The pandemic did not interrupt LA's violence interrupters

Jiaoying Ren, Karina Santoso, David Hyde, Andrea L. Bertozzi and P. Jeffrey Brantingham

Abstract

Purpose – *The impact of the COVID-19 pandemic on crime has been highly variable. One possible source of variation runs indirectly through the impact that the pandemic had on groups tasked with preventing and responding to crime. Here, this paper aims to examine the impact of the pandemic on the activities undertaken by front-line workers in the City of Los Angeles Mayor's Office of Gang Reduction and Youth Development (GRYD).*

Design/methodology/approach – *The authors use both autoregressive integrated moving average modeling and a regression-based event study design to identify changes in GRYD Community Intervention Worker proactive peacemaking and violence interruption activities induced by the onset of the City of Los Angeles "safter-at-home" lockdown.*

Findings – *Analyses show that the proactive peacemaking and violence interruption activities either remained stable or increased with the onset of the lockdown.*

Originality/value – *While the City of Los Angeles exempted GRYD's Community Intervention Workers from lockdown restrictions, there was no guarantee that proactive peacemaking and violence interruption activities would continue unchanged. The authors conclude that these vital functions were indeed resilient in the face of major disruptions to daily life presented by the pandemic. However, the causal connection between stability in Community Intervention Worker activities and gang-related crime remains to be evaluated.*

Keywords *Gangs, Crime, Time series analysis, Regression analysis, Violence interruption, Youth development*

Paper type *Research paper*

> *[I]f gang members will not respond to ordinary social agency programs, then the programs must move out into the streets in order to achieve change in gang behavior.*
>
> M.W. Klein (1965)

Introduction

Since the onset of the global COVID-19 pandemic, numerous studies have characterized the impact of "shelter in place" or "lockdown" orders on crime (Mohler *et al.*, 2020; Brantingham *et al.*, 2021c; Abrams, 2021; Piquero *et al.*, 2020; Payne *et al.*, 2022). The purpose of these orders was to slow down the spread of the disease and thereby protect the health and safety of the public. Criminologists immediately recognized that these lockdowns had the potential to reduce some types of crime (e.g. residential burglary) but also increase others (e.g. domestic violence). The emerging evidence appears to support many of these expectations (Abrams, 2021; Piquero *et al.*, 2020; Lopez and Rosenfeld, 2021).

The expectations surrounding the impact of pandemic lockdown orders on gang-related violence are harder to pin down. Leveraging routine activities theory, Brantingham *et al.* (2021c) argued that pandemic control measures might give gangs greater freedom or

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flexibility to pursue their goals, both because subcultural norms might encourage flouting formal "shelter in place" orders, while depopulation of the streets may reduce formal and informal social controls on gang activity. Under these conditions, gang-related violence was expected to increase with the onset of lockdown. In their study of Los Angeles, Brantingham *et al.* (2021c) found that gang-related violence remained stable over the few months following the initial lockdown. They concluded that gangs did not necessarily follow "shelter in place" orders but also that they did not appear to take advantage of pandemic conditions to expand their activities. The sharp increases in violence in American cities over the course of 2020 and 2021 may reflect the influences of larger structural and demographic shifts on crime separate from the impact of the pandemic (Brantingham *et al.*, 2021a, Rosenfeld *et al.*, 2021). Evidence is not yet available, however, to suggest how long-term crime trends are connected to gangs.

One possibility for these observed patterns in Los Angeles, mentioned in Brantingham *et al.* (2021c), was that gang intervention efforts may have dampened the ability of gangs to take advantage of pandemic lockdown conditions. In Los Angeles, civilian efforts to prevent gang violence are overseen by and coordinated through the City of Los Angeles Mayor's Office of Gang Reduction and Youth Development (GRYD) (Tremblay *et al.*, 2020). GRYD's Community Intervention Workers (CIWs), who normally maintain a presence on the streets to proactively maintain peace and respond when acts of violence do occur, may have filled a gap in crime control brought on by the pandemic. That CIWs were in a position to meet the challenge was made possible by Mayor Eric Garcetti identifying them as "essential workers" in his first "shelter in place" order of March 20, 2020 (Garcetti, 2020). The order exempted CIWs from having to remain at home, meaning that they remained available (as a matter of law) to pursue proactive peacemaking activities and to undertake violence interruption efforts. The Mayor's order also encouraged CIWs to take a leading role in dispelling rumors about the pandemic, distributing personal protective equipment and helping community members respond when people became ill (Molina and Cruz, 2020). The city recognized that the knowledge, skills and experience that CIWs leverage in countering gang-related crime – their deep connections and credibility with the community – were potential assets in fighting the spread of the virus as a unique kind of threat.

While it seems plausible that civilian efforts contributed to the apparent absence of a surge in gang-related violence at the onset of the pandemic, we are not yet able to evaluate the complex causal interactions that such a claim implies. Rather, in this research, we are concerned with the more modest goal of assessing the nature and magnitude of the impact of pandemic "shelter in place" orders on daily activities of CIWs. We see this as a necessary precursor to the more challenging inferential task of connecting specific CIW activities to changes in crime. We approach the problem at hand using two complementary methods applied to activity data compiled as a matter of course by GRYD. Following Payne *et al.* (2022) and Brantingham *et al.* (2021c), we first use autoregressive integrated moving average (ARIMA) models to forecast what proactive peacemaking and violence interruption activities *would have been like* had the pandemic not occurred. Comparison of these forecasts with observed activities provides guidance on the impact of the pandemic on those activities. We then validate our observations using a regression-based event study design similar to Mohler *et al.* (2020) that compares CIW activity levels per week before and after the onset of lockdown conditions, controlling for several important covariates. Both approaches lead to similar observations. We find that proactive peacemaking and incident response (IR) activities either remained consistent with prepandemic levels or increased modestly following the onset of pandemic lockdown conditions.

The remainder of this paper is organized as follows. In the next section, we provide an overview of the GRYD Intervention IR Program, which fields CIWs to counter gang-related violence in several Los Angeles communities. We then introduce the data and our analytical

methods. A presentation of results is followed by a discussion of policy implications for gang violence intervention programs.

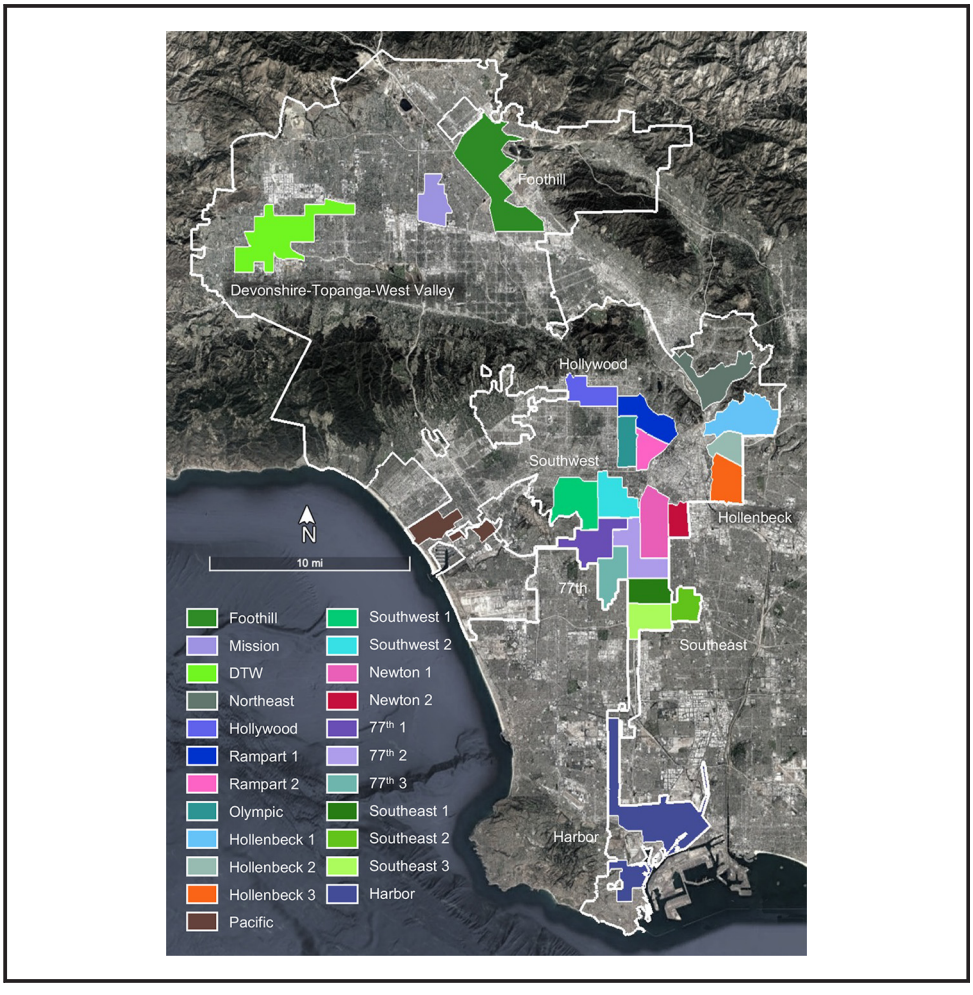
Background

Using Los Angeles' experience as a demonstration project in the Office of Juvenile Justice and Delinquency Prevention (OJJDP) Gang Reduction Model as a jumping off point (OJJDP, 2009), the Office of GRYD was established by the Los Angeles Mayor's Office in 2007 (Tremblay *et al.*, 2020). GRYD developed and put into practice the GRYD comprehensive strategy for addressing gang violence, which combines community engagement, gang prevention, gang intervention and violence interruption efforts (Tremblay *et al.*, 2020; Brantingham *et al.*, 2021b). GRYD community engagement efforts are aimed at educating the community about gangs to support community-led solutions. GRYD Prevention efforts provide positive alternatives and support for young people ages 10–15 at risk of becoming involved in gangs and their families. GRYD Intervention efforts provide supportive services for gang-involved young people and emerging adults (ages 14–25) and their families to help them increase decision-making independence, reduce gang embeddedness and avoid involvement in crime. GRYD violence interruption efforts are aimed at altering the local social conditions that make gang-related crime possible and responding to violent crime to prevent retaliation (see below). Unlike other OJJDP demonstration projects (Spergel, 2007), the GRYD comprehensive strategy does not include a crime suppression component, leaving this function to the Los Angeles Police Department (LAPD). GRYD is geographically structured, providing services in communities most impacted by gang violence. GRYD started in 12 areas in 2008 and now services 23 areas across the city (Figure 1).

Here, we focus on street-based interventions around violence, which fall under GRYD's violence interruption efforts. The GRYD comprehensive strategy includes two major prongs of action within this area of focus. Proactive Peacemaking strives to maintain peace in the community in the periods between violent events. The goal is to head-off sources of tension, while simultaneously strengthening norms against violence. Proactive Peacemaking is sometimes a formal activity (see below), but it is also inherent to other GRYD activities, such as community and family meetings or mentoring of GRYD Intervention services participants. When a violent event does occur, the GRYD IR Program defines the roles, responsibilities and actions taken in response to the event (Leap *et al.*, 2022). The GRYD IR Program kicks into action with street mediation and outreach, rumor control, coordinating services for victims and their families and seeks to foster collaboration between CIWs, LAPD, the GRYD Office and community residents. The goal of the GRYD IR Program is to respond rapidly to the situational and social circumstances that surround each incident, calming tensions and reducing the likelihood of violent retaliation. Pairing the Proactive Peacemaking and GRYD IR Program approaches to both respond when violence occurs and to prevent and address violence in an ongoing way in the community is key to GRYD's violence interruption efforts. The transition between Proactive Peacemaking and GRYD IR Program activities is driven by events on the ground and may be thought of as a change in urgency rather than fundamental strategies and tactics used by CIWs. For example, rumor control is a central component of both Proactive Peacemaking and the GRYD IR Program. In the former case, it is aimed at reducing tensions to preempt violence. In the latter, it is aimed at preventing retaliation when violence occurs.

The use of CIWs to interrupt violence is not unique to GRYD. Civilian-led efforts to build community capacity and curtail violence were central to the Chicago Area Project, the Crime Prevention Commission of the New York City Police Department and the Group Guidance Section of the Los Angeles County Probation Department, all of which emerged in the 1930s and 1940s (Thrasher, 1927; Klein, 1969; Bowler, 1934; Kobrin, 1959). Community-led intervention since then has relied frequently on "streetwise young men"

Figure 1 GRYD zones in the City of Los Angeles 2018–2021



(including former gang members). Having experience in street-life, these "curbside counselors" were thought to have access to information and social connections unavailable to professional social workers. The expectation was that civilian street workers were in a better position to intervene in violent situations and thus get better results compared with other more formal sources of social control (Klein, 1995; Bursik and Grasmick, 1999). Reliance on street workers remains integral to violence prevention programs in a number of cities including Chicago (Skogan *et al.*, 2009), New York (Szkola, 2022), Pittsburgh (Wilson *et al.*, 2011), Phoenix (Fox *et al.*, 2015) and Baltimore (Webster *et al.*, 2013), among others (Butts *et al.*, 2015). The use of street workers is not unique to gang violence prevention in the USA; "credible messengers" defined more broadly can play a significant role in any intervention involving hard-to-reach individuals or groups where trust in official institutions may be low (Henschke and Reed, 2021; Nesbitt, 2021; Flicker *et al.*, 2015).

Evaluations of the impact of civilian street work on crime have produced mixed results (Papachristos, 2011; Kennedy, 2011; Butts *et al.*, 2015). Early assessments of so-called "detached" street workers, who had near complete autonomy and did not really follow a formal intervention model, were seen to have limited impact on crime. More recent assessments have found that civilian interrupters can produce modest reductions in violent retaliations but that the effect varies considerably within and between cities. In Chicago, for example, several neighborhoods involved in the CeaseFire program (now Cure Violence),

which included violence interruption efforts, saw declines in violence relative to control sites, but other neighborhoods did not (Skogan *et al.*, 2009; Butts *et al.*, 2015). A similar mixed pattern of effects was observed in Baltimore (Webster *et al.*, 2013). In Pittsburgh, little effect was seen in any of the treatment areas (Wilson *et al.*, 2011), whereas in Phoenix decreases in assaults and shootings were recorded (Fox *et al.*, 2015). Recent analyses that attempt to control for spatial heterogeneity in risk across neighborhoods suggest that the GRYD IR Program in Los Angeles cut retaliations by 14.2% in the immediate vicinity of prior events (within 130 m) and by an additional 18.3% in locations farther afield (Park *et al.*, 2021).

The mixed results across all of these studies reflect the complexity of the problem. Bursik and Grasmick (1999) recognized that civilian-led violence prevention programs often struggle in the most socially disorganized neighborhoods. Klein (1971) saw limits in the ability of street workers to prevent youth from joining gangs in the first place and, in fact, concluded that group-level interventions reinforced the ability of gangs to engage in crime (Klein, 1969; Braga, 2016). When directed at individuals rather than groups, it remains unclear whether interventions by street workers are able to stop violent crime only if they happen to be present to intervene or mediate or if more general peacemaking efforts to change attitudes also have an effect. Brantingham *et al.* (2021b) found that the GRYD comprehensive strategy does reduce crime in areas where it is active, relative to controls. However, it was not possible to tease apart the unique effects of GRYD Proactive Peacemaking and the GRYD IR Program from GRYD prevention and intervention programming.

Impact of the pandemic on gang intervention work

While there are substantial open questions surrounding the impact of proactive peacemaking and crisis intervention on violent crime, programming like this is nevertheless considered essential in many cities (Kennedy, 2011). Intervention workers are seen as providing more than the mediation of gang fights. They are seen as a resource for getting kids safely to school (Sanfelice, 2019), connecting at-risk youth (and community members at large) to a range of city and nonprofit services (Tita and Papachristos, 2010) and organizing positive community events. Thus, beyond any impact on crime, it is important to understand how resilient community intervention work is to external shocks (see also Kravitz-Wirtz *et al.*, 2020).

Prior work has shown that street workers often struggle under heavy workload (Wilson *et al.*, 2011). The dangerous nature of the work and the trauma that it entails may also make street work particularly vulnerable to disruption (Free, 2020). Here, we examine how GRYD Proactive Peacemaking and GRYD IR Program activities were impacted by the onset of the global COVID-19 pandemic in early 2020. The pandemic was accompanied by several changes to policy and behavior that may have directly and indirectly impacted the ability of CIWs to perform their duties.

Direct effects may have operated through the disruption of CIW routines. CIWs, like other front-line workers, may have been at unique risk of infection during the early stages of the pandemic due to their broad-based contact with community members. If they (or their family members) took ill, there would be a direct and immediate impact on their ability to undertake peacemaking or interruption activities in the field. Even without illness, CIWs may have felt some apprehension about the risks of infection through interactions with members of the public. Such apprehension may have encouraged individuals to self-limit or alter those interactions, resulting in fewer recorded activities. Indirect effects may have operated through the disruption of routine activities within the public at large. Hypothetically, if gangs curtailed their activities on the street, resulting in a reduction in gang-related shootings, then there would be little need for violence interruption [1]. Conversely, if gangs increased their activities in response to the pandemic, then CIW activities might have to expand to keep pace.

Operating against these potential direct and indirect effects were policy changes by the City of Los Angeles that designated GRYD CIWs as "essential workers," exempting them from an expansive "safer-at-home" order effective March 20, 2020. The "essential worker" designation was a subtle but important shift in thinking that positioned GRYD CIWs as "first responders" on par with police, firefighters, EMTs and other health workers. The implication was that CIW capacity to act needed to be preserved to ensure the proper functioning of the city. The impact of the pandemic on intervention workers in other cities may have been quite different. In Chicago, IL, and Rochester, NY, for example, violence intervention workers saw their access to some locations (e.g. hospitals) curtailed and work scaled back to protect them from infection (Altheimer *et al.*, 2020; Smith, 2020). Going online was seen only as a partial replacement for face-to-face meetings (Alderden and Perez, 2021; Corburn and Fukutome, 2021; Castro-Bilbrough *et al.*, 2021; Wical *et al.*, 2022). In Los Angeles, the Mayor's order meant that there were no official barriers to GRYD CIWs maintaining (or even expanding) their activities relative to prepandemic levels. Whether they did is an empirical question that we now address.

Methods

Data

Three different data sets were used to conduct the analyses in this work:

1. activity logs provided by GRYD detailing the types of activities undertaken to support Proactive Peacemaking on a daily basis;
2. CIW IR logs provided by GRYD detailing the types of violence interruption activities undertaken in response to notified violent crimes; and
3. publicly available crime data detailing violent crime in the City of Los Angeles.

The activity logs reflect presence/absence indicators for a range of activity types undertaken by CIWs in the field. Table 1 lists the range of activities considered. Proactive Peacemaking activities are recorded each day. These include a range of activities that are focused particularly on preventing flare-ups of violence including rumor control, street mediation, street outreach and peace maintenance. Proactive Peacemaking also includes other individual- and community-focused efforts such as youth mentoring, family and community engagement and community meetings. GRYD IR Program activities are recorded on a perevent basis and reflect the types of actions taken in response to a reported violent crime. These include activities such as rumor control, responding to the

Table 1 Activity types flagged by CIWs as part of proactive peacemaking and GRYD IR program responsibilities

Proactive peacemaking activity	*GRYD IR program activity*
Rumor control*	Rumor control
Peace mediation*	Peace negotiation
Street mediation*	Peace negotiation (New)
Street outreach*	Respond to scene
Mentoring	Respond to hospital
Impact session	Community outreach
Family engagement	Phone/e-mail
Community engagement	Canvass
Community meeting	Connect to services
Hotspot monitoring	Crowd control
Other event/activity	Other activity
Potential client contact	

Note: *Proactive peacemaking activities that are focused on street-level engagement

scene of the crime or the hospital, connecting victims to services and crowd control. We count the number of Proactive Peacemaking and GRYD IR Program activities and then aggregate by week for analysis. In both cases, we consider the number of activities by activity type and then a cumulative count of all activities. Using both data sets, we estimate the number of unique GRYD CIWs active each week. We also obtained violence crime data for Los Angeles from https://data.lacity.org. We isolated the aggravated assaults and homicides where a victim was shot but did not consider whether the crime was marked as gang-related. These events were aggregated by week to provide a measure of ambient violence in the city. We expect that demands for GRYD Proactive Peacemaking and GRYD IR Program services are determined in part by levels of violence. We, therefore, use city-wide data as a control (see below).

Analytical approaches

Autoregressive integrated. We deploy an ARIMA models (Box *et al.*, 2015) to describe temporal trends in weekly GRYD Proactive Peacemaking and GRYD IR Program activity. ARIMA models estimate the secular and seasonal trends inherent to the time series data and can be used to forecast future trends under the assumption that there is no state-change in the system. ARIMA models have been used successfully to estimate the impact the impact of the COVID-19 pandemic on crime by comparing the difference between model forecasts based on prepandemic conditions and observed crime (Payne *et al.*, 2022; Ashby, 2020). The model forecast serves as a counterfactual for what crime *would have been like* had the pandemic not occurred. In our case, we forecast the expected violence interruption activities based on prepandemic trends and then compare with the observed activities. We use the automatic ARIMA function in the R package "forecast" (Hyndman and Khandakar, 2008). This function computes point forecasts and prediction intervals from the provided time series model. The "safer-at-home" order was issued effective March 20, 2020. However, schools and many businesses were ordered closed effective March 16, 2020. We, therefore, use data from Jan 1, 2017 to March 15, 2020, to estimate the model and then forecast from March 16, 2020 to June 29, 2020, 15 weeks after the onset of strict lockdown rules.

Regression We evaluate observations derived from the ARIMA analyses using OLS regression methods following an event study design (MacKinlay, 1997; Ridgeway *et al.*, 2019). We estimate the model:

$$Y_{dt} = \beta_0 \ + \beta_1 1(t \geq 0) + \gamma_1 t + \gamma_2 t^2 + \gamma_3 w + \gamma_4 v \tag{1}$$

where β_0 is the estimated mean number of activities per week before the onset of COVID lockdowns and β_1 is the estimated difference in activity in hours per week after lockdown. The additional terms are introduced as controls including linear and quadratic temporal trends, estimated by γ_1 and γ_2 on the week and squared-week of observation, the number of GRYD CIWs w active per week, estimated by γ_3, and the number of victims shot v city-wide as recorded in publicly available crime data, estimated by γ_4. GRYD Proactive Peacemaking and GRYD IR Program activities might change simply as a matter of normal variations in staffing and exogenous changes in violent crime. We use a panel of data that spans 50 weeks prior to the onset of the pandemic and 50 weeks after to estimate the model.

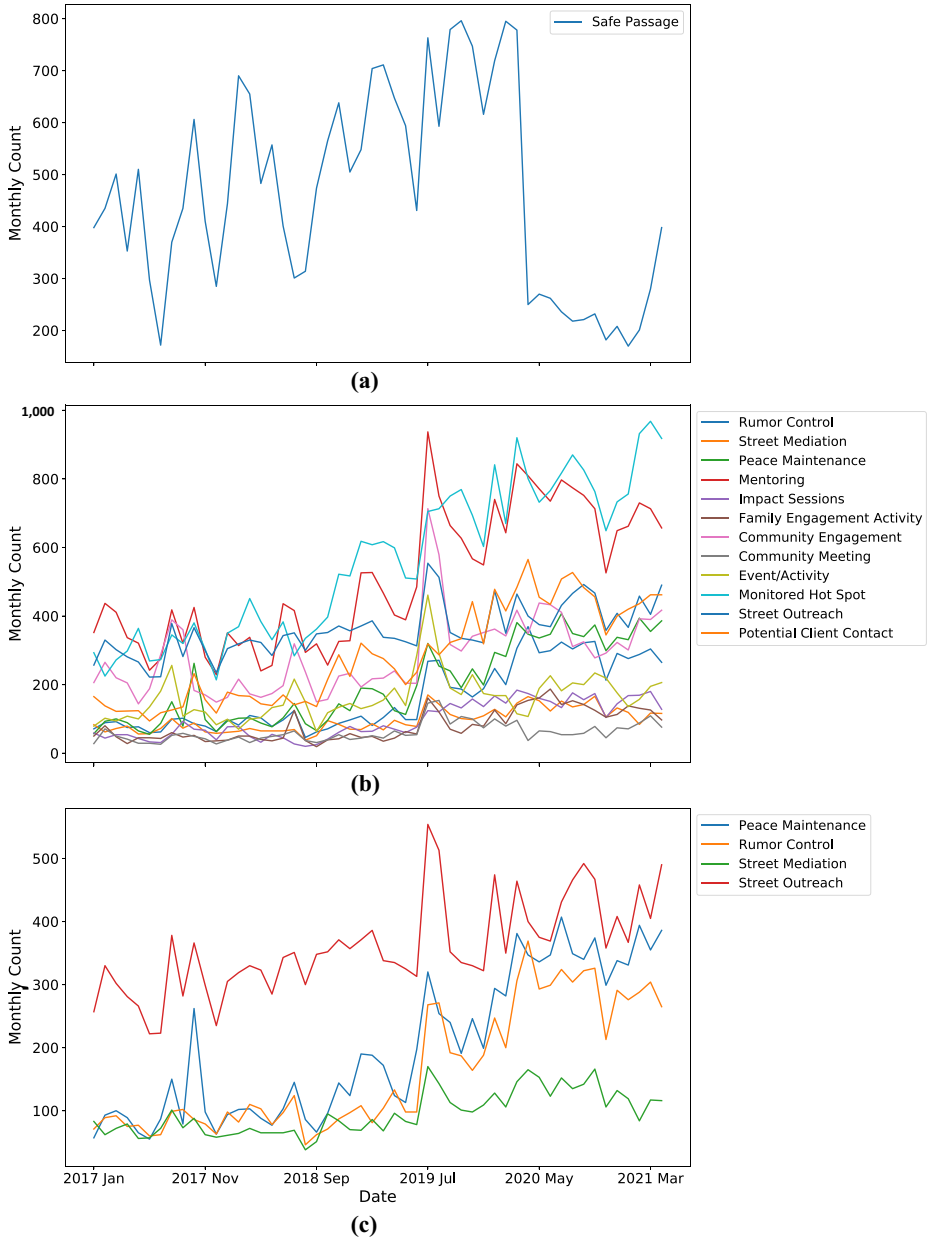
Results

Between January 1, 2017 and March 15, 2020, Proactive Peacemaking activities overall averaged 547.8 (sd 180.8) events per week. Field-focused Proactive Peacemaking activities averaged 155.6 (sd 43.6) events per week. GRYD IR Program activities averaged

36.8 (sd 15.8) events per week over the same period. Visual inspection of the time series for Proactive Peacemaking (Figure 2) and GRYD IR Program activities (Figure 3) reveals both short-term fluctuations as well as longer-term secular trends in activity levels before the onset of the pandemic.

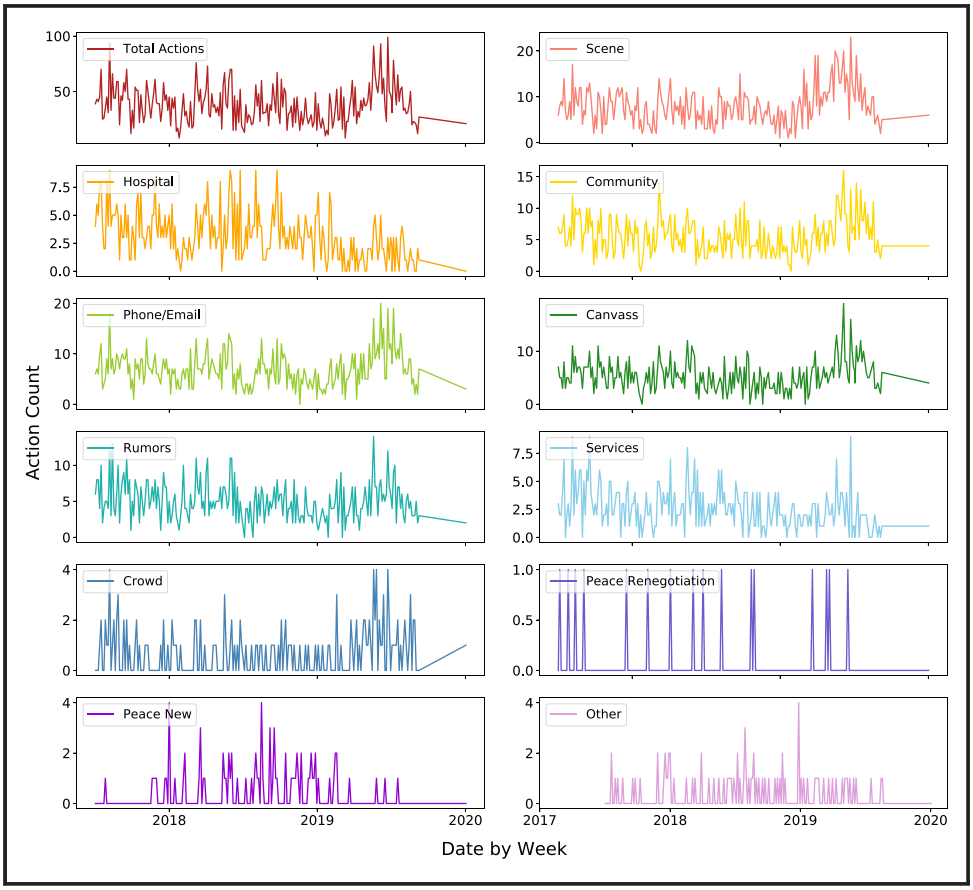
The onset of the pandemic had an effect that is visually apparent for certain activities. For example, GRYD's Safe Passage program, which involves CIWs escorting youth to and from school, saw a continuous upward trend in activities prior to the onset of the pandemic [Figure 2(A)]. The activity levels then fell precipitously as of March 16, 2020. The shift is

Figure 2 Time series for the number of GRYD proactive peacemaking activities



Sources: (a) Safe-passage activities; (b) all proactive peacemaking activities; (c) field-based proactive peacemaking

Figure 3 Weekly activity counts for GRYD CIWs in response to street violence



completely understandable as schools closed on March 16, 2020, and did not reopen for the remainder of the 2020 school year. By contrast, other core Proactive Peacemaking activities, such as street outreach, exhibited relatively consistent growth from Jan 1, 2017, without a visible interruption at the onset of the pandemic. Figure 2(B) shows all Proactive Peacemaking activities, while Figure 2(C) shows only those activities focused on common triggers of violence in the field. Some seasonal variation is apparent in GRYD IR Program activities (Figure 3). However, there is no obvious drop-off in any one activity type that coincides with the onset of the pandemic.

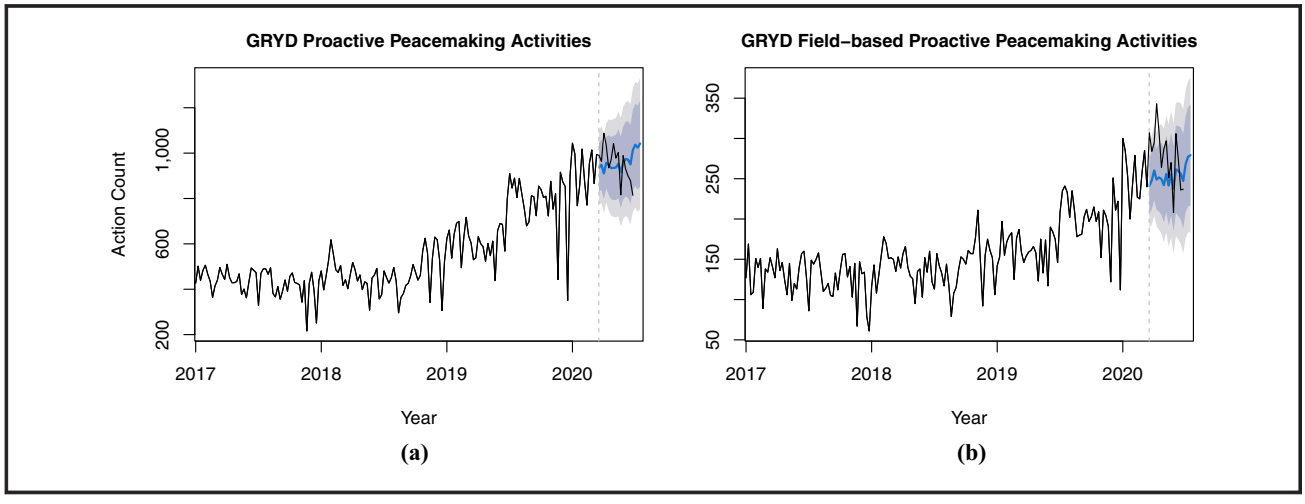
Autoregressive integrated moving average models

Table 2 presents ARIMA model parameters for each data domain. Figures 4 and 5 present the results of model forecasting. The forecasts for the 15 weeks between March 16, 2020 and June 29, 2020, are shown as a mean with 95% and 99% confidence intervals. Visual inspection reveals that the observed Proactive Peacemaking and GRYD IR Program activity volume was largely consistent with forecasts based on prepandemic conditions. There are a limited number of instances where activity spikes outside the 95% and 99% confidence intervals of the forecasts. There are intermittent weeks in which field-focused Proactive Peacemaking activities are higher than the 99% confidence interval and, similarly, where CIW activities at the scene of an event, in canvassing the community, and rumor control exceed this threshold. There are also intermittent weeks where the volume of activities is both lower and higher than expected given the 95% confidence interval of the

Table 2 ARIMA model parameters for each activity type estimated separately

Activity type	*ARIMA model (order, seasonality)*
Proactive peacemaking (all activities)	(3,1,0)(1,0,0)
Proactive peacemaking (field)	(3,1,0)(0,0,1)
CIW all activities	(1,0,1)
CIW: scene	(1,1,3)
CIW: hospital	(2,0,0)
CIW: community	(0,1,1)(1,0,0)
CIW: phone	(0,1,1)(1,0,0)
CIW: canvass	(0,1,1)(1,0,0)
CIW: rumors	(0,1,1)(1,0,0)
CIW: services	(0,1,1)(1,0,0)
CIW: crowd	(0,0,0)(1,0,0)
CIW: peace renegotiation	(0,0,0)(1,0,0)
CIW: peace new	(0,1,1)

Figure 4 ARIMA models and forecasts for (A) all proactive peacemaking activities and (B) field-based proactive peacemaking activities following 3/16/2020 onset of shelter-in-place orders



forecast. Notably, CIWs activities at hospitals in the aftermath of violent events is consistently below the forecasted mean and a string of consecutive weeks fall below the 95% confidence interval (Figure 5). This marginal reduction is somewhat understandable given the near saturation of hospitals with COVID-19 patients during the Summer of 2020. Visits by CIWs to the scene where violent events occurred trend in the other direction; in all but one instance visits to the scene are above the forecasted mean, but still within confidence bounds (Figure 5). The remainder of deviations in both Proactive Peacemaking and GRYD IR Program activities straddle the mean in a way consistent with the prepandemic trend and display a volatility that does not look out of place.

Event study analysis

We estimate equation (1) for all Proactive Peacemaking activities, Proactive Peacemaking activities that occur primarily in the field and CIW violence interruption activities in response to events. The models are estimated for the 50 weeks before and after the week of March 16, 2020, which marked the onset of pandemic restrictions in Los Angeles. The results are presented in Tables 3–5.

Figure 5 ARIMA models and forecasts for CIW activities after 3/16 (Category "Peace New" and "Other" are removed due to sparseness)

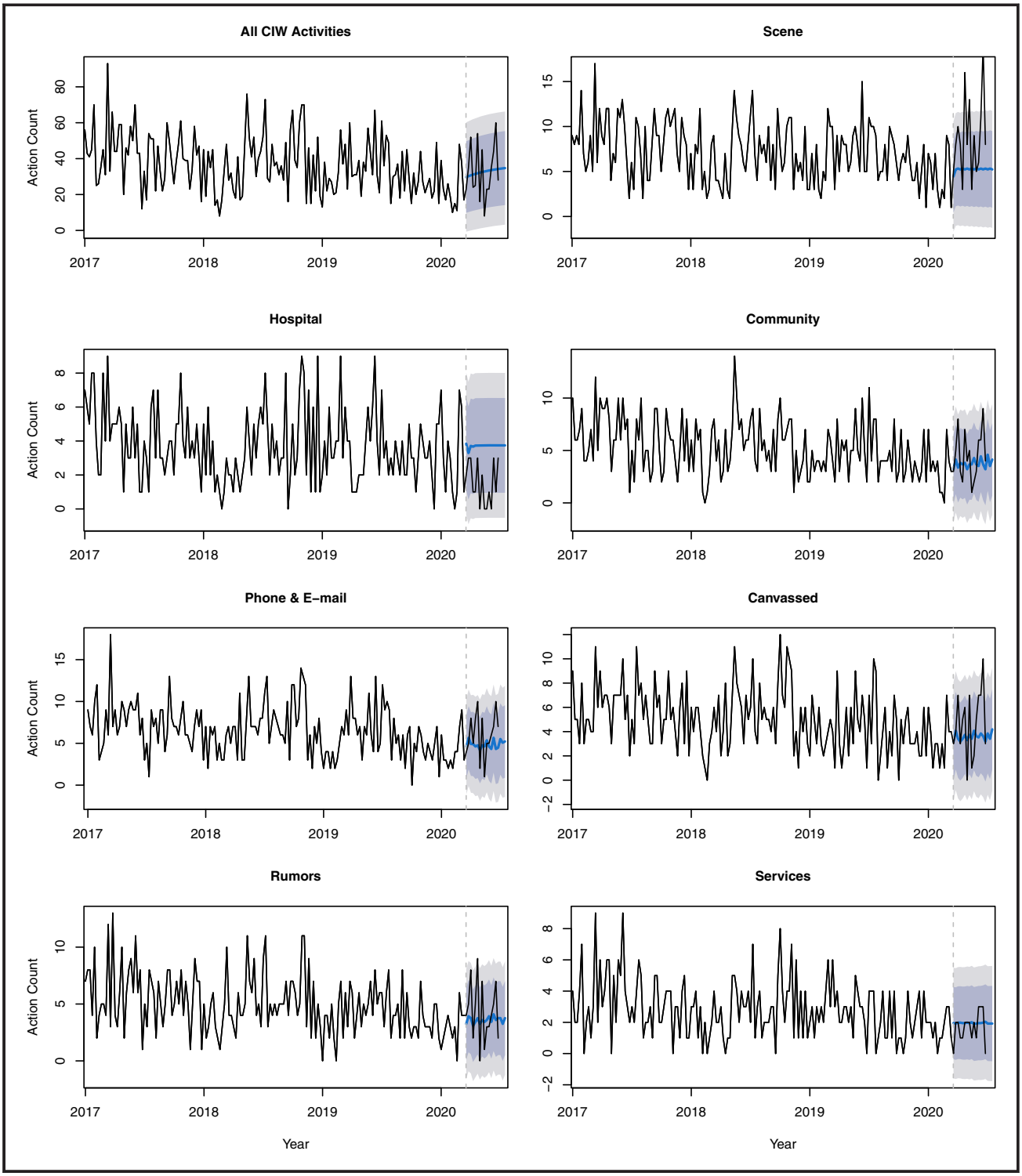


Table 3 Event study regression results for all GRYD proactive peacemaking field activities

Variable	*Coefficient*	*Robust SE*	*t*	*P > t*	*95% CI*	
$\beta 1$ ATT	97.61	46.73	2.09	0.04	4.84	190.38
γ_1 week	29.57	6.28	4.71	<0.001	17.09	42.04
γ_2 week × week	−0.09	0.02	−4.36	<0.001	−0.13	−0.05
γ_3 number of CIWs	10.98	3.97	2.77	0.01	3.11	18.86
γ_4 victims shot	−0.55	1.29	−0.42	0.67	−3.1	2.01
$\beta 0$ Baseline	−2,581.84	690.1	−3.74	<0.001	−3,951.86	−1,211.82

Proactive Peacekeeping activities overall saw a slight increase of around 18% (Table 3). There were, on average, around 97.8 more activities per week undertaken during the 50 weeks after the onset of the pandemic compared to prepandemic conditions (t = 2.09, p = 0.04). This effect emerges after controlling for linear and quadratic temporal trends, the number of CIWs active per week and the city-wide volume of violent crime. Proactive Peacemaking activities focused in the field saw an average of 48.7 more activities per week (t = 3.53, p = 0.001), representing a 31.9% increase over prepandemic conditions (Table 4). In both cases, the level of Proactive Peacemaking activity postpandemic is independent of the volume of violent crime city-wide (i.e. the estimates for γ_4 are nonsignificant) (Tables 3 and 4).

The volume of GRYD IR Program activity also saw a small increase postpandemic of 4.94 events per week (Table 5). However, the increase is not significant (t = 1.0, p = 0.32). In this case, the volume of violent crime city-wide is a significant predictor of postpandemic violence interruption activity (t = 2.23, p = 0.03) reflecting the fact that the GRYD IR Program is responsive to events as they occur on the ground. Since gang-related crime remained relatively stable during the early phases of the pandemic (Brantingham *et al.*, 2021c), it is understandable that CIW violence interruption activities under the GRYD IR Program would also not increase significantly, while remaining connected to the violence that did occur.

Table 4 Event study regression results for GRYD intervention efforts in the field

Variable	*Coefficient*	*Robust SE*	*t*	*P > t*	*95% CI*	
$\beta 1$	48.66	14.6	3.33	0.001	19.68	77.64
week	8.83	1.64	5.38	<0.001	5.57	12.09
week × week	−0.03	0.01	−4.88	<0.001	−0.04	−0.02
number of CIWs	3.32	1.15	2.88	0.005	1.03	5.6
victims shot	0.62	0.47	1.32	0.19	−0.32	1.57
$\beta 0$	−807.81	182.07	−4.44	<0.001	−1,169.13	−446.49

Table 5 Event study regression results for GRYD CIW activities in the field

Variable	*Coefficient*	*Robust SE*	*t*	*P > t*	*95% CI*	
$\beta 1$	4.94	4.96	1.0	0.32	-4.9	14.79
week	−2.08	0.6	−3.45	<0.001	−3.28	−0.88
week × week	0.01	0	3.54	<0.001	0	0.01
number of CIWs	−0.13	0.34	−0.37	0.71	−0.8	0.55
victims shot	0.42	0.19	2.23	0.03	0.05	0.79
$\beta 0$	190.2	59.05	3.22	<0.001	72.97	307.43

Discussion

Proactive Peacemaking and GRYD IR Program activities are vital components of the Los Angeles Mayor's Office of GRYD comprehensive strategy (Tremblay *et al.*, 2020). Proactive Peacemaking is focused on engaging the community in ways to prevent the emergence of violence. The GRYD IR Program involves rapid response to violent events when they occur to prevent follow-on retaliations. Proactive Peacemaking and GRYD IR Program activities complement the gang prevention and intervention efforts of GRYD aimed, respectively, at preventing youth from joining gangs and helping youth and young adults reduce their gang embeddedness if they are already involved.

The analyses presented here focused on the resiliency of Proactive Peacemaking and GRYD IR Program efforts in the face of exogenous shocks. Specifically, we examined whether the onset of the global COVID-19 pandemic, and severe social distancing restrictions implemented in Los Angeles in early 2020, impacted Proactive Peacemaking and GRYD IR Program activities. While the City of Los Angeles exempted GRYD's CIWs for the "safer-at-home" lockdown, it is an empirical matter whether the pandemic exerted other direct and indirect effects that may have curtailed the activities of CIWs. By and large, we found that both Proactive Peacemaking and GRYD IR Program activities either continued along their prepandemic trajectories or increased slightly. The results go beyond simply demonstrating that community-led interventions are sustainable (Skogan *et al.*, 2009) to show that they can be resilient (Alderden and Perez, 2021). The findings should give cities confidence that community-led solutions can be relied upon even under the most challenging circumstances that disrupt normal daily life.

There are important limitations to this study. We intentionally did not seek to estimate the effects of Proactive Peacemaking and the GRYD IR Program on violent crime over the period in question. The causal interactions between crime and any form of programmatic interventions in the field are difficult to tease apart under ideal circumstances. The challenges are particularly great in the present setting. We chose to include a measure of city-wide violence as a predictor for GRYD CIW activity in our models rather crime counts at finer geographic scales. Our assumption was that gradual crime trends, visible at the city-wide scale, are largely independent of the local actions of CIWs and, therefore, are more appropriate for setting baseline expectations for exogenous changes CIW activities over time. At the local scale, we expect complex feedback loops between local geographic crime patterns, which tend to be more stochastic than regional patterns (Mohler *et al.*, 2017), and bouts of intervention activity, which may be both cause and consequence of local crime. Future work will need to tackle the task of modeling causal cross triggering between crime and CIW efforts. Nevertheless, we conclude that the designation of GRYD CIWs as "essential workers" succeeded in the goal of retaining credible messengers for consistent support of the community at a time of crisis.

Note

1. As mentioned above, Brantingham *et al.* (2021a, 2021b, 2021c) have already shown that gang-related crime did not decrease at the start of the pandemic. Nevertheless, this is a theoretical possibility we need to consider in looking at the longer-term impacts on CIWs.

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