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State presence and increased trust: evidence from the pacifying police unit on violence against women

Maria Eduarda Perpétuo

Federal University of Rio de Janeiro - Economics Institute - Quantitative Economics Group

Abstract

Millions of people around the world live under the rule of criminal organizations. In Rio de Janeiro, more than 3 million live in areas dominated by criminal organizations. Fighting crime depends on reports, which in turn depend on the presence of public services and trust in public security agents. Specifically, gender-based violence is a type of violence that needs even more reports to be combated, since in most cases the perpetrator is known and almost half of these crimes occur inside the home. This paper assesses the impact of an increase in state presence driven by a public security program — the Pacifying Police Unit, introduced in 2008 in Rio de Janeiro — on reports of violence against women. We use a differences-in-differences strategy and compare reporting between slums that were part of the program and those that were not, before and after its implementation. I find that the program significantly reduced underreporting, especially right after it began.

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Contact: Maria Eduarda Perpétuo - dudabperpetuo@gmail.com

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1. Introduction

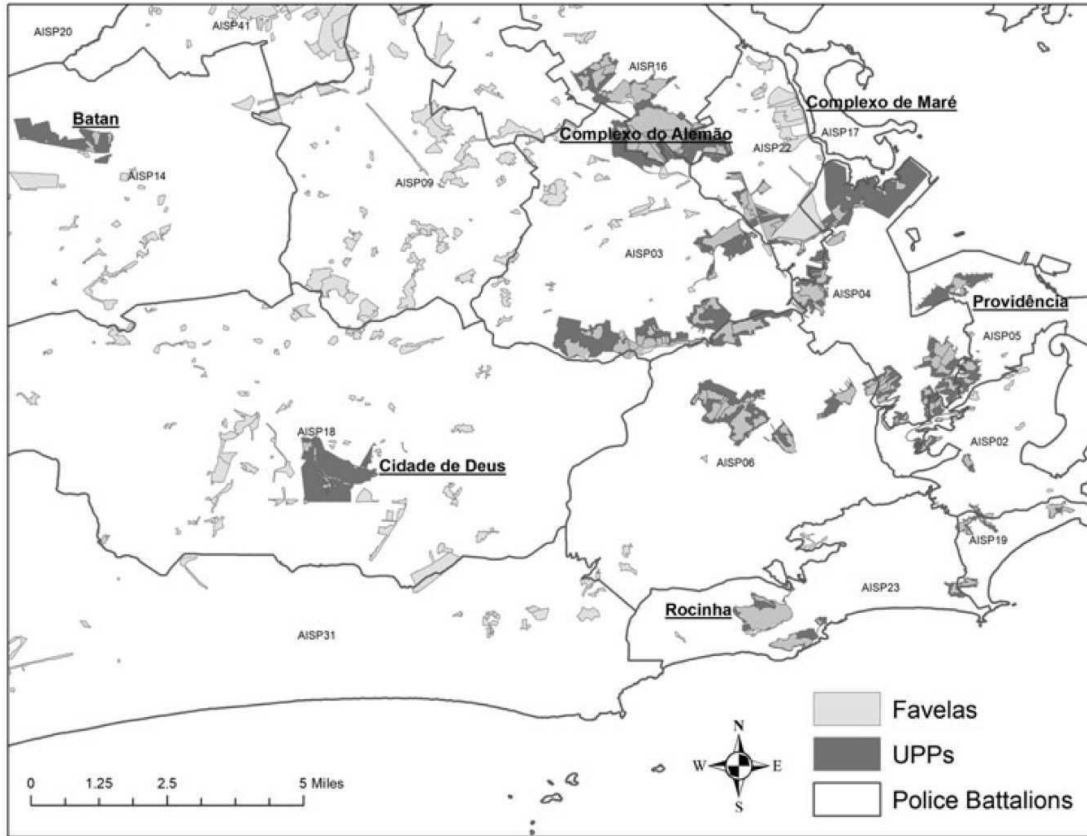
Gender-based violence is a major public issue, taking on many forms such as physical and psychological aggression, and sexual abuse. Victims suffer both physical and psychological stress, which can lead to reduced work productivity and even wage losses, impacting the health and education of future generations (Alesina, Brioschi, and La Ferrara 2016). Research indicates that the cost of violence against women could amount to around 2 percent of the global gross domestic product (GDP), which is equivalent to 1.5 trillion dollars (Women 2016). In Brazil, violence against women is a systemic issue: the country had the 5th highest femicide rate in the world (Waiselfisz 2015). Almost one-third of women were physically assaulted in Brazil every day over the past twelve months (FBS 2017). In 2015, in the state of Rio de Janeiro alone, nearly 13 women were victims of gender-based violence every day—one every two hours (ISP 2016).

Despite the prevalence of this type of violence, underreporting poses a major obstacle in combating gender-based violence. In Brazil, almost half of the victims do nothing, while only 23.8% report it to the police (FBS 2017). Barriers to reporting or seeking care from formal sources include financial constraints, perceived impunity for perpetrators, lack of access to services, and discriminatory or stereotypical attitudes toward victims in courts and law enforcement settings, etc. (Perrin et al. 2019). This paper assesses the impact of an increase in state presence driven by a public security program on reports of violence against women. By taking advantage of a public security intervention that aimed to reclaim territories under the control of armed groups, restore the legal and legitimate monopoly of force by the state, and reduce violent crime—especially lethal crime—we estimate that state presence increased reports of violence against women by 231% relative to the control group. The effect is concentrated in the first year of the program.

Rio de Janeiro is remarkable for the dominance of drug gangs and militias: in 2019, 20% of the state's territory was controlled by an armed group (Fogo Cruzado and GENI/UFF 2022). These groups exert territorial control, exploit illegal economic activities, and dispute market share among themselves using violent practices (Monteiro et al. 2021). It is paradoxical how the violence of armed groups exists side by side with everyday life: Rio de Janeiro has coexisted with gunfights for at least three decades. The shootings are so frequent that the city has two apps to report them: *Fogo Cruzado* and *Onde Tem Tiroteio*. After years of several failed attempts to combat armed violence, the state launched the Pacification program.

The Pacification program increased state presence not only by installing police units and sending troops to the slums—territories historically marked by a lack of state presence and ruled by drug gangs and militias—but also by offering community-oriented training to new officers and higher salaries. Community-based policing is a strategy that focuses on developing relationships with community members. The goal is for police to build trust with the community to reduce antisocial behavior and low-level crime, with the broader aim of reducing serious crimes as well. The latter also intended to decrease police corruption—a frequent challenge among the troops—by selecting new, motivated young officers. Besides

Figure 1: Spatial Distribution of UPPs in Rio de Janeiro



Notes: slums (light gray) and UPPs (dark gray) in Rio de Janeiro.

Source: Magaloni, Franco, and Melo 2015

increasing state presence, this community-based approach also improves the quality of that presence. More state presence implies greater access to public services, which increases the likelihood of reporting gender-based violence, since action is more likely to be taken to punish the offender.

The Pacification Program (UPP) started at the end of 2008 and focused on the South Zone of the city, as well as areas near stadiums and the main access roads to the city, in the North Zone, taking advantage of the international events that would be hosted in the city: the Brazilian World Cup (2014) and the Rio Olympic Games (2016). Since the main access roads to the city and the main event locations are surrounded by slums, there were no better places to start it. The program was expanded until mid-2014, with 42 Pacification Units, as shown in Figure 1. It covered almost 15% of Rio de Janeiro's slums and had more than 10,000 police officers deployed in its units. In 2018, while the city's public security was under a Federal Intervention, it was decided that half of the UPP units were about to shut down. The police argued that certain units were in areas of major confrontations, where the security forces had lost control. Since 2018, the remaining units have been discontinued.

We explore the differences in the timing of the program's implementation in each slum to estimate the causal effect of state presence on reports of violence against women. Our empirical strategy allows us to identify the causal effect of increased state presence on reporting

violence against women, as it leverages the exogenous temporal variation in the adoption of the program. The high degree of comparability in domestic violence reporting trends within slums before 2008 allows us to use the pre-2008 period as a counterfactual for the post-2008 period. By doing so, our strategy disentangles the effects of state presence from other interventions that could be correlated with crime reporting. This paper contributes to the generation of knowledge about one of the most important security interventions in Latin America: Rio de Janeiro’s Pacifying Police Units (UPPs). Cano, Borges, and Ribeiro (2012) find positive evidence of the impact of increased state presence, through the Pacification Program, on violence both in and around the communities, showing a reduction of 5 to 9 deaths per month per 100,000 inhabitants. Ferraz and Ottoni (2013) estimate the effects of the Pacification Program on crime and violence. They show that increased state presence reduced violent crime, homicide, and *autos de resistência*¹ and increased drug seizures. The increase in state presence also reduced gang battles, police abuse, and the use of illegal weapons. Magaloni, Franco, and Melo (2015) evaluate the causal impact of the Pacification Program in various slums. The results show that the increase in state presence had very little impact on diminishing homicides among slum inhabitants, but it had powerful effects on decreasing police killings. To our knowledge, this paper is the first to estimate the impact of increased state presence, brought about by the Pacification Program, on violence against women. We provide evidence that increasing access to formal channels for reporting gender-based violence has a positive impact on reporting rates, helping to reduce the under-reporting issue.

This article is related to the literature exploring the effects of policies aimed at combating domestic violence. Schiavon (2017) provides evidence that a new Brazilian law, aimed at introducing effective mechanisms for preventing and punishing domestic violence against women, reduces the women’s homicide rate by 19%. Iyengar (2009) finds that a mandatory arrest law, which requires the police to arrest abusers when a domestic violence incident is reported, reduced reporting rates and increased intimate partner homicides. Aizer and Dal Bó (2009) finds that no-drop policies, which prohibit the prosecutor from dropping charges even if the victim expresses a desire to do so, result in an increase in reporting.

This paper is also related to recent literature studying criminal rule. Melnikov, Schmidt-Padilla, and Sviatschi (2019) shows how the lack of state presence in San Salvador restricts local development through restrictions on labor mobility. The common view is that organized crime fills a vacuum left by weak state presence (Gambetta 1996; Skaperdas 2001; Skarbek 2011). The policy implication is that states can crowd out gang rule by improving the quality and reach of their services, eventually achieving a monopoly on protection and coercion. Blattman et al. (2021) argues that criminal governance can also be a strategic response to strong states, as illegal actors have reasons to provide public services that not only foster civilian loyalty but also reduce the demand for state representatives on their turf. The externalities of gang rule can be compared with counter-insurgency literature, which argues that insurgent groups may provide public goods to win the “hearts and minds” of civilians and reduce the likelihood of civilian collaboration. Additionally, military action plus state services can raise state legitimacy and crowd out insurgents (Berman and Matanock 2015;

¹Auto de resistência refers to when a police officer kills an alleged suspect, claiming self-defense and that the arrest was resisted. The incident is registered as a “resistance report”.

Berman, Shapiro, and Felter 2011).

This paper is organized as follows: Section 2 presents the data and the research method used, Section 3 presents the main results, Section 4 includes robustness checks, and Section 5 concludes the paper.

2. Research Method

2.1. Data

Understanding the consequences of territorial reclaim on violence against women requires detailed information about gender-based violence in this territory. This is necessary because state presence varies between slums. Official crime data, provided by the Public Security Institute (ISP), do not offer sufficiently fine-grained information on differences in violence because they record data gathered by police stations, which are not evenly distributed across space. Additionally, the ISP only tracked information at the slum level for the slums that were part of the Pacification program, from 2007 to 2015.

To overcome the lack of finer data available from the police and the issue of under-reporting, we built a novel data set based on anonymous reports to Disque Denúncia (DD), a crime hotline open to the public for reporting issues related to security or public order that require state intervention. Disque Denúncia is an NGO, founded in 1995, that operates as a call center in close partnership with the Secretary of State for Security of Rio de Janeiro. Between 2002 and 2020, DD compiled a dataset of more than 2 million registered reports. All reports are anonymous and are forwarded to the police, which decides whether to act and how. The reports contain a date, call time, address, type of irregularity, and a description of the event, as shown in Figure 3.2. Citizens may call to make noise complaints, report drug selling, or even denounce a fugitive's whereabouts. They granted us access to all reports classified as violence against women and rape between 2005 and 2015. We geocoded all the reports and matched them to a slum.

2.2. Empirical Strategy

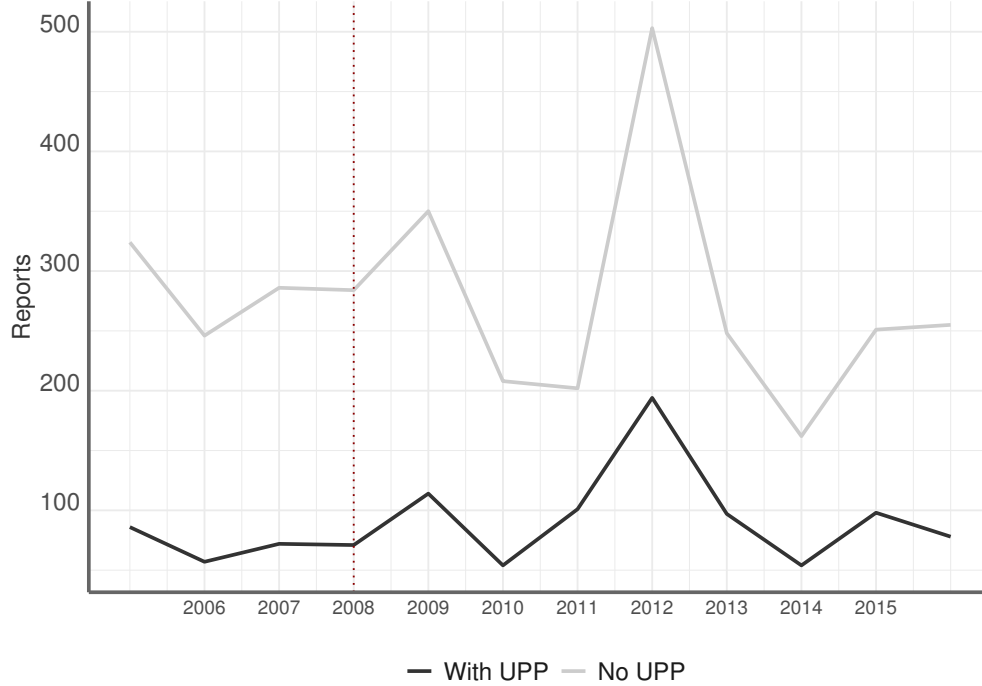
This study aims to identify the treatment effect of an increase in state presence on the reporting of violence against women. We exploit the fact that the Pacification Program, which increased state presence, started in different slums at different times. To do so, we use a differences-in-differences strategy. We estimate the following regression:

$$y_{it} = \beta_0 + \beta_1 T_{it} + \alpha_i + \lambda_t + \epsilon_{it} \quad (1)$$

Where y_{it} represents reports of violence against women or rape in slum i at year t . T_{it} is a dummy variable equal to one for slum i from the beginning of the Pacification Program. α_i and λ_t are slum and year fixed effects, respectively. β_1 is our coefficient of interest. We also cluster standard errors at the slum level.

The coefficient of interest, β_1 , estimates the difference in reporting violence against women between slums that are part of the Pacification Program and those that are not, for each month. The main identification assumption is the non-existence of unobserved sources of variation that disproportionately affect the reporting of violence against women between slums in the program and those outside it.

Figure 2: Parallel trends



Notes: The parallel trends assumption holds if the pre-treatment trends between the groups are parallel, indicating that any divergence in post-treatment trends can be attributed to the treatment effect. The light grey lines represent the slums without UPP, while the dark grey lines represent the slums with UPP. The dashed red line marks the year the policy started.

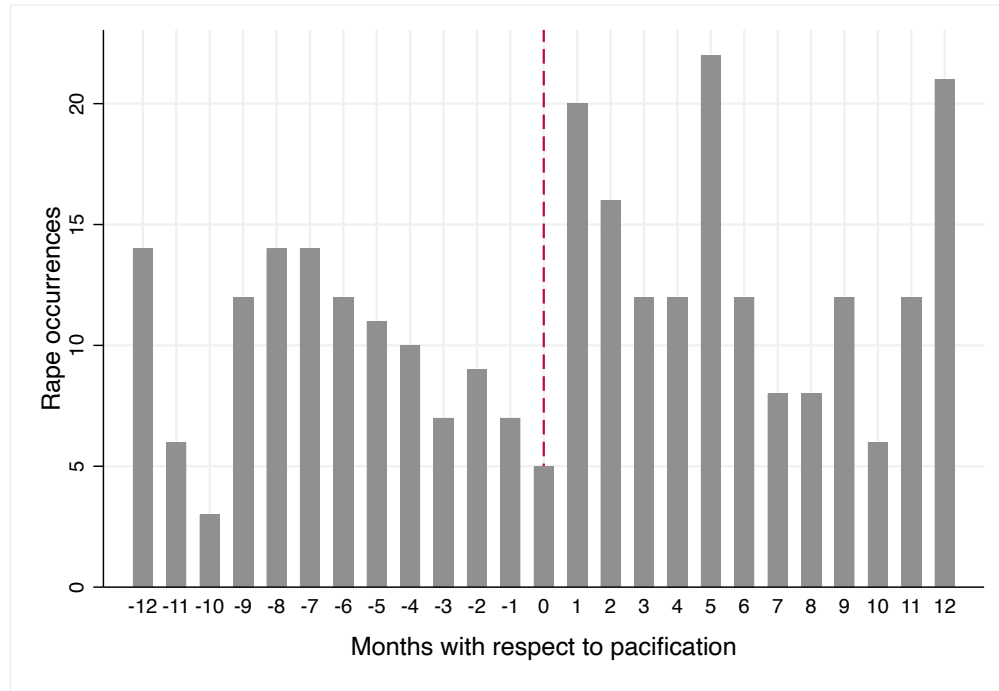
Figure 2 suggests that the reporting of violence against women in slums that were not part of the Pacification Program serves as an adequate counterfactual for the reporting of violence against women in slums that are part of the Pacification Program.

3. Results

Figure 3 presents the number of rape occurrences in slums that were part of the Pacification program, showing an increase in rape occurrences after Pacification. To further investigate this evidence, we use a differences-in-differences strategy and estimate equation 1. Figure 4 shows our coefficients of interest, those corresponding to the interaction between the month

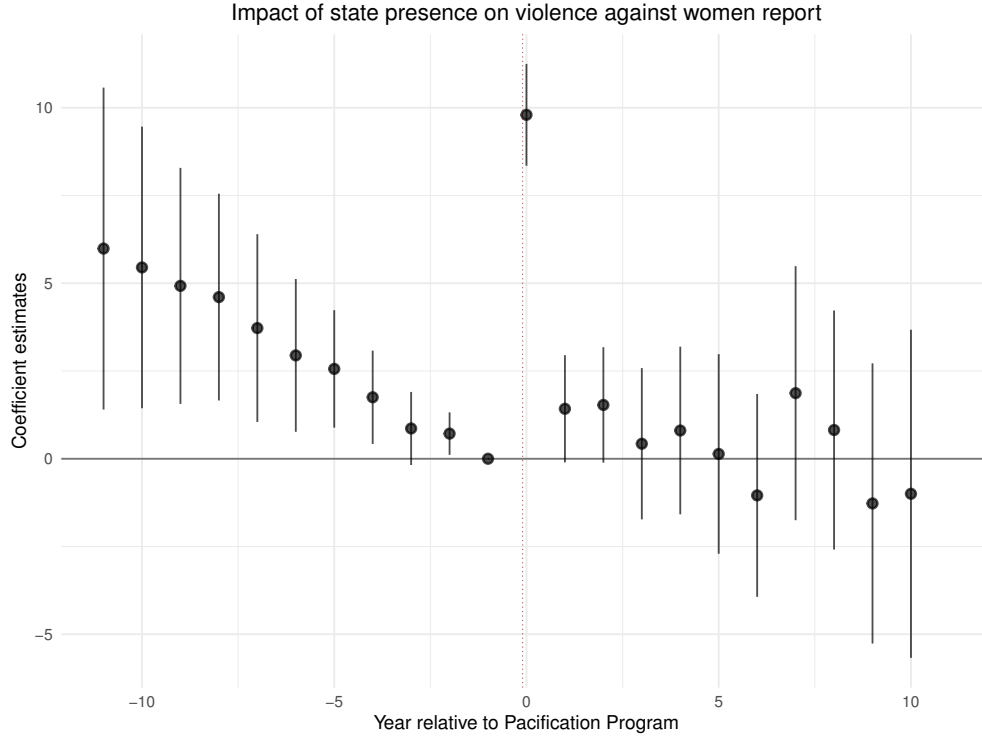
dummies and the UPP dummy. As we can see, the Pacification Program is associated with a significant increase in reporting violence against women in the first year. However, the effects of increased state presence decay over time.

Figure 3: Rape occurrences with respect to pacification month



Notes: Figure generated from occurrences of rape in slums with UPP presence, using data provided by the Instituto de Segurança Pública (ISP).

Figure 4: Impact of state presence on violence against women report



Notes: Event study design featuring 11 pre and 11 post policy implementation periods, plots coefficients along with their 95% confidence intervals. The reference category is one period before the event.

Table I presents the average effect of treatment throughout the period. We estimate the effect of an increase in state presence driven by the Pacification Program on reporting violence against women and rape. The coefficients are positive and significant, providing evidence that the increase in state presence indeed decreases under-reporting of violence against women and rape. The Pacification Program is associated with a 0.054 increase in reports of domestic violence on average, and a 0.009 increase in reports of rape on average. The Pacification Program is linked to a 231% increase in reports of violence against women and a 114% increase in reports of rape relative to the control group. However, this large effect is driven by other types of violence against women.

4. Robustness check

This paper focuses on the Pacification Program and its implications for the dynamics of violence against women. The variables of interest analyzed above were chosen to understand how the policy affects certain categories of crime related to this issue. In this way, it can be assumed that there are certain types of crime that are less affected by the program's impacts.

Road traffic crimes, for example, are less related to the presence of police (Ferraz and

Table I: State presence and reports

	<i>Dependent Variable:</i>	
	Violence against woman	Rape
	(1)	(2)
UPP Presence	0.054*** (0.008)	0.009** (0.004)
Control Average	0.023	0.0079
Slum FE	Yes	Yes
Year FE	Yes	Yes
Observations	23,100	23,100
R ²	0.061	0.042
R ² Adjusted	0.054	0.034
Residual Std. Error (df = 22923)	0.249	0.139

Notes: OLS estimates of equation (1).

Clustered standard error at the slum level in parentheses

*p<0.1; **p<0.05; ***p<0.01

Ottoni 2013). This is because, in Rio de Janeiro, road traffic violations are penalized by specific agents, such as traffic wardens who are part of the municipal guard or agents of the State Traffic Department. Therefore, it is reasonable to assume that pacification does not affect traffic offenses. To verify our findings on violence against women, we estimate the following regression:

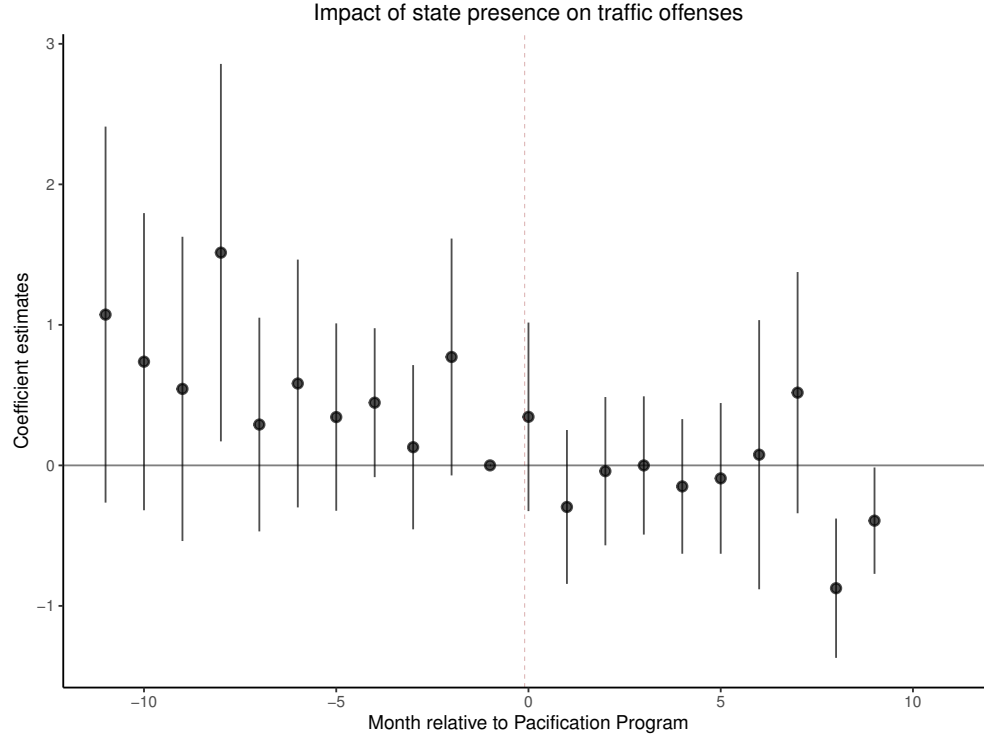
$$y_{it} = \beta_0 + \beta_1 T_{it} + \alpha_i + \lambda_t + \epsilon_{it} \quad (2)$$

Where y_{it} represents reports of traffic offenses in slum i in year t . T_{it} is a dummy variable equal to one for slum i from the beginning of the Pacification Program. α_i and λ_t are slum and year fixed effects, respectively. β_1 is our coefficient of interest. We also cluster standard errors at the slum level.

The coefficient of interest is β_1 , which estimates the difference in reporting traffic offenses between slums that are part of the Pacification Program and those that are not, for each month. The main identification hypothesis is the non-existence of unobserved sources of variation that disproportionately affect the reporting of traffic offenses between slums in the program and those outside of it.

We present the estimated coefficients for the impact of an increase in state presence on road traffic offenses in Table II and Figure 5. Both results indicate that the Pacification Program does not affect this type of offense.

Figure 5: Impact of state presence on traffic offenses



Notes: Event study design featuring 11 pre and 10 post policy implementation periods, plots coefficients along with their 95% confidence intervals. The reference category is one period before the event.

Table II: State Presence and Traffic Offenses

<i>Dependent variable:</i>	
Traffic Offenses	
UPP Presence	0.004 (0.003)
Slum FE	Yes
Year FE	Yes
Observations	29,120
R ²	0.090
Adjusted R ²	0.083
Residual Std. Error	0.085 (df = 28900)

Notes: OLS estimates of equation (2).

Clustered standard error at the slum level in parentheses

*p<0.1; **p<0.05; ***p<0.01

5. Conclusion

This paper analyzes the impact of an increase in state presence driven by the Pacification Program. The program aimed to reclaim territories under the control of armed groups, restore the legal and legitimate monopoly of force by the state, and reduce violent crime, especially lethal crime. The Pacification Program increased state presence not only by installing police units and sending troops to the slums but also by offering community-based training to new officers and higher salaries. The Pacification Program (UPP) started at the end of 2008 and focused on the South Zone of the city, as well as areas near stadiums and the main access roads to the city in the North Zone.

We use a differences-in-differences approach to estimate the effect of the increase in state presence on violence against women. We exploit the high degree of comparability between slums that were part of the program and those that were not before its introduction. We find that the Pacification Program has been associated with a 174% increase in reporting violence against women and a 90% increase in reporting rape. The results are mainly concentrated in the months immediately following the start of the program.

Millions of people around the world live under the rule of criminal organizations. In Rio de Janeiro alone, more than 3 million people live in areas controlled by criminal groups (Satriano 2021). Fighting crime depends on reports, which in turn depend on the presence of public services and trust in public security agents. Specifically, gender-based violence is a type of violence that requires even more reports to be addressed, since in most cases the perpetrator is known, and almost half of these crimes occur inside the home. Violence against women is a crime that is particularly dependent on reporting to be curbed, which makes it an essential topic to evaluate, especially in Latin America—a region with a high crime rate and very low trust in the police (Corbacho, Philipp, and Ruiz-Vega 2015).

Our findings suggest that increased state presence improves access to public services, thus decreasing the under-reporting of violence against women. Since nearly a third of women in Brazil have been physically assaulted and only 23.8% report this violence, improving access to quality public services is crucial for combating gender-based violence. Further work is needed to understand the decline in reporting and whether the increase in state presence led to more convictions and less crime.

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