

Building State Capacity from Below: Grassroots Organization and Preemptive Social Control in China

Abstract

States often lack the local knowledge needed to address concealed social-order problems before they escalate. How can grassroots organizations overcome this informational constraint? We argue that grassroots organizations strengthen state capacity by connecting information acquired through public services and local embeddedness to state agencies with enforcement authority. Using an original panel of administrative punishment decisions and criminal judgments across 2,844 Chinese county-level units from 2013 to 2020, we evaluate the effects of introducing state-organized grids with staggered difference-in-differences. Grid introduction increases cases originating in residents' reports to community workers or workers' own observations and shortens enforcement intervals among handled administrative cases. Administrative punishment of prostitution, gambling, and drug violations rises while related criminal cases decline, consistent with earlier intervention. Larger changes are associated with service orientation and recruitment of locally embedded workers. Grassroots organizations extend infrastructural power by supplying local knowledge to enforcement agencies, even when they lack coercive authority.

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Governments lack the local knowledge needed to intervene before concealed problems escalate. Censuses and population registers help identify residents (Bowles, 2024; Brambor et al., 2020; Lee & Zhang, 2017; Scott, 1998); technology and institutional design may mitigate principal-agent problems in bureaucratic oversight (Duflo et al., 2012; McCubbins & Schwartz, 1984). Yet disturbances and concealed violations can recur or escalate before officials recognize a pattern. Such conduct may leave no usable record, and its meaning can be difficult to judge from a distance (Manning, 1980; Skolnick, 1983). How do states acquire local knowledge of these social-order problems, and how does that knowledge change enforcement?

We argue that states expand their presence in grassroots communities by connecting local organizations to agencies with enforcement authority. Grassroots organizations give workers continuing responsibility for a place and regular contact with its residents. Public services create occasions for residents to communicate, and useful assistance may build trust in workers' responsiveness and encourage later reporting. Locally embedded workers also bring established relationships and familiarity with community routines, helping them receive reports and recognize conduct that an outsider might overlook. Workers refer this information to police or other responsible agencies, which verify it and decide whether to act. State capacity grows through this connection between community access and public authority. We call the resulting extension of official enforcement to previously concealed conduct *regulatory reach*.

China's grid system is a state-organized governance arrangement that connects community workers to government agencies. The Chinese Communist Party (CCP) paired "grid-based management" with "socialized services" in its 2013 reform decision (CCP Central Committee, 2013). Local governments establish grids in neighborhoods and villages, assign their duties, and recruit or appoint workers. Workers have different backgrounds and ties to the communities they serve. Some are hired for the role; others come from community or village organizations and work with CCP members, volunteers, and police (Gao & Cartier, 2024; Mittelstaedt, 2022; Tang, 2023; Wu et al., 2024). Their duties combine resident assistance with public-order monitoring. They visit households, help residents obtain services, mediate disputes, and patrol for public-order and safety

problems. They record reports and observations and refer problems through grid offices to agencies authorized to respond (H. Chen & Greitens, 2022; Mittelstaedt, 2023; J. Xu & He, 2022).

We study grid introduction in 2,844 county-level units from 2013 to 2020 using a panel of administrative punishment decisions and criminal judgments. We use differences in introduction dates in a staggered difference-in-differences design. First, more cases originate in residents' reports to community workers or workers' own observations, the share with a community source rises, and the mean interval to enforcement shortens among handled administrative cases. Second, administrative punishment of the studied social-order violations increases while related criminal cases decline; other administrative public-order cases show no detectable increase. Third, initial service duties are associated especially with increased resident reporting, although workers' observations also rise. Local embeddedness, measured by recruitment from established community roles, is associated with increases in both sources. Both aspects of organizational structure are associated with faster enforcement, more administrative punishment, and larger criminal declines. Together, these findings show wider regulatory reach and are consistent with earlier intervention.¹

This paper makes three contributions. First, we explain how grassroots organization expands the state's everyday presence and capacity to act. Research on infrastructural power and state–society relations locates capacity in the state's connections to local institutions (Henn, 2023; Mann, 1984; Migdal, 1988; Soifer, 2008). Existing work shows that local information can improve tax collection and that institutional integration conditions whether local authorities complement the state (Balán et al., 2022; Henn, 2023). We specify how these connections shape the information available for ordinary social control and the conduct brought within official reach. Legibility scholarship explains population identification, standardized records, and information integration (Bowles, 2024; Brambor et al., 2020; H. Chen & Greitens, 2022; Lee & Zhang, 2017; Scott, 1998). We examine how officials

¹Information sources and response intervals describe recorded cases. Criminal counts cannot distinguish reduced offending from legal reclassification or enforcement campaigns. Comparisons of initial duties and staffing are associational because local governments chose the initial duties and staffing.

acquire information about changing conduct before it enters those records. Services create access, embeddedness supports reporting and interpretation, and referral brings community knowledge to an agency that can act. Recorded case sources let us distinguish residents' reports from workers' observations.²

Second, we show how grassroots relationships can help residents reach the state while helping the state learn about residents' surroundings. Work on Indian brokers, African chiefs, and neighborhood institutions explains how local ties support assistance, claims, and public goods (Auerbach & Thachil, 2020; Baldwin, 2015; Kruks-Wisner, 2022; Read, 2012). We connect this brokerage to the information used in investigation and sanction. Studies of U.S. service institutions and Chinese welfare and local governance establish that assistance and control can share organizational foundations (Fong, 2020; Mattingly, 2019; Pan, 2020; Soss et al., 2011). We distinguish how service duties and embeddedness relate to reports and observations. Service orientation and embeddedness also relate to official response and enforcement. An intermediary's community access can expand state capacity even when another agency retains investigative and sanctioning powers.³

Third, we show how popular participation supplies local knowledge for ordinary authoritarian governance. Comparative work examines rulers' efforts to shape public beliefs and institutions that gather information about citizens (Dimitrov, 2023; Greitens, 2016; Guriev & Treisman, 2019, 2022). Our findings show how China's state extends its local presence through residents' reports, workers' observations, and routine assistance. Grid platforms transmit information first obtained through

²Local organizations encourage participation in the U.S. census (Rodríguez-Muñiz, 2017), and Congolese city chiefs use local information to improve tax collection (Balán et al., 2022). Across sub-Saharan Africa, institutional integration conditions whether traditional authorities complement the state (Henn, 2023). We identify how comparable connections extend official attention to recurring social-order problems.

³Connecticut teachers and medical professionals refer families to child-protection investigators (Fong, 2020); organizational pressures in Florida welfare administration shape sanctions against clients (Soss et al., 2011). Providing services can also expose residents to scrutiny and sanction.

community encounters. Perry (2012) shows how early Communist organizers sought workers' trust through schooling and home visits. Perry (2011) traces the later use of organized participation in CCP governance. More reports and observations, faster responses, and the paired administrative rise and criminal decline are consistent with preemptive control. Punitive use of service contacts may encourage concealment and weaken the relationships that sustain state access (Brayne, 2014; Fong, 2019; Pan, 2020).

Building State Capacity Through Community Information

State capacity depends on how public institutions connect to the localities they govern. Infrastructural power concerns the state's ability to penetrate territory and implement decisions (Mann, 1984, 2008; Soifer, 2008; Suryanarayan, 2024). Grassroots organization provides one basis for that power by placing personnel in continuing contact with residents and connecting their knowledge to public agencies. *Grassroots organizations* are territorially rooted committees or service teams with continuing local responsibilities and a recognized channel to government. Here, "grassroots" refers to organizations' local responsibilities and community ties, not their autonomy from the state. "From below" describes the community origin of the knowledge they supply to public agencies. Their personnel may include public employees, neighborhood representatives, village leaders, or volunteers. The mechanism depends on their community access and institutional connections, rather than their formal employment status. Local embeddedness can coexist with state control (Mattingly, 2019; Read, 2012). China's grids operate within Party-state governance. For more autonomous organizations, the argument applies where reporting and referral remain compatible with their obligations to residents and receiving agencies can act on the information.

Why Does Local Information Remain Beyond the State's Reach?

Knowing who lives in a jurisdiction is necessary for many state functions, but everyday governance also requires knowledge of what happens there. Censuses, registers, and integrated records

identify residents and make collected information usable across offices (Bowles, 2024; Brambor et al., 2020; H. Chen & Greitens, 2022; Lee & Zhang, 2017). They do not continuously reveal changing activity inside a household or business, identify who understands a recurring disturbance, or establish whether an ambiguous pattern warrants intervention. These tasks require the practical knowledge that standardized categories often omit (Scott, 1998). The problem is to acquire and interpret such knowledge before officials can record it.⁴

The relevant problems are often ordinary disturbances, small disputes, and recurring violations of social order. They matter for everyday governance even when they do not threaten the regime directly. Participants in concealed exchanges have reasons to avoid official attention, and neighbors may see only indirect signs. A changing stream of visitors or repeated disturbances can be difficult to interpret without knowing local routines (Manning, 1980; Skolnick, 1983). Police face limits on staff, time, and access, while street-level discretion and uneven supervision affect which problems they investigate (Bayley, 1991; Lipsky, 1980; Scoggins, 2021; Tanner & Green, 2007). More formal records do not ensure that officials learn about local conduct.

Residents can supply this knowledge, and their willingness to do so depends on the relationships through which they report. Research on collective efficacy, coproduction, and police legitimacy links public order to community willingness to intervene and to cooperation with public institutions (Ostrom, 1996; Sampson et al., 1997; Skogan, 2006; Sunshine & Tyler, 2003). Civic obligation and fair treatment can encourage cooperation; fear of retaliation, damaged relationships, or unwanted official attention can discourage reporting. Community self-regulation may also resolve a problem without bringing it to the state. Additional contact is insufficient by itself. Community-policing experiments across six countries found no improvement in citizen trust, cooperation, or crime (Blair

⁴State expansion also changes local relationships. Postal relays in prerevolutionary France extended state presence but were associated with more rebellion against its agents (Albertus & Gay, 2026). Awareness of state-provided legal aid in rural China increased trust in local government (Whiting, 2017). Neither territorial access nor an accessible service institution alone establishes how officials learn about concealed conduct.

et al., 2021).⁵ States need an arrangement that gives residents a reason and a practical route to share relevant knowledge.

Reporting institutions provide such a route, but bureaucratic responsiveness depends on incentives and organizational capacity. Petitions and online requests can elicit attention when officials face electoral pressure or the prospect of collective action and appeals to superiors (J. Chen et al., 2016; Dimitrov, 2023; Lueders, 2022). A Philippine police hotline increased reporting without a detectable reduction in ordinary crime, while a Kampala text-reporting program produced information that did not fit municipal decision processes (Buntaine et al., 2021; Nanes et al., 2023). These cases show different obstacles to turning reports into action. Receiving agencies must establish credibility, locate the conduct, determine jurisdiction, and assign responsibility. Technology can reduce transmission costs while leaving these tasks unresolved.

Territorial organization can help connect access to responsibility. A small assigned area lets personnel return to the same households and makes a local contact identifiable to residents. Yet drawing boundaries does not create the relationships through which information moves. In Accra, Ghana, gridded street layouts were associated with fewer social and political network connections (Nathan, 2025). Physical legibility and social access can therefore vary separately. Our argument concerns the organization built within a territory, whose personnel learn local routines and connect residents to agencies, rather than the shape of its street map (Mann, 1984; Migdal, 1988; Scott, 1998).

How Do Grassroots Organizations Connect Knowledge to Authority?

Grassroots organizations connect actors who hold different resources. Residents and local workers possess access and contextual knowledge; public agencies possess legal authority and

⁵In New York, procedural fairness and police legitimacy were associated with voluntary cooperation (Sunshine & Tyler, 2003). In a Philippine experiment, community contact improved officers' understanding of residents' concerns without increasing officers' trust or accountability (Haim et al., 2025). These findings distinguish informational gains from changes in legitimacy.

investigative resources. A worker’s service responsibilities create contact, local relationships help make an account intelligible, and referral connects it to an agency responsible for responding. The state acquires a continuing presence through this division of labor. Table 1 compares it with other information channels. The table cites representative studies; these channels can coexist.

Table 1: How Authorities Acquire Local Information

Channel	Basis of contact	Initial information	Enforcement authority
Direct enforcement (Bayley, 1991)	Patrols or inquiry	Officers’ observations	Observing agency
Citizen reporting and petitions (Lueders, 2022)	Resident initiative	Resident’s account	Responsible public agency
Covert informing (Greitens, 2016)	Informant networks	Informant’s report	Security agency
Digital surveillance (X. Xu, 2021)	Digital traces	Recorded activity	Authorized public agency
Community intermediation (This paper)	Services and local ties	Reports and observations	Separate public agency

Direct enforcement sends officials to search for problems, while citizen reporting relies on residents to initiate contact. The distinction recalls the comparison of police patrols and fire alarms drawn by McCubbins and Schwartz (1984). Grassroots workers can receive unsolicited reports and notice conduct themselves, but their access also arises from helping residents. Japan’s neighborhood police illustrate how routine assistance creates opportunities for disclosure. Officers attached to *koban* and residential police boxes visit homes, offer advice, and hear concerns (Bayley, 1991; National Police Agency, 2020).⁶ The informational value of an encounter depends on the relationship that permits it and the institution that receives the lead.

Digital systems add ways to observe, combine, and transmit information. Studies of surveillance in China, Syria, and the United States show how such systems can assist state control (Beraja et al., 2023; Brayne, 2020; Gohdes, 2020; X. Xu, 2021). Local encounters supply reports and help workers interpret them. Frequent visitors become a useful lead when someone familiar with a building can explain why the pattern is unusual. A platform can record and route that account, but its meaning comes from community knowledge.

⁶Kanagawa’s routine-call guidance invites information about “a person who is abusing stimulants, paint thinner or other drugs” (Kanagawa Prefectural Police, 2023). Japanese community officers retain police powers; grid workers refer suspected violations to agencies with those powers.

Institutional connections determine whether local knowledge strengthens public authority. Local institutions may complement state agencies, protect residents from them, or pursue their own interests (Baldwin, 2015; Henn, 2023; Mattingly, 2019; Migdal, 1988). Referral assigns an agency responsibility for assessing the report. Workers continue local contact while officials verify evidence and retain discretion over intervention. Reporting obligations can secure referrals, but anticipated sanctions can discourage residents from disclosing concerns (Fong, 2019). More autonomous intermediaries may use the same local knowledge to settle problems within the community. The argument therefore requires institutional connections that sustain both the supply of community information and an agency's capacity and incentives to follow up. Service provision and embeddedness shape the information available within it.

Why Does Service Provision Encourage Residents to Report?

Public services create repeated occasions to exchange information. A welfare application requires discussion of household circumstances; registration requires contact with residents; mediation requires accounts of a dispute. Intermediaries help residents explain needs and navigate administrative requirements, reducing the costs of approaching government (Auerbach & Thachil, 2020; Kruks-Wisner, 2022; Moynihan et al., 2015; Read, 2012). In the process, they learn about residents and their surroundings. Taipei's neighborhood wardens serve as "general-purpose contact points" for welfare, registration, policing, and household disputes (Read, 2020, p. 111). A request for relief from noise, for example, can disclose recurring activity in a nearby dwelling.

Useful assistance can also build trust in a particular worker's responsiveness. Residents who receive help have reason to expect the worker to respond to a later concern (Auerbach & Thachil, 2020; Kruks-Wisner, 2022; Levi & Stoker, 2000). This expectation makes sharing information less costly and gives residents someone to contact again if a problem persists.⁷ Trust in that worker need

⁷An Indian slum resident describes a broker's practical responsiveness as "If the borewell stops functioning, he makes a few calls" (Auerbach & Thachil, 2020, p. 473). Services also have an informational role in Iraqi counterinsurgency (Berman et al., 2011). Our argument concerns ordinary

not imply support for the regime or approval of every enforcement action.

Service contacts can also bring scrutiny. U.S. studies show how child-protection agencies obtain information through adjacent service institutions, how low-income mothers conceal circumstances because they fear referral, and how welfare organizations impose sanctions (Fong, [2019](#), [2020](#); Soss et al., [2011](#)). More assistance can therefore increase opportunities for reporting while sanction risks discourage disclosure. The prediction is strongest when residents find the service useful and regard the worker as responsive. Service duties should particularly increase residents' reports, although household visits also give workers opportunities to observe conduct directly.

Why Does Embeddedness Improve Local Information?

Embeddedness supplies knowledge and relationships accumulated through a continuing place in a community. Workers know residents, ordinary routines, and prior conflicts. They can distinguish recurring problems from isolated events and ask questions that make an ambiguous observation interpretable. This is the practical value of social ties and situated knowledge (Balán et al., [2022](#); Bhavnani & Lee, [2018](#); Granovetter, [1985](#); Scott, [1998](#)). In the Democratic Republic of the Congo, city chiefs' local information improved the targeting of tax collection (Balán et al., [2022](#)). For social-order governance, familiarity can similarly help a worker recognize activity that an outsider would miss.

Established relationships also make intermediaries accessible. Residents know where to find them, can judge their past conduct, and anticipate future contact. Local networks can support the flow of information toward officials as well as residents' ability to seek assistance (Auerbach & Thachil, [2020](#); Baldwin, [2015](#); Kruks-Wisner, [2022](#); Stokes, [2005](#)). Embeddedness should therefore improve both resident reporting and workers' observations, including outside a service encounter. The prediction for observation distinguishes accumulated local knowledge from access through service duties.

These advantages depend on the direction of accountability. Local ties can bind officials administration, where a clue can emerge while a worker assists with another need.

to community obligations, enable political control, or encourage protection of neighbors from enforcement (Bhavnani & Lee, 2018; Hassan, 2020; Mattingly, 2019; Tsai, 2007). Taipei's wardens sometimes seek tolerance for unauthorized construction, illustrating how access can support leniency (Read, 2020, p. 111). A worker who refers a neighbor also risks retaliation or loss of local standing. Reporting duties, documented referrals, and agency follow-up create countervailing obligations to public institutions. Embeddedness should strengthen regulatory reach where these institutional connections sustain reporting and receiving agencies verify leads.

When Does Better Information Change Enforcement?

Information improves capacity when an agency can use it to make and implement a decision. A contextualized referral identifies where to look, whom to contact, and why a problem merits attention. Continuing local contact can clarify an incomplete account, while assignment to a responsible agency reduces the costs of coordination. These functions address the discretion, workload, and organizational boundaries that shape street-level implementation (Lipsky, 1980; Raab et al., 2015; Scoggins, 2021; Williams, 2002). We call officials' access to usable knowledge about local conduct *local legibility*. It should improve bureaucratic efficiency by reducing the time needed to assess a lead and move toward enforcement.

Credible information can stall when departments lack staff, dispute jurisdiction, or face weak incentives to respond. Kampala's reporting experiment illustrates the importance of matching citizen-produced information to administrative decisions (Buntaine et al., 2021). Research on responsiveness and interorganizational coordination similarly links action to official incentives and workable connections across agencies (J. Chen et al., 2016; Lueders, 2022; Raab et al., 2015; Williams, 2002). Prompt response can preserve access to witnesses and evidence. In Greater Manchester, faster police arrival increased crime clearance (Blanes i Vidal & Kirchmaier, 2018).⁸ Community referrals should therefore shorten official enforcement.

⁸The Manchester study measures time from dispatch to arrival. We measure days from the incident or report to enforcement in handled administrative cases.

Wider regulatory reach should be most visible for concealed, recurring conduct that rarely produces a victim complaint. Such activity has more to gain from local reports and observations than conduct already brought to officials' attention (Goldstein, 1979; Manning, 1980; Skolnick, 1983). Recurring visitors, stable premises, and disturbances provide clues that a familiar worker can interpret. More mobile activity leaves fewer opportunities for recognition. Better community information should therefore produce a selective increase in administrative enforcement, rather than an equal increase across all public-order cases.

Earlier enforcement can also disrupt the settings and relationships that sustain more serious offending. Problem-oriented policing directs attention to recurring local conditions, and evidence from several settings shows crime reductions with limited displacement (Goldstein, 1979; Hinkle et al., 2020; Weisburd et al., 2006). Repeated intervention can interrupt activity before it grows or recurs. The expected sequence is thus more usable community information, faster response, wider administrative enforcement, and fewer related criminal cases over time. The final step requires intervention to change conduct, as improved detection alone can increase recorded offenses.⁹ China's grids allow us to examine these successive information and enforcement outcomes within one institutional arrangement.

Grid Governance in China

Background

Grid governance extends a longer tradition of neighborhood administration, community policing, and local dispute resolution (Dutton, 2005; Read, 2012; Zhong, 2009; Zhou, 2023). The Mao-era "Fengqiao Experience", first promoted in 1963, mobilized residents for local social control. Xi Jinping renewed its endorsement in October 2013, calling for mass participation and lawful resolution of local disputes to maintain social stability (Xinhua News Agency, 2013). Modern grids

⁹Criminal case counts can fall because offenses are handled administratively or fewer judgments are published, even if offending does not decline.

had already developed through local experiments. Beijing's Dongcheng District introduced urban-management grids in 2004; Zhoushan adopted a more service-oriented model in 2007 (Mittelstaedt, 2022; Tang, 2020). The CCP's 2013 reform decision, adopted at the Third Plenary Session of its 18th Central Committee (Third Plenum), promoted grid management and socialized services nationally (CCP Central Committee, 2013). Local governments retained discretion over implementation dates, duties, and recruitment.

Grids expand state presence at the grassroots within a broader shift from village autonomy supported by elections and community accountability (Martinez-Bravo et al., 2022; Tsai, 2007) toward Party-led administration. They incorporate local personnel and community relationships into service provision and reporting under CCP coordination (Wu et al., 2024). The 2019 rural Party rules reinforced this direction, requiring village Party secretaries also to chair village committees through statutory procedures. They designated township and village Party organizations as the main channels for allocating rural public-service resources (CCP Central Committee, 2019).

The government's goals combine accessible services with monitoring and stability maintenance. Territorial responsibility is intended to bring assistance closer to residents while identifying disputes and public-order problems before they escalate. National rules in 2016 strengthened leadership responsibility for prevention, timely reporting, and interagency coordination (CCP and State Council General Offices, 2016). Continued official support is evident in the 2021 national planning guidance, which linked the renewed Fengqiao approach to grids, local conflict resolution, and services (National Development and Reform Commission, 2021).¹⁰

¹⁰Related research examines neighborhood services and intermediary governance (Tang, 2020, 2023), integration and mobilization through information systems (H. Chen & Greitens, 2022; Mittelstaedt, 2023), and changes during COVID-19 (Habich-Sobiegalla & Plümmer, 2023; Meng et al., 2024; Thornton, 2023). The *Specification for Grid-Based Service and Management of Urban and Rural Communities* (GB/T 34300–2017) was issued as a recommended national standard in 2017 (Standardization Administration of China, 2017). Appendix Table A1 (p. SI-1) documents local staffing, reporting, and referral rules.

Grid Organization and Reporting

Each grid covers a defined neighborhood or village area. Early Zhoushan grids included roughly 100–150 households, although size varies across localities (Tang, 2020, pp. 49–50). Workers have diverse backgrounds and local ties. Dedicated workers are generally hired on contracts; teams also recruit community or village cadres, building heads, property personnel, and resident volunteers, including retired women (Gao & Cartier, 2024; Mittelstaedt, 2022; Tang, 2020, 2023). Recruitment often favors local residence and political reliability (Mittelstaedt, 2022). Residents' committees are legally self-governing but also assist government, convey residents' requests, and support public-order work (NPC Standing Committee, 1989; Read, 2012). This statutory status concerns residents' committees; grid organization and reporting remain under Party-state coordination (Mittelstaedt, 2022). Drawing workers from these roles gives agencies access to established community relationships.

Incentives vary across roles. Dedicated hires receive wages; in one Jiangsu community, grid directors' pay depended on monthly assessments (Wu et al., 2024). Beijing's "Chaoyang Masses" and "Xicheng Aunties" are public-security volunteer networks that patrol and alert police to suspicious activity. Some volunteer networks work within grid arrangements. Officials enlist loyal CCP members and other willing residents, using honorary recognition and material rewards to encourage participation (Yang et al., 2022). Some retired participants value helping neighbors, social contact, and satisfaction from resolving local problems (Tang, 2020).

Workers provide services, identify local problems, and bring them to agencies that can act. They visit households, assist with registration and welfare, mediate disputes, patrol, and report safety hazards and suspected violations. Service encounters can produce residents' disclosures; repeated local contact can reveal unusual conduct (Mittelstaedt, 2023; Tang, 2020, 2023). In Shenzhen, landlords, building supervisors, and property agencies also supply information that grid workers verify and coordinate (Mittelstaedt, 2023). Workers pass leads through community offices, digital platforms, or coordination centers that assign matters to responsible agencies. Qingyuan's 2016

rules specify reporting, referral, follow-up, and performance assessment (Qingyuan Political-Legal Committee, 2016). Police investigate suspected violations and determine the legal response.¹¹

In Longgang, Shenzhen, a resident told grid worker Huang Binbin about an unusual concentration of network cables in an apartment during a household visit for registration assistance. Huang followed the clue and notified supervisors and police, who closed an online gambling operation (Longgang District Government, 2017).¹²

Independent field studies give a mixed assessment of implementation. Grids provide infrastructure for gathering information and coordinating cases, while conflicting duties and assessment by superiors can divert workers from local needs (Wu et al., 2024; J. Xu & He, 2022). Duties also change over time. During COVID-19, grids acquired additional monitoring and movement-control tasks (Central Political-Legal Commission, 2020; Habich-Sobiegalla & Plümmer, 2023; Meng et al., 2024; Thornton, 2023). We measure organization at introduction to capture initial service orientation and embeddedness. Appendix Section B.3 (p. SI-5) distinguishes staffed operation from policy announcements.

Observable Implications

Figure 1 links territorial responsibility and routine contact to community information, faster response, wider administrative enforcement, and fewer related criminal cases.

Hypothesis 1 *(a) Grid introduction increases the number and share of target administrative cases originating in residents' reports to community workers or workers' own observations and shortens the interval to enforcement among handled cases. (b) Grid introduction increases administrative*

¹¹Public-security law distinguishes administrative punishment from criminal investigation and adjudication (National People's Congress, 1997; NPC Standing Committee, 2012, 2018). Appendix Table B1 (p. SI-3) sets out the related legal categories used in the study.

¹²Appendix Table A2 (p. SI-2) compares this account with other documented referrals. These illustrations were collected separately from the county panel.

enforcement in the target domains relative to other public-order cases. (c) Grid introduction reduces criminal cases in the target domains, with larger declines over time.

Service duties should particularly encourage resident reports, while embeddedness should support both reports and workers' observations. Each should facilitate follow-up and referral, linking distinct information sources to a common expectation of faster enforcement and wider regulatory reach.

Hypothesis 2 (a) *Grids with a stronger service orientation show larger increases in resident reporting and larger reductions in the interval to enforcement.* (b) *These grids show a larger increase in administrative enforcement in the target domains.*

Hypothesis 3 (a) *Grids with greater local embeddedness show larger increases in both resident reporting and workers' own observations, and larger reductions in the interval to enforcement.* (b) *These grids show a larger increase in administrative enforcement in the target domains.*

Where service orientation or community-role staffing supports earlier intervention, we also expect larger downstream criminal declines. The design uses initial service duties and community-role staffing to examine these organizational implications.

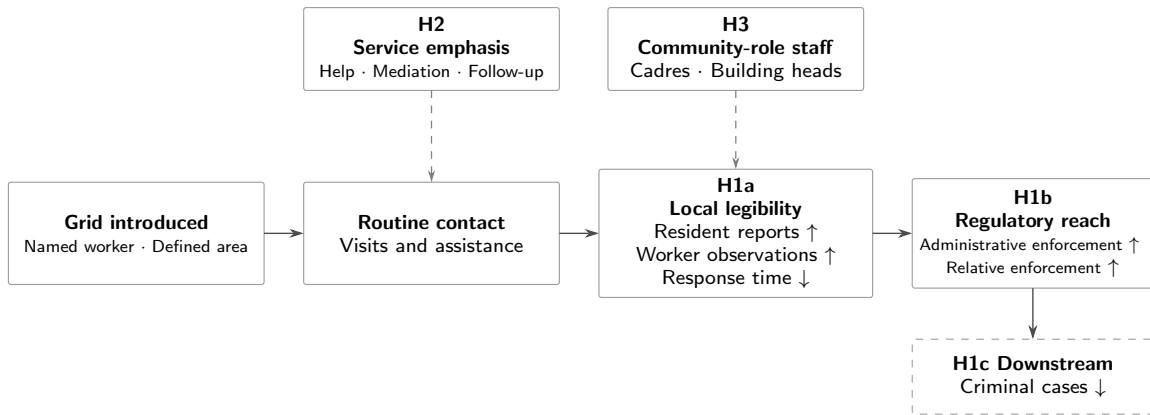


Figure 1: Grid Governance and Observable Implications

Research Design

Data

Grid treatment. We date grid introduction using local government reports, grid-center accounts, procurement contracts, and recruitment notices, following Y. Wang and Han (2025). Introduction is the first year a staffed territorial grid system began operating. A county remains treated from that year onward. We compare treated counties with counties that introduced grids after the estimation window or had no recorded introduction.¹³

Service and local embeddedness. We measure these aspects of organizational design from duties and staffing described in procurement and recruitment documents at introduction. *Service orientation* is the share of classified duties devoted to resident assistance, household visits, or community affairs. We classify duties using the stated procurement purpose and purchasing agency, with security inspection and enforcement forming the comparison category.¹⁴ Recruitment materials distinguish full-time hires from part-time appointments held alongside existing community responsibilities. Full-time recruitment commonly specifies age, education, and selection requirements; part-time appointments often draw on people already serving the community. We measure local embeddedness through *community-role staffing*, the share of classified positions assigned to community-committee members, resident representatives, or building heads. This measure captures recruitment from established community roles, not organizational autonomy.¹⁵ We fix both measures at introduction

¹³Appendix Section B.3 (p. SI-5) documents introduction coding.

¹⁴Appendix Section B.3 (p. SI-5) gives the coding rules. Figure B3 (p. SI-6) shows Nansha's purchase of grid-service positions and Tongzhou Bay's electronic-monitoring procurement.

¹⁵Jinan's standard distinguishes full-time recruitment from part-time appointments to named community roles. Ningxia's 2019 account similarly combines community-committee appointments with public recruitment (Jinan Market Regulation Administration, 2020; Ningxia Department of Civil Affairs, 2019). Appendix Section B.3 (p. SI-5) and Figure B3 (p. SI-6) give the institutional examples and source fields.

because later duties and staffing may respond to enforcement outcomes. We standardize them within adoption cohorts to compare counties that introduced grids in the same year.

Enforcement outcomes. We distinguish administrative punishment from criminal cases to measure regulatory reach and its downstream consequences. Public security agencies impose fines or administrative detention for conduct below the criminal threshold; criminal cases proceed through investigation, prosecution, and adjudication.¹⁶ The two outcomes show whether grids expand enforcement of minor violations and whether related criminal cases decline.

We focus on prostitution, gambling, and drugs, established public-order categories in China’s official statistics. These activities involve repeated exchanges in private premises, give participants incentives to conceal their conduct, and depend heavily on local information for detection (Manning, 1980; Skolnick, 1983). Within each category, administrative cases include conduct such as prostitution, participation in gambling, and drug use, while criminal cases include organizing prostitution, operating gambling venues, and drug trafficking. These common activity categories allow us to compare the reach of administrative intervention with changes in related criminal cases.

We construct annual county counts from public-security punishment decisions in the PKULAW (Beida Fabao) legal database and completed first-instance judgments in China Judgments Online, the Supreme People’s Court’s judgment portal (see also Ma et al., 2025; Zu, 2026).¹⁷ We date administrative cases by enforcement year and criminal cases by the offense year described in the

¹⁶Article 2 of the Public Security Administration Punishments Law establishes this distinction. In the 2012 version, Articles 66–67 cover prostitution-related violations, Article 70 gambling, and Articles 71–73 drug-related violations (NPC Standing Committee, 2012). Article 61 of the Drug Control Law covers providing premises for drug use below the criminal threshold (NPC Standing Committee, 2007). Related criminal provisions include Articles 303, 347–355, and 358–359 of the Criminal Law and its applicable amendments (National People’s Congress, 1997, 2015). Appendix Table B1 (p. SI-3) gives the correspondence.

¹⁷OpenAI Codex assisted with selected analysis-code revisions and supplementary analyses, manuscript revision, citation checks, and L^AT_EX and figure/table formatting. Anthropic Claude, accessed through Cowork, assisted with manuscript revision, citation checks, and formatting. The

judgment. The remainder comprises cases outside the three target domains in each legal track. Each target share divides target cases by that track’s total.¹⁸

Local legibility. Legal documents and police bulletins often describe how cases were discovered in their factual accounts. We extract the earliest clue and its recipient using keywords in cleaned, structured records.¹⁹ *Resident reporting* identifies cases in which a resident supplied the first clue to a community worker. *Worker observation* identifies cases in which a non-police community worker discovered the conduct during a visit or inspection. We apply the same definitions before and after grid introduction and count cases from each source by county and year. Their sum gives the community-source count; dividing by all target cases in the same legal track gives the community-source share.

Bureaucratic efficiency. We proxy bureaucratic efficiency with response time, measured as the mean number of days from the incident or report to enforcement in handled target administrative cases.²⁰

authors are responsible for the theoretical framework and hypotheses, research design, data collection and construction, variable definition and measurement, analytical decisions, and interpretation of the findings. They take full responsibility for the code, analyses, text, citations, and final manuscript.

¹⁸Appendix Section B.1 (p. SI-3) gives the counting and dating rules. Table B2 (p. SI-7) summarizes the panel variables; Figures B1 (p. SI-4) and B2 (p. SI-5) reproduce case records and their relevant fields.

¹⁹A 2018 gambling judgment states, in our translation, “After receiving a public report, Lianxi district police investigated the gambling venue” (Lianxi District People’s Court, 2018). A 2019 Shiyang account of a public report likewise states, in our translation, “After receiving this lead, officers quickly went to the scene” (Shiyang Municipal Public Security Bureau, 2019). Appendix Section B.2 (p. SI-4) gives the source definitions; Table D1 (p. SI-16) reports the regressions.

²⁰Appendix Section B.2 (p. SI-4) defines the timing measure; Table D3 (p. SI-18) reports estimates and pre-introduction tests.

Empirical Strategy

We use the interaction-weighted (IW) staggered difference-in-differences estimator of Sun and Abraham (2021), allowing effects to vary by introduction cohort and time since introduction. The estimation window is 2014–2020. We estimate effects for the 2015–2020 introduction cohorts using counties untreated throughout the window as controls. For county i in year t , we estimate

$$Y_{it} = \sum_{g \in \mathcal{G}} \sum_{\ell \neq -1} \beta_{g\ell} \mathbb{I}\{G_i = g\} \mathbb{I}\{t - g = \ell\} + X'_{it} \gamma + \alpha_i + \lambda_{c(i)t} + \varepsilon_{it}. \quad (1)$$

Here, G_i is the introduction year, $\mathcal{G} = \{2015, \dots, 2020\}$, and $c(i)$ identifies the county's city. The coefficient $\beta_{g\ell}$ gives the effect for cohort g at event time $\ell = t - g$, relative to the year before introduction ($\ell = -1$). We aggregate post-introduction effects into an average treatment effect on the treated (ATT), weighting by the represented treated observations. County fixed effects α_i absorb stable local differences; city $\times$ year fixed effects $\lambda_{c(i)t}$ absorb shared annual shocks. The covariates X_{it} are the logs of GDP, resident population, and public budget revenue. Identification requires that treated and control counties would have followed parallel outcome trends without grids, conditional on the fixed effects and covariates (Liu et al., 2024; Roth et al., 2023). It also requires no anticipation and no spillovers between treated and control counties. We examine these requirements in the robustness analysis.

We transform case counts using the inverse hyperbolic sine, which retains zeros. To test whether enforcement expands more in the target domains than elsewhere, we define

$$G_{it,j}^{T-R} = \text{asinh}(Y_{it,j}^T) - \text{asinh}(Y_{it,j}^R), \quad (2)$$

where T denotes target cases, R the remaining caseload, and $j \in \{A, C\}$ the administrative or criminal track. Applying Equation 1 to this outcome estimates the target-minus-remainder effect directly. Source-share effects are in percentage points; response-time effects are in days. We omit observations with missing outcomes or controls. Community-source shares and response time

require a positive target count; target shares require a positive total caseload.

To examine organization, we interact the cohort–event indicators with initial service orientation S_i , community-role staffing E_i , and their product. Both measures are standardized within introduction cohort:

$$Y_{it} = \sum_{g \in \mathcal{G}} \sum_{\ell \neq -1} \mathbb{I}\{G_i = g\} \mathbb{I}\{t - g = \ell\} \times \left(\beta_{g\ell} + \theta_{g\ell}^S S_i + \theta_{g\ell}^E E_i + \theta_{g\ell}^{SE} S_i E_i \right) + X'_{it} \gamma + \alpha_i + \lambda_{c(i)t} + \varepsilon_{it}. \quad (3)$$

Initial service, staffing, and their product are fixed within a county, so their separate level effects are absorbed by county fixed effects. Averaging the post-introduction coefficients gives the grid effect at organizational values (s, e) as $\tau(s, e) = \bar{\beta} + \bar{\theta}^S s + \bar{\theta}^E e + \bar{\theta}^{SE} se$. Here, $\bar{\beta}$ is the grid effect at the cohort means of service orientation and staffing. The coefficients $\bar{\theta}^S$ and $\bar{\theta}^E$ give changes in that effect per one standard deviation (SD), holding the other organizational measure at its cohort mean, and $\bar{\theta}^{SE}$ captures how either association varies with the other organizational measure.

Our design estimates the effect of the grid arrangement as a whole. The service and staffing comparisons are associational because local governments chose these arrangements, and do not isolate the causal contributions of services, embeddedness, or referral.

We cluster standard errors by county to allow serial correlation within the treatment unit (Bertrand et al., 2004; Cameron & Miller, 2015). We use the same covariance estimates for the aggregated effects and organizational associations. Holm adjustments address multiple testing for the two administrative mechanism hypotheses and the stated comparisons across offense domains.

Results

Grid Introduction and Regulatory Reach

Grid introduction brings more community information into enforcement, shortens official response, and expands intervention in concealed social-order problems. Related criminal cases

decline. We examine successive implications of the argument. Case-source counts and shares assess whether community information becomes more prominent in enforcement. Response intervals assess timing among handled cases. Organizational and geographic comparisons examine variation with service duties, community ties, and repeated contact, while documented referrals illustrate agency follow-up. These tests address implications at several stages of the proposed process; introduction estimates capture the grid arrangement as a whole.

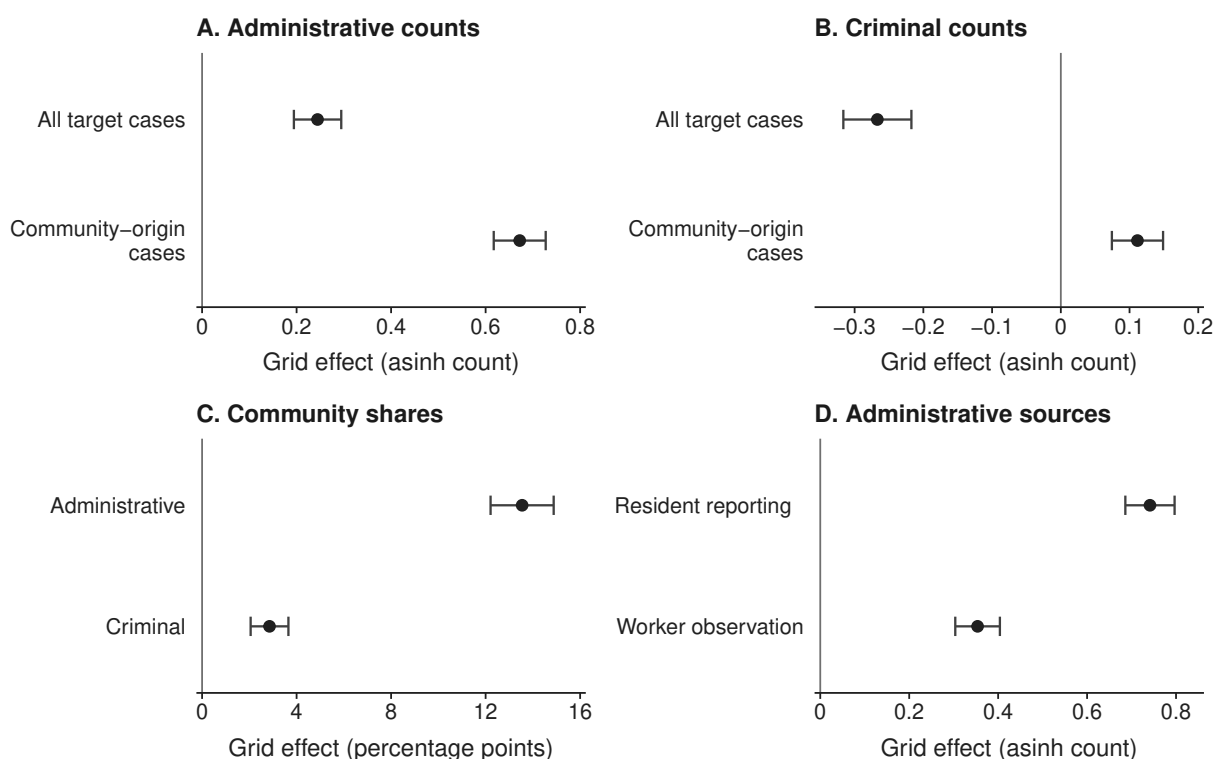


Figure 2: Community Sources of Target Cases

Notes: Community sources comprise residents' reports to community workers and workers' own observations. Counts use asinh units; shares are percentage points of target cases. Bars show 95% county-clustered confidence intervals. Regressions appear in Appendix Table D1 (p. SI-16).

Community sources account for a larger part of the caseload after introduction. At the post-introduction median of six community-origin administrative cases, the estimated shift corresponds to about 5.8 additional cases ($p < 0.01$; Figure 2A). The community-source share of all target administrative cases rises by 13.5 percentage points ($p < 0.01$; Figure 2C), equivalent to roughly 14 more cases with a community source per 100 target cases. Both residents' reports and workers'

observations rise. At their respective medians, the shifts correspond to about 4.5 additional resident-report cases and 0.9 additional worker-observation cases ($p < 0.01$; Figure 2D). These changes support the information-acquisition expectation in Hypothesis 1(a).²¹

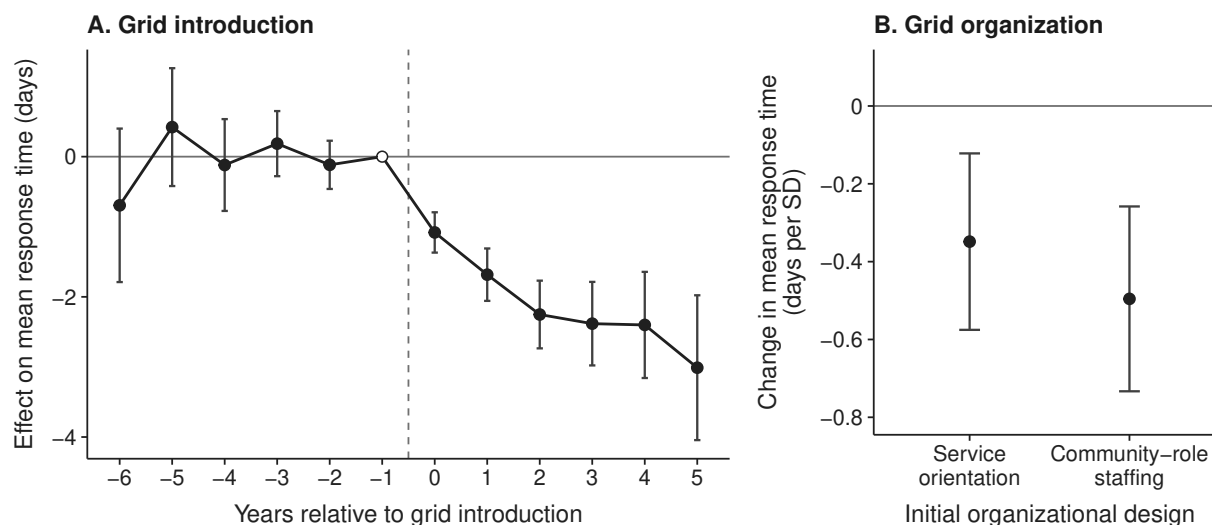


Figure 3: Response Time and Grid Organization

Notes: Response time is the mean number of days from the incident or report to enforcement among handled target administrative cases. Panel A reports effects relative to the year before introduction; Panel B reports organizational associations per within-cohort SD at the other organizational measure's cohort mean. Bars show 95% county-clustered confidence intervals. Appendix Table D3 (p. SI-18) reports the models.

Community information also becomes more prominent in criminal cases. Its share rises by 2.9 percentage points (Figure 2C), and its count increases even as the total target criminal count falls ($p < 0.01$; Figure 2B). At the post-introduction upper quartile of one community-origin criminal case, the estimated shift is about 0.16 additional cases. A smaller total criminal caseload therefore contains more cases identified through community sources. Joint pre-introduction tests detect no trend differences for these source outcomes ($p > 0.05$). The source changes are consistent with improved access to community information in recorded cases.

Official response becomes faster. In Figure 3A, the pre-introduction coefficients are jointly

²¹Appendix Table D1 (p. SI-16) reports the regressions and pre-introduction tests. Count translations evaluate $\sinh(\text{asinh}(y) + \widehat{\beta}) - y$ at the stated reference counts. These are reference-count illustrations; raw-count models estimate average changes per county-year.

indistinguishable from zero at the 5% level ($p = 0.099$). Response time falls by about 1.1 days in the introduction year, 1.7 days one year later, and 2.3 days after two years. The average reduction is 1.9 days ($p < 0.01$), approximately 6.3% of the treated counties' pre-introduction mean of 29.9 days. Figure 3B links faster response to initial organization. A one-SD increase in service orientation or community-role staffing is associated with reductions of 0.35 and 0.5 days, respectively ($p < 0.01$), holding the other organizational measure at its cohort mean. The shorter intervals support Hypothesis 1(a) and are consistent with greater bureaucratic efficiency among handled cases. Grassroots capacity expands when agencies can act sooner on the problems that community workers identify.²²

Administrative enforcement increases across the specifications in Table 2. We begin with a parsimonious model containing county and year fixed effects in column 1. Column 2 adds logged GDP, population, and public budget revenue. Column 3 replaces year effects with province $\times$ year effects, and column 4 uses city $\times$ year effects to absorb more local annual shocks. The estimates remain close in size, ranging from 0.227 to 0.245 ($p < 0.01$ throughout). In the preferred column 4, the estimate of 0.244 corresponds to about 6.4 additional cases at the post-introduction median of 23.

The increase is concentrated in the target categories. Remaining administrative public-order cases change by only 0.018 ($p = 0.182$), providing a comparison with other public-order cases. The target share rises by 2.46 percentage points, and the target-minus-remainder difference is 0.227 ($p < 0.01$ for both).²³ These comparisons support Hypothesis 1(b). Grids extend regulatory reach over concealed conduct that benefits from local information.

²²Appendix Table D3 (p. SI-18) reports the introduction estimate and displayed pre-introduction test in Panels A and C, and organizational associations in Panel D. Incident-based intervals include time before reporting; the data do not separate discovery from agency response.

²³Appendix Table C7 (p. SI-13) reports effects on remaining cases, target shares, and target-minus-remainder differences in each legal track.

Table 2: Grid Introduction and Enforcement Outcomes

<i>Panel A. Administrative enforcement (asinh)</i>				
Dependent variable	Administrative target cases			
	(1)	(2)	(3)	(4)
Grid introduced	0.242** (0.022)	0.227** (0.023)	0.245** (0.023)	0.244** (0.026)
Observations	18,438	18,438	18,438	18,424
R^2	0.877	0.877	0.880	0.897
<i>Panel B. Criminal cases (asinh)</i>				
Dependent variable	Criminal target cases			
	(5)	(6)	(7)	(8)
Grid introduced	-0.267** (0.021)	-0.278** (0.022)	-0.267** (0.023)	-0.267** (0.025)
Observations	18,438	18,438	18,438	18,424
R^2	0.835	0.835	0.838	0.862
Economic controls	No	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	No	No
Province $\times$ year effects	No	No	Yes	No
City $\times$ year effects	No	No	No	Yes

Notes: Outcomes are asinh annual target-case counts. Grid introduced reports the interaction-weighted ATT; county-clustered standard errors appear in parentheses. Controls are logged GDP, population, and public budget revenue. * $p < 0.05$; ** $p < 0.01$.

Related criminal cases decline across the same specification sequence in columns 5–8. The estimates range from -0.278 to -0.267 ($p < 0.01$ throughout). In the preferred column 8, the estimate of -0.267 corresponds to about 2.4 fewer cases at the post-introduction median of ten. Remaining criminal cases increase by 0.027 ($p < 0.05$), while the target-minus-remainder estimate is -0.294 ($p < 0.01$). The average effect on the administrative-minus-criminal difference is 0.511 ($p < 0.01$; Appendix Table C4 (p. SI-11)). The criminal decline supports the level prediction in Hypothesis 1(c) and is consistent with administrative intervention disrupting recurring activity.

The event studies show how these changes develop after introduction. In Figure 4, the plotted pre-introduction coefficients are jointly indistinguishable from zero in all four panels ($p > 0.05$).²⁴ Administrative target-count effects rise from 0.137 in the introduction year to 0.2 one year later and 0.31 after two years (Figure 4A). Criminal target-count effects become more negative over the same

²⁴Appendix Table C5 (p. SI-12) reports the plotted estimates, broader pre-introduction tests, and alternative estimators.

periods, at -0.141 , -0.242 , and -0.306 (Figure 4B). The increasingly negative point estimates are consistent with the temporal prediction in Hypothesis 1(c).

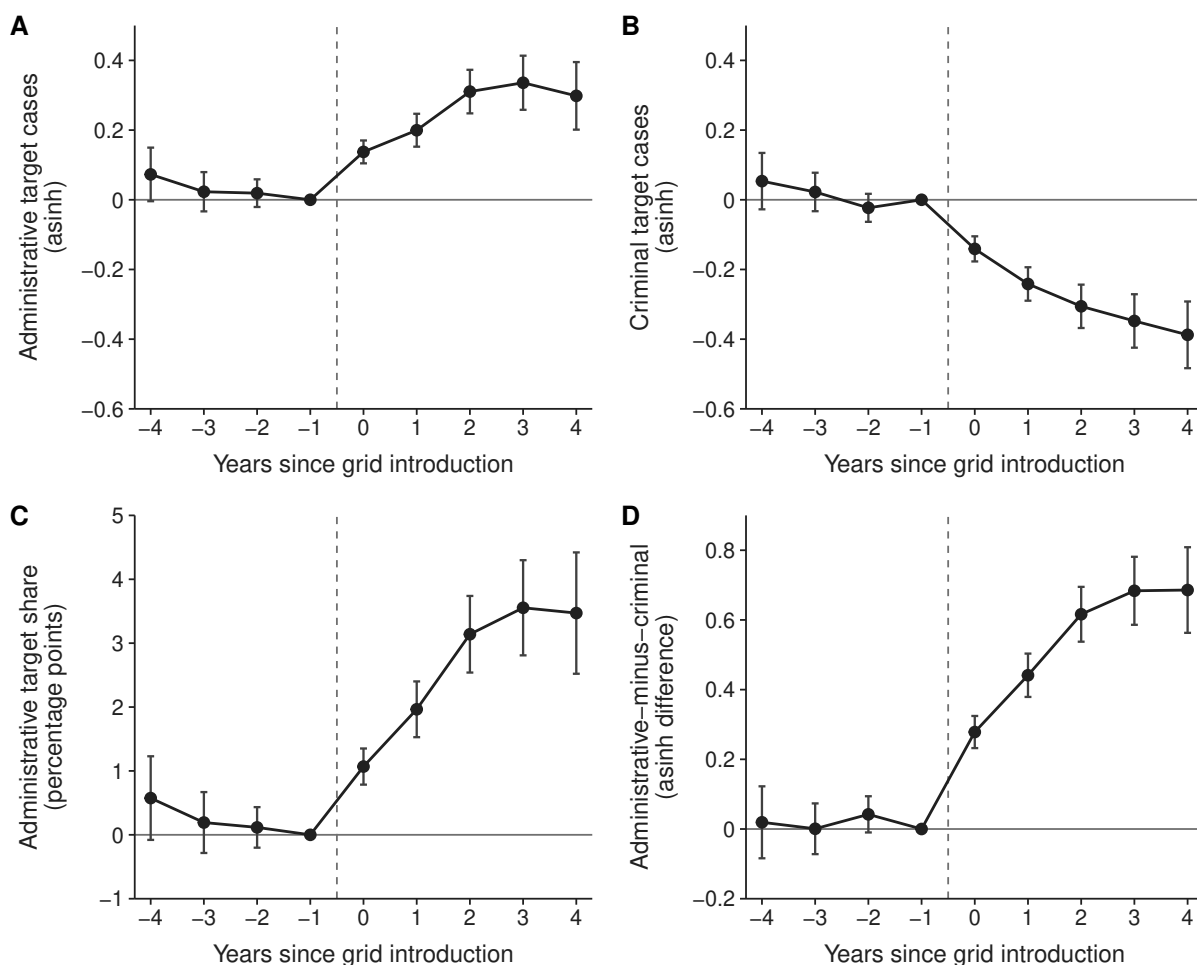


Figure 4: Grid Introduction and Enforcement over Time

Notes: Panels A and B show effects on asinh administrative and criminal target-case counts; Panel C divides administrative target cases by all police-handled public-order cases; effects are percentage points. Panel D estimates the difference between asinh administrative and criminal target-case counts. Models include county and city $\times$ year effects and economic controls. Bars show 95% county-clustered confidence intervals; year -1 is the reference. Appendix Table C5 (p. SI-12) reports the estimates and pre-introduction tests.

Figure 4C shows a growing change in the composition of administrative enforcement. The target share divides administrative cases in the three target categories by all police-handled public-order cases in the same county and year. It rises by 1.07, 1.96, and 3.14 percentage points in the first three years. The increase in their share strengthens the finding that enforcement expands selectively, because the target categories account for more of the administrative caseload.

Figure 4D directly estimates the difference between asinh administrative and criminal target-case counts. The gap increases by 0.278, 0.441, and 0.616 in the first three years ($p < 0.01$ throughout). Its growth shows an increasing tilt toward administrative intervention within the same activity categories. The expanding administrative share and widening difference between the two legal outcomes strengthen the evidence that grids change the reach and composition of enforcement.

The same directions appear in each activity category. Administrative estimates range from 0.138 to 0.213, while criminal estimates range from -0.255 to -0.162 ($p < 0.01$ throughout). Tests of an administrative increase together with a criminal decline remain significant after adjustment across the three categories. None of the six category-specific pre-introduction tests rejects at the 5% level.²⁵ The findings extend across different concealed activities.

Local accounts show how routine contact can initiate these interventions. In Longgang, a resident's concern about extra network cables during registration assistance led a grid worker to notify police about an online gambling operation. In Jianyang, a worker noticed a behavioral change in a person he knew through community corrections; police followed his report, found drug users, and uncovered trafficking (Longgang District Government, 2017; Sichuan Legal Daily, 2019). In Panzhihua, a worker's discovery during residential outreach led to administrative detention of five prostitution participants and criminal detention of a landlord suspected of sheltering prostitution (Y. Xu, 2018). These documented sequences connect local access and recognition to referral and agency action (Appendix Table A2 (p. SI-2)). They illustrate how grassroots organizations bring different forms of concealed conduct within the state's reach.

How Organization Shapes the Grid Effect

The organizational results connect wider state reach to service contact and workers' established community ties. Both service orientation and community-role staffing are associated with more local information, faster response, and a shift toward administrative intervention (Table 3). The

²⁵Appendix Table C9 (p. SI-14) reports the six estimates, pre-introduction tests, and adjusted directional tests.

estimates compare a one-SD increase in service orientation or community-role staffing within its introduction cohort, holding the other organizational measure at its cohort mean.

Table 3: Service, Local Embeddedness, and the Effects of Grid Introduction

	Community information		Efficiency	Enforcement	
	Resident reports (asinh) (1)	Worker observations (asinh) (2)	Response time (days) (3)	Administrative target cases (asinh) (4)	Criminal target cases (asinh) (5)
Grid introduction ($S_i = E_i = 0$)	0.741** (0.027)	0.353** (0.025)	-1.887** (0.198)	0.245** (0.026)	-0.264** (0.025)
Grid $\times$ service	0.159** (0.020)	0.110** (0.020)	-0.349** (0.116)	0.054** (0.015)	-0.046** (0.015)
Grid $\times$ community-role staffing	0.145** (0.020)	0.161** (0.020)	-0.496** (0.121)	0.053** (0.015)	-0.039** (0.015)
Grid $\times$ service $\times$ staffing	0.021 (0.020)	0.022 (0.021)	-0.049 (0.121)	-0.020 (0.014)	-0.016 (0.015)
Economic controls	Yes	Yes	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes	Yes	Yes
City $\times$ year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	18,424	18,424	17,807	18,424	18,424
R^2	0.847	0.764	0.651	0.899	0.863

Notes: The first row gives the grid effect at mean service and staffing. Service and staffing coefficients are per within-cohort SD, evaluated at mean staffing and mean service, respectively. Source counts cover target administrative cases. Controls are logged GDP, population, and public budget revenue. County-clustered standard errors are in parentheses. * $p < 0.05$; ** $p < 0.01$.

Service duties give residents regular occasions to raise concerns. In columns 1–2, service orientation is associated with increases of 0.159 in resident reporting and 0.11 in worker observation ($p < 0.01$), corresponding to about 0.71 additional reports and 0.26 additional observation cases at reference counts of four and two. The community-source share rises by 2.8 percentage points (Appendix Table D2 (p. SI-17)). Response time is 0.35 days shorter per SD (Figure 3B), while administrative enforcement increases by 0.054 and criminal cases decline by 0.046 ($p < 0.01$ throughout). Resident reporting supports Hypothesis 2(a); the shorter response interval also fits this prediction, although its unadjusted pre-introduction test rejects at the 5% level.²⁶ The administrative

²⁶The service response-time test gives $p = 0.026$ unadjusted, $p = 0.051$ after Holm adjustment over the two response-time organizational tests (Appendix Table D3, Panel E, p. SI-18), and $p = 0.128$ over the five service outcomes (Appendix Table D4, p. SI-18).

increase supports Hypothesis 2(b). Assistance provides a route for local concerns to reach agencies that can act.

Community-role staffing connects enforcement to workers' knowledge of local residents and routines. Its resident-report and worker-observation coefficients are 0.145 and 0.161 ($p < 0.01$), corresponding to about 0.64 additional reports and 0.39 additional observation cases at the same reference counts. The community-source share rises by 3.56 percentage points. Response time is 0.5 days shorter per SD (Figure 3B), while administrative cases increase by 0.053 and criminal cases decline by 0.039 ($p < 0.01$ throughout). Increases in both information sources and faster response support Hypothesis 3(a); the administrative increase supports Hypothesis 3(b). The criminal declines associated with both organizational measures fit the separate downstream expectation. Established community ties help workers receive residents' reports and recognize problems through their own observations.²⁷

Appendix Table D6 (p. SI-20) reports the service and staffing associations at the other measure's cohort mean and one SD above and below it. Local governments chose duties and staffing, so these comparisons remain associational. The service-by-staffing coefficients offer no clear evidence that these two features reinforce one another ($p > 0.05$ for all five outcomes).

Local Contact and the Geography of Enforcement

The geographic comparisons show where the enforcement response is strongest. If service contact and embeddedness supply information, enforcement should change most where workers repeatedly encounter the same residents and premises. Residential territories overlap with committees, building heads, and local volunteers; commercial patrols provide less continuous household contact (Gao & Cartier, 2024; Mittelstaedt, 2022; Read, 2012). Low-contact or translocal settings offer fewer routine encounters within workers' assigned neighborhoods. Research in Ghana also connects urban space to residents' social and political ties (Nathan, 2025). Comparing these locations tests

²⁷Appendix Tables D2 (p. SI-17) and D3 (p. SI-18) report source and timing models. Table D5 (p. SI-19) adds grid staffing density.

whether the enforcement response follows workers' opportunities for continuing local contact.

The location results follow this expectation. Figure 5 gives administrative estimates of 0.26 in residential communities and 0.158 in neighborhood commercial locations ($p < 0.01$ for both). At post-introduction medians of 11 residential and seven commercial administrative cases, the corresponding reference-count shifts are about 3.3 and 1.2 additional cases per county-year. Criminal estimates are -0.331 and -0.206 ($p < 0.01$ for both). The low-contact administrative estimate is small and imprecise at 0.035 ($p > 0.05$). The corresponding criminal estimate is -0.109 ($p < 0.01$).²⁸ The larger residential estimates are consistent with the proposed role of repeated contact in information acquisition and enforcement. Administrative reach expands most where workers have continuing local access, and its weaker expansion in low-contact locations suggests a limit to this channel. Criminal cases also decline beyond routine neighborhood encounters.

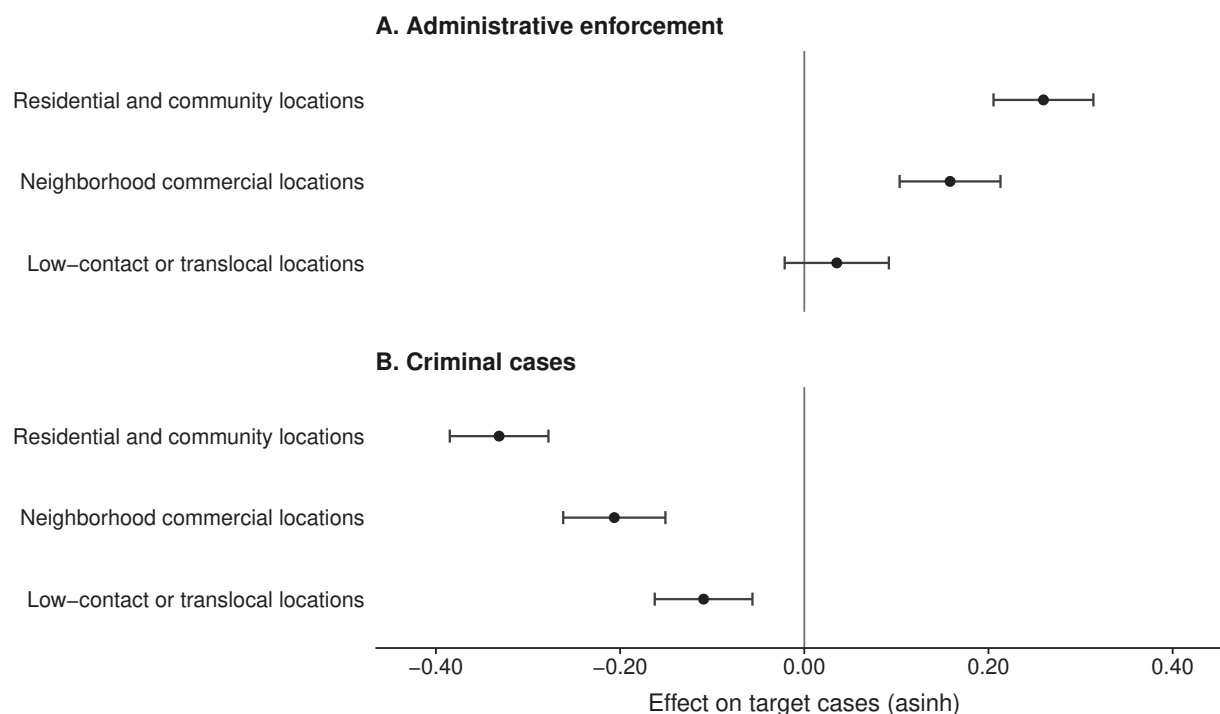


Figure 5: Local Contact and the Geography of Enforcement

Notes: Asinh-count effects by location; preferred fixed effects and economic controls. Bars show 95% county-clustered confidence intervals. Appendix Table E1 (p. SI-21) reports the regressions.

²⁸Appendix Table E1 (p. SI-21) reports location regressions, all pairwise comparisons, and pre-introduction tests.

Robustness and Alternative Explanations

We first address whether the results depend on how outcomes are scaled or modeled. The administrative increase and criminal decline persist with log counts, population-adjusted rates, and Poisson models. Raw-count models estimate 5.47 additional administrative cases and 4.11 fewer criminal cases per county-year ($p < 0.01$). Both effects remain significant with city-clustered standard errors (Appendix Table C8 (p. SI-13)). Alternative comparison groups, exclusion of the 2020 introduction cohort, and interaction-weighted, group-time, and imputation estimators preserve both directions (Appendix Tables C3 (p. SI-11), C8 (p. SI-13), and C4 (p. SI-11)). Undocumented grids in comparison counties could narrow the treatment contrast if they had similar effects. Restricting comparisons to not-yet-treated counties with recorded adoption dates preserves both directions (Appendix Table C3 (p. SI-11)).

We next address selection into grid introduction and differences in pre-introduction trends. Prior enforcement is weakly predictive of adoption overall, although the one-year-lagged pressure variables are jointly significant ($p = 0.012$; Appendix Table C1 (p. SI-10)). Conditioning on pre-introduction economic characteristics and enforcement pressure retains both effects (Appendix Table C2 (p. SI-10)). The criminal group-time pre-introduction test rejects with annual controls ($p = 0.027$) and does not reject with baseline controls ($p > 0.05$). The trend-sensitivity analysis bounds changes in the gap that would exist between treated and comparison counties without grids (Rambachan & Roth, 2023). Both intervals exclude zero when post-introduction changes in this gap are limited to half its largest pre-introduction change. They include zero when the bound reaches that pre-introduction maximum (Appendix Table C6 (p. SI-12)).

Changes in publication could raise recorded counts without changing enforcement. A general expansion in publication would tend to raise counts across categories. Yet remaining administrative cases show no detectable increase, while remaining criminal cases rise slightly as target criminal cases fall (Appendix Table C7 (p. SI-13)). We also apply the main model to a serial observation-share proxy constructed from document numbers. It falls by 1.269 percentage points in the administrative

track ($p < 0.001$) and changes by 0.050 points in the criminal track ($p = 0.948$). Inverse serial weights retain the administrative increase and criminal decline, with estimates of 0.242 and -0.281 ($p < 0.001$); capping the largest weights gives similar results (Appendix Table B3 (p. SI-9)). These checks weigh against a general publication increase. Appendix Section B.4 (p. SI-8) explains the proxy and its use for sensitivity analysis.

Legal definitions distinguish the two enforcement outcomes. Article 2 separates administrative violations from crimes, while the provisions for prostitution, gambling, and drugs specify the conduct assigned to each track (NPC Standing Committee, 2012). In Panzhihua, police placed five people involved in prostitution in administrative detention and the landlord in criminal detention on suspicion of providing premises for prostitution (Y. Xu, 2018). Appendix Table B1 (p. SI-3) pairs the administrative and criminal offenses within each activity category. Changes in legal classification may also contribute to the criminal decline.

One concern is that electronic-monitoring investment, grid staffing, or anti-crime campaigns may explain the findings. Adding digital-monitoring procurement and grid staffing density leaves the main estimates nearly unchanged (Appendix Table C8 (p. SI-13)). County fixed effects absorb time-invariant county characteristics; city $\times$ year fixed effects absorb annual policing and campaign shocks shared by counties in the same city. The nationwide “sweep away black” campaign ran from 2018 to 2020 (P. Wang, 2020; Yin & Mou, 2023). We reestimate the main models after omitting each calendar year in turn, including 2020 to assess COVID-19 sensitivity. The administrative increase and criminal decline remain significant in every omission (Appendix Figure C1 (p. SI-15)). Excluding all 2018–2020 observations yields estimates of 0.237 administratively and -0.175 criminally ($p < 0.01$). The main pattern therefore predates the special campaign and persists without pandemic-year observations.

Finally, we address policy spillovers and the movement of crime across counties. To check whether neighboring grid introductions affect the comparison group, we exclude untreated county-years with an already-treated neighbor in the supplied adjacency graph. The administrative increase and criminal decline remain significant ($p < 0.05$; Appendix Table E3 (p. SI-22)). To assess crime

displacement, we sum cases across counties within prefectures. Target criminal totals still decline as grid adoption expands (Appendix Table E2 (p. SI-22)). This decline weighs against crime merely moving between counties in the same prefecture.

Conclusion

States acquire the knowledge needed for everyday governance through relationships that connect public authority to community life. China's grids show how grassroots organizations expand that connection. Grid introduction is followed by more cases originating in residents' reports and workers' observations, faster enforcement, and increased administrative punishment of concealed social-order violations. Related criminal cases decline, while other administrative public-order cases show no detectable increase. Service-oriented duties are particularly associated with resident reporting, and community-role staffing is associated with both reporting and observation. These findings identify an organizational basis for wider regulatory reach. Local relationships give agencies access to information and opportunities for earlier intervention.

This finding connects state capacity to the interaction between grassroots organizations and public agencies. Services give workers access to residents, established ties help them recognize and interpret conduct, and referral places that knowledge within an agency's jurisdiction. This specifies an informational basis for infrastructural power and institutional complementarity (Henn, 2023; Mann, 1984; Migdal, 1988). The Longgang household visit makes the connection concrete. A resident's concern about unusually numerous network cables reached a grid worker during registration assistance and then reached police through referral (Longgang District Government, 2017). An ordinary encounter brought concealed activity within official reach. State presence expands through institutional connections between local contact and enforcement authority.

The argument applies where intermediaries have continuing local responsibilities, regular access to residents, and a recognized route to a responsive public agency. China's grids connect workers to agencies through Party-state coordination. State connections also coexist with greater

representative discretion, as Taipei's elected neighborhood wardens illustrate (Read, 2012). The resident-reporting channel depends on willingness to disclose, and both reports and workers' observations require agencies able to verify leads and act. Indian slum brokers help residents obtain services, and Zambian chiefs coordinate local development with politicians (Auerbach & Thachil, 2020; Baldwin, 2015). U.S. teachers and medical professionals also supply information to child-protection investigators through their service roles (Fong, 2020). The direction of accountability matters because intermediaries can advance residents' claims, support state intervention, or protect neighbors from it. Where organizations answer to residents, opportunities to refuse disclosure or challenge intervention can shape which information reaches agencies and how it is used. The study does not directly measure trust or autonomy, and the Chinese findings do not establish identical enforcement or criminal-case effects elsewhere.

Closer state contact also changes the value and risks of disclosure. Awareness of legal-aid services increased trust in local government in rural China, while expanding state communications in prerevolutionary France was associated with resistance to more intrusive authority (Albertus & Gay, 2026; Whiting, 2017). These responses make the politics of state expansion part of the capacity question. Grid workers depend on residents continuing to use services and raise concerns. If assistance exposes people to punishment, residents may conceal information while continuing to seek help, as research on U.S. child-protection institutions shows (Fong, 2019). Service relationships can sustain official access while creating incentives to restrict what officials learn.

Several concrete comparisons would clarify the durability of this capacity. Assigning additional service visits across grids with different recruitment arrangements would help distinguish contact effects from workers' prior local ties. Following reports from the first encounter through referral, enforcement, and later local offending would show when intervention contains recurring activity. Interviews with residents and workers could establish whether trust in responsiveness sustains reporting after punitive referrals. These studies would clarify the mechanisms behind the organizational associations and whether the response continues as workers' responsibilities expand. Referral rules, feedback to residents, and opportunities to challenge misuse provide institutional arrangements to

compare. Grassroots state capacity depends on whether ordinary assistance continues to make those relationships worth maintaining.

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Building State Capacity from Below: Grassroots Organization and Preemptive Social Control in China

Supplemental Information

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Appendix A Institutional Evidence

A.1 Staffing, Duties, and Agency Referrals

Table A1: Local Rules Connecting Grid Workers to Public Agencies

Document and provision	Specific rule	Connection to the argument
Qingyuan opinion, 2016, II(2)	Recruit or appoint workers, giving preference to local residents familiar with local conditions and customs.	Recruitment brings existing local knowledge into grid work.
Qingyuan opinion, 2016, II(3)	Conduct routine patrols, identify and report problems, handle minor incidents on site, and report emergencies promptly.	Continuing contact creates opportunities to obtain and interpret clues.
Qingyuan opinion, 2016, II(4)	Report matters unresolved on site to the grid center. The center assigns them to departments; departments provide feedback and workers revisit the matter.	Referral connects workers' information to a responsible agency and provides follow-up.
Tianqiao implementation account, 2020, final section (1)	Assign grids information collection, resident services, dispute mediation, and risk checks, while reserving administrative enforcement and industry regulation for agencies.	Workers acquire local information; public agencies retain enforcement authority.
Tianqiao implementation account, 2020, final section (3)	Twenty-one district departments designate contacts and public service telephone numbers. Community grid centers report directly to departments for handling and feedback.	Named departmental contacts give community reports a route to official action.

Notes: Sources are Qingyuan's opinion of 10 May 2016 (Qingyuan Political-Legal Committee, 2016) and Tianqiao's account of 26 December 2020 (Dengta Party-Building Online, 2020). Tianqiao provision numbers refer to its final section.

A.2 Documented Referral Sequences

Table A2: Documented Contact, Referral, and Police Response

Place	Routine assignment or prior contact	Information and referral	Reported police response
Longgang, Shenzhen	Monthly household-registration checks and assistance with residence permits	A resident reported an unusual concentration of network cables during a household visit. The worker attempted to verify the report, then notified his supervisor and community police.	Police closed an online gambling operation.
Liaobu, Dongguan	A fire-safety work order following several unsuccessful prior visits	The worker observed mobile phones displaying sports-betting pages and printed odds, photographed the scene, contacted community police, and filed the clue through the mobile grid terminal.	The town command center routed the report to public security; officers responded immediately, seized sixteen phones, and imposed ten days of administrative detention and a 1,000-yuan fine.
Bao'an, Shenzhen	Rental-housing registration and patrol	Prior residence records, follow-up visits, and building video corroborated unusual nighttime visits to two rooms. The grid team notified community police.	Officers promptly inspected the rooms and took three women and two men to the station for further investigation.
Panzhihua, Sichuan	Campaign outreach through residential visits	During an anti-crime campaign visit, a grid worker noticed suspected prostitution in a residential building and passed the clue to police.	Police detained five prostitution participants administratively and detained the landlord on suspicion of sheltering prostitution, a criminal offense.
Jianyang, Sichuan	Routine patrol informed by prior grid knowledge	During a routine round, the worker noticed a behavioral change in a former community-corrections client, suspected drug use, and filed the clue through Grid E-pass.	Police followed the clue, found several drug users at the residence, and uncovered a drug-trafficking case.

Notes: Public accounts collected separately from the panel. Sources: Longgang (Longgang District Government, 2017); Liaobu (Zhiwang Liaobu, 2020); Bao'an (Cai & Huang, 2019); Panzhihua (Xu, 2018); Jianyang (Sichuan Legal Daily, 2019).

Appendix B Data Construction and Measurement

B.1 Case Data and Legal Categories

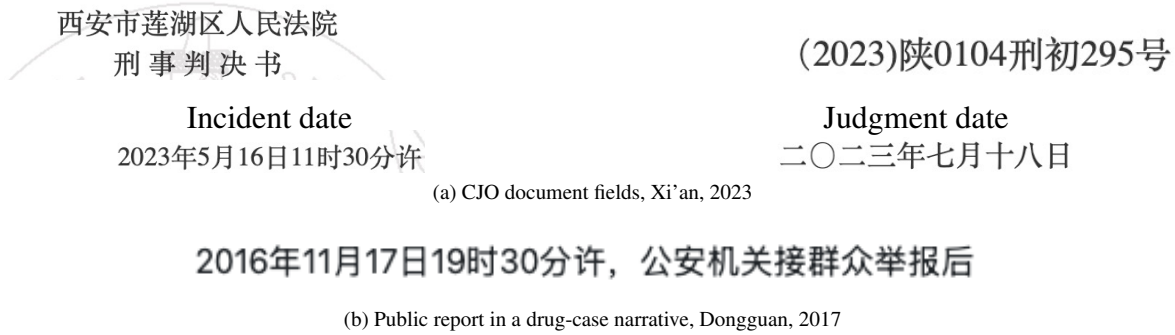
Administrative counts come from public-security punishment decisions in PKULAW; criminal counts come from completed first-instance judgments in China Judgments Online. We sum prostitution, gambling, and drug cases for 2,844 county-level units during 2013–2020, dating administrative cases by enforcement year and criminal cases by offense year (Figure B1). Shares divide targets by all police-handled public-order cases or all first-instance criminal cases, using positive totals; remainders subtract targets from those totals.

Table B1: Legal Correspondence across Administrative and Criminal Tracks

Domain	Administrative violations	Related criminal offenses	Basis for classification
Prostitution	Selling or purchasing sex (Art. 66); enticing, sheltering, or introducing prostitution (Art. 67).	Organizing, forcing, or assisting the organization of prostitution (Art. 358); enticing, sheltering, or introducing prostitution (Art. 359).	The law distinguishes participation in sex transactions from organizing or facilitating their provision. Facilitation is classified using the conduct and qualifying circumstances.
Gambling	Providing gambling facilities for profit or participating with relatively large stakes (Art. 70).	Organizing gambling for profit, gambling as a livelihood, or operating a casino (Art. 303).	Classification distinguishes participation, profit-seeking organization, and venue operation. Group gambling is subject to criteria for organization, stakes, profits, or participant numbers.
Drugs	Drug use, possession and cultivation below criminal thresholds, and related provision or inducement (Arts. 71–73); providing premises for drug use below the criminal threshold (Drug Control Law, Art. 61).	Smuggling, selling, transporting, or manufacturing drugs (Art. 347); possession (Art. 348); related concealment, precursor, cultivation, inducement, facilitation, and supply offenses (Arts. 349–355).	Drug use receives administrative punishment. Trafficking is criminal regardless of quantity; possession reaches the criminal threshold at 200 grams of opium or 10 grams of heroin or methamphetamine (Art. 348).

Notes: Administrative articles refer to the 2012 Public Security Administration Punishments Law or the named Drug Control Law (NPC Standing Committee, 2007, 2012); criminal articles refer to the Criminal Law (National People’s Congress, 1997, 2015). Gambling, drug, and prostitution interpretations specify qualifying circumstances (Supreme People’s Court, 2016; Supreme People’s Court and Supreme People’s Procuratorate, 2005, 2017); the latter two took effect on 11 April 2016 and 25 July 2017. Rows pair activities across legal tracks; classification follows conduct and statutory thresholds.

Figure B1: Identifiers, Dates, and Case Sources in Criminal Judgments



Notes: Panel A uses an author-supplied copy of Xi'an Lianhu District People's Court judgment (2023) Shan 0104 Xing Chu No. 295, dated 18 July 2023, to illustrate CJO fields outside the sample. Panel B reproduces drug judgment (2017) Yue 1973 Xing Chu No. 441 (Dongguan Third People's Court, 2017). Police acted on a public report on 17 November 2016. Coding a community source additionally requires the narrative to identify a community worker's involvement.

B.2 Coding Sources, Locations, and Response Time

Source and location indicators are extracted using keywords from cleaned, structured legal documents and police bulletins. No manual case labels are used. *Resident reporting* requires a report to a community worker; *worker observation* requires discovery by a non-police community worker during a visit or inspection. Their sum gives community-source cases; dividing by all target cases in the legal track gives the share. Other and unclassified sources remain in the denominator.

Locations comprise homes and shared residential spaces, neighborhood commercial premises, low-contact or translocal settings, and unknown locations. These four counts sum to each track's target total. Facts and evidence supply the conduct, location, and discovery narrative; legal grounds and penalty fields identify the enforcement response.

Response time averages days from the incident or report to administrative enforcement among handled target cases. In Figure B2B, the incident occurred on 23 August 2018 and detention began on 24 August, giving one day. County-years with no target cases have no response-time mean.

Figure B2: Administrative Punishment Fields and Police Case Reports

(此处印制公安机关名称)
行政处罚决定书
X公()行罚决字[]号

违法行为人(姓名、性别、年龄、出生日期、身份证件种类及号码、户籍所在地、现住址、工作单位、违法经历以及被处罚单位的名称、地址和法定代表人)

现查明

以上事实有 等证据证明。

根据 之规定，
现决定 。

执行方式和期限

逾期不交纳罚款的，每日按罚款数额的百分之三加处罚款，加处罚款的数额不超过罚款本数。

如不服本决定，可以在收到本决定书之日起六十日内向 申请行政复议或者在六个月内依法向 人民法院提起行政诉讼。

附： 清单共 份

公安机关(印)
年 月 日

行政处罚决定书已向当事人送达。

被处罚人
年 月 日

一式三份，被处罚人和执行单位各一份，一份附卷。治安案件有被侵害人的，复印送达被侵害人。

(a) Blank public-security punishment form

红星新闻

广东省广州市公安局增城分局
行政处罚决定书
增公增行罚决字[2018] 05418号

违法行为人 王某某(男，48岁，陕西省人，电影导演)、吕某某(女，31岁，黑龙江省人)当场抓获，二人对违法事实供认不讳。

现查明 9月10日晚7时许，根据群众举报，民警在本市东城区某小区一单元楼内将进行卖淫嫖娼活动的王某某(男，48岁，陕西省人，电影导演)、吕某某(女，31岁，黑龙江省人)当场抓获，二人对违法事实供认不讳。

以上事实有违法行为人的陈述和申辩、证人的证言以及现场查获的聊天记录等 等证据证实。

根据 《中华人民共和国治安管理处罚法》第六十六条、第六十七条第一款 之规定，
现决定 。

执行方式和期限 。

逾期不交纳罚款的，每日按罚款数额的百分之三加处罚款，罚款的数额不超过罚款本数。

如不服本决定，可以在收到本决定书之日起六十日内向 广州市公安局增城分局行政复议或者在六个月内依法向 增城区人民法院提起行政诉讼。

附： 清单共 份

广东省广州市公安局增城分局
行政处罚决定书 宣告并送达。
被处罚人 王某某、吕某某
2018年8月24日

一式三份，被处罚人和执行单位各一份，一份附卷。治安案件有被侵害人的，复印送达被侵害人。

(b) Completed decision, Zengcheng, August 2018

王某某等人因涉嫌卖淫嫖娼被警方拘留审查

9月10日晚7时许，根据群众举报，民警在本市东城区某小区一单元楼内将进行卖淫嫖娼活动的王某某(男，48岁，陕西省人，电影导演)、吕某某(女，31岁，黑龙江省人)当场抓获，二人对违法事实供认不讳。

经审查，嫌疑人王某某供认，他是通过手机招嫖信息联系到了吕某某。当晚6时许，二人在王某某的工作室进行卖淫嫖娼活动，后王某某付给吕某某800元作为嫖资。警方进一步工作还查明，王某某于8、9、10日连续三次嫖娼，其中9日他同时与两名女子进行卖淫嫖娼活动。根据掌握的线索，警方先后将介绍卖淫的刘某(女，18岁，黑龙江省人)以及6名涉嫌卖淫嫖娼嫌疑人抓获。目前，刘某因涉嫌介绍卖淫罪被增城分局依法刑事拘留，王某某等8名嫌疑人因涉嫌卖淫嫖娼被依法行政拘留，此案正在进一步审理中。

(c) Police bulletin, Dongcheng, September 2014

Notes: Panel A shows fields for the issuing agency and document number, personal particulars, facts and evidence, legal grounds and penalty, execution terms, and decision and service dates. Case origins and locations are extracted from factual narratives. Panel B records gambling, Articles 70 and 11, and detention from 24 August 2018 (Zengcheng Public Security Subbureau, 2018). Panel C records a public report and subsequent administrative and criminal detention (Beijing Municipal Public Security Bureau, 2014).

B.3 Grid Dates and Organizational Measures

Local government and grid-center reports date the first year of staffed operation; treatment remains one thereafter. The panel records 2,151 introductions during 2014–2020, 94 later introductions, and 599 units without recorded introduction. Excluding the 210 counties introduced in 2014 and two fixed-effect singleton counties leaves 2,632 counties and 18,424 county-years.

Figure B3: Documents Illustrating Staffing, Services, and Monitoring Procurement

7.3.2.2 兼职网格员由“村（社区）两委”成员、村民（居民）代表、楼院长、社会志愿者、热心群众、警务助理、人民调解员等人员担任。兼职网格员主要负责配合网格长和专职网格员做好基础信息采集、社情民意收集、安全隐患排查、轻微矛盾化解、政策法规宣传、民生服务代办、小区环境维护等工作。

(a) Jinan: Community roles eligible for concurrent grid appointments

(广州市南沙区民政局) 南沙区网格化工作购买服务岗位采购项目(采购项目编号: GZCQC1501HG09027)的中标结果公告

采购项目名称	详见公告正文
品目	
采购人	广州市南沙区民政局

(b) Nansha, October 2015: Civil-affairs purchase of grid-service positions

Lot title and purchasing agency	Amount and date
通州湾示范区技防城三期“雪亮工程”项目监理	13.89
南通市公安局通州湾示范区分局	2020年4月17日

(c) Tongzhou Bay, April 2020: Monitoring-project supervision contract

Notes: Panel A reproduces Jinan standard DB 3701/T 15–2020, Clause 7.3.2.2 (Jinan Market Regulation Administration, 2020). Panel B uses an author-supplied copy of Nansha notice GZCQC1501HG09027, dated 30 October 2015. Panel C uses an author-supplied award notice for supervision of Tongzhou Bay’s third-phase Sharp Eyes project, lot T3206910318000001002001, to show the lot, buyer, price, and award date. The police branch awarded RMB 138,900 on 17 April 2020. These fields illustrate the monitoring-procurement control.

We classify duties and positions described in procurement and recruitment documents. Service orientation is the share of classified duties involving assistance, household visits, or community affairs, rather than security inspection and enforcement. Classification uses the stated duties, procurement purposes, and purchasing agencies. Community-role staffing is the share of classified positions held by committee members, resident representatives, or building heads; part-time staffing records employment arrangements. Initial organizational measures are available for all 2,151 recorded adopters during 2014–2020. We fix these measures at introduction and standardize them within cohort. Table B2 summarizes 2014–2020 annual variables and 2,151 adopters’ initial measures.

Economic and administrative-division data come from statistical yearbooks and government reports. Electronic-monitoring procurement notices identify agencies, projects, and award dates

(Figure B3C). The resource models use $\log(1 + \text{annual county project count})$ and contracted grid positions per 10,000 residents (Table C8).

Table B2: Descriptive Statistics for the Main Variables

Variable	<i>N</i>	Mean	SD	Minimum	Maximum
<i>A. Grid introduction and initial organizational design</i>					
Grid in operation (0/1)	19,908	0.44	0.50	0	1
Initial service orientation (z-score)	2,151	0.00	1.00	−1.64	2.23
Initial community-role staffing (z-score)	2,151	0.00	1.00	−1.62	3.70
Initial part-time staffing (z-score)	2,151	0.00	1.00	−2.15	2.39
Initial grid positions per 10,000 residents	2,151	2.07	4.30	0.003	86.68
<i>B. Administrative enforcement and criminal outcomes</i>					
Target administrative count	19,908	43.18	89.59	0	2,161
Prostitution	19,908	3.47	9.21	0	322
Gambling	19,908	14.96	35.06	0	908
Drugs	19,908	24.75	65.27	0	2,108
All police-handled public-order cases	19,908	475.54	805.43	1	14,796
Remaining administrative count	19,908	432.37	748.50	1	14,290
Administrative target-to-total ratio (×100)	19,908	9.42	8.04	0	73.39
Target criminal cases	19,908	17.98	30.96	0	781
Prostitution	19,908	1.62	3.38	0	102
Gambling	19,908	7.12	14.08	0	393
Drugs	19,908	9.23	18.97	0	671
All first-instance criminal cases	19,908	160.01	245.73	0	3,994
Remaining criminal cases	19,908	142.03	221.89	0	3,629
<i>C. Information sources and response time</i>					
Community-source administrative count	19,908	9.50	23.97	0	743
Resident reporting	19,908	6.17	16.50	0	516
Community-worker observation	19,908	3.34	7.86	0	227
Administrative community-source share (%)	19,293	20.82	20.65	0	100
Community-source criminal cases	19,908	0.82	2.03	0	64
Criminal community-source share (%)	18,837	4.57	10.16	0	100
Mean response time (days)	19,293	29.08	6.24	0	68
<i>D. Main-specification controls</i>					
Log resident population	19,908	12.86	0.69	10.22	14.89
Log GDP (RMB 10,000)	19,908	13.92	1.17	10.26	18.45
Log budget revenue (RMB 10,000)	19,908	11.57	1.46	6.03	16.16
<i>E. Additional variables</i>					
GDP per resident, 2013 (RMB)	2,844	28,132.04	19,745.16	2,102.39	209,014.73
Revenue per resident, 2013 (RMB)	2,844	3,288.80	3,154.39	132.27	29,716.92
Population density, 2013 (persons/km ²)	2,844	1,429.83	5,592.21	2.25	60,030.15
Digital-monitoring procurement projects	19,908	2.75	3.55	0	68
Annual grid positions per 10,000 residents	8,853	1.80	4.29	0.003	98.19

B.4 Publication Coverage

Judgments and police punishment decisions carry running serial numbers within official document identifiers. Court identifiers combine registration year, court, case type, and serial; police identifiers combine issuing unit, document type, year, and serial (Shenzhen Municipal Public Security Bureau, 2018; Supreme People’s Court, 2015). The judgment in Figure B1B, (2017) 粤1973刑初441号, is number 441 in that court’s 2017 criminal first-instance series. The police decision in Figure B2B, 穗公增行罚决字〔2018〕05418号, carries serial 5,418. A series can span offenses. In Xinping, Guishan police issued decision 13 for gambling and 14 for drug use in 2018; Guishan and Yangwu each issued a decision numbered 10 (Xinping County Public Security Bureau, 2018). The full prefix distinguishes these records.

A publication estimate starts with unique full identifiers grouped by issuing unit, numbering year, and document type, before selecting outcome domains. For a series g , let n_g count observed identifiers and m_g be their maximum serial. Under consecutive numbering from 1 and equal observation probabilities within the series, the German-tank estimator gives

$$\widehat{N}_g = m_g + \frac{m_g - n_g}{n_g}, \quad \widehat{q}_g = \frac{n_g}{\widehat{N}_g}. \quad (4)$$

The added term estimates the unobserved tail beyond the largest observed number; $\widehat{q}_g$ is the observed fraction of the estimated total (Goodman, 1952; Wu et al., 2026). Criminal records require linking coverage in their registration-year series to outcomes dated by offense year.

The available serial file retains county, panel year, offense domain, and numeric serial. We calculate sensitivity weights from these recorded groups, pooling positive groups within county i , year t , and legal track r :

$$\widehat{q}_{itr} = \frac{\sum_{g \in G_{itr}} n_g}{\sum_{g \in G_{itr}} \widehat{N}_g}, \quad w_{itr} = \frac{1/\widehat{q}_{itr}}{1/\widehat{q}_r}. \quad (5)$$

The denominator normalizes weights to mean one within each track’s estimation sample. The capped version limits raw inverse weights at the track-specific 99th percentile before normalization.

Outcome counts stay unchanged. Because these county-year-domain groups combine issuing units and use panel years, $\widehat{q}_{itr}$ is a serial observation-share proxy used for sensitivity analysis.

Requiring positive estimates in both tracks removes 1,469 county-years; fixed-effect singleton removal excludes another 34, leaving 16,921 observations across 2,600 counties. Administrative estimates range from 0.218 to 0.244 and criminal estimates from -0.281 to -0.248 across the four specifications ($p < 0.001$ throughout). Capping the weights preserves both results. Applying the same IW model to $100\widehat{q}_{itr}$ yields an administrative estimate of -1.269 percentage points and a criminal estimate of 0.050 points. Table B3, Panel C, reports their confidence intervals. Grid introduction is therefore not accompanied by a rise in this proxy across both tracks.

Table B3: Serial-Number Reweighting and Sample Sensitivity

Specification	Administrative ATT [95% CI]	Criminal ATT [95% CI]	County-years
<i>A. Grid-introduction estimates</i>			
Full sample, unweighted	0.244 [0.194, 0.295]	-0.267 [-0.316 , -0.217]	18,424
Common sample, unweighted	0.218 [0.169, 0.267]	-0.248 [-0.295 , -0.200]	16,921
Inverse serial weights	0.242 [0.188, 0.296]	-0.281 [-0.335 , -0.227]	16,921
Serial weights capped at 99th percentile	0.240 [0.187, 0.293]	-0.279 [-0.333 , -0.226]	16,921
<i>B. Weight diagnostics on the common sample</i>			
Median serial observation share	0.108	0.410	
99th-percentile raw weight	60.915	9.667	
Effective observations, inverse weights	9,220	12,155	
Effective observations, capped weights	9,948	12,975	
<i>C. Grid introduction and serial observation shares</i>			
Serial observation share	-1.269 [-1.960 , -0.579]	0.050 [-1.443 , 1.542]	16,921

Notes: pp denotes percentage points. Panel A outcomes are asinh target-case counts. Models include county and city $\times$ year fixed effects and logged GDP, population, and revenue. Brackets report 95% county-clustered confidence intervals, conditional on the estimated weights. The common sample retains 16,921 county-years with positive serial estimates in both tracks after fixed-effect singleton removal. Panel B summarizes weight concentration; effective observations equal the squared sum of weights divided by the sum of squared weights. Panel C reports effects on the serial observation-share sensitivity proxy in pp for 2,600 counties.

Appendix C Specification and Trend Checks

C.1 Adoption, Comparison Groups, and Estimators

Table C1: Does Prior Enforcement Pressure Predict Grid Introduction?

	(1) Main	(2) Prefecture effects	(3) C-log-log	(4) $t - 1$	(5) $t - 4$ to $t - 2$	(6) Economic splines
Targeted public-order pressure	0.081 (0.111)	0.129 (0.129)	0.056 (0.093)	0.065 (0.091)	0.250 (0.132)	0.086 (0.112)
Non-target public-security pressure	-0.032 (0.055)	-0.037 (0.067)	-0.026 (0.046)	0.001 (0.048)	-0.092 (0.063)	-0.034 (0.055)
Non-target criminal-case pressure	0.062 (0.042)	0.037 (0.053)	0.047 (0.035)	0.075* (0.035)	0.020 (0.049)	0.058 (0.042)
Targeted share of public-order cases	-0.041 (0.056)	-0.094 (0.066)	-0.023 (0.046)	-0.086 (0.048)	-0.067 (0.067)	-0.042 (0.056)
Risk-set observations	7,728	7,728	7,728	13,206	5,458	7,728
Adoptions	1,577	1,577	1,577	2,151	1,199	1,577
AUC without pressure block	0.760	0.802	0.760	0.795	0.747	0.762
AUC with pressure block	0.761	0.802	0.760	0.796	0.748	0.763
Pressure-block p	0.386	0.518	0.535	0.012	0.163	0.436
Province fixed effects	Yes	No	Yes	Yes	Yes	Yes
Prefecture fixed effects	No	Yes	No	No	No	No

Notes: Columns 1–2 and 4–6 are logits; column 3 is complementary log-log (C-log-log). All include year effects, economic controls, and county-clustered standard errors. The main pressure window is $t - 3, t - 2$; columns 4–5 change it as shown. Predictors are risk-set standardized. Economics are measured at $t - 2$ ($t - 1$ in column 4). Target volume is $\log(1 + \text{administrative plus criminal count})$; non-target pressures are asinh rates per 10,000, using parent totals minus targets. The fourth predictor is target cases' share of handled public-order cases. The area under the receiver operating characteristic curve (AUC) compares models with and without the four pressures; their joint Wald test is reported. * $p < 0.05$; ** $p < 0.01$.

Table C2: Pre-Treatment Pressure Robustness

Specification	Administrative ATT (Standard errors)	Criminal ATT (Standard errors)	Joint pretrend p	Observations
Current controls	0.264** (0.030)	-0.246** (0.028)	0.479 / 0.027	18,438
2013 economic	0.291** (0.041)	-0.214** (0.031)	0.410 / 0.145	18,438
2013 economic + pressure	0.297** (0.040)	-0.211** (0.034)	0.667 / 0.132	18,438

Notes: Group-time ATTs use not-yet-treated comparisons and supported 2015–2020 cohorts (2,634 counties). Standard errors use a county-clustered multiplier bootstrap. Pretrend p -values list administrative then criminal results. Current controls are logged GDP, population, and revenue. Baseline economics are standardized 2013 log population and $\log(1 + \text{per-capita GDP, per-capita revenue, and density})$. Baseline pressures are target administrative-plus-criminal counts, non-target public-order counts, and non-target criminal counts, each expressed as an asinh rate per 10,000 and standardized across baseline counties. These differ from the hazard's target log count and target-share inputs. * $p < 0.05$; ** $p < 0.01$.

Table C3: Comparison-Group and Control Sensitivity

Specification	Administrative ATT (Standard errors)	Criminal ATT (Standard errors)	Administrative-minus-criminal difference (Standard errors)	Observations
IW, 2014–2020	0.244** (0.026)	−0.267** (0.025)	0.511** (0.032)	18,424
IW, no contemporaneous controls, 2014–2020	0.262** (0.025)	−0.249** (0.024)	0.511** (0.031)	18,424
GT, retain 693, 2014–2019	0.253** (0.029)	−0.249** (0.027)	0.502** (0.035)	15,804
GT, future-treated only, 2014–2019	0.267** (0.031)	−0.255** (0.030)	0.522** (0.036)	11,646
IW, 2020 reference, 2014–2019	0.302** (0.033)	−0.238** (0.032)	0.540** (0.041)	11,562

Notes: Outcomes are asinh counts; the administrative-minus-criminal difference is estimated directly. The 693 comparisons comprise 94 post-2020 adopters and 599 counties without a recorded introduction during 2014–2020. Interaction-weighted (IW) models include county and city $\times$ year effects; group-time (GT) models use not-yet-treated comparisons. Models include logged GDP, population, and revenue unless stated otherwise, and exclude the 2014 cohort. Standard errors are county-clustered; GT uses 499 multiplier-bootstrap iterations. * $p < 0.05$; ** $p < 0.01$.

Table C4: Alternative Difference-in-Differences Estimators

Estimator	Administrative ATT (Standard errors)	Criminal ATT (Standard errors)	Difference ATT (Standard errors)	Effective observations
IW	0.244** (0.026)	−0.267** (0.025)	0.511** (0.032)	18,424
Group-time ATT	0.264** (0.030)	−0.246** (0.028)	0.509** (0.036)	18,438
IMP	0.258** (0.022)	−0.219** (0.022)	0.477** (0.028)	16,859

Notes: Outcomes are asinh counts; the administrative-minus-criminal difference is estimated directly. Interaction-weighted (IW) and imputation (IMP) models include county and city $\times$ year effects; group-time (GT) ATT uses not-yet-treated comparisons. All include logged GDP, population, and revenue and exclude the 2014 cohort. Effective observations reflect estimator-specific support; imputation counts rows receiving an untreated-stage prediction. Inference is county-clustered; group-time uses county-cluster-sum Rademacher multipliers. Estimators follow Sun and Abraham (2021), Callaway and Sant’Anna (2021), and Borusyak et al. (2024). * $p < 0.05$; ** $p < 0.01$.

Table C5: Event-Study Estimates and Alternative-Estimator Pretrend Tests

<i>Panel A. Interaction-weighted event-study estimates</i>				
Event time	Administrative estimate (Standard errors)	Criminal estimate (Standard errors)	Target share estimate (Standard errors)	Difference estimate (Standard errors)
−4	0.073 (0.039)	0.054 (0.041)	0.575 (0.334)	0.019 (0.053)
−3	0.023 (0.029)	0.022 (0.028)	0.192 (0.243)	0.001 (0.037)
−2	0.019 (0.020)	−0.023 (0.021)	0.116 (0.162)	0.042 (0.026)
0	0.137** (0.017)	−0.141** (0.018)	1.068** (0.144)	0.278** (0.024)
1	0.200** (0.024)	−0.242** (0.024)	1.965** (0.223)	0.441** (0.032)
2	0.310** (0.032)	−0.306** (0.032)	3.140** (0.306)	0.616** (0.040)
3	0.336** (0.040)	−0.348** (0.039)	3.554** (0.380)	0.684** (0.050)
4	0.298** (0.049)	−0.388** (0.049)	3.471** (0.484)	0.686** (0.063)

<i>Panel B. Tests of plotted pre-introduction estimates</i>				
Outcome	IW	Group-time ATT	IMP	
Administrative enforcement	0.289	0.149	0.512	
Criminal cases	0.108	0.103	0.295	

<i>Panel C. Broader pre-introduction tests</i>				
Outcome	IW cohort leads, −4 to −2	IW cohort leads, all leads	GT full set, all pre ATT(g, t)	IMP, all leads
Administrative enforcement	0.513	0.632	0.479	0.686
Criminal cases	0.307	0.226	0.027	0.155

Notes: pp denotes percentage points. IW denotes interaction-weighted estimation, GT group-time estimation, and IMP imputation. Panel A reports the four event studies in Figure 4; counts use asinh units, shares use pp, and the difference subtracts asinh criminal from asinh administrative counts. Event −1 is the reference. Panels B and C test the two count outcomes. Panel B jointly tests estimates at −4, −3, −2; Panel C tests IW cohort coefficients within that window and across all supported leads, all pre-introduction group-time effects, and all imputation leads. IW joint tests of the plotted pre-introduction estimates give $p = 0.375$ for the target share and $p = 0.289$ for the difference. Tests use county-clustered covariance; GT uses multiplier draws. Point tests use $t(G - 1)$ and joint tests $F(\text{rank}, G - 1)$, where G counts supported county clusters. * $p < 0.05$; ** $p < 0.01$.

Table C6: Sensitivity to Departures from Parallel Trends

Restriction	Administrative enforcement	Criminal cases	Administrative-minus-criminal difference
<i>Panel A. 95 percent confidence intervals</i>			
Conventional parallel trends	[0.194, 0.295]	[−0.316, −0.217]	[0.448, 0.575]
$\bar{M} = 0$	[0.195, 0.294]	[−0.315, −0.219]	[0.450, 0.573]
$\bar{M} = 0.1$	[0.180, 0.306]	[−0.339, −0.195]	[0.417, 0.600]
$\bar{M} = 0.25$	[0.144, 0.342]	[−0.390, −0.144]	[0.357, 0.657]
$\bar{M} = 0.5$	[0.069, 0.417]	[−0.489, −0.048]	[0.237, 0.774]
$\bar{M} = 1$	[−0.096, 0.582]	[−0.696, 0.156]	[−0.015, 1.026]
<i>Panel B. Sign breakdown</i>			
First $\bar{M}$ including zero (0.005 grid)	0.710	0.620	0.975

Notes: Difference subtracts criminal from administrative asinh counts. The conventional row gives county-clustered $t(G - 1)$ intervals for Table C4's IW estimates. Other rows report asymptotically calibrated conditional least-favorable confidence sets proposed by Rambachan and Roth (2023) and computed with the HonestDiD package. $\bar{M}$ bounds the largest absolute post-treatment change in the untreated treated-comparison gap relative to its largest pre-treatment change. Calculations use leads −6 to −2, post periods 0–5, and treated-observation weights; event −1 is omitted. Panel B gives the first value on a 0.005 grid whose set includes zero.

C.2 Outcome Scales, Resources, and Samples

Table C7: Grid Introduction and Caseload Composition

Dependent variable	Administrative enforcement			Criminal cases		
	(1) Remaining cases (asinh)	(2) Target share (percentage points)	(3) Target-minus- remainder (asinh)	(4) Remaining cases (asinh)	(5) Target share (percentage points)	(6) Target-minus- remainder (asinh)
Grid introduced	0.018 (0.013)	2.458** (0.244)	0.227** (0.028)	0.027* (0.014)	-2.642** (0.341)	-0.294** (0.029)
Observations	18,424	18,424	18,424	18,424	18,406	18,424
R^2	0.977	0.725	0.720	0.960	0.506	0.544
Economic controls	Yes	Yes	Yes	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City $\times$ year effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Remaining cases exclude the target domains within each legal track. Target shares divide target cases by the track's total. The difference subtracts asinh remaining cases from asinh target cases and is estimated directly. Grid introduced reports interaction-weighted ATTs. County-clustered standard errors appear in parentheses. Controls are logged GDP, population, and public budget revenue. Criminal-share models exclude zero-total observations. * $p < 0.05$; ** $p < 0.01$.

Table C8: Outcome, Model, and Sample Sensitivity

Specification	ATT	ATT
	Administrative (Standard errors)	Criminal (Standard errors)
Inverse-hyperbolic-sine count (main)	0.244** (0.026)	-0.267** (0.025)
log(1 + count)	0.210** (0.022)	-0.238** (0.021)
Raw annual count	5.471** (1.566)	-4.108** (0.500)
Annual rate per 100,000 residents	1.201** (0.192)	-0.685** (0.075)
Poisson; county fixed effects and city $\times$ year fixed effects	0.122** (0.020)	-0.126** (0.016)
End the outcome panel in 2019	0.270** (0.024)	-0.235** (0.024)
Exclude the 2020 introduction cohort	0.252** (0.027)	-0.270** (0.027)
Add annual monitoring-procurement controls	0.244** (0.026)	-0.267** (0.025)
Monitoring and grid positions	0.243** (0.027)	-0.272** (0.026)
2014–2019, excluding 2020 adopters	0.251** (0.027)	-0.239** (0.027)
City-clustered standard errors	0.244** (0.025)	-0.267** (0.024)

Notes: Average post-introduction effects; Poisson reports the treatment coefficient. Models include county and city $\times$ year effects and logged GDP, population, and revenue. Other rows use the main interaction-weighted estimator. The 2019 panel retains 2020 adopters as not-yet-treated; the separate 2014–2019 row removes them. Monitoring is log(1 + annual procurement projects); staffing is contracted grid positions per 10,000 residents. Staffing may respond to adoption, so this adjustment is conditional. Standard errors are county-clustered unless labeled otherwise. * $p < 0.05$; ** $p < 0.01$.

Table C9: Grid Introduction Across Three Public-Order Domains

<i>Panel A. Domain effects and pre-treatment diagnostics</i>					
Domain	Track	ATT (Standard errors)	p	Plotted pre-introduction p	Cohort pre-introduction p
Prostitution	Administrative	0.138 (0.027)	< 0.001	0.794	0.636
Prostitution	Criminal	-0.162 (0.024)	< 0.001	0.964	0.933
Gambling	Administrative	0.187 (0.030)	< 0.001	0.098	0.269
Gambling	Criminal	-0.255 (0.029)	< 0.001	0.081	0.136
Drug offenses	Administrative	0.213 (0.030)	< 0.001	0.214	0.503
Drug offenses	Criminal	-0.239 (0.029)	< 0.001	0.177	0.511
<i>Panel B. Administrative increases and criminal declines</i>					
Domain	Prediction	Admin. one-sided p	Criminal one-sided p	IUT p	Holm p
Prostitution	$A > 0, C < 0$	< 0.001	< 0.001	< 0.001	< 0.001
Gambling	$A > 0, C < 0$	< 0.001	< 0.001	< 0.001	< 0.001
Drug offenses	$A > 0, C < 0$	< 0.001	< 0.001	< 0.001	< 0.001

Notes: Models use 18,424 county-years from 2,632 counties during 2014–2020, excluding the 2014 cohort. Outcomes are asinh counts; all models include county and city $\times$ year fixed effects and logged GDP, population, and revenue. Standard errors are county-clustered. Panel A tests the three aggregated leads at events -4 to -2 and every supported cohort-event coefficient in that window. Panel B's intersection-union test (IUT) takes the larger of the administrative-positive and criminal-negative one-sided p -values; Holm adjustment covers the three domain tests.

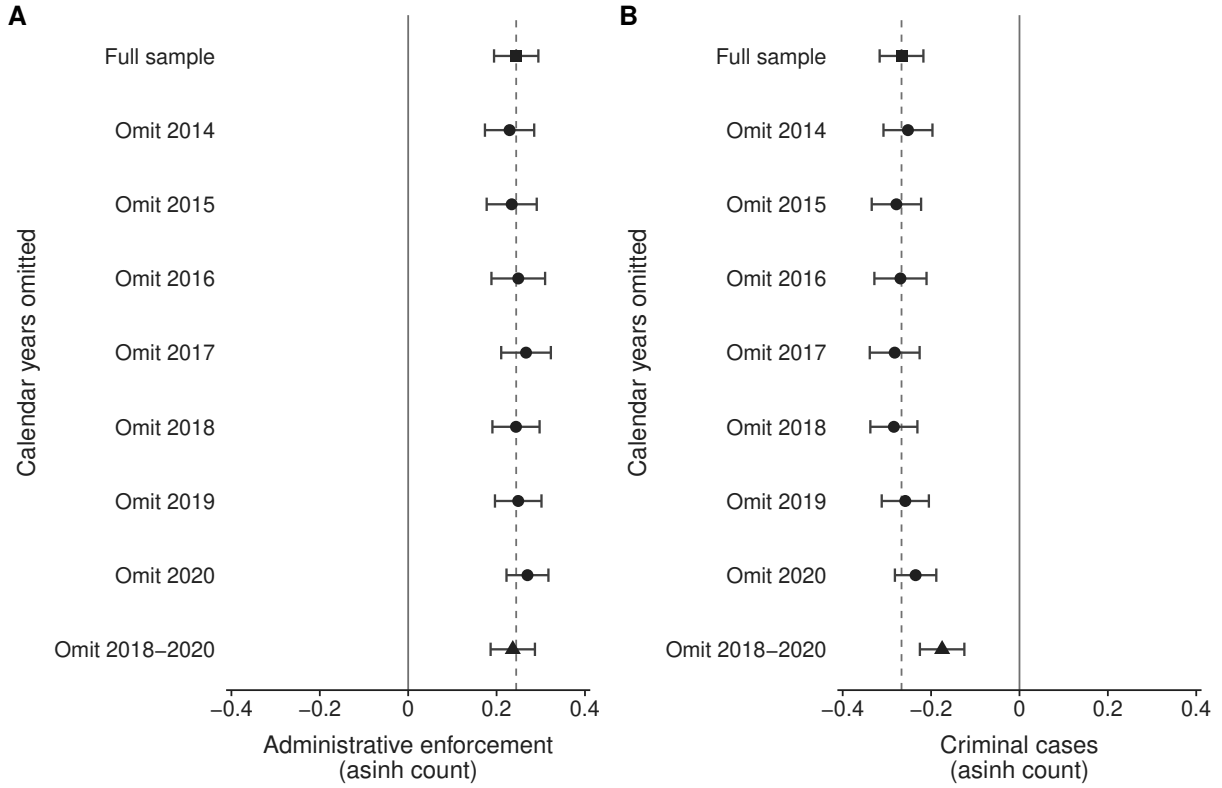


Figure C1: Enforcement Effects When Years Are Omitted

Notes: IW effects on asinh administrative (A) and criminal (B) target counts, with 95% county-clustered intervals. Squares use the full sample, circles omit one year, and triangles omit 2018–2020. Models retain county and city $\times$ year effects and logged GDP, population, and revenue. Cohorts losing their pre-introduction reference year are excluded; later adopters remain untreated. The full and 2014–2017 samples contain 18,424 and 10,528 county-years, respectively.

Appendix D Information and Organizational Comparisons

Organizational measures enter through cohort–event interactions, weighted by represented treated county-years.

Table D1: Community Sources of Target Cases

Panel A. Case counts, asinh scale

	Target admin.	Community admin.	Target criminal	Community criminal	Resident reporting (admin.)	Worker observation (admin.)
Grid introduced	0.244** (0.026)	0.672** (0.028)	-0.267** (0.025)	0.112** (0.019)	0.741** (0.028)	0.354** (0.026)
Observations	18,424	18,424	18,424	18,424	18,424	18,424
Plotted pre- introduction p	0.289	0.503	0.108	0.247	0.466	0.513
Cohort pre- introduction p	0.632	0.864	0.226	0.760	0.129	0.111
County fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City $\times$ year effects	Yes	Yes	Yes	Yes	Yes	Yes
Economic controls	Yes	Yes	Yes	Yes	Yes	Yes

Panel B. Community-source shares, pp

	Administrative	Criminal
Grid introduced	13.546** (0.681)	2.854** (0.408)
Observations	17,807	17,354
Plotted pre- introduction p	0.925	0.888
Cohort pre- introduction p	0.953	0.923
County fixed effects	Yes	Yes
City $\times$ year effects	Yes	Yes
Economic controls	Yes	Yes

Notes: pp denotes percentage points. All models include county and city $\times$ year effects and logged GDP, population, and revenue. Parentheses give county-clustered standard errors. Community sources combine resident reporting and worker observation; shares require positive target counts. Pre-period tests cover plotted events -4, -3, -2 or all supported cohort coefficients. The two community-count and two share effects remain significant after Holm adjustment. Stars are unadjusted: * $p < 0.05$; ** $p < 0.01$.

Table D2: Initial Design and Administrative Community Sources

Outcome	Change per SD	Estimate	Standard errors	<i>p</i>	Cohort pre-introduction <i>p</i>
<i>Panel A. Administrative community-source count and share</i>					
Count, asinh	Service orientation	0.149	0.019	< 0.001	0.727
	Community-role staffing	0.154	0.020	< 0.001	0.109
Share (pp)	Service orientation	2.804	0.392	< 0.001	0.783
	Community-role staffing	3.564	0.388	< 0.001	0.490
<i>Panel B. Administrative source components, asinh scale</i>					
Resident reporting	Service orientation	0.159	0.020	< 0.001	0.934
	Community-role staffing	0.145	0.020	< 0.001	0.087
Worker observation	Service orientation	0.110	0.020	< 0.001	0.325
	Community-role staffing	0.161	0.020	< 0.001	0.364

Notes: pp denotes percentage points. Estimates give the post-introduction difference for a one-within-cohort-SD increase in the listed measure at the other measure's cohort mean. Models include their product, county and city $\times$ year fixed effects, and logged GDP, population, and revenue. Standard errors are county-clustered. Counts use 18,424 observations; shares use 17,807 positive-target observations. Pre-introduction tests cover all available cohort coefficients at events ≤ -2 . Point and pre-introduction inference is unadjusted.

Table D3: Administrative Response Time: Introduction and Initial Design

Effect	Estimate	Standard errors	p	Holm p
<i>Panel A. Post-introduction response duration (days)</i>				
Overall introduction ATT	-1.891	0.198	< 0.001	< 0.001
Service at $E = +1$ SD	-0.398	0.158	0.012	0.024
Service $\times$ role	-0.049	0.121	0.684	0.684
<i>Panel B. Tests of cohort pre-introduction coefficients</i>				
Effect	F	Rank	p	Holm p
Overall introduction ATT	1.520	15	0.089	0.179
Service at $E = +1$ SD	1.081	15	0.369	0.369
Service $\times$ role	1.655	15	0.053	0.159
<i>Panel C. Displayed pre-introduction tests (unadjusted)</i>				
Outcome	F	Rank	p	Pre-introduction window
Response duration (Figure 3A)	1.858	5	0.099	-6 to -2
<i>Panel D. Design coefficients at the reference means (days per SD)</i>				
Effect	Estimate	Standard errors	p	Holm p
Service at mean community-role staffing	-0.349	0.116	0.003	0.003
Community-role staffing at mean service	-0.496	0.121	< 0.001	< 0.001
<i>Panel E. Tests of cohort pre-introduction coefficients at reference means</i>				
Effect	F	Rank	p	Holm p
Service at mean community-role staffing	1.832	15	0.026	0.051
Community-role staffing at mean service	1.029	15	0.421	0.421
17,807 observations; 2,628 counties (1,938 treated, 690 reference).				

Notes: Response time averages incident/report-to-enforcement days among handled target cases; incident dates include time before reporting, and starting points cannot be separated. Zero-target county-years have no mean. The overall ATT uses the main model. Design models add within-cohort-standardized service, staffing, and their product to cohort-event indicators. Models include county and city $\times$ year effects, logged GDP, population, and revenue, and county-clustered covariance; post estimates weight supported cohort-event coefficients by effective observations. Point tests use $t(G - 1)$; joint tests use $F(\text{rank}, G - 1)$. Holm families are separate for Panel A's three post tests, Panel B's three pre-introduction tests, Panel D's two post tests, and Panel E's two pre-introduction tests. Panel C tests the five plotted pre-introduction estimates without adjustment. In Panel E, service's raw $p = 0.026$ becomes 0.051 after adjustment. Duration estimates do not identify prevention.

Table D4: Pre-Introduction Tests for Organizational Effects

Outcome	Unadjusted p			Holm-adjusted p		
	Service	Staffing	Product	Service	Staffing	Product
Administrative cases	0.734	0.207	0.211	1.000	0.622	0.634
Criminal cases	0.321	0.109	0.923	1.000	0.437	0.923
Resident reporting	0.934	0.087	0.423	1.000	0.435	0.847
Worker observation	0.325	0.364	0.038	1.000	0.729	0.189
Response time	0.026	0.421	0.053	0.128	0.729	0.213

Notes: Joint tests cover all available cohort-specific coefficients at events ≤ -2 for service orientation, community-role staffing, and their product. All models include county and city $\times$ year effects, logged GDP, population, and revenue, and county-clustered covariance. Holm adjustment forms one five-outcome family within each component. Service and staffing effects are evaluated at the other measure's cohort mean. This family differs from the response-only families in Table D3.

Table D5: Initial Staffing and Organizational Composition

	Administrative		Criminal	
	(1)	(2)	(3)	(4)
Grid introduction at cohort means	0.244** (0.025)	0.245** (0.025)	-0.267** (0.025)	-0.264** (0.025)
Grid introduced × launch staffing	0.023 (0.018)	0.025 (0.019)	0.012 (0.015)	0.011 (0.015)
Grid introduced × launch service orientation	–	0.055** (0.015)	–	-0.046** (0.015)
Grid introduced × community-role staffing	–	0.054** (0.015)	–	-0.039** (0.015)
Grid introduced × service × community role	–	-0.020 (0.014)	–	-0.016 (0.015)
Observations	18,424	18,424	18,424	18,424
Units	2,632	2,632	2,632	2,632
County fixed effects	Yes	Yes	Yes	Yes
City × year fixed effects	Yes	Yes	Yes	Yes
Economic controls	Yes	Yes	Yes	Yes
Within R^2	0.025	0.037	0.021	0.030

Notes: Asinh target-count models extending Equation 3. Staffing is contracted positions per 10,000 residents at introduction. Organizational measures are standardized within cohort; coefficients hold other inputs at their cohort means. Models include logged GDP, population, and public budget revenue and give equal weight to each treated county in each post-introduction year. Parentheses contain county-clustered standard errors. Dashes mark excluded terms. * $p < 0.05$; ** $p < 0.01$.

Table D6 examines whether service orientation and community-role staffing reinforce one another. Panel A compares the service association at low, mean, and high staffing; Panel B compares the staffing association at the corresponding service levels. Low and high are one SD below and above the cohort mean.

Service orientation and community-role staffing are associated with more resident reports and worker observations across all three comparisons ($p < 0.01$). Response-time associations remain negative, although the service estimate at low staffing is less precise ($p = 0.089$). The service–staffing interaction is statistically insignificant for all five outcomes ($p > 0.05$), offering no clear evidence that the two aspects of organizational design reinforce one another. The clearest finding is that service contact and established community ties each accompany stronger information and enforcement responses. These patterns fit the argument that grassroots organization expands state capacity by connecting local knowledge to agencies with authority to respond. Because local

governments chose duties and staffing, these comparisons remain associational.²⁹

Table D6: Conditional Associations per SD of Initial Organization

	Community information		Efficiency	Enforcement	
	Resident reports (asinh) (1)	Worker observations (asinh) (2)	Response time (days) (3)	Administrative target cases (asinh) (4)	Criminal target cases (asinh) (5)
<i>A. Association per SD of service orientation</i>					
Staffing: −1 SD	0.138** (0.027)	0.088** (0.028)	−0.299 (0.176)	0.075** (0.021)	−0.030 (0.021)
Staffing: Mean	0.159** (0.020)	0.110** (0.020)	−0.349** (0.116)	0.054** (0.015)	−0.046** (0.015)
Staffing: +1 SD	0.180** (0.029)	0.133** (0.030)	−0.398* (0.158)	0.034 (0.020)	−0.062** (0.022)
<i>B. Association per SD of community-role staffing</i>					
Service: −1 SD	0.123** (0.032)	0.139** (0.030)	−0.447* (0.179)	0.074** (0.021)	−0.023 (0.022)
Service: Mean	0.145** (0.020)	0.161** (0.020)	−0.496** (0.121)	0.053** (0.015)	−0.039** (0.015)
Service: +1 SD	0.166** (0.026)	0.184** (0.027)	−0.545** (0.163)	0.033 (0.019)	−0.055** (0.020)
Economic controls	Yes	Yes	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes	Yes	Yes
City × year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	18,424	18,424	17,807	18,424	18,424

Notes: Panels A and B report one-SD service and staffing associations, respectively, with the other organizational measure set one SD below its cohort mean, at the mean, or one SD above. Each value is a conditional change in the grid effect, not its total effect. Models, controls, and the interaction coefficient are reported in Table 3. County-clustered standard errors are in parentheses. * $p < 0.05$; ** $p < 0.01$.

²⁹Appendix Table D4 (p. SI-18) reports organizational pre-introduction tests. The service response-time test has unadjusted $p = 0.026$ and Holm-adjusted $p = 0.128$ across the five service outcomes. The two-test response-time family in Table D3, Panel E (p. SI-18), yields adjusted $p = 0.051$.

Appendix E Geographic Comparisons

Table E1: Location-Specific Effects and Robustness

Location	Time-varying controls		No time-varying controls	
	ATT (Standard errors)	Pre-period p : plot [all]	ATT (Standard errors)	Pre-period p : plot [all]
<i>Panel A. Administrative enforcement</i>				
Residential and community	0.260** (0.028)	0.106 [0.551]	0.274** (0.027)	0.162 [0.649]
Neighborhood commercial	0.158** (0.028)	0.364 [0.291]	0.171** (0.027)	0.446 [0.332]
Low-contact or translocal	0.035 (0.029)	0.051 [0.660]	0.036 (0.028)	0.053 [0.664]
Unclassified	0.169** (0.028)	0.374 [0.491]	0.176** (0.027)	0.412 [0.515]
<i>Panel B. Criminal cases</i>				
Residential and community	-0.331** (0.027)	0.463 [0.650]	-0.324** (0.027)	0.434 [0.616]
Neighborhood commercial	-0.206** (0.028)	0.182 [0.055]	-0.192** (0.027)	0.234 [0.059]
Low-contact or translocal	-0.109** (0.027)	0.099 [0.056]	-0.100** (0.026)	0.077 [0.048]
Unclassified	-0.149** (0.027)	0.883 [0.896]	-0.161** (0.026)	0.815 [0.888]
<i>Panel C. Direct location differences</i>				
Difference	ATT	Standard errors	p	Pre-period p : plot [all]
Administrative: community minus neighborhood commercial	0.101	(0.029)	< 0.001	0.759 [0.569]
Administrative: residential/community minus low-contact	0.224	(0.031)	< 0.001	0.748 [0.980]
Administrative: neighborhood commercial minus low-contact	0.123	(0.032)	< 0.001	0.866 [0.960]
Criminal: community minus neighborhood commercial	-0.125	(0.034)	< 0.001	0.439 [0.205]
Criminal: residential/community minus low-contact	-0.222	(0.034)	< 0.001	0.553 [0.143]
Criminal: neighborhood commercial minus low-contact	-0.097	(0.035)	0.006	0.069 [0.159]

Notes: Outcomes are asinh counts. Residential includes community spaces; commercial denotes neighborhood premises; low-contact includes translocal settings. Panel C uses controlled models and retains within-county covariance. All models include county and city $\times$ year effects; controls are logged GDP, population, and revenue. Standard errors are county-clustered. Holm adjustment across the two low-contact effects gives administrative $p = 0.222$ and criminal $p < 0.001$. Pre-period tests cover plotted events $-4, -3, -2$; brackets cover all supported cohort leads $(-6 \text{ to } -2)$. * $p < 0.05$; ** $p < 0.01$.

Table E2: Prefecture-Aggregate Outcomes as Grid Adoption Expands

	Targeted administrative total	Targeted criminal total	Difference (admin.–criminal)	Prefecture years
<i>Panel A. Inverse-hyperbolic-sine prefecture totals</i>				
All observed prefectures; equal-county adoption share	0.170** (0.060)	−0.266** (0.060)	0.436** (0.060)	2,331
No prefecture containing a 2014-cohort county	0.148* (0.072)	−0.244** (0.077)	0.392** (0.076)	1,498
<i>Panel B. Poisson pseudo-maximum likelihood (PPML) on raw totals</i>				
All observed prefectures; equal-county adoption share	0.163* (0.081)	−0.314** (0.065)	—	2,331
No prefecture containing a 2014-cohort county	0.195* (0.086)	−0.358** (0.066)	—	1,498
All prefectures; population-weighted adoption share	0.115 (0.074)	−0.283** (0.063)	—	2,331
All prefectures; prefecture-specific linear trends	0.117 (0.082)	−0.291** (0.071)	—	2,331

Notes: Outcomes sum target cases within prefecture-years; Difference subtracts criminal from administrative asinh totals. Coefficients are per unit increase in the adopted-county share among supported 2015–2020 cohorts. Population weights use 2014 counts. Models include prefecture and province $\times$ year effects and logged population, GDP, and revenue. Pre-2014 adopters are excluded. Parentheses give prefecture-clustered standard errors. * $p < 0.05$; ** $p < 0.01$.

Table E3: Removing Comparison Counties Exposed in the Neighbor Graph

Sample restriction	Administrative enforcement	Criminal cases	Difference	Observations
Topology support; exposed controls retained	0.245** (0.026)	−0.264** (0.025)	0.509** (0.032)	18,340
Topology support; exposed controls removed	0.165* (0.076)	−0.260* (0.108)	0.426** (0.137)	10,863
Also require treated county unexposed at event year -1	0.189* (0.095)	−0.235* (0.113)	0.424** (0.146)	4,351

Notes: IW estimates use asinh counts and shared-boundary links compiled from statistical yearbooks and government reports. Models include county and prefecture $\times$ year effects and logged GDP, population, and revenue; standard errors are county-clustered. Row 2 removes untreated county-years with a treated neighbor; row 3 also requires no treated neighbor at event -1 (528 treated counties before singleton removal). Twelve units without recorded neighbors are excluded; included units have weight one. * $p < 0.05$; ** $p < 0.01$.

References

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