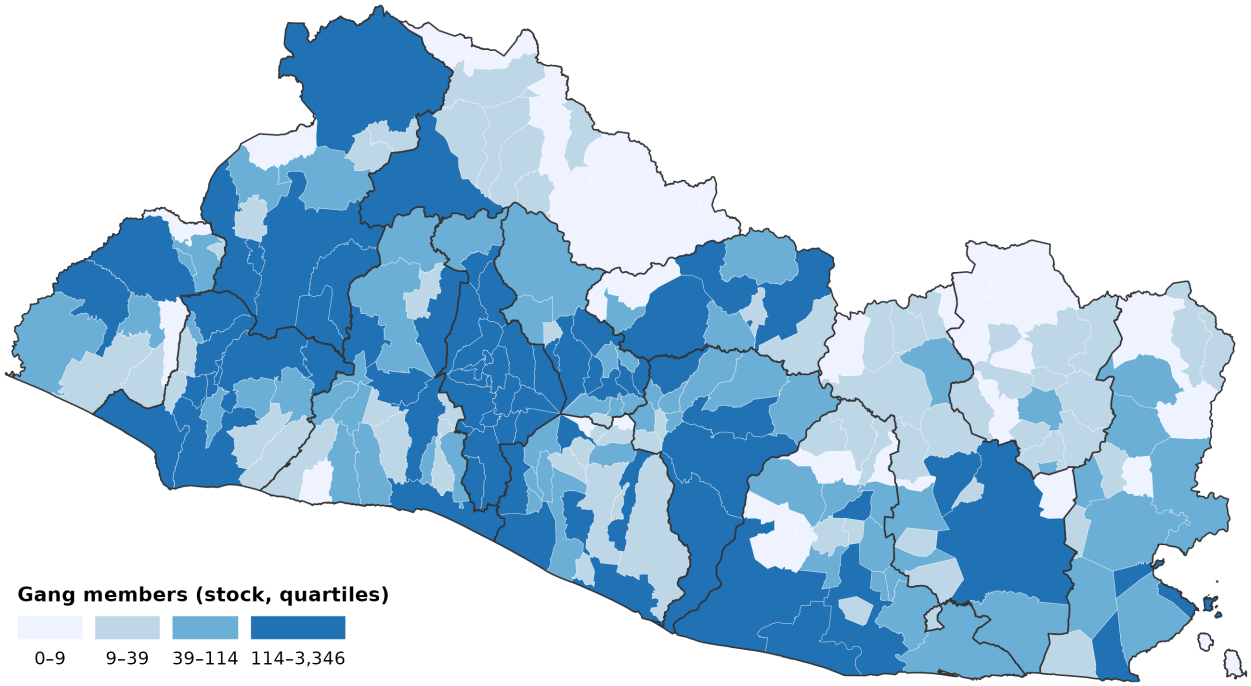
Note: This figure illustrates the results related to individuals' political views, by experience during the crackdowns, separately for former gang and nongang areas. The outcome variables come from the survey we conducted in 2023. The unit of observation is an individual. The vertical axis represents the average value of the outcomes variable; the horizontal axis—the respondents' experience during the crackdowns.

Figure A.6: Share of respondents working in the Historic Center and Special Economic Zone



Note: This figure illustrates the results for the probability of working in the historic center and in the special economic zone. The outcome variables come from our 2023 survey. The unit of observation is an individual. The vertical axis represents the average value of the outcomes variable; the horizontal axis—distance (in meters) to the boundaries of gang territory. Areas to the left of the dashed line are located outside of former gang territory; areas to the right were formerly controlled by the gangs. The dots represent the averages of the outcome variable, by 30-meter bins.

Figure A.7: Pre-2022 Distribution of Gang Members



Note: The figure illustrates the distribution of known gang members across municipalities in El Salvador before the 2022 crackdowns. It is based on data from the intelligence unit of the Salvadoran National Civil Police (PNC).

Online Appendix Tables

Table A.I: Security after the Crackdowns

	(1)	(2)	(3)	(4)	(5)
	Gang presence decreased	Gang influence decreased	Police are present most of the time	Knows a person who was arrested	Witnessed police abuse
Former gang neighborhood	0.011	0.003	0.067	0.053	-0.028
	(0.028)	(0.027)	(0.073)	(0.061)	(0.045)
Mean dep. var	0.879	0.852	0.527	0.491	0.195
Observations	2,313	2,313	2,313	2,315	2,315

Note: The table presents the results of estimating Specification (1) for the outcome variables related to security following the 2022 crackdowns. The unit of observation is an individual. The outcome variables come from our 2023 survey. Omitted controls include a linear trend in distance to the boundaries of former gang territory, separately for locations on each side of the boundaries. Standard errors in parentheses are clustered by 30-meter bins, denoting the distance to the boundaries of former gang territory (separately for each side of the boundaries). *** p<0.01, ** p<0.05, * p<0.1.

Table A.II: Migration and Migration Intentions

	(1)	(2)	(3)	(4)	(5)
	Has lived in the same place since 2021	Has household member abroad	Household member migrated abroad in past 6 months	Considered moving abroad in past 6 months	Desire to migrate not increased since crackdowns
Former gang neighborhood	0.005	-0.019	0.023	-0.015	0.007
	(0.016)	(0.048)	(0.034)	(0.034)	(0.025)
Mean dep. var	0.898	0.268	0.096	0.201	0.916
Observations	2,315	2,315	2,315	2,315	2,313

Note: This table presents the results of estimating Specification (1) for the outcome variables related to migration and migration intentions. The unit of observation is an individual. The outcome variables come from the survey we conducted in 2023. Omitted controls include a linear trend in distance to the boundaries of former gang territory, separately for locations on each side of the boundaries. Standard errors in parentheses are clustered by 30-meter bins, denoting the distance to the boundaries of former gang territory (separately for each side of the boundaries). *** p<0.01, ** p<0.05, * p<0.1.

Table A.III: Subsample: Respondents with same address in 2021

	(1)	(2)	(3)	(4)	(5)	(6)
	Freedom of movement where you live		Gang borders prevent you from getting jobs in large firms in other parts of the city		Works in former gang territory	
	All	Nonmovers	All	Nonmovers	All	Nonmovers
Former gang neighborhood	0.002	0.006	-0.004	-0.004	-0.035	-0.043
	(0.026)	(0.028)	(0.018)	(0.020)	(0.054)	(0.062)
Mean dep. var	0.950	0.950	0.051	0.054	0.480	0.485
Observations	2,315	2,079	2,313	2,078	2,200	1,977
	(7)	(8)	(9)	(10)	(11)	(12)
	Works in a firm with $\geq$ 100 employees		Works in a firm with $\geq$ 200 employees		Household income	
	All	Nonmovers	All	Nonmovers	All	Nonmovers
Former gang neighborhood	0.030	0.039	0.048	0.057	-98.293	-102.284
	(0.034)	(0.034)	(0.031)	(0.034)	(74.666)	(80.009)
Mean dep. var	0.184	0.184	0.139	0.137	631.5	642.0
Observations	2,315	2,079	2,315	2,079	2,133	1,910

Note: The table presents the results of estimating Specification (1) for outcomes related to individuals' mobility and labor market conditions, separately for the full sample and the subsample of respondents who lived at the same address at the end of 2021. The unit of observation is an individual. The outcome variables come from the survey we conducted in 2023. Columns 1 and 4 correspond to Columns 14 and 18 of Table 2; Columns 6, 8, 10, and 12 correspond to Columns 2, 6, 8, and 10 of Table 3. For each outcome, odd columns present estimates for the full sample of survey respondents, and even columns restrict the sample to individuals who lived at the same address at the end of 2021, before the 2022 crackdowns. Omitted controls include a linear trend in distance to the boundaries of former gang territory, separately for locations on each side of the boundaries. Standard errors in parentheses are clustered by 30-meter bins, denoting the distance to the boundaries of former gang territory (separately for each side of the boundaries). *** p<0.01, ** p<0.05, * p<0.1.

Table A.IV: Excluding the Historic Center and the Special Economic Zone

	(1)	(2)	(3)	(4)	(5)	(6)
	Freedom of movement where you live	Gang borders prevent you from getting jobs in large firms in other parts of the city	Works in former gang territory	Works in a firm with $\geq$ 100 employees	Works in a firm with $\geq$ 200 employees	Household income
	2023	2023	2023	2023	2023	2023
Panel A: Excluding respondents who live in the Historic Center						
Former gang neighborhood	0.001	-0.005	-0.041	0.029	0.049	-100.822
	(0.026)	(0.018)	(0.054)	(0.034)	(0.031)	(74.383)
Mean dep. var	0.951	0.051	0.479	0.185	0.139	636.2
Observations	2,243	2,241	2,129	2,243	2,243	2,065
Panel B: Excluding respondents who work in the Historic Center						
Former gang neighborhood	0.003	-0.011	-0.028	0.022	0.039	-111.243
	(0.028)	(0.018)	(0.050)	(0.035)	(0.031)	(74.819)
Mean dep. var	0.952	0.052	0.455	0.186	0.141	638.5
Observations	2,190	2,188	2,075	2,190	2,190	2,015
Panel C: Excluding respondents who live in the special economic zone						
Former gang neighborhood	0.002	-0.005	-0.035	0.029	0.048	-97.762
	(0.026)	(0.018)	(0.054)	(0.034)	(0.031)	(74.692)
Mean dep. var	0.950	0.050	0.480	0.184	0.138	632.2
Observations	2,305	2,303	2,191	2,305	2,305	2,126
Panel D: Excluding respondents who work in the special economic zone						
Former gang neighborhood	0.007	-0.007	-0.050	0.027	0.046	-103.145
	(0.026)	(0.018)	(0.055)	(0.035)	(0.031)	(76.775)
Mean dep. var	0.951	0.051	0.474	0.184	0.138	633.2
Observations	2,276	2,274	2,161	2,276	2,276	2,096

Note: The table presents the results of estimating Specification (1) outcomes related to individuals' mobility and labor market conditions, after excluding survey respondents who live or work in the historic center or in the special economic zone. The unit of observation is an individual. The outcome variables come from the survey we conducted in 2023. Columns 1 and 2 correspond to Columns 14 and 18 of Table 2; Columns 3–6 correspond to Columns 2, 6, 8, and 10 of Table 3. Panels A and B, respectively, exclude respondents who live and work in the Historic Center; Panels C and D, respectively, exclude respondents who live and work in the special economic zone. Omitted controls include a linear trend in distance to the boundaries of former gang territory, separately for locations on each side of the boundaries. Standard errors in parentheses are clustered by 30-meter bins, denoting the distance to the boundaries of former gang territory (separately for each side of the boundaries). *** p<0.01, ** p<0.05, * p<0.1.

Table A.V: Excluding Observations Close to the RD Threshold and Income Outliers

	(1)	(2)	(3)	(4)	(5)	(6)
	Freedom of movement where you live	Gang borders prevent you from getting jobs in large firms in other parts of the city	Works in former gang territory	Works in a firm with $\geq$ 100 employees	Works in a firm with $\geq$ 200 employees	Household income
	2023	2023	2023	2023	2023	2023
Panel A: Excluding observations within 100 meters of the boundaries of former gang territory						
Former gang neighborhood	0.006	-0.022	0.101	0.026	0.036	-103.745
	(0.045)	(0.025)	(0.084)	(0.059)	(0.061)	(110.804)
Mean dep. var	0.950	0.051	0.481	0.181	0.137	632.3
Observations	1,856	1,854	1,772	1,856	1,856	1,702
Panel B: Excluding observations in the top 10% of household income						
Former gang neighborhood	-0.001	-0.006	-0.043	0.015	0.038	-19.992
	(0.025)	(0.020)	(0.054)	(0.033)	(0.034)	(41.187)
Mean dep. var	0.948	0.054	0.490	0.173	0.129	460.0
Observations	2,105	2,103	1,998	2,105	2,105	1,923

Note: The table presents the results of estimating Specification (1) outcomes related to individuals' mobility and labor market conditions, after excluding potential outliers. The unit of observation is an individual. The outcome variables come from the survey we conducted in 2023. Columns 1 and 2 correspond to Columns 14 and 18 of Table 2; Columns 3–6 correspond to Columns 2, 6, 8, and 10 of Table 3. Panel A excludes observations within 100 meters of the boundaries of former gang territory. Panel B excludes the top 10% of the observations with the highest household income. Respondents with missing household income are included in the estimation sample. Omitted controls include a linear trend in distance to the boundaries of former gang territory, separately for locations on each side of the boundaries. Standard errors in parentheses are clustered by 30-meter bins, denoting the distance to the boundaries of former gang territory (separately for each side of the boundaries). *** p<0.01, ** p<0.05, * p<0.1.

Table A.VI: Estimating the Effects Separately for MS-13 and 18th Street

	(1)	(2)	(3)	(4)	(5)	(6)
	Freedom of movement where you live	Gang borders prevent you from getting jobs in large firms in other parts of the city	Works in former gang territory	Works in a firm with $\geq$ 100 employees	Works in a firm with $\geq$ 200 employees	Household income
	2023	2023	2023	2023	2023	2023
Former MS-13 neighborhood	-0.001	-0.002	-0.042	0.053	0.060	-75.348
	(0.026)	(0.019)	(0.067)	(0.045)	(0.036)	(86.301)
Former 18th Street neighborhood	0.004	-0.005	-0.032	0.018	0.043	-109.725
	(0.027)	(0.019)	(0.053)	(0.034)	(0.031)	(71.352)
Mean dep. var	0.950	0.051	0.480	0.184	0.139	631.5
Observations	2,315	2,313	2,200	2,315	2,315	2,133

Note: The table presents the results of estimating Specification (1) with the indicator for former gang territory replaced by separate indicators for areas formerly controlled by MS-13 and by 18th Street (Barrio 18). The unit of observation is an individual. The outcome variables come from the survey we conducted in 2023. Columns 1 and 2 correspond to Columns 14 and 18 of Table 2; Columns 3–6 correspond to Columns 2, 6, 8, and 10 of Table 3. Omitted controls include a linear trend in distance to the boundaries of former gang territory, separately for locations on each side of the boundaries. Standard errors in parentheses are clustered by 30-meter bins, denoting the distance to the boundaries of former gang territory (separately for each side of the boundaries). *** p<0.01, ** p<0.05, * p<0.1.

Table A.VII: Estimating the Effects Separately for Men and Women

	(1)	(2)	(3)	(4)	(5)	(6)
	Freedom of movement where you live	Gang borders prevent you from getting jobs in large firms in other parts of the city	Works in former gang territory	Works in a firm with $\geq$ 100 employees	Works in a firm with $\geq$ 200 employees	Household income
	2023	2023	2023	2023	2023	2023
Former gang neighborhood ×						
× Men	0.008	-0.015	-0.038	0.049	0.057	-180.954*
	(0.026)	(0.020)	(0.061)	(0.035)	(0.034)	(88.238)
× Women	-0.002	0.005	-0.035	0.007	0.035	-46.221
	(0.028)	(0.021)	(0.058)	(0.040)	(0.033)	(78.270)
Mean dep. var	0.950	0.051	0.480	0.184	0.139	631.5
Observations	2,315	2,313	2,200	2,315	2,315	2,133

Note: The table presents the results of estimating Specification (1) separately for men and women. The unit of observation is an individual. The outcome variables come from the survey we conducted in 2023. olumns 1 and 2 correspond to Columns 14 and 18 of Table 2; Columns 3–6 correspond to Columns 2, 6, 8, and 10 of Table 3. The coefficients for men and women are obtained by interacting gender with the indicator for former gang territory, additionally controlling for the direct effects of gender on all the respondents. Other omitted controls include a linear trend in distance to the boundaries of former gang territory, separately for locations on each side of the boundaries. Standard errors in parentheses are clustered by 30-meter bins, denoting the distance to the boundaries of former gang territory (separately for each side of the boundaries). *** p<0.01, ** p<0.05, * p<0.1.

Table A.VIII: Policy Preferences

	(1)	(2)	(3)	(4)	(5)	(6)
	Employment opportunities among top 3 problems		Inequality & vulnerability among top 3 problems		No major problems facing the country	
	2021	2022	2021	2022	2021	2022
Former gang neighborhood	0.048	-0.120**	-0.019	0.104*	0.001	0.025**
	(0.062)	(0.056)	(0.062)	(0.060)	(0.010)	(0.011)
Mean dep. var	0.517	0.428	0.623	0.618	0.007	0.018
Observations	848	880	848	880	848	880

Note: This table presents the results of estimating Specification (1) for the outcome variables related to individuals' policy preferences. The unit of observation is an individual. The outcome variables come from the Cómo Vamos surveys conducted before and after the gang crackdowns. Omitted controls include a linear trend in distance to the boundaries of former gang territory, separately for locations on each side of the boundaries. Standard errors in parentheses are clustered by 30-meter bins, denoting the distance to the boundaries of former gang territory (separately for each side of the boundaries). *** p<0.01, ** p<0.05, * p<0.1.

Table A.IX: Trust in Police and Government

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Willing to get help from the police				Trust in the police			
Former gang neighborhood	-0.041	-0.031	-0.027	-0.044	-0.006	-0.009	0.007	-0.036
	(0.040)	(0.043)	(0.036)	(0.043)	(0.041)	(0.045)	(0.036)	(0.044)
Knows an arrested person		0.000				-0.104***		
		(0.028)				(0.029)		
Former gang neighborhood ×		-0.018				0.014		
× Knows an arrested person		(0.037)				(0.041)		
Witnessed police abuse			-0.113***				-0.310***	
			(0.033)				(0.039)	
Former gang neighborhood ×			-0.094**				-0.103**	
× Witnessed police abuse			(0.041)				(0.047)	
Knows an arrested person &				0.083***				0.044*
Not witnessed police abuse				(0.024)				(0.023)
Former gang neighborhood ×				0.000				0.071**
× Knows an arrested person & Not witnessed police abuse				(0.030)				(0.033)
Mean dep. var	0.674	0.674	0.674	0.674	0.702	0.702	0.702	0.702
Observations	2,315	2,315	2,315	2,315	2,183	2,183	2,183	2,183
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Trust in the government				Approval of the president			
Former gang neighborhood	0.020	0.011	0.020	0.000	0.025	0.023	0.022	0.019
	(0.035)	(0.042)	(0.035)	(0.035)	(0.032)	(0.033)	(0.028)	(0.033)
Knows an arrested person		-0.060**				-0.022**		
		(0.025)				(0.008)		
Former gang neighborhood ×		0.021				0.005		
× Knows an arrested person		(0.037)				(0.016)		
Witnessed police abuse			-0.259***				-0.143***	
			(0.038)				(0.030)	
Former gang neighborhood ×			-0.034				-0.008	
× Witnessed police abuse			(0.053)				(0.040)	
Knows an arrested person &				0.067***				0.043*
Not witnessed police abuse				(0.021)				(0.022)
Former gang neighborhood ×				0.044				0.010
× Knows an arrested person & Not witnessed police abuse				(0.029)				(0.024)
Mean dep. var	0.723	0.723	0.723	0.723	0.917	0.917	0.917	0.917
Observations	2,183	2,183	2,183	2,183	2,315	2,315	2,315	2,315

Note: The table presents the results of estimating Equation (1) for the outcome variables related to individuals' trust in the police and in government. The unit of observation is an individual. The outcome variables come from our 2023 survey. Omitted controls include a linear trend in distance to the boundaries of former gang territory, separately for locations on each side of the boundaries. Standard errors in parentheses are clustered by 30-meter bins, denoting the distance to the boundaries of former gang territory (separately for each side of the boundaries). *** p<0.01, ** p<0.05, * p<0.1.