Departament d'Economia Aplicada
Universitat Autònoma de Barcelona

WORKING PAPER 26-04

Policing Police Violence: Sheriff-Coroners and the Underreporting of Police Killings

Rubén Poblete-Cazenave

Departament d'Economia Aplicada
Edifici B
Universitat Autònoma de Barcelona
08193 Bellaterra, Barcelona, Spain.
d.econ.aplicada@uab.cat
www.uab.cat/en/applied-economics
@ecapuab.bsky.social

UAB
Universitat Autònoma de Barcelona

Policing Police Violence: Sheriff-Coroners and the Underreporting of Police Killings.*

Rubén Poblete-Cazenave†

February 27, 2026

Abstract

In the United States, law enforcement kills three people per day, yet official statistics record only half. Using detailed geo-location of police killings and exploiting spatial and temporal discontinuities in medicolegal death-investigation systems across counties from 2000–2024, I show that sheriff-coroner jurisdictions are 15–19 percentage points (≈30 percent) less likely to report killings to the FBI. The effect concentrates among Black victims and increases after high-profile killings (Michael Brown, George Floyd), suggesting public scrutiny intensifies suppression rather than deterring it. The findings highlight how institutional dependence can systematically distort official record and hinder accountability.

JEL codes: K42, H83, I18, J15, D73.

Keywords: Police Killings, Underreporting, Medico-legal death investigation office

*I thank Pierre-Louis for his research assistance during the 2021 Bachelor Honors Programs at Erasmus University Rotterdam. I also wanted to thank Thomas Hargrove and Olivier Marie for helpful discussions on the topic, and seminar participants at Erasmus University Rotterdam, and Universitat Autònoma de Barcelona.

†Lector Serra-Hunter, Departamento de Economía Aplicada, Universitat Autònoma de Barcelona, and the Tinbergen Institute, Netherlands. *Email:* Ruben.Poblete@uab.cat.

1 Introduction

A fundamental challenge for democratic governance is holding institutions that wield coercive power accountable for how they use it. Accountability requires an independent evidentiary record: when the agent responsible for documenting misconduct also commands the potential perpetrators, that record lacks credibility. This problem arises across many domains, from self-reported compliance in regulated industries to internal investigations of prison violence, but its consequences are sharpest when the misconduct involves the taking of life. Nowhere is independent verification more critical (and often absent) than in the investigation of deaths caused by the state itself.

The scale of the problem is large and global. In the United States, law enforcement agencies kill approximately three people per day, accounting for 13 percent of police killings worldwide despite representing only 4 percent of the world's population (Global Burden of Disease, 2021).[1] Yet fewer than half of these deaths appear as police killings in official statistics. The case of Daniel Lee Humphreys in San Joaquin County (California) illustrates both the stakes and a form of misreporting. On July 26, 2008, Daniel was arrested for a hit-and-run and died that night in police custody. The initial report classified his death as accidental, citing a brain injury from a collision as the cause. The evidence later disclosed showed that officers had deployed a Taser thirty-one times over seven minutes during the pursuit preceding his arrest. The manner of death was reclassified from accident to homicide, and the cause was amended to "repeated conducted electrical excitation."

In the U.S., the certification of the cause and manner of every unnatural death is the responsibility of medicolegal death investigators: coroners and medical examiners.[2] The manner of death (whether it was accidental or a homicide as in the Humphreys case above) is the legal gateway to criminal investigation and the basis on which deaths are reported to the FBI's Supplementary Homicide Reports, the primary official dataset used in research and policy to track police violence.

The U.S. has no uniform death investigation system (DIS). In most counties, an independent coroner or medical examiner certifies deaths. But in nearly 150 counties (over 20 million people), the sheriff simultaneously serves as county coroner (as in San Joaquin County, California, in 2008). In these cases, the same official who commands the deputies involved in a killing is responsible for certifying whether it constitutes a homicide and reporting it to federal authorities. This structural conflict of interest is the focus of the paper: does institutional dependence between death investigation and law enforcement cause underreporting of police killings?

Answering this question is challenging because jurisdictions with different DIS diverge in many socioeconomic characteristics. Even comparing whole nearby counties might be invalid since they often differ in observed characteristics despite being nearby (e.g., commonly an urban county is contiguous to a rural one). Thus, two isolated counties may share little or no socio-economic activities or institutional features (Jha et al., ming).

To overcome this issue, I construct a dataset containing nearly 25,000 police killings extracted from Fatal Encounters, the most comprehensive database of U.S. police killings, and matched to official FBI

[1] This rate is comparable to Mexico and Rwanda and is the highest among developed countries.

[2] Coroners are often elected officials without a medical background, whereas medical examiners are commonly appointed and have medical qualifications.

records and a hand-collected panel of county-level death investigation systems covering all 3,143 US counties from 2000 to 2024, assembled from state statutes, county records, and administrative sources. For each killing, I analyze whether it appears in the FBI's Supplementary Homicide Reports, along with victim characteristics, circumstances, geo-location and the county's institutional structure at the time of the incident.

I exploit sharp geographic discontinuities: people killed by police near a county border face different DIS, with no corresponding reason to expect discontinuities in other determinants of reporting. The spatial regression discontinuity (SRD) compares geo-located police killings on either side of sheriff-coroner and independent-system county boundaries, using distance to the border as the running variable. I complement this analysis by exploiting staggered temporal variation in death-investigation systems from counties that switched from an independent office to a sheriff-coroner office between 2004 and 2019. This difference-in-discontinuities (DiDisc) design (Grembi et al., 2016) combines two sources of variation: it compares the geographic discontinuity in reporting at the switching-county border after the switch to the same discontinuity before the switch.[3] This design controls for any time-invariant characteristics that vary discontinuously at county borders, addressing the main identification concern of the SRD.

The evidence consistently shows that institutional dependence suppresses reporting. The SRD finds that killings in sheriff-coroner jurisdictions are 15 to 19 percentage points less likely to be filed with the FBI than observationally identical killings across independent-DIS county borders, an effect stable across bandwidths, specifications, and treatment definitions. The DiDisc design confirms this finding: the geographic discontinuity in reporting at switching-county borders is large and significant after counties adopt sheriff-coroner systems, while the same discontinuity is absent in the pre-switch period, when the border existed but carried no institutional difference.

Three features of the results sharpen the interpretation. First, suppression operates mainly through non-reporting, not misclassification cases (manner-of-deaths). Sheriff-coroner jurisdictions simply do not report all deaths. Analysis using independent reporting of police killings from the Centers for Disease Control and Prevention confirms suppression in reporting stage, not through misclassification. Second, the effect is concentrated in contested circumstances: killings of fleeing suspects show the largest reporting gap, while non-contested incidents show no significant difference; suggesting strategic suppression of information. Third, the racial dimension is stark: the reporting shortfall is driven by killings of Black victims. Moreover, the reporting gap increases as public scrutiny of police violence grows: The sheriff-coroner effect grows after massive protests throughout the U.S. due to the killing of Michael Brown in Ferguson and peaks in 2020, the year of George Floyd's murder. This suggests that when the political cost of police violence increases, suppression intensifies.

This paper contributes to three literatures. First, a growing body of work documents the gap between actual and officially recorded police killings (Loftin et al., 2003; Barber et al., 2016; Finch et al., 2021; Global Burden of Disease, 2021). The most closely related papers are Prados et al. (2022), who compare sheriff-coroner and independent counties in California using cross-sectional data, and Celislami et al. (2024), who exploit adjacent counties with differing death investigation systems over 2013–2019. The current project uses data at the police killing level and extends the identification and scope: the panel

[3]The pre-switch RD serves as a built-in placebo, since the border existed before the institutional change but no discontinuity in reporting is expected.

covers 2000–2024; the spatial RDD and DiDisc designs exploit geographic and temporal institutional changes rather than relying on cross-sectional comparisons; and unlike prior work, it accounts for within-county changes in institutional structure. Second, the paper contributes to the political economy of accountability and institutional design. Independent oversight reduces police misconduct and violence (Rivera and Ba, 2026; Shi, 2009), while collective bargaining rights insulate officers from discipline, compounding accountability failures (Cunningham et al., 2025; Dharmapala et al., 2022) (on this topic see also Goncalves, 2021). The incidence and documentation of lethal force are shaped by organizational structure and officer-civilian racial composition (Ba et al., 2022; Chalfin and Kaplan, 2021; Chalfin et al., 2022). The institutional failure analyzed here (where the official who certifies the cause of death also commands the suspect officers) is an instance of this general accountability problem. Third, the paper speaks to the consequences of underreporting for democratic accountability and public trust. Research has shown that high-profile police killings reduce civilian cooperation with law enforcement, generate lasting community effects, and reshape police behavior (Ang et al., 2025; Mikdash and Zaiour, 2024; Cho et al., 2024; Cheng and Long, 2022; Campbell, 2024).

2 Background and Data

2.1 Medicolegal Death Investigation Systems (DIS) in the U.S.

The United States has no uniform system for investigating deaths, and debates over the optimal structure have persisted for more than a century. Medicolegal death investigation systems (DIS) generally fall into two broad categories: medical examiners and coroners. These offices are responsible for investigating all suspicious deaths, and determining both the cause of death and the manner of death. The cause of death refers to the underlying physiological injury or disease leading to death (e.g., cardiopulmonary arrest), whereas the manner of death describes the circumstances surrounding the death (e.g., homicide, suicide, accident, or undetermined). While the cause of death is a medical determination, the manner of death involves investigative judgment and carries significant legal implications.

Many counties in the U.S. have a consolidated coroner's and sheriff's office (including large counties such as Orange County, with over 3 million inhabitants). In these jurisdictions, the same elected official who commands local law enforcement also certifies the cause and manner of every death. Thus, the sheriff-coroner has ultimate authority over death classifications, even when medical personnel offer differing assessments. In addition, in several states (including Montana, Wyoming, and Nebraska), law enforcement officers are authorized to sign death certificates when no examiner is present (see Table B.1 in Appendix), extending the conflict of interest beyond sheriff-coroner counties. These laws grant law-enforcement officers significant discretion in determining whether a death is ruled a homicide, an accident, or of undetermined circumstances.

The consolidation of investigative and policing powers creates a structural conflict of interest when analyzing deaths involving law enforcement. When the certifying official also commands the officers involved, institutional incentives can favor ambiguous or less incriminating classifications. Surveys indicate that even independent coroners and medical examiners have, in fact, been subjected to pressure

from law enforcement to alter their findings (Brooks, 2021).[4] The case of George W. Floyd is a recent and widely recognized example of how initial official classifications can obscure the role of law enforcement in a death.

A central contribution of this paper is the classification of DIS for all U.S. counties from 2000 to 2024, using archival materials, surveys, and direct communication with county offices. Online Appendix B.1.3 details the methodology and sources used to produce these classifications. Figure 1 shows the spatial distribution of DIS in 2019. Most counties have a coroner system (yellow counties), yet most of the population is served by medical examiners (blue counties) since the most populous cities have ME offices. There are also many counties with a joint sheriff-coroner office (green counties), and in many others law enforcement can certify deaths (orange counties).

To study differential reporting of police killings across death-investigation systems with and without law enforcement influence, I exploit both spatial discontinuities in DIS across jurisdictions and temporal changes in DIS over time. The purple borders in Figure 1 mark locations where nearby police killings occur on opposite sides of a jurisdictional boundary: one side governed by a sheriff-coroner system and the other by an independent DIS. These locations form the basis for the spatial regression discontinuity design (SRD). I extend the analysis also for counties where law enforcement has legal influence.

I complement the SRD by exploiting temporal changes in DIS to strengthen identification. Changes in DIS are typically motivated by administrative efficiency or budgetary considerations (Hanzlick, 2007), not by concerns about police violence, as the examples of San Bernardino (2005), Fresno (2014), and Santa Clara (2006) illustrate.[5] Since 2000, 18 counties have changed their DIS. Counties outlined with black borders in Figure 1 indicate jurisdictions that switched from an independent DIS to a sheriff-coroner during 2004–2019, which I use in a DiDisc. Given the small number fo switcher counties, this analysis is complementary to the SRD.

[Insert Figure 1 here]

2.2 Police Killings in the U.S. and Official Reporting

Universe of police killings. I use Fatal Encounters (FE) as the primary source of police killings from 2000 to 2021, complemented by Mapping Police Violence (MPV) for 2022–2024. FE is highlighted as the most comprehensive database of police-related deaths in the United States, compiled through Freedom of Information Act requests, media searches, and crowdsourced verification (Finch et al., 2021). I focus on deaths involving direct use of force by police (e.g., gunshot, Taser, restraint) and discard vehicle-pursuit deaths, drug overdoses, medical emergencies, and similar cases where police culpability is ambiguous (Global Burden of Disease, 2021). During 2000–2024, there were 24,249 police killings.

Officially reported police killings. For each killing, I determine whether it was officially reported by the law enforcement agency to the FBI through Supplementary Homicide Reports (SHR). To determine whether the police killing was reported to the FBI (known as justifiable homicides) or not, I use a

[4] Over 70 percent of medical examiners and coroners reported in a national survey that they had been pressured to alter or influence their findings, and many experienced adverse consequences for refusing to do so.

[5] San Bernardino merged the sheriff and coroner offices in 2005 to improve efficiency and reduce costs (O'Halloran, 2014). Fresno adopted a sheriff-coroner system in December 2013 to save money. Similarly, in Santa Clara, a 2006 civil grand jury described the combined office as "successful from an administrative perspective" and a means "to improve management and oversight" (The Mercury News, 2016).

two-round matching procedure based on state, county, year, month, victim age, sex, race, and reporting agency identifier (ORI). Appendix B.2 discusses the databases extensively and also the matching procedure.

Table 1 shows the results by type of DIS, cause of deaths, and race. Overall, most of the killings are due to gunshot, and most victims are white. Counties systematically underreport police killings across nearly every cause of death. The gap seems to be larger for deaths that are easier to misclassify (e.g. asphyxiation, restraint, or beatings) where nearly 90 percent of cases are absent in sheriff-coroner counties. Also, sheriff-coroner counties have higher reporting (45 percent) than counties where law enforcement cannot certify deaths (35 percent). This unconditional gap reflects compositional differences between SC and non-SC counties; the spatial regression discontinuity controls for these differences by comparing otherwise identical killings near county borders. There is no clear underreporting across races and medicolegal death investigation system.

[Insert Table 1 here]

Figure 1 shows the location of all police killings and whether they were reported (blue dots) or not reported (red dots) to the FBI. About 34 percent of the total police killings (8,574 deaths) were reported to the FBI as police killings. Interestingly, an additional 7 percent (1,648 deaths) were reported to the FBI but not as police killings. Instead, these homicides were classified using vague labels (e.g., "circumstances undetermined," "other arguments", see Table B.6 in Appendix). The remaining 15,208 (59.8 percent) are completely absent from FBI records, which is in line with the overall underreporting rate of the FBI/SHR (57 percent).

3 Empirical Strategy

To identify the causal impact of a sheriff-coroner (SC) office on the reporting of police killings, I use thousands of police killings and their geo-location to exploit sharp geographic discontinuities in DIS at county borders. The spatial RD (SRD) recovers comparability by focusing on police killings where the geographic environment is largely continuous across the SC/non-SC border.

Treatments and counterfactual. Police killings in treated jurisdictions are those occurring under a joint sheriff-coroner office. The counterfactual consists of killings occurring in across the SC-border jurisdictions where law enforcement has no legal authority over the DIS.[6]

3.1 Spatial Regression Discontinuity (SRD)

People killed by police just inside a sheriff-coroner county face a different medicolegal death investigation structure than those killed just across the border in an independent-system county, while the two sides of the border share the same local labor market, population composition, and criminal activity. This geographic discontinuity in DIS provides the first source of identifying variation. Then, for each police

[6] I also use a broader treatment including counties where law enforcement has certification authority over deaths (Table B.1 in Appendix).

killing i in county c in year t, I estimate:

$$Y_{ict} = \alpha + \beta\,\text{SC}_{ct} + f(\text{distance-SC}_i) + \boldsymbol{X}'_{ict}\gamma + \varepsilon_{ict}, \tag{1}$$

where Y_{ict} is binary variable equal to one if killing i was reported to the FBI as a justifiable police homicide; SC_{ct} is an indicator equal to one if county c operates a sheriff-coroner office in year t; $f(\text{distance-SC}_i)$ is a polynomial in the distance from killing i to the nearest SC/non-SC county border, estimated separately on each side of the the running variable;[7] $\boldsymbol{X}_{ict}$ is a vector of victim and incident characteristics (age, sex, race).

The coefficient β identifies the discontinuity in reporting probability (at the SC/non-SC border) of having a joint sheriff-coroner office. The identifying assumption is that all determinants of FBI reporting vary smoothly at the border, so that any discontinuity in Y reflects only difference in the DIS. Below, I present direct evidence of this.

I estimate equation (1) using local linear regression with a triangular kernel and MSE-optimal bandwidth selection (Calonico et al., 2017). Inference uses robust bias-corrected standard errors and also Conley standard errors to account for spatial correlation. Robustness checks using fixed bandwidths (10, 25, 50, 75, and 100 km) and quadratic polynomial are discussed below.

3.2 Differences-in-Discontinuities (DiDisc)

The main advantage of the SRD is the large number of police killings near SC/non-SC borders from 2000 to 2024 providing enough statistical power. Its main limitation is that it cannot rule out time-invariant spatial sorting.[8] Several analyses are included to address this sorting concern. One analysis complements the spatial variation with temporal variation in DIS generated by counties switching to a sheriff-coroner office, implementing a differences-in-discontinuities (DiDisc) design (Grembi et al., 2016). The identifying assumption is not only weaker than in the case of the SRD (the border should not carry a pre-existing discontinuity in reporting), but it is testable. However, the DiDisc relies on a limited number of counties switching to sheriff-coroner offices, reducing statistical power.[9]

This approach combines the pre- and post changes in DIS typical of a Difference-in-Differences design with variation around a threshold that characterizes an RDD. Thus, the DiDisc compares the spatial discontinuity in reporting at that border *after* the switch to the same discontinuity *before* the switch:

$$\text{DiDisc} = \underbrace{\hat{\beta}^{\text{post}}}_{\text{post-period RD}} - \underbrace{\hat{\beta}^{\text{pre}}}_{\text{pre-period RD}}. \tag{2}$$

The parameter of the pre-switch period ($\hat{\beta}^{\text{pre}}$) serves to test the identification assumption that the border should not carry a pre-existing discontinuity in reporting. The idea is that the border between counties already existed before the DIS change but carries no institutional difference. Thus, if the border

[7] Hence, the running variable (distance to the border) is positive for police killings in sheriff-coroner counties, and negative for those in non-sheriff-coroner counties (and without law enforcement influence on deaths certification).

[8] For instance, if sheriff-coroner counties historically had lower reporting rates for reasons unrelated to institutional structure, then the cross-sectional discontinuity would be confounded.

[9] Nine counties (with over 2,000 police killings) switched from an independent DIS to a sheriff-coroner system between 2000 and 2024. The large majority of the killings, however, come from San Bernardino (CA).

discontinuity is flat before the switch ($\hat{\beta}^{\text{pre}} = 0$) and sharp after, the estimate is unlikely to reflect pre-existing differences.

I implement the DiDisc in a stacked design (similar to a proper event study as in Cengiz et al., 2019), constructing a separate dataset for each switcher county with an event window of $[-5, +5]$ years relative to the switch, then stacking them. This has the benefit that the parallel trend hold only within a 5-year window around each switch, not across the full panel.[10] I estimate the DiDisc (Equation 2) using separate local linear regressions for pre- and post-switch periods, treating the difference as the DiDisc estimate with delta-method standard errors. The identifying assumption is that any time-invariant spatial confounders at the switching border affect the reporting equally in the pre- and post-switch periods, so that differencing (as seen in Equation 2) removes them (Picchetti et al., 2024).

4 Results

4.1 Impact of Law Enforcement-DIS Independence on the Reporting of Police Killings

Figure 2 shows preliminary evidence that independence between law enforcement and medicolegal death investigators matters for reporting of police killings. The figure shows the predicted probability that a police killing is reported to the FBI. Figure 2 (a) shows that counties with joint sheriff-coroner are 15 percentage points less likely to report a police killing to the FBI (vis-à-vis an independent medicolegal officer). Figure 2 (b) shows similar effects when also including counties with laws that allow law enforcement to certify deaths.

[Insert Figure 2 here]

Before presenting the SRD estimates from Equation 1, I show that using individual police killings and a SRD improves identification relative to county-level analyses. Although county borders are historically determined and unrelated to police reporting, socioeconomic and demographic characteristics differ sharply across contiguous, even adjacent ones. As Figure A.1 shows, county-level covariates are not balanced at the border because they aggregate entire counties (rather than a narrow area around the border). In contrast, when focusing on sub-county geography near the border, Figure A.2 shows strong evidence supporting the SRD: local geographic characteristics vary smoothly at the SC/non-SC threshold. Moreover, characteristics of the police killings are also balanced (Figure A.3).[11]

Table 2 shows the SRD results. Panel A formally evaluates the impact of sheriff-coroners on the reporting of police killings, describing a clear underreporting of killings to the FBI. Estimates show a consistently negative and statistically significant effect across all specifications, spanning from 15 to 19 percentage points less likely to report a police killing. Including counties where law enforcement can certify deaths (broader treatment) produces a slightly smaller effect yet still significant, suggesting a 10 to 17 percentage points decrease in reporting. The results are robust to different bandwidths (see Table

[10] Implementing the DiDisc as in Grembi et al. (2016) uses the full pooled panel. However, the parallel trends assumption must hold over the full panel. This far pre-treatment comparisons can introduce Two-Way-Fixed-Effect(TWFE)-style bias (Dube and Lindner, 2024). They argue in favor of stacked event studies over the classic TWFE.

[11] Only sub-county population density shows a small discontinuity at the threshold. The main SRD controls for a rich set of covariates.

A.1 in Appendix). The parameter is negative across all specifications, although statistical significance varies across specifications due to the sample size.

[Insert Table 2 here]

4.2 Additional Analyses and Differences-in-Discontinuities (DiDisc)

There are two potential concerns with the SRD results: (i) compound treatment and (ii) time-invariant spatial sorting. The SRD estimand reflects the impact on police killings reporting of crossing from a non-SC to an SC jurisdiction. Thus, the parameter might capture other institutional and cultural differences that change across the border (apart from the SC) which might affect reporting (Keele and Titiunik, 2015). While I already show continuity across the border for a rich set of pre-treatment covariates, I add extra analysis to mitigate this concern further: by (i) restricting to within-state borders, and (ii) conducting placebo tests on crime and homicide outcomes that show no discontinuity at the SC/non-SC border. A remaining concern is that police killings near SC borders may differ systematically from those near non-SC borders in ways that are stable over time. While continuity of pre-determined characteristics and placebo outcomes reduces this concern, it cannot fully rule it out. To address this more directly, I implement DiDisc design exploiting counties that switched to SC. This design compares the spatial discontinuity in reporting before and after the switch, differencing out any time-invariant spatial sorting at the border.

4.2.1 Within-state Results and Placebo Tests

Restricting to county pairs within-state borders addresses compound treatment from cross-state institutional differences as many institutional characteristics vary across states. Table 2 Panel C shows within-state estimates of 19 to 22 percentage points confirming the effect is not driven by cross-state heterogeneity.

To test whether the discontinuity at the border reflects general recording-quality differences rather than coroner-law-enforcement independence specifically, Table A.2 reports placebo estimates using FBI total homicides,and CDC/NVSS all-cause mortality as outcomes. All estimates are statistically zero across specifications, ruling out compound treatment through differences in underlying violence levels or institutional capacity at county borders. Otherwise, these outcomes would show discontinuities at the border if there exists strong differences in recording quality, and institutional capacity.

4.2.2 Differences-in-Discontinuities (DiDisc)

A final analysis to deal with potential time-invariant spatial sorting is the DiDisc. This approach examines changes in the reporting of police killings in counties switching to sheriff-coroner before and after the adoption of the new system, relative to police killings near the border of neighbor counties that did not change the system. Figure A.4 panel (a) and (b) show the SRD scatter: pre-switching and post-switching, respectively. Panel (a) shows no discontinuity in reporting at the border before the SC switching, suggesting no discontinuity in reporting for killings around the border before the switch ($\hat{\beta}^{\text{pre}} = 0$). Thus, there seems to be no pre-existing differences across switcher and controls counties. In turn, after

switching to sheriff-coroner, Figure A.4 Panel (b) shows a decrease in the share of police killing reported to the FBI. The DiDisc estimate is the discontinuity in this change-over-time.

These graphical results are consistent with the formal results of the DiDisc in Table A.3. The placebo test shows no significant differential reporting at the treated border ($\hat{\beta}^{pre} = 0.125$, p=0.36). This reduces potential concern of time-invariant sorting (i.e., counties that select SC might differ from those that do not) in our SRD. The post-period RD means that after the switch, SC counties report 44 percentage points fewer killings (at the border). The DiDisc estimate is -0.565, significant at 10% (p=0.09). The sign of the parameter is consistent with the SRD (SC counties under-report more), yet the magnitude is larger. The DiDisc results reflect what happens mainly in California (particularly San Bernardino County since it contributes more police killings) and identifies the causal effect of adopting a sheriff-coroner system. This exercise reassures the SRD results, ruling out that the SRD estimates reflect time-invariant sorting on unobservables rather than the institutional change itself.

5 Mechanisms

5.1 Certification versus Reporting

The results show that jurisdictions with sheriff-coroners are less likely to report police killings to the FBI. But how does this underreporting occur? Does it happen during the classification of the manner of death, during reporting, or both? Sheriff-coroners could certify fewer deaths as homicides, which would reduce the number of cases eligible for FBI reporting. There could also be suppression at the reporting stage: deaths certified as homicides might not be reported to the FBI as justifiable homicides (mislabeled), or they might not be reported at all (fully underreported).

To answer these questions, I use detailed characteristics of each police killing and complement this with deaths by legal intervention from the CDC's National Vital Statistics System (NVSS). NVSS reporting comes directly from death certificates and is processed through the county's death investigation system rather than through law enforcement, which makes it an independent measure of official recording. Thus, if NVSS shows no discontinuity across jurisdictions, but the FBI data does, then suppression is likely occurring at the reporting stage within law enforcement. Conversely, if certification drives the results, both FBI and NVSS data should show fewer homicides in sheriff-coroner jurisdictions.

First, as shown in Table 1, several police killings are reported to the FBI as ordinary homicides rather than as legal intervention deaths. About 75 percent of these deaths receive vague labels such as "other" or "undetermined" (see Appendix Table B.7). This provides clear evidence of misclassification. However, this pattern appears across agencies and is not limited to sheriff-coroner counties.

Figure 3(a) panel A (Baseline) shows no indication that sheriff-coroner jurisdictions misclassify cases more often than agencies within an independent DIS. Moreover, Figure A.5 in the Appendix shows that police killings near the SC/non-SC border are equally likely to be recorded by the CDC. This points to a reporting mechanism rather than a certification mechanism. If law enforcement controlled certification in a way that suppressed cases, they could prevent local agencies from classifying certain deaths as homicides in the first place. Instead, the evidence indicates that law enforcement agencies in sheriff-coroner counties simply fail to report homicides to the FBI, even when those deaths are correctly

certified as homicides. This is an indication that SC counties do not systematically alter the manner of death on the death certificate in ways that would reduce the number of legal intervention deaths recorded by the CDC.

5.2 Whose deaths are suppressed and when?

Why do sheriff-coroner counties underreport police killings to the FBI but not legal-intervention deaths to the CDC? This discrepancy can be explained by the fact that only a subset of police killings can realistically be manipulated in the certification stage. Misreporting, whether through reclassification or underreporting, is more likely in incidents that are ambiguous. Sheriff-coroner offices can exploit this ambiguity to avoid homicide classifications or reporting.

Firearms. The majority of the police killings are due to firearms (Table 1) which are difficult to misclassify.[12] Thus, even a death investigator with strong institutional incentives to protect law enforcement has limited discretion to classify a firearm death as anything other than homicide or legal intervention. By contrast, non-firearm deaths, such as those involving Tasers, asphyxia, restraint, vehicle pursuits, or blunt force trauma, provide more room for manipulation. These deaths often occur without public visibility and their injury patterns are more ambiguous, as illustrated by the case of Daniel Lee Humphreys in San Joaquin County. Even the death of George Floyd, despite extensive media documentation, was initially misclassified.

However, the estimated parameters for firearm and non-firearm deaths are similar. The standard errors for non-firearm deaths are larger because the sample size is smaller (Figure 3(a), Panel C). Even if sheriff-coroner counties selectively misclassified some non-firearm deaths, the overall impact on CDC reporting would be small relative to the total number of police killings. In contrast, the voluntary nature of FBI reporting creates a much broader opportunity for suppression. Deaths that are correctly certified as homicides or legal intervention deaths can simply go unreported. This indicates that the main mechanism of suppression in SC counties occurs later in the process, through non-reporting to the FBI rather than through misclassification on the death certificate.

Black Victims. Figure 3(a), Panel B shows the results by race. In particular, Black victims are the most affected by the underreporting of police killings in sheriff-coroner counties, and more broadly in jurisdictions where law enforcement can certify deaths. This result relates to a large literature analyzing racial discrimination against Black individuals in the U.S.

Fleeing suspects. Fleeing suspects create situations in which officers can plausibly claim that the suspect posed a real threat.[13] This legal ambiguity makes it easier for an investigating official aligned with police to accept or reinforce the officer's account. These encounters often lack clear forensic evidence, and the events unfold quickly. Figure 3(a), Panel C shows larger effects of sheriff-coroner counties on underreporting for fleeing suspects.

Strategic Reporting and Public Pressure. Law enforcement agencies might adapt their reporting to external circumstances. To examine this, I study two major waves of protests against police brutality

[12] Gunshot wounds produce unambiguous injury patterns, are subject to narrow ICD-10 coding constraints, and typically occur in public settings with multiple witnesses or video evidence.

[13] In Tennessee v. Garner (1985), the Supreme Court ruled that police officers may use deadly force if a fleeing suspect poses a serious threat to the officer or others.

(Campbell, 2024). The first wave followed the killings of Eric Garner in New York City on July 2014, and Michael Brown in Ferguson on August 2013. The second wave followed the murder of George Floyd in Minneapolis on May, 2020. The Ferguson effect is the most studied break in police accountability, and the George Floyd effect represents an even larger shock in public scrutiny.

Figure 3(b) shows a clear decline in reporting of police killings to the FBI beginning in 2014, a pattern not observed in the CDC data (see Figure B.4). After George Floyd's death in 2020, there is a sharp drop in the number of killings reported to the FBI. In contrast, throughout the entire period, I do not observe changes in the share of police killings that are mislabeled, providing additional evidence that the main channel is reporting rather than certification. These results are confirmed by Figure 3(a), Panel D, where external scrutiny widens the reporting gap rather than closing it. This is consistent with increased incentives to suppress police-killing reports to the FBI after high-profile cases of police violence.

[Insert Figure 3 here]

6 Discussion

This paper shows that institutional dependence between death investigation systems and law-enforcement causes systematic underreporting of official records on police killings. This is particularly true for contested encounters, and for Black victims, and this undercount has grown as public scrutiny has risen after salient police killings (Michael Brown in 2014, and George Floyd 2020). Because official counts feed policy, research, and oversight, this institutional structure can systematically undermine democratic accountability and biases resource allocation and reform debates.

There have been substantial debates in the U.S. about separating the offices of coroner and sheriff. For instance, in 2022 a bill mandating the separation of powers was introduced in California. However, it did not pass the Senate. Among the arguments in favor of the current system were claims that the sheriff-coroner model is cost-effective and "enjoys the benefit of operational and budgetary efficiency." Opponents of the bill warned that separating these offices would "drastically increase county costs" by requiring each county to establish an independent coroner's office without the necessary funding to do so. This article shows evidence that separating the coroner-sheriff office would improve data integrity for federal accountability systems. This paper provides empirical support for reforms that separate the sheriff and coroner offices as a means of improving the integrity of federal accountability systems.

References

Ang, D., P. Bencsik, J. Bruhn, and E. Derenoncourt (2025). Community engagement with law enforcement after high-profile acts of police violence. *American Economic Review: Insights 7*(1), 124–140.

Ba, B. A., D. Knox, J. Mummolo, and R. Rivera (2022). Race and officer-involved shootings: Evidence from 911 calls. *American Economic Review 112*(11), 3662–3691.

Barber, C., D. Azrael, A. Cohen, M. Miller, D. Thymes, D. E. Wang, and D. Hemenway (2016). Homicides by police: comparing counts from the national violent death reporting system, vital statistics, and supplementary homicide reports. *American journal of public health 106*(5), 922–927.

Brooks, C. (2021). Medical examiner and coroner offices, 2018. *Bureau of Justice Statistics*.

Calonico, S., M. D. Cattaneo, M. H. Farrell, and R. Titiunik (2017). rdrobust: Software for regression-discontinuity designs. *The Stata Journal 17*(2), 372–404.

Campbell, T. (2024). Black lives matter's effect on police lethal use of force. *Journal of Urban Economics 141*, 103587.

Celislami, E., S. Kastoryano, and G. Mastrobuoni (2024). Strategic bureaucratic opacity: Evidence from death investigation laws and police killings. *Available at SSRN 4800790*.

Cengiz, D., A. Dube, A. Lindner, and B. Zipperer (2019). The effect of minimum wages on low-wage jobs. *The Quarterly Journal of Economics 134*(3), 1405–1454.

Chalfin, A., B. Hansen, E. K. Weisburst, and M. C. Williams Jr (2022). Police force size and civilian race. *American Economic Review: Insights 4*(2), 139–158.

Chalfin, A. and J. Kaplan (2021). More than a few bad apples? new evidence on police misconduct. *Review of Economics and Statistics 103*(1), 153–164.

Cheng, C. and W. Long (2022). The effect of highly publicized police killings on policing: Evidence from large us cities. *Journal of Public Economics 206*, 104557.

Cho, S., F. Gonçalves, and E. Weisburst (2024). The impact of fear on police behavior and public safety. *Review of Economics and Statistics*, 1–45.

Cunningham, J., D. Feir, and R. Gillezeau (2025). Collective bargaining rights, policing, and civilian deaths. *American Economic Journal: Economic Policy*. Forthcoming.

Dharmapala, D., R. H. McAdams, and J. Rappaport (2022). Collective bargaining rights and police misconduct: Evidence from florida. *The Journal of Law, Economics, and Organization 38*(1), 1–41.

Dube, A. and A. Lindner (2024). Minimum wages in the 21st century. *Handbook of Labor Economics 5*, 261–383.

Finch, B. K., K. Thomas, A. N. Beck, D. B. Burghart, D. Klinger, and R. R. Johnson (2021). Assessing data completeness, quality, and representativeness of justifiable homicides in the fbi's supplementary homicide reports: A research note. *Journal of quantitative criminology*, 1–27.

Global Burden of Disease (2021). Fatal police violence by race and state in the usa, 1980–2019: a network meta-regression. *The Lancet 398*(10307), 1239–1255.

Goncalves, F. (2021). Do police unions increase misconduct. Working paper.

Grembi, V., T. Nannicini, and U. Troiano (2016). Do fiscal rules matter? *American Economic Journal: Applied Economics*, 1–30.

Hanzlick, R. (2007). The conversion of coroner systems to medical examiner systems in the united states: a lull in the action. *The American journal of forensic medicine and pathology 28*(4), 279–283.

Hanzlick, R. and S. Fudenberg (2014). The evolution of death investigation in the united states: From coroner to medical examiner. *Academic Forensic Pathology 4*(1), 10–18.

Jha, P., D. Neumark, and A. Rodriguez-Lopez (Forthcoming). What's across the border? re-evaluating the cross-border evidence on minimum wage effects. *Journal of Political Economy: Microeconomics*.

Keele, L. J. and R. Titiunik (2015). Geographic boundaries as regression discontinuities. *Political Analysis 23*(1), 127–155.

Loftin, C., B. Wiersema, D. McDowall, and A. Dobrin (2003). Underreporting of justifiable homicides committed by police officers in the united states, 1976–1998. *American journal of public health 93*(7), 1117–1121.

Mikdash, M. and R. Zaiour (2024). The impact of police shootings on gun violence and civilian cooperation. *Journal of Public Economics 237*, 105189.

O'Halloran, R. L. (2014). California: home of the sheriff-coroner. *Academic Forensic Pathology 4*(1), 74–79.

Picchetti, P., C. C. Pinto, and S. T. Shinoki (2024). Difference-in-discontinuities: estimation, inference and validity tests. *arXiv preprint arXiv:2405.18531*.

Prados, M. J., T. Baker, A. N. Beck, D. B. Burghart, R. R. Johnson, D. Klinger, K. Thomas, and B. K. Finch (2022). Do sheriff-coroners underreport officer-involved homicides? *Academic forensic pathology 12*(4), 140–148.

Rivera, R. G. and B. A. Ba (2026). The effect of police oversight on crime and misconduct allegations: Evidence from chicago. *Review of Economics and Statistics 108*(1), 57–74.

Shi, L. (2009). The limit of oversight in policing: Evidence from the 2001 cincinnati riot. *Journal of Public Economics 93*(1-2), 99–113.

Table 1: Reporting of police killings to FBI by cause of death: Sheriff-Coroner vs Control Counties

Panel A: Sheriff-Coroner Counties

	Reported		Mislabeled		Absent	
Cause of death	Cases	%	Cases	%	Cases	%
Asphyxiated/Restrained/Beaten	2	2.99%	5	7.46%	60	89.55%
Gunshot	947	48.71%	81	4.17%	916	47.12%
Other	2	28.57%	2	28.57%	3	42.86%
Tasered	11	11.34%	7	7.22%	79	81.44%
Race						
White	347	41.91%	34	4.11%	447	53.99%
Black	153	55.04%	14	5.04%	111	39.93%
Hispanic	365	49.46%	42	5.69%	331	44.85%
Others	97	35.79%	5	1.85%	169	62.36%
Total	962	45.48%	95	4.49%	1,058	50.02%

Panel B: Counties without Law Enforcement Influence

	Reported		Mislabeled		Absent	
Cause of death	Cases	%	Cases	%	Cases	%
Asphyxiated/Restrained/Beaten	46	9.81%	46	9.81%	377	80.38%
Gunshot	7,209	36.60%	1,378	7.00%	11,108	56.40%
Other	1	1.69%	15	25.42%	43	72.88%
Tasered	61	7.04%	53	6.11%	753	86.85%
Race						
White	2,961	29.36%	601	5.96%	6,524	64.68%
Black	2,312	36.63%	580	9.19%	3,420	54.18%
Hispanic	1,703	48.52%	271	7.72%	1,536	43.76%
Others	341	28.83%	40	3.38%	802	67.79%
Total	7,317	34.69%	1,492	7.07%	12,281	58.23%

Notes: Sheriff-coroner counties are those where the sheriff also serves as coroner, and control counties are those where law enforcement cannot certify deaths. 'Others' cause of death include chemical agent/pepper spray, stabbed or due to police dog.

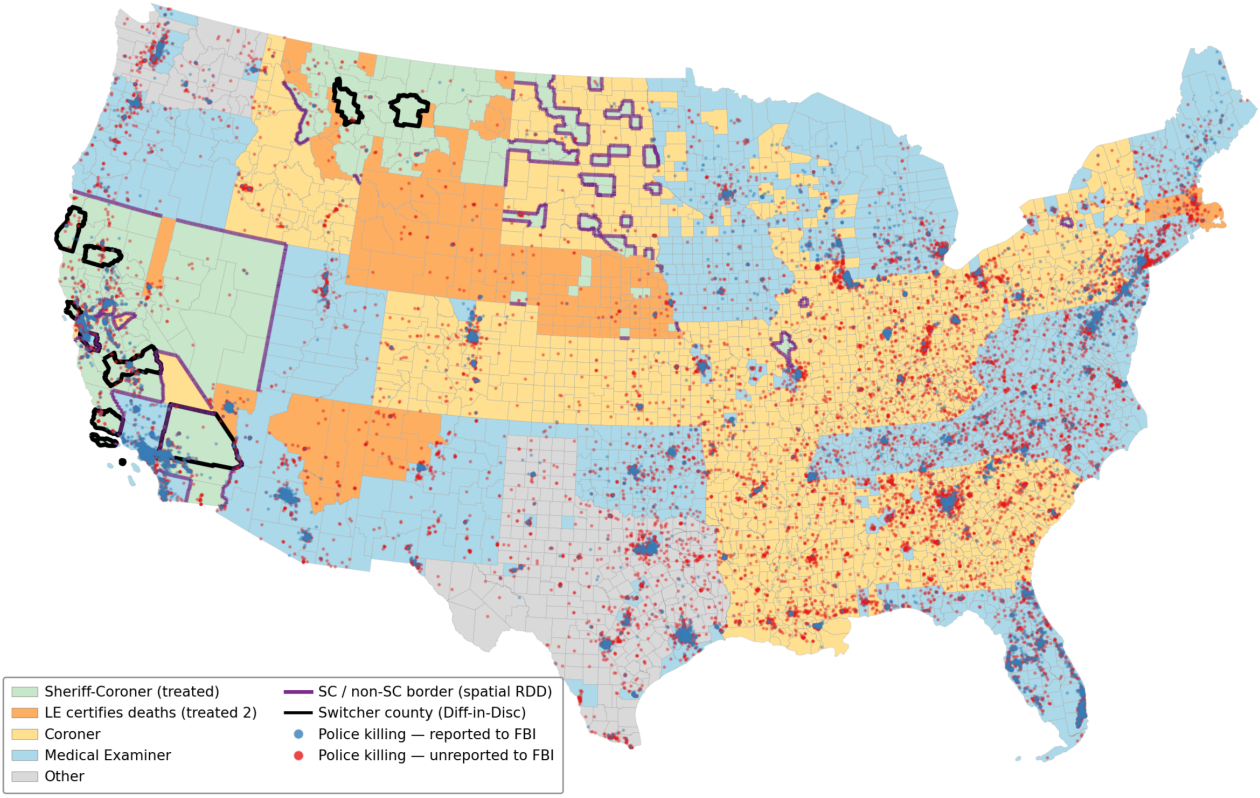
Table 2: Spatial RDD: Effect of Sheriff-Coroner System on Official Reporting

	(1) No controls	(2) Case	(3) County	(4) All	(5) All + ACS
Panel A: All borders, strict: SC vs non-SC					
SC dummy (RD estimate)	-0.1479***	-0.1490***	-0.1922***	-0.1838***	-0.1724***
	(0.0549)	(0.0543)	(0.0583)	(0.0556)	(0.0579)
Bandwidth (km)	28.7	27.6	22.1	22.6	20.7
N_{left}	1433	1346	1076	1070	979
N_{right}	1064	962	819	783	712
Panel B: All borders, broad: SC/cert vs non-SC					
SC dummy (RD estimate)	-0.1438***	-0.1564***	-0.1718***	-0.1181***	-0.0963**
	(0.0479)	(0.0507)	(0.0489)	(0.0354)	(0.0538)
Bandwidth (km)	28.4	26.0	21.5	36.7	20.4
N_{left}	1710	1509	1283	2025	1192
N_{right}	1290	1108	979	1696	700
Panel C: Within-state, strict: SC vs non-SC					
SC dummy (RD estimate)	-0.2202***	-0.2184***	-0.2201***	-0.2146***	-0.1872***
	(0.0605)	(0.0607)	(0.0642)	(0.0595)	(0.0539)
Bandwidth (km)	25.0	23.3	20.7	21.8	27.2
N_{left}	1156	1036	941	970	1225
N_{right}	885	773	739	737	913
Panel D: Within-state, broad: SC/cert vs non-SC					
SC dummy (RD estimate)	-0.2167***	-0.2402***	-0.2107***	-0.2186***	-0.1984***
	(0.0518)	(0.0563)	(0.0561)	(0.0538)	(0.0508)
Bandwidth (km)	26.6	22.6	22.0	23.8	25.0
N_{left}	1423	1167	1172	1240	1302
N_{right}	985	783	815	814	834

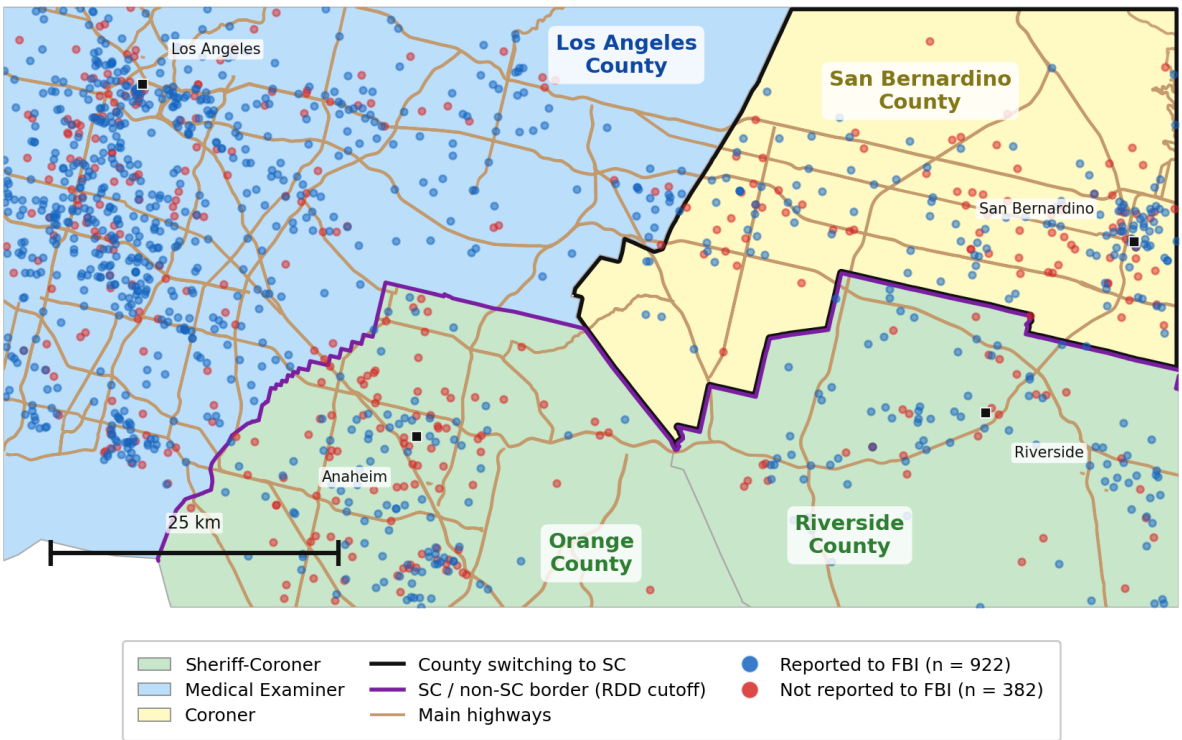
Notes: Outcome: `_reported` (= 1 if killing appears in the FBI/SHR database; 0 otherwise). Local linear RD estimator, triangular kernel, MSE-optimal bandwidth. Robust bias-corrected standard errors in parentheses. Panels C–D restrict to within-state county borders. Case controls: male, race, age, gun, fleeing. County controls: pct Black, pct Hispanic, poverty, unemployment, income, education, Dem vote share, violent crime. ACS controls (col. 5): Asian share, AIAN share, pop. density, log median HH income, college share (2019 ACS tract data aggregated to county level). $N_{\text{left}}/N_{\text{right}}$: observations left/right of threshold within optimal bandwidth. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Figure 1: Medicolegal Death Investigation System and Police Killings 2000-2024

(a) Medicolegal Death Investigation Systems in United States as of 2019



(b) DIS in Southern California as of 2004, switcher county (San Bernardino to Sheriff-Coroner in 2005)



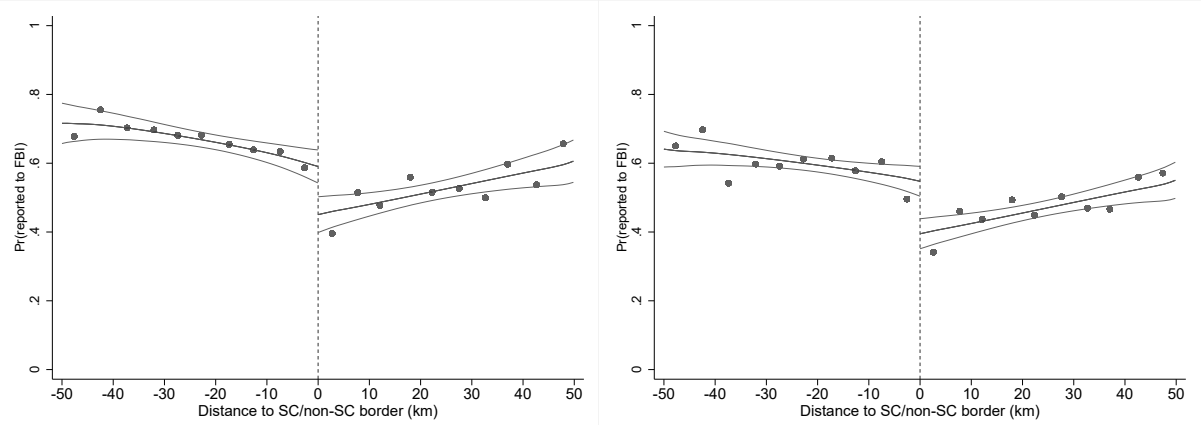
Notes: Panel (a) shows the spatial distribution of the death investigation system in the U.S. as of 2019. Reported police killings (blue dots) are those reported by local law enforcement to the FBI. Purple borders shows counties with different DIS used for the spatial regression discontinuity design. Black border denotes counties switching to sheriff-coroner office somewhere between 2004-2019. Panel (b) shows the spatial distribution of the medicolegal death investigation system in the U.S. as of 2004. Reported police killings (blue dots) are those reported by local law enforcement to the FBI. Purple borders shows counties with different DIS used for the spatial regression discontinuity design. San Bernardino changed DIS in 2005.

Figure 2: Impact of Law Enforcement Influence over Medicolegal Death Investigation Offices on the Reporting of Police Killings.

Spatial Regression Discontinuity

(a) Impact of sheriff-coroner office on reporting

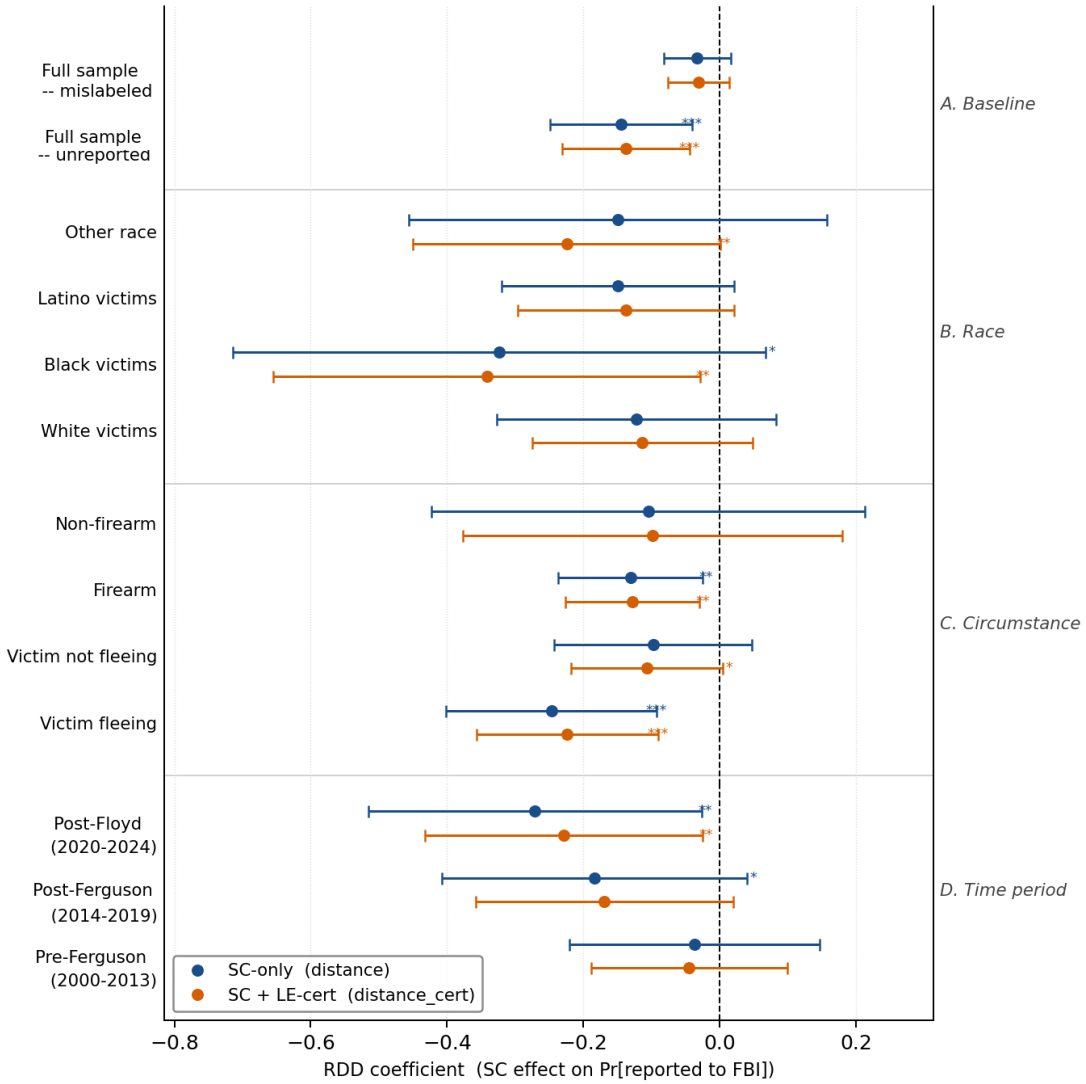
(b) Impact of law enforcement death certification on reporting



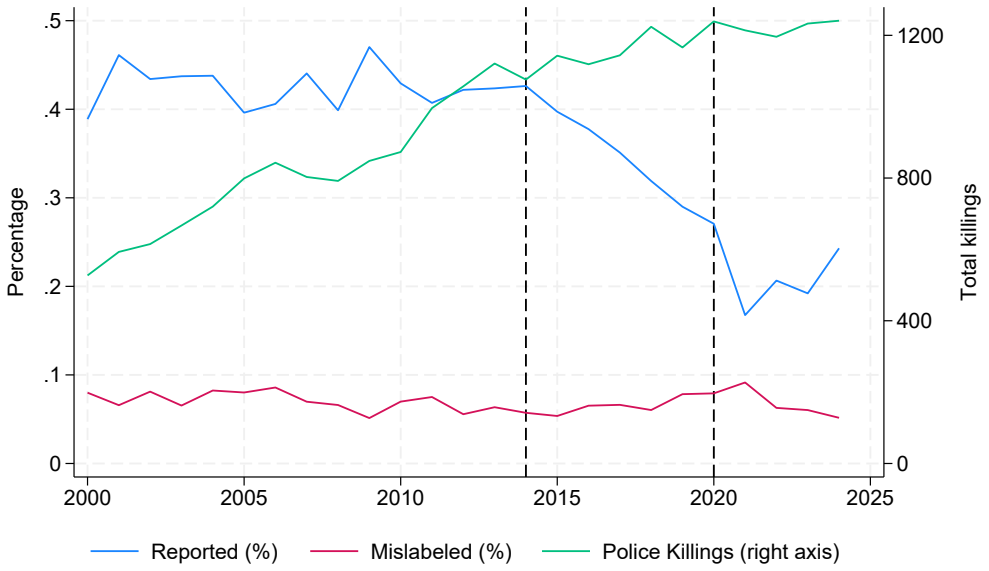
Note: The right (left) side of the x-axis measures the distance from a police killing in a sheriff-coroner (non-sheriff-coroner) county to the border of a county with an independent DIS (sheriff-coroner) system. Scatter points show the average share of police killings reported to the FBI by each bin. The solid lines represent the predicted value of a local linear smoother (using raw data) on each side of the threshold at zero. The outer gray lines denote the 95 percent confidence intervals. Panel (a) shows the impact of having a joint sheriff-coroner office, while panel (b) also includes jurisdictions where law enforcement can certify deaths.

Figure 3: Reporting Incentives

(a) Heterogeneity Analysis



(b) Temporal Reporting and Mislabeling of Police Killings and Social Movements



Note: Panel (a) shows heterogeneity analysis based on the main spatial regression discontinuity equation, for sheriff-coroner counties (in blue) and counties with either sheriff-coroner or law enforcement can certify deaths. Local linear RDD, triangular kernel, MSE-optimal BW (rdrobust). Whiskers = 95% CI. *, **, *** = p<0.10, 0.05, 0.01. Panel (b) shows the total police killings from Fatal Encounters (green), the share of those that are reported to the FBI (blue), and those that are misclassified in the FBI data (red). The first vertical lines relates to the Michael Brown death, while the second to George Floyd deaths.

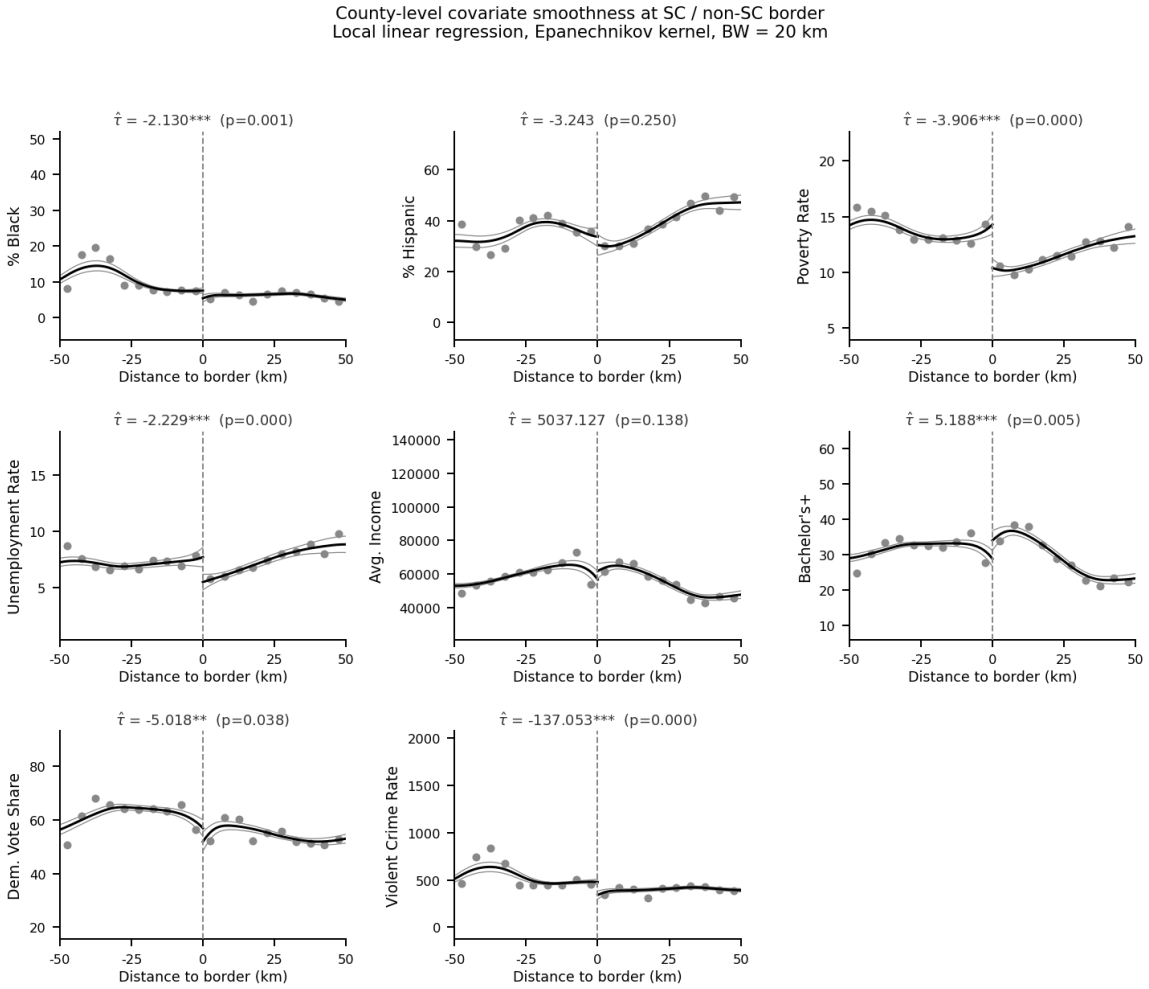
Online Appendix

Not intended for publication in printed version

Table of content:

A Other Figures and Tables

Figure A.1: Balance Test county variables



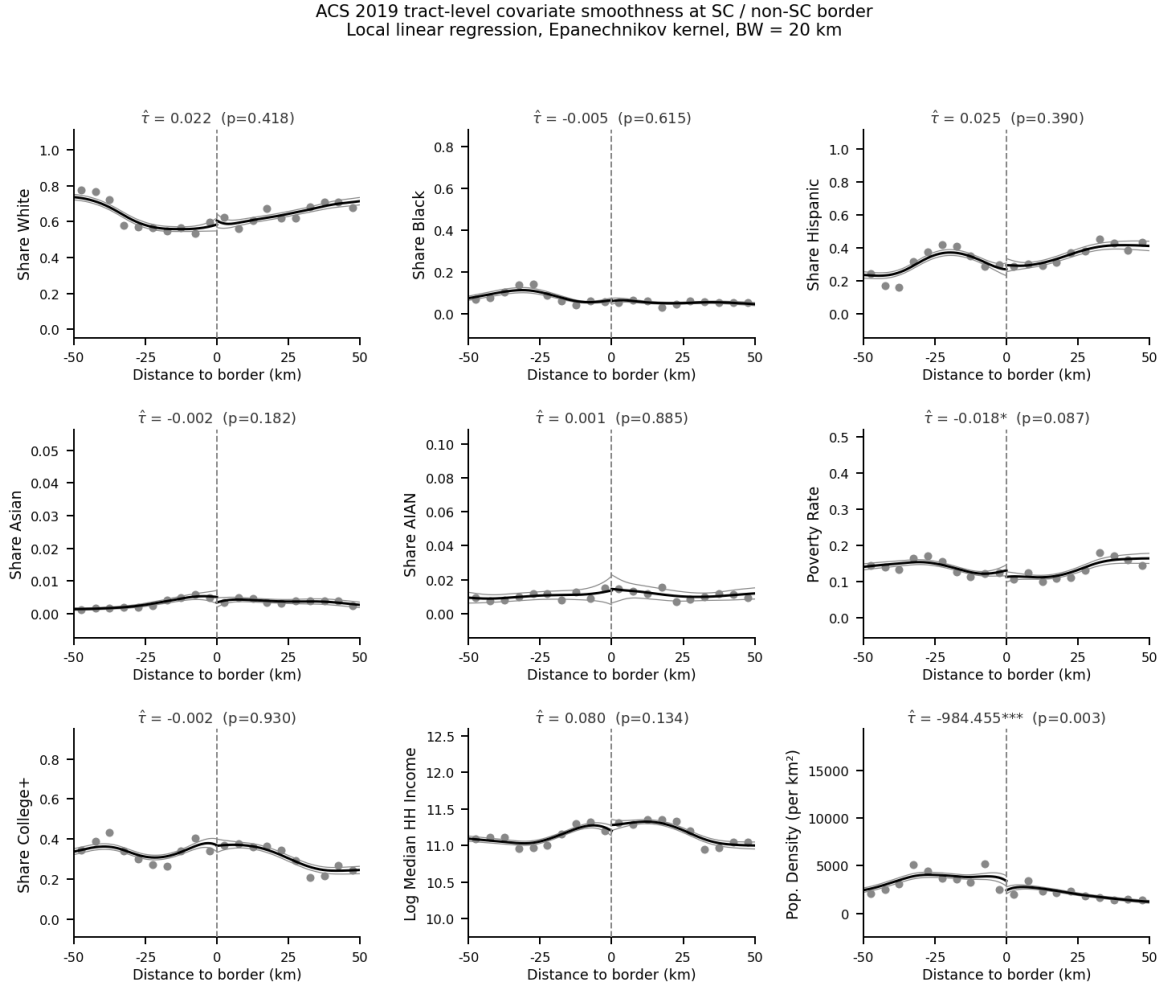
Notes: Binned scatter (5 km bins). Solid line: local linear fit (Epanechnikov kernel, BW = 20 km). Thin lines: 95% CI (HC0 SE). Dashed vertical: SC / non-SC border threshold. Stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.1: Spatial RDD: Bandwidth Robustness (All Borders)

Bandwidth	*distance*			*distance_cert*		
	Coef.	SE	N	Coef.	SE	N
10 km	-0.2087**	(0.1301)	871	-0.1392	(0.1086)	1088
25 km	-0.1526**	(0.0774)	2154	-0.1424**	(0.0656)	2623
50 km	-0.1474***	(0.0522)	3673	-0.1496***	(0.0450)	4774
100 km	-0.1334***	(0.0382)	4612	-0.1226***	(0.0328)	6907
200 km	-0.1305***	(0.0287)	6969	-0.1425***	(0.0250)	9822

Notes: Fixed bandwidths. Local linear, triangular kernel. Robust bias-corrected SE in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Figure A.2: Balance Test sub-county variables



Notes: Binned scatter (5 km bins). Solid line: local linear fit (Epanechnikov kernel, BW = 20 km). Thin lines: 95% CI (HC0 SE). Dashed vertical: SC / non-SC border threshold. Stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure A.3: Balance Test case level variables

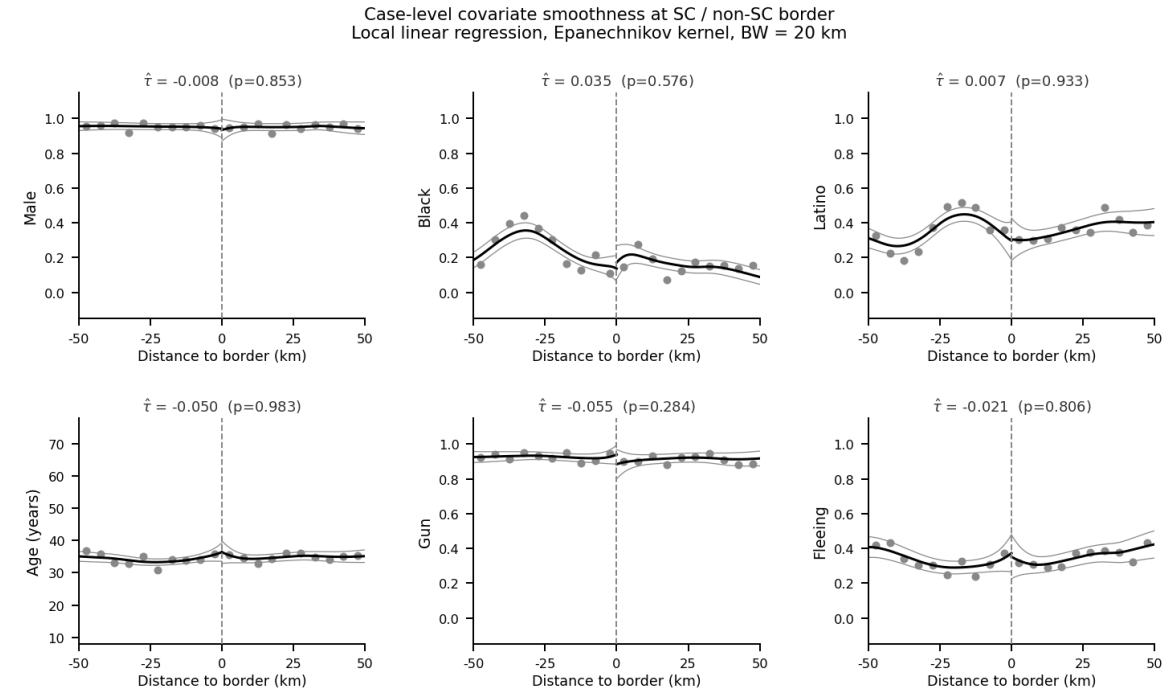
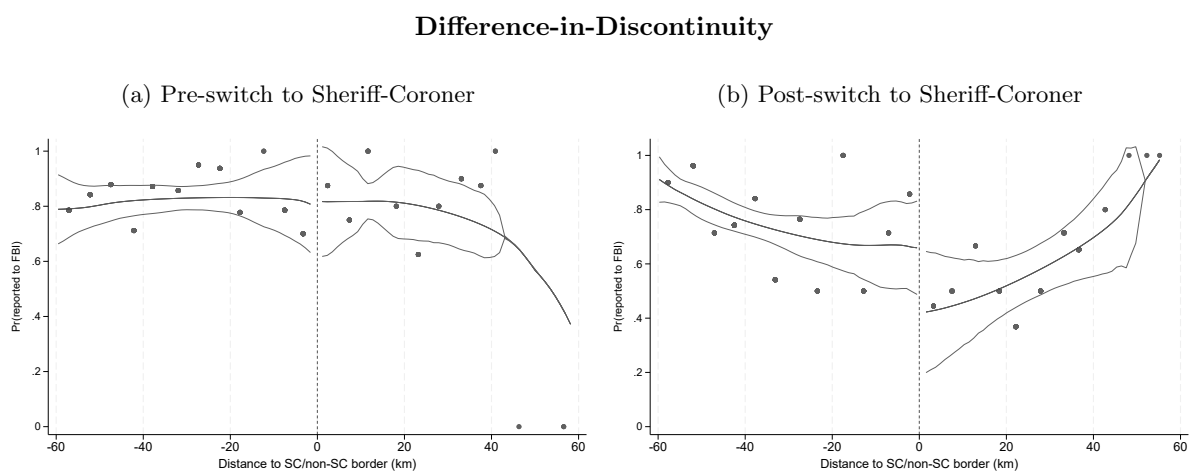


Figure A.4: Impact of Law-enforcement influence on Medicolegal Death Investigation Offices on Reporting Police Killings



Note: The running variable in the x-axis measures the distance from a police killing to a county border. Police killings from switcher counties have positive distance (Fresno, Marin, San Bernardino, Santa Barbara and Santa Clara). Scatter points show the average share of police killings reported to the FBI by each bin. The solid lines represent the predicted value of a local linear smoother on each side of the threshold at zero. The outer gray lines denote the 95 percent confidence intervals. Panel (a) shows if there exists discontinuities between deaths occurring in switcher counties and counterfactual counties before the change in DIS. Panel (b) shows if there is discontinuities in the reporting of killings for the same counties but after switchers change to a sheriff-coroner office.

Table A.2: Spatial RDD: Placebo Outcomes

	(1) No controls				(2) County controls			
Outcome	Coef.	SE	p	BW	Coef.	SE	p	BW
Panel A: All borders								
MAP/SHR homicides per 100k	-0.2756	(1.5240)	0.612	34.3	0.1140	(1.7600)	0.869	42.3
NVSS total deaths per 100k	-27.9294	(453.5125)	0.961	52.7	211.0522	(228.9971)	0.279	72.0
Panel B: Within-state borders								
MAP/SHR homicides per 100k	-1.6631	(2.4137)	0.275	31.5	1.2836	(1.5320)	0.285	46.8
NVSS total deaths per 100k	106.5692	(490.5746)	0.918	45.6	277.9959	(341.0853)	0.375	47.4

Notes: County-level spatial RDD. Running variable: mean distance from FE cases within each county to the nearest SC/non-SC border (km). Outcomes are annual averages over 2000–2019, normalized per 100,000 labor force. *MAP/SHR homicides*: total homicides in MAP (Murder Accountability Project) per county-year; zero assigned for county-years absent from the MAP police-killing file. *IHME rate*: total homicide rate per 100k from the Global Burden of Disease (independent of SHR/NVSS). *NVSS total deaths*: all-cause mortality per 100k from NVSS death certificates (CDC Wonder, Underlying Cause of Death). County controls: % Black, % Hispanic, poverty rate, unemployment, avg. income, violent crime rate, Dem. vote share, education. A null result on all three outcomes rules out compound treatment through violence levels or general reporting culture. Local linear, triangular kernel, MSE-optimal bandwidth. Robust bias-corrected SE in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table A.3: Difference-in-Discontinuities: Sheriff-Coroner Switch and Official Reporting of Police Killings

	Pre-period (placebo)	Post-period (treatment)	DiDisc (Post − Pre)
Panel A: Difference-of-RDs (rdrobust, MSE-optimal BW separately for each period)			
SC effect (RD estimate)	0.1247	-0.4407*	-0.5654*
	(0.1873)	(0.2806)	(0.3374)
Bandwidth (km)	29.1	22.1	—
N_{left}	71	37	—
N_{right}	39	44	—

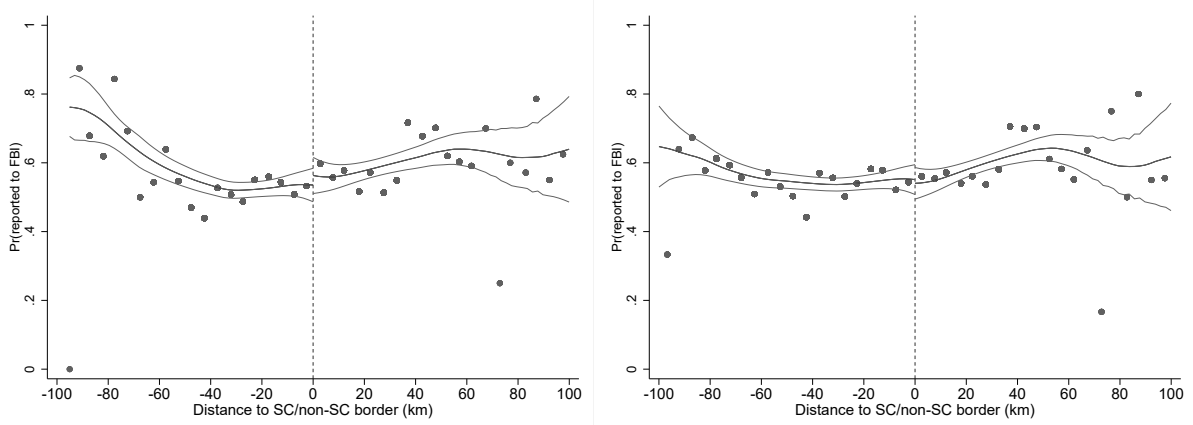
Notes: Difference-in-discontinuities design exploiting 4 California counties that switched to Sheriff-Coroner (SC) at known dates: San Bernardino (2005), Marin (2005), Santa Barbara (2005), Santa Clara (2004). Running variable `dist_switcher`: signed distance (km) to the switching-county border; positive = inside the switching county (treated side), negative = adjacent always-non-SC county (control side). Outcome: `_reported` = 1 if the killing appears in the SHR/FBI database. Sample restricted to the event window $t_{\text{rel}} \in [-5, +5]$ so that parallel trends is required only within the window, not across the full panel (Dube and Linder, 2024). Panel A (*difference-of-RDs*): `rdrobust` estimated separately on pre-switch ($t_{\text{rel}} < 0$, placebo) and post-switch ($t_{\text{rel}} \geq 0$) observations; DiDisc = $\hat{\tau}_{\text{post}} - \hat{\tau}_{\text{pre}}$; SE by delta method. A pre-period estimate near zero supports the assumption that the border carried no reporting discontinuity before the institutional change. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Figure A.5: Impact of Law-enforcement influence over Medicolegal Death Investigation Offices on Reporting Police Killings CDC

Spatial Regression Discontinuity

(a) Impact of sheriff-coroner office on reporting to the CDC

(b) Impact of law enforcement death certification on reporting to the CDC



Note: The running variable in the x-axis measures the distance from a police killing to a county border. The right (left) side of the x-axis measures the distance from a police killing in a sheriff-coroner (non-sheriff-coroner) county to the border of a county with an independent DIS (sheriff-coroner) system. Scatter points show the average share of police killings reported to the Centers for Disease Control and Prevention by each bin. The solid lines represent the predicted value of a local linear smoother (using raw data) on each side of the threshold at zero. The outer gray lines denote the 95 percent confidence intervals. Panel (a) shows the impact of having a joint sheriff-coroner office, while panel (b) also includes jurisdictions where law enforcement can certify deaths.

B Data Construction

B.1 Classification of Death Investigation Systems (DIS)

A fundamental contribution of this project is the classification of the Medicolegal Death Investigation System (DIS) across counties in the United States from 2000 to 2024. First, I provide a brief description of DIS in the US. Second, I discuss the role of law-enforcement agencies in the classification of deaths in the US. Finally, section B.1.3 describes carefully the sources and procedure used to classify DIS across counties between 2000 and 2024.

B.1.1 Brief History of Medicolegal Death Investigation System in the United States

Historically, medicolegal death investigation systems (DIS) in the United States have been classified within two main categories: (1) coroner and (2) medical examiner. Coroners are a legacy of English common law and are characterized by the election of officials, often without formal medical training.[1] In turn, medical examiners, first established in the late 19th century in Boston, employ appointed officials who are typically licensed forensic pathologists (Hanzlick and Fudenberg, 2014).

There has been a long-standing debate about which DIS is better. From the 1960s to the 1980s there was a belief that MEs were better than coroners given their formal scientific and professional training.[2] These debates led to several changes in the composition of DIS across states and counties." Today, coroners are usually elected, not trained physicians, and often rely on the help of a pathologist to perform autopsies. In turn, medical examiners are usually trained physicians (in some counties forensic pathologists), and they are often appointed.

As of 2025, the United States maintains a mix of systems with considerable variation both within and across states. There are over 2,000 medicolegal death investigation offices analyzing over 1.3 million deaths annually (that is, about 40 percent of total deaths), and about half of those deaths merit further investigation. Although most DIS offices are coroner offices, medical examiners serve a larger share of the population, as most large cities have medical examiners. Nearly 80 percent of the offices are coroner offices, serving about a third of the US population.

In addition to coroners and medical examiners, in some counties in the US operate under a different system, the office of the coroner is combined with other offices mainly for budgetary reasons. Nearly 10 percent of counties in the US have joint sheriff-coroner offices. In some counties in Texas and Washington, death investigation is conducted by a Justice of the Peace or a district attorney, respectively. In the next section, I explain the relationship between law enforcement agencies and medicolegal death investigation systems.

B.1.2 Law Enforcement Agencies and Medicolegal Death Investigation Systems

One crucial dimension distinguishing DIS offices across the United States is how they interact with local law enforcement agencies. In several counties in California, Montana, and Nevada, the coroner's office is

[1] In other English common-law countries, including the United Kingdom, Australia, Ireland, Hong Kong, Canada, New Zealand, public coroners' inquests are required for in-custody deaths.

[2] The National Academy of Sciences first recommended in 1928 that *'the office of coroner be abolished. It is an anachronistic institution which has conclusively demonstrated its incapacity to perform the functions customarily required of it.'*

consolidated with the sheriff's office. Therefore, in these counties, the elected sheriff performs the duties of the coroner. While this institutional arrangement functions adequately for the investigation of most unnatural deaths, it creates a direct conflict of interest in deaths involving law enforcement officers, such as the case of Daniel Lee Humphreys in San Joaquin County, California.[3]

Table B.1 shows the involvement of law enforcement agencies in medicolegal death investigations. There are nearly 150 offices throughout the US where the sheriff also serves as the coroner. Additionally, Ruiz et al. (2018) describe in which states law enforcement agencies can (i) identify the manner and/or cause of death, and (ii) sign death certificates. This is the case, for instance, in Montana and Wyoming.

Table B.1: Law Enforcement Involvement in Death Investigations

State	Joint Sheriff-Coroner office	Law Enforcement can identify manner/cause of death	Law Enforcement can sign Death Certificates
California	48		
Illinois	5		
Massachusetts			✓
Montana	40	✓	✓
Nebraska	9		✓
Nevada	15		✓
New York	1		
North Dakota	18		
South Dakota	11		
Wyoming		✓	✓
Total	147		

Notes: The second column shows the number of counties where the sheriff serves as coroner, as of 2019. Data in columns 3 and 4 are from Ruiz et al. (2018). In most states, multiple types of officials can identify the manner and cause of death: physicians (49 states), medical examiners (41 states), and coroners (28 states). Regarding death certification, this can be done by medical examiners (41 states), coroners (29 states), physicians (49 states), and other professionals such as nurses or funeral directors (42 states). In some counties in Arizona and New Mexico, tribal police can also sign death certificates.

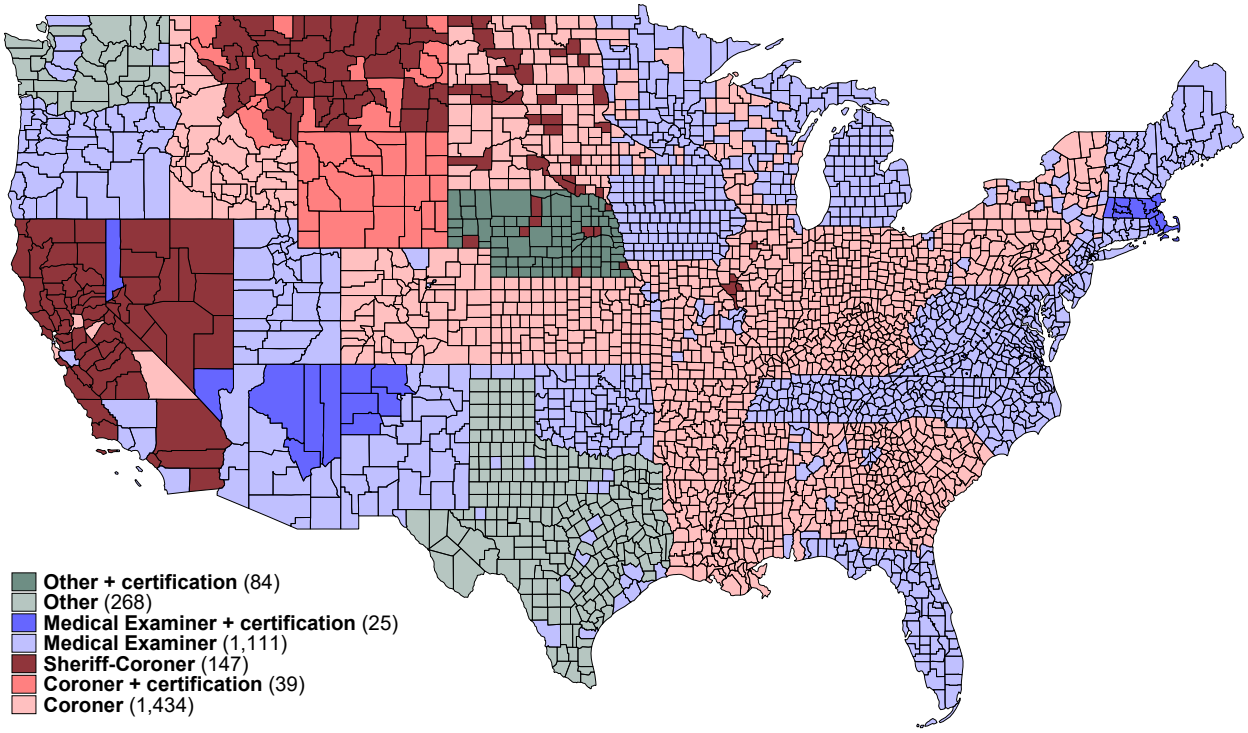
Figure B.1 shows the medicolegal death investigation system in all contiguous counties of the United States for 2019. Section B.1.3 describes in detail the sources and procedure used to classify DIS across counties between 2000 and 2024. Counties are divided into four systems: coroner counties (light pink and pink), medical examiner counties (light blue and blue), sheriff-coroner counties (dark red), and other systems (light green and green). The darker colors indicate counties where law enforcement agencies can sign death certificates (see Table B.1).

As can be seen, most counties in the US have a coroner system, mainly without law enforcement involvement in the certification of deaths. In a few coroner counties and medical examiner counties, law

[3]Even independent coroners and medical examiners may be subject to influence from law enforcement, as shown by survey data (Brooks, 2021). Moreover, many coroners come from law enforcement backgrounds, reinforcing alignment with police culture and raising doubts about independence in cases involving officer conduct. Medical examiner offices are not immune to scrutiny. Physicians may avoid antagonizing police by using clinical language that obscures critical information about the circumstances of deaths. Investigative reporting by The New York Times in the 1980s revealed patterns of "special handling" in custody deaths, where fatalities were routinely classified as accidents or undetermined, shielding officers from legal consequences. More broadly, entrenched collaboration between coroners/medical examiners and police can lead to the omission or minimization of law enforcement involvement in cause-of-death documentation.

enforcement can be involved in processing death certificates (dark pink for coroners and dark blue for medical examiners). For other types of systems, only in Nebraska can law enforcement agencies sign death certificates, whereas in Texas and Washington they cannot. Sheriff-coroner counties (dark red) are spread across the country, with 147 such offices as of 2019 (Table B.1).

Figure B.1: Medico-legal Death Investigation System across US counties



Note: This map shows the different death investigation system across counties in United States in 2019, and whether law enforcement can certify death certificate. Medicolegal death investigation system are separated by: Coroners, Sheriff-Coroners, Medical examiners and others.

B.1.3 Classification of Death Investigation Systems

To identify the medicolegal death investigation system in each county from 2000 to 2024, I use the following sources: Combs (1990), the Medical Examiners and Coroners Survey 2004 (Hickman et al., 2007) and the Medical Examiners and Coroners Survey 2018 (Brooks, 2021) administered by the United States Department of Justice, data from the Centers for Disease Control and Prevention (2022) as of 2019, and Henson (1978), Hanzlick and Combs (1998), Hanzlick (2007), Hanzlick (2007b), Ruiz et al. (2018), Zaychik (2020).

The two most recent sources used to classify counties' DIS show noticeable differences at the county level: (i) the official CDC website as of 2018, and (ii) the information provided by the 2018 Medicolegal DIS Census (Brooks, 2021) administered by the United States Department of Justice. Figure B.2 panel (a) shows the county-level map of the US using the 2018 medicolegal DIS census, while panel (b) shows the county-level map using the CDC data. There are substantial differences in certain states, such as Washington, North Dakota, and South Dakota, particularly regarding sheriff-coroner offices. For instance, the 105 counties in Kansas are served by 31 appointed district coroners who must be physicians.

In panel (a), 13 counties are classified as sheriff-coroner, while none appear as such in panel (b). The correct classification, verified through additional sources, corresponds to panel (b).

South Dakota is more complex, as the sheriff can serve as coroner by default. Thus, unless there is a designated coroner, the sheriff serves as the coroner. However, sheriffs can decline these responsibilities (e.g., in Brown County in 2025, the sheriff declined to continue performing the coroner's duties after not receiving a pay raise). For ambiguous cases such as South Dakota, I use the Criminal Justice Directory of each state to verify the DIS classification.

In general, the 2018 Census overrepresents the number of agencies with joint coroner and sheriff offices.[4] Therefore, to classify counties' DIS, I use the following rule.

First, I merged the 2018 Census and CDC databases and analyzed all counties where the classification does not coincide across the two sources.[5] For those cases, I searched each county's sheriff and coroner's office website. For example, Figure B.3 shows the sheriff and coroner office websites for four counties in North Dakota. As can be seen, the sheriff and coroner are the same official in Divide County and Eddy County, but not in the other counties shown. Unfortunately, this type of information is not publicly available for all states and years. In those cases, I contacted the offices via email or phone to determine whether the sheriff and coroner offices are combined, and if so, when the merger took place. For example, while the 2018 Census states that in Blount County, Alabama, the sheriff and coroner's offices are combined, staff at the coroner's office in Blount County confirmed that the two offices are separate.[6]

Historically, most of the changes in DIS have been from coroners offices to medical examiners. However, not many counties changed their medicolegal death investigation system after the 2000s. For example, there were no changes in Pennsylvania, Mississippi, and Illinois since 2006. Despite this, there are some states such as Wisconsin and Minnesota that had many counties transitioning from coroner systems to medical examiner systems since 2006. Although rare, some counties transition from medical examiner system to a coroner system. This is the case of Santa Clara, California, which transitioned from a medical examiner system to a coroner in 2004, following legal issues. They changed back to a medical examiner system about 12 years later (2016).

During the period 2000 to 2024, a total of 18 counties changed their medicolegal death investigation system. The main transitions relevant to this paper are those in which a county adopted a sheriff-coroner system. Seven counties transitioned from a coroner to a sheriff-coroner system: Marin County and San Bernardino County, California (2005), Tehama County, California (2007), Fresno County, California (2014), Humboldt County, California (2015), and Lewis and Clark County and Fergus County, Montana (2019). Three counties transitioned from a medical examiner to a sheriff-coroner system: Santa Barbara County, California (2005), Kern County, California (2021), and Santa Clara County, California (2004), although Santa Clara County later reverted to a medical examiner system in 2016. In the opposite

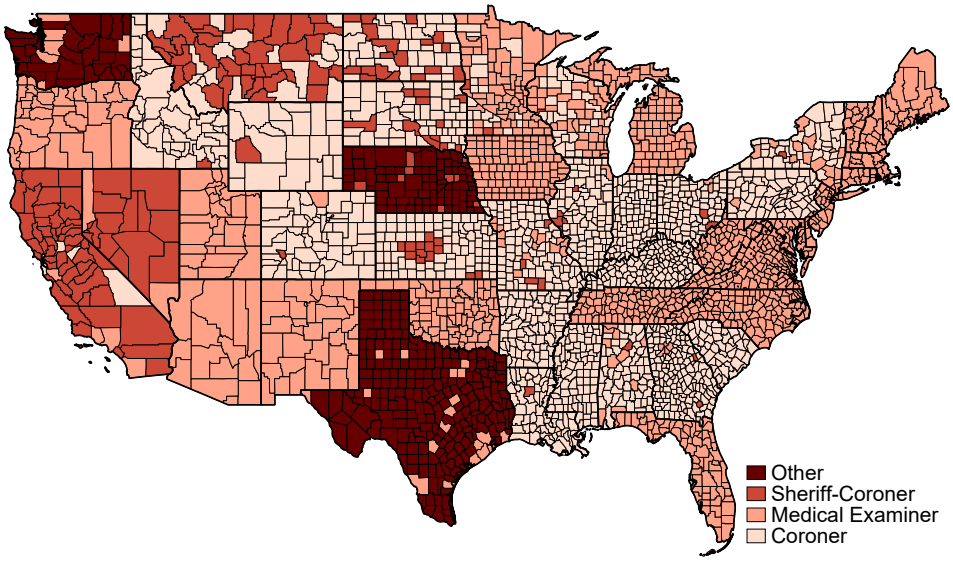
[4] There are several reasons for this overrepresentation. First, the survey frame was inherited from earlier data: the Center for Medical Examiners and Coroners (CMEC) began with the 2004 roster of ME and coroner offices, supplemented by drug-lab surveys, and contacted whoever was on file, even if that was the sheriff's office. Some counties with separate coroner offices never updated their respondent contact information, leading RTI International to classify them as sheriff-coroner. Second, when a county's coroner did not respond, RTI followed up with the sheriff's office using a short form. If the sheriff's office completed that form, the county was automatically coded as sheriff-coroner.

[5] In nearly 3,000 counties, the DIS classification is the same between the two databases, while approximately 140 counties show discrepancies.

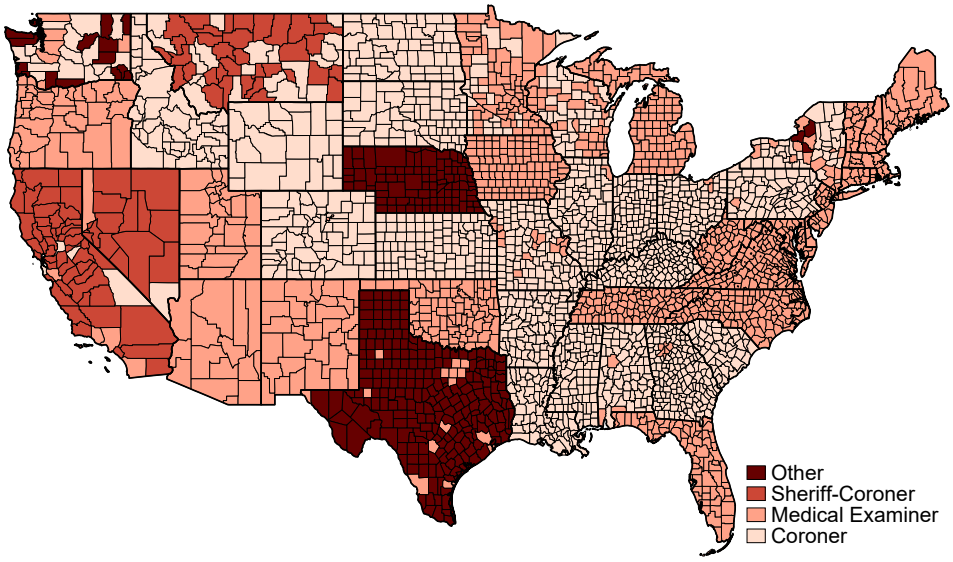
[6] Personal communication with the Blount County coroner's office (coroner@blountcountyal.gov).

Figure B.2: Type of Medicolegal Death Investigation Office, by county

(a) 2018 Medicolegal Census

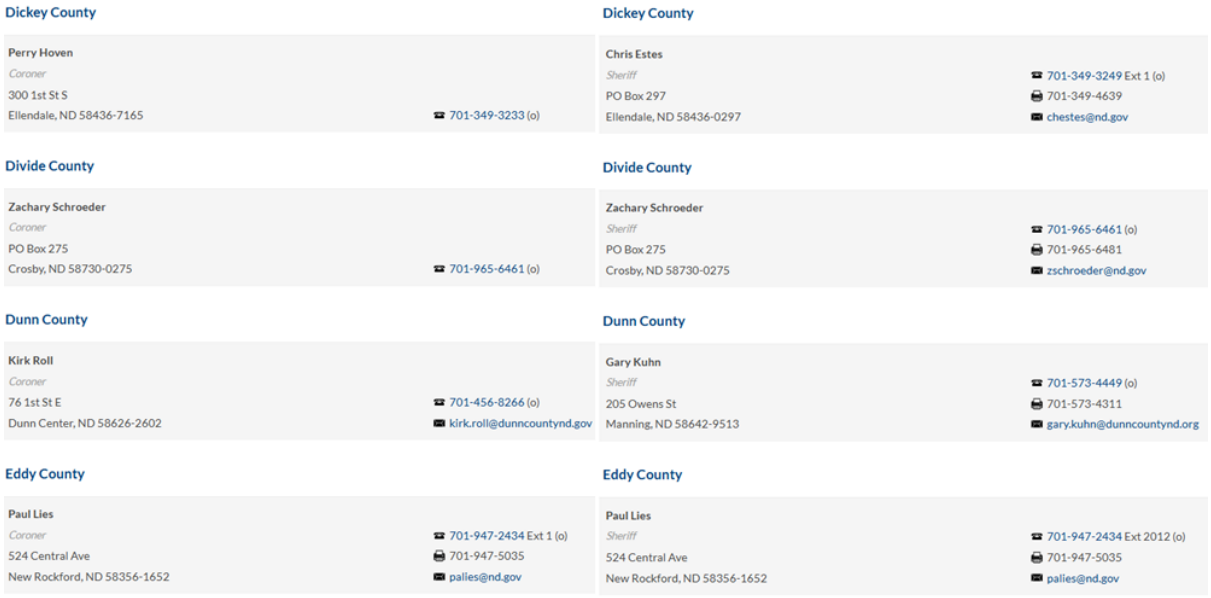


(b) 2018 CDC data



Notes: Other officials are county attorneys (e.g., in Washington or Nebraska) or Justice of the Peace (as in Texas).

Figure B.3: North Dakota Coroner's and Sheriff's Office



Note: Name and point of contact for coroners and sheriff in four counties in North Dakota (Dickey County, Divide County, Dunn County and Eddy County). Source: North Dakota Association of Counties website, https://www.ndaco.org/cod/.

direction, San Joaquin County, California transitioned from a sheriff-coroner to a medical examiner system in 2022. Finally, four counties transitioned from a coroner to a medical examiner system: Cass County, Missouri and Clayton County, Georgia (2001), Allegheny County, Pennsylvania (2006), and Dane County, Wisconsin (2011). These transitions provide the temporal variation exploited in the difference-in-discontinuities design, that complement the main identification strategy using the spatial regression discontinuity design.[7]

B.2 Police Killings: Official and non-Official sources

There are two main official databases on police killings: one managed by the Federal Bureau of Investigation (FBI) and the other by the Centers for Disease Control and Prevention (CDC).[8] It has been well documented that both official sources (the FBI and the CDC) severely undercount police-involved homicides (Zimring, 2017). Consequently, several efforts have sought to provide a more comprehensive picture of police killings through crowdsourced information. One such effort is Fatal Encounters, which compiles case-by-case data on deaths involving police since 2000 across the United States. I describe each of these databases.

B.2.1 Official Police Killings recorded by Federal Bureau of Investigation (FBI)

The Federal Bureau of Investigation (FBI) collects information from local law enforcement agencies across the United States through the Uniform Crime Reports (UCR) program. Within this program, agencies can submit additional homicide information through the Supplementary Homicide Reports (SHR). For each homicide, the SHR provides detailed information on the circumstances of the incident,

[7] Alaska, Puerto Rico, and Hawaii are removed from our analysis.

[8] There is also a third source of information from the Arrest-Related Death (ARD) program managed by the Bureau of Justice Statistics (BJS), but its coverage is limited.

the participants involved, and the demographics of victims and offenders (age, sex, race, and ethnicity), as well as their relationship. It also records information about the law enforcement agency involved, the location, and the date on which the homicide occurred.

The data include counts of homicides classified as manslaughter by negligence (for example, a child playing with a gun or a hunting accident) and homicides in which the offender is a private citizen, among other categories. In particular, agencies report justifiable homicides by law enforcement. These police killings are identified with the circumstance code "felon killed by police." The FBI defines this as the lawful killing of a perpetrator of a serious criminal offense by a law enforcement officer in the line of duty [or] by a private individual." Because justifiable homicides involve the willful and lawful taking of human life, they are tracked by the FBI's UCR Program to identify trends in where, when, and under what circumstances they occur. Note that these deaths are classified as justifiable and are therefore not prosecuted as criminal homicides.

Participation in the UCR program is voluntary. Despite this, most of the US is covered by the UCR program. For instance, in 2000 and 2010, law enforcement agencies active in the UCR Program represented 94 percent and 97.4 percent of the US population, respectively. In 2019, of the 18,667 federal, state, county, city, university and college, and tribal agencies eligible to participate in the UCR Program, 16,554 agencies submitted data. Although the vast majority of law enforcement agencies do submit data, participation is not universal, and both the UCR and SHR may fail to cover all agencies and all homicides in every year.[9] Therefore, there are two sources of undercounting of police killings: (i) agencies do not provide information to the FBI (no participation in the UCR), or (ii) a police killing is not reported among the agency's reported homicides, or it is reported but not labeled as a justifiable killing. The UCR also covers only justifiable homicides by law enforcement, excluding other types of deaths involving law enforcement (e.g., accidental deaths, deaths in custody, or unjustified killings not reported as homicides). Therefore, the absence of information for a given agency and time period may reflect either a genuine absence of police killings or a failure to report them as such.

In 2021, the FBI began to phase out the Summary Reporting System (SRS) and mandated a switch to the National Incident-Based Reporting System (NIBRS). NIBRS was established to improve the quality of crime data collected by law enforcement.[10] Because the FBI continued to accept SRS submissions from agencies that had not yet transitioned, the SHR in recent years records approximately 2,000 more homicides than NIBRS.[11] For more details on the transition from the SHR to NIBRS see Hargrove (2023).

B.2.2 Universe of Police killings: Fatal Encounters

Fatal Encounters (FE) is arguably the most comprehensive database on police-related deaths in the United States. In 2012, Fatal Encounters began to request records of police-involved deaths from law

[9] Not all agencies that submitted UCR data submitted SHR data, and some states (e.g., Florida) stopped submitting SHR entirely in certain periods. Also, the SHR only contains a report when an agency has a homicide in a given year, and even then, agencies may report to either, both, or neither of the relevant UCR components.

[10] The FBI started the NIBRS in 1991 but it was not commonly used until 2021 (https://bjs.ojp.gov/national-incident-based-reporting-system-nibrs). According to the FBI only about 8,500 police agencies (less than half of the agencies in the U.S.), covering about 45% of the US population, reported NIBRS data in 2019. In 2021, only 52% of agencies reported to NIBRS (covering 65% of the US population). By 2022–2023, NIBRS coverage recovered to 70–75% of agencies.

[11] I appreciate discussions with Thomas Hargrove, Founder and Chairman of the Murder Accountability Project.

enforcement agencies under the Freedom of Information Act (FOIA), combined with media searches, in a crowdsourced effort to identify all police homicides (Finch et al., 2021). Since then, it has compiled a comprehensive database of police-related deaths from 2000 to 2021.

FE provides detailed information on each death, including the circumstances and the identity of the police agencies involved. In the introductory example, where Daniel Lee Humphreys was killed by the California Highway Patrol (CHP) in San Joaquin County, California, the cause of death is classified as Tasered. The record specifies that CHP officer Roberto Iniguez Tasered Humphreys 31 times over 7.5 minutes (after Humphreys crashed his motorcycle during a freeway chase / while Humphreys fled on foot). The death was ruled accidental, and the intent of force was coded as less-than-lethal.

Table B.2 shows the causes of death according to Fatal Encounters. The most common cause of death is by far gunshot, with 70 percent of the cases, followed by vehicle-related deaths during police pursuits (21 percent). Note that FE covers all deaths with police involvement, regardless of police culpability, and thus includes deaths that did not involve the use of force. Therefore, to analyze police killings rather than police-related deaths, I follow Global Burden of Disease (2021) and discard deaths from the following categories: "Vehicle," "Drug overdose," "Undetermined," "Medical emergency," or "Other," since they are less likely to involve direct violence perpetrated by the police. I also discard cases classified as "Burned/Smoke inhalation," "Drowned," and "Fell from a height" for the same reasons.

Table B.2: Causes of deaths in Fatal Encounters

Highest level of force	Frequency	Percent
Asphyxiated/Restrained	351	1.11
Beaten with instrument	182	0.58
Burned/Smoke inhalation	45	0.14
Chemical agent/Pepper spray	35	0.11
Drowned	203	0.64
Drug overdose	182	0.58
Fell from a height	82	0.26
Gunshot	22,238	70.61
Medical emergency	397	1.26
Other	66	0.21
Stabbed	52	0.17
Tasered	936	2.97
Undetermined	101	0.32
Vehicle	6,624	21.03
Total	31,494	100.00

It is possible to extend the count of police killings beyond 2021 using another database: Mapping Police Violence (MPV). MPV contains detailed information on police killings from 2013 to the present. Most of the information in MPV for the years prior to 2021 originates from FE; however, MPV focuses on police killings, whereas FE records police-related deaths. As a result, the number of cases included in MPV is smaller than in FE. Almost 95 percent of the police killings in MPV are due to gunshot, followed

by Tasers (3 percent) and physical restraint (1 percent). As with FE, I ignore cases where the cause of death is described as "Vehicle." (e.g., police pursuit).

Another important difference between the two databases concerns the intended use of force. MPV does not cover cases classified as suicides, whereas FE does. To construct a comparable database through 2025, I discard cases classified as suicides.[12]

Table B.3 reports approximately 36,398 police killings from 2000 to 2025. Table B.3 also shows the source of each case. Each observation contains information on the person killed by a law enforcement agency in the United States, including victim identity and demographics (name, age, gender, race), location (latitude, longitude), date of the incident, and a description of the circumstances (cause of death; for FE cases, a brief narrative description). I also add the agency involved, the type of agency (local or state law enforcement, sheriff, etc.), and the originating agency identifier. Given the purpose of this paper, I focus on the restricted sample of police killings.

Table B.3: Final Dataset on Police Killings by source

Source	Police Killings (All causes)	Police Killings (Restricted)	Period
Fatal Encounters only	21,688	10,781	2000-2012
both FE and MPV	9,795	9,734	2013-2021
MPV only	4,915	4,915	2022–2025
Total	36,398	25,430	

B.2.3 Additional Official Police Killings - the Center for Disease Control and Prevention

The Centers for Disease Control and Prevention (CDC) collects data from death certificates for all states and territories in the United States through the National Vital Statistics System (NVSS). Deaths in the NVSS are classified using the International Classification of Diseases (ICD). For unnatural deaths, the coroner or medical examiner completes the portion of the death certificate recording the cause and manner of death. The completed certificate goes to the funeral director, who fills out the demographic section and forwards it to the state registrar. The state registrar then sends a copy to the National Center for Health Statistics (NCHS), where coders assign ICD categories following established guidelines, and the death is incorporated into the NVSS.

Law enforcement killings are classify as 'legal intervention' based on the following ICD-10 codes: (1) Legal intervention (Y35.0- Y35.9 except Y35.5 - legal executions) and (2) Sequelae of legal intervention (Y89). This includes injuries inflicted by law-enforcing agents in the course of arresting or attempting to arrest lawbreakers, suppressing disturbances, maintaining order, and other legal action.[13]. I extract

[12] This may omit incidents sometimes described as "suicide by police," in which individuals are effectively pressured into committing suicide through substantial police coercion.

[13] Y35.0 (Legal intervention involving firearm discharge); Y35.1 (Legal intervention involving explosives); Y35.2 (Legal intervention involving gas); Y35.3 (Legal intervention involving blunt objects); Y35.4 (Legal intervention involving sharp objects); Y35.6 (Legal intervention involving other specified means); Y35.7 (Legal intervention, means unspecified). Also, Y35-5 legal executions

deaths by legal intervention using ICD-10 codes by county and year from the Mortality Multiple Cause Data Files.[14]

Table B.4 shows the frequency of legal intervention deaths from 2000 to 2019. Most county-years have no legal intervention deaths at all. Note that legal intervention deaths carry no information about the lawfulness or legality of the circumstances surrounding the death. They indicate only that the decedent was killed by or died as a result of a law enforcement officer or other peace officer (persons with specified legal authority to use deadly force). Such deaths may occur during a routine or targeted traffic stop, while issuing a citation, while arresting or pursuing a suspect, while responding to calls to maintain order or ensure safety (such as domestic disturbances or suicide interventions), or in the course of other law enforcement duties.

Table B.4: Frequency distribution

Police Killings	**Count**	**Percent**	**Cumulative %**
0	58,043	92.22	92.22
1	3,546	5.63	97.85
2	662	1.05	98.91
3	284	0.45	99.36
4	125	0.20	99.56
5	75	0.12	99.67
6	50	0.08	99.75
7	41	0.07	99.82
8	18	0.03	99.85
9	23	0.04	99.88
≥ 10	73	0.10	100.00
Total	**62,940**	**100.00**	

Notes: Data at county-year level from 2000 to 2019.

Misclassification primarily occurs because the medical examiner or coroner fails to mention police involvement in the death certificate's cause of death section ("Describe how the injury occurred" does not state "killed by police"). Thus, if police involvement is omitted, a death may be classified as a homicide rather than a legal-intervention death. Despite this limitation, the database has the advantage of being nationally standardized and mandatory. State-level counts are based on the victim's state of residence, not the state in which the incident occurred.

I also use individual deaths by legal intervention from the CDC from 2000 to 2024 to match against the universe of police killings. I match these two dataset based on year, month, age, gender, and state.

[14]Specifically, for each county-year I obtain the number of legal intervention deaths (excluding executions) by subtracting from total deaths the count of deaths that excludes legal intervention deaths but includes executions.

B.3 Reporting Police Killings - Matching Fatal Encounters and Police Killings Reported to the FBI.

To study the reporting of police killings, I check whether each police killing from the universe of police killings (restricted police killings from FE and MPV) is reported officially to FBI by local enforcement agencies via the UCR/SHR. To see whether each killing appears in the SHR database, I use the following information for matching cases: state, county, year, month, age, gender, and also information on the reporting law enforcement agency (originating agency identifier, ori), which is a unique code used to identify law enforcement agencies in the United States. I also use race/ethnicity of the victim.

1. Harmonization of data. Before matching, I harmonize a common set of variables across the two sources. Victim age is rounded to the nearest integer in both datasets. Victim sex is standardized to male, female, or other/unknown. Race and ethnicity are harmonized to six categories (White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, and unknown), combining separate race and ethnicity fields where needed. County names are cleaned by removing common suffixes ("County," "Parish," "Borough," "Municipality," and similar administrative labels) that appear inconsistently across sources. Remaining minor spelling differences (e.g. "De Kalb" versus "DeKalb" or "St. Louis" versus "Saint Louis") are resolved by mapping each FE county name to the closest MAP county name within the same state using fuzzy string similarity, accepting corrections only when the similarity score exceeds 0.85.

2. Matching procedure. I implement a two-round procedure. Four variables are treated as exact and non-negotiable in all rounds: state, county, calendar year, and victim sex. These fields are sufficiently coarse that any discrepancy genuinely indicates a different incident. In addition, I have information about race, age, and agency ORI that can be used to verify a correct match.

1. In the first round, we additionally require exact agreement on victim age and month of death, yielding a six-variable exact match. Among FBI records restricted to those flagged as police killings, a candidate is accepted if it is the unique record satisfying all six conditions. When multiple candidates remain, we break ties using race/ethnicity agreement between the two sources, preferring candidates where the victim's race matches. If a single best candidate emerges after tiebreaking, the case is classified as a confirmed match; otherwise it is flagged as ambiguous.

2. In the second round, applied only to cases with no first-round match, we retain the four required exact fields but allow victim age to differ by up to two years and month of death to differ by up to one month. Near-miss candidates are scored using three additional signals: race/ethnicity agreement (highest weight), similarity between the reporting agency names in the two databases (middle weight), and agreement on the broad cause-of-death category (firearm, vehicle, or restraint) derived independently from each source (lowest weight). The candidate with the highest composite score is accepted if unique; otherwise the case is flagged as ambiguous. The near-miss matches have a mean absolute age discrepancy of approximately one year and a mean month discrepancy below half a month, with weapon-category agreement exceeding 93 percent, supporting their validity.

3. Cases with no match to a police-killing record in FBI are then searched against all MAP records

regardless of classification. A case found in the FBI database but not labeled as a police killing represents a distinct form of administrative misclassification, separate from pure omission.

Table B.5 shows the result of the matching procedure. Almost 60 percent of the deaths in FE/MPV were not reported to the FBI by local law enforcement. This number is consistent with the aggregate numbers of police killings according to the FBI and those appearing in Fatal Encounter/MPV. The underreporting rate of FBI/(FE/MPV) amouts to 57.14

About 1/3 of the police killings (8,574) were identified in the FBI database. Interesting, 1,648 police killings failed to match any SHR homicide recorded as "felon killed by police", but they were uniquely identified under another homicide category the SHR (exact same unique 7-variable match). In this sense, the law enforcement agency (ori) reported a homicide to the FBI with the same state/county/year/month/age/sex as the FE/MPV case, but did not classify it as a justifiable police killing, instead it appears under another circumstance category, such as "circumstances undetermined" or "other arguments" (see Table B.6). This is a form of mis-classification or deliberate under-reporting of police killings in the FBI system, effectively diminishing the justifiable homicide count.

Table B.5: Reporting of police killings to FBI

Category	**Police Killings**	**Percentage**
Reported to FBI as police killing	8,574	33.7
Non-reported to FBI as police killing		
- In SHR but mislabeled	1,648	6.5
- Completely Absent from SHR	15,208	59.8
	25,430	100

Table B.6 shows the reported circumstances for those police killings in FE that were matched with a death reported to the FBI but not as a police killing. Interesting, 75.1% of the police killings that were reported but not classified as "felon killed by police", where reported under vague catch-all labels: circumstances that are "Circumstances undetermined, "Other", "Other arguments" and "Other - not specified". Hence, local law enforcement agencies reported these homicides to the FBI but did not provide specific or accurate circumstance of the deaths.

Moreover, analyzing the sub-circumstance described in the FBI confirms police involvement: 129 of the 1,648 (7.8%) have a sub-circumstance like "Felon attacked police officer," "Felon killed in commission of a crime," or "Felon resisted arrest" — language that is essentially identical to the police killing category, but was filed under a different main circumstance. This is a clear reporting inconsistency. Overall, the evidence suggests that most of these 1,648 cases are genuine police killings that were reported to the FBI but deliberately or negligently filed under non-specific or incorrect circumstance labels, effectively removing them from the official "justifiable homicide by law enforcement" count.

Table B.7 shows the causes of deaths for the reported cases to the FBI: the correctly labeled as 'felon killed by police' and those labeled under a different category. Most of the police killings involve firearm, which arguably are less likely to be misclasified. Relatively speaking, it seems that agencies are far more likely to report shootings to the FBI. In turn, Taser deaths, restraint deaths, and beatings are

Table B.6: Circumstances of the non-reporting of police killings to FBI

Circumstance	**N**	**%**
Circumstances undetermined	423	25.7%
Other	393	23.8%
Other arguments	297	18.0%
Other – not specified	125	7.6%
Felon killed by private citizen	123	7.5%
Robbery	60	3.6%
Juvenile gang killings	57	3.5%
Narcotic drug laws	34	2.1%
Lovers triangle	24	1.5%
All other manslaughter by negligence	21	1.3%
All suspected felony type	15	0.9%
Brawl due to influence of alcohol	12	0.7%
Gangland killings	12	0.7%
Burglary	10	0.6%
Other / minor categories	42	2.5%

consistently under-represented in the reported group and over-represented in the absent and mislabeled groups, suggesting agencies are less willing to report non-gunshot police killings.

Table B.7: Reporting of police killings to FBI by cause of death

Cause of death	**Reported**		**Mislabeled**		**Absent**	
	Cases	**%**	**Cases**	**%**	**Cases**	**%**
Gunshot	8,442	35.8%	1,514	6.4%	13,752	57.8%
Tasered	73	7.0%	60	5.7%	883	87.3%
Asphyxiated/Restrained	35	8.4%	32	7.7%	338	83.9%
Beaten/Bludgeoned	15	7.7%	23	11.8%	149	80.5%
Stabbed	1	3.8%	16	61.5%	11	34.6%
Other/mixed	8	9.2%	3	3.4%	75	87.4%
Total	8,574		1,648		15,208	

B.3.1 Reporting by Official Institutions: FBI vs CDC, and The Ferguson Effect

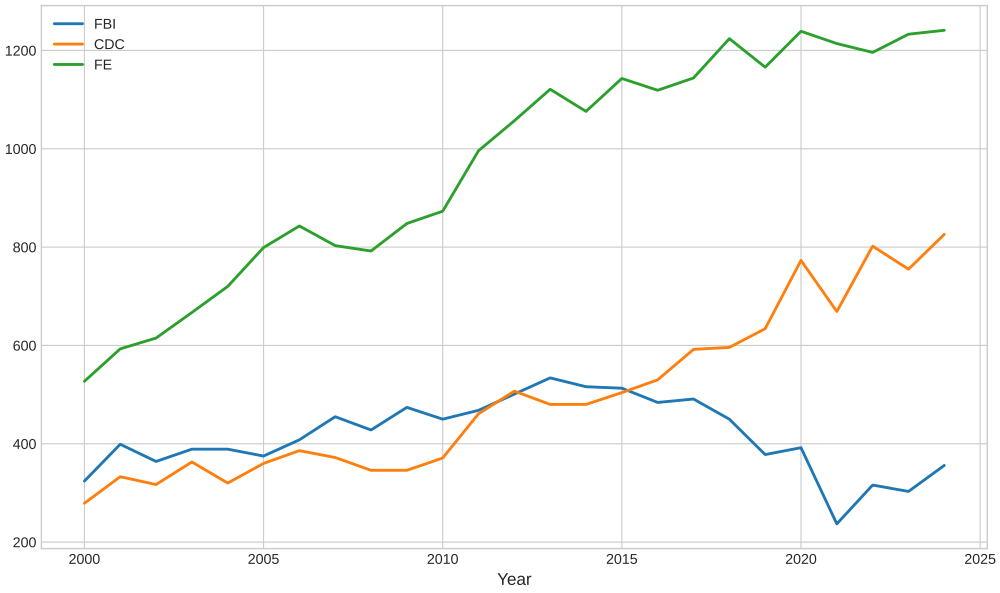
Figure B.4 show the annual number of police killings by the FBI (blue), CDC (orange) and the universe of police killings by Fatal Encounter (green). The amount of police killings has been increasing since 2000. Interestingly, before 2014, both records of the FBI and CDC track police killings similarly. However, after 2014 they diverge sharply: FBI counts plateau then fall, while the CDC counts rise steadily. By 2021, CDC (669) is nearly 3 times more the reported deaths to FBI (237).

There are some literature studying what has been called as The "Ferguson effect", which argues that public scrutiny of police after high-profile killings (especially the 2014 killing of Michael Brown in

Ferguson) reduces proactive policing. Research and reporting show this concept is debated, but it has been linked to changes in crime rates and community trust.

Figure B.4 suggests that the Ferguson effect directly alters how police killings are reported to the FBI. This is consistent with your RDD finding that the SC effect grows post-Ferguson: as public scrutiny increased, MECOs improved their death certificate coding (CDC improves) while SC offices suppressed FBI reporting more (FBI worsens). The two trends are not contradictory — they reflect two separate institutional responses to the same political pressure.

Figure B.4: Police Killings by source and year



Note: The first vertical line denotes 2014 when the Michael Brown was killed in Ferguson, Missouri (August, 2014) and the second when George Floyd was killed in Minneapolis, Minnesota on May 25, 2020..

References Appendix

Brooks, C. (2021). Medical examiner and coroner offices, 2018. *Bureau of Justice Statistics*.

Centers for Disease Control and Prevention (2022). Death investigation systems. https://www.cdc.gov/phlp/publications/coroner/death.html/.

Combs, D. L. (1990). *Death investigation in the United States and Canada, 1990*. US Department of Health and Human Services, Public Health Service, Centers ....

Finch, B. K., K. Thomas, A. N. Beck, D. B. Burghart, D. Klinger, and R. R. Johnson (2021). Assessing data completeness, quality, and representativeness of justifiable homicides in the fbi's supplementary homicide reports: A research note. *Journal of quantitative criminology*, 1–27.

Global Burden of Disease (2021). Fatal police violence by race and state in the usa, 1980–2019: a network meta-regression. *The Lancet 398*(10307), 1239–1255.

Hanzlick, R. (2007a). The conversion of coroner systems to medical examiner systems in the united states: a lull in the action. *The American journal of forensic medicine and pathology 28*(4), 279–283.

Hanzlick, R. (2007b). *Death investigation: systems and procedures*. CRC Press.

Hanzlick, R. and D. Combs (1998). Medical examiner and coroner systems: history and trends. *Jama 279*(11), 870–874.

Hargrove, T. K. (2023). Surviving nibrs: Restoring america's unreported homicides and exploring the influences for law enforcement's declining cooperation in crime reporting. Master of arts thesis, George Mason University, Fairfax, VA.

Henson, T. K. (1978). *Coroners/medical examiners and the production of "manner of death" statistics*. Ph. D. thesis, Bowling Green State University.

Hickman, M. J., K. A. Hughes, K. J. Strom, and J. D. Ropero-Miller (2007). *Medical examiners and coroners' offices, 2004*. US Department of Justice, Office of Justice Programs, Bureau of Justice ....

Ruiz, L., B. M. Posey, M.-A. Neuilly, M. K. Stohr, and C. Hemmens (2018). Certifying death in the united states. *Journal of forensic sciences 63*(4), 1138–1145.

Zaychik, D. (2020). *Where They Die of the Unknown: A Study of United States Medicolegal Death Investigation Systems and Mortality Data Quality*. Ph. D. thesis, The University of Texas at Dallas.

Zimring, F. E. (2017). *When police kill*. Harvard University Press.