SPECIAL ISSUE ARTICLE

CUTTING-EDGE RESEARCH IN POLICE POLICY AND PRACTICE

Institutionalizing problem-oriented policing: An evaluation of the EMUN reform in Israel

David Weisburd[1,2] ⬤ | **Badi Hasisi**[2] | **Yael Litmanovitz**[2] | **Tomer Carmel**[3] | **Shani Tshuva**[2]

[1] George Mason University, Hebrew University

[2] Hebrew University

[3] University of Haifa

Correspondence
David Weisburd, Department of Criminology, Law and Society, George Mason University, 4400 University Drive, MS 6D12, Fairfax, VA 22030.
Email: dweisbur@gmu.edu

Research Summary: In 1979 Herman Goldstein proposed a radical reform—problem-oriented policing (POP)—which has had tremendous impact on scholars and practitioners. Even though his paper and subsequent work led to a large body of literature on how to carry out problem-oriented policing tactics, scholars have often ignored the question of how POP can be institutionalized in police agencies. In this article, we evaluate a reform in Israel—EMUN— that attempted to institutionalize problem-oriented policing on a national scale. Focusing on property crime, we compare three treatment stations (with high, moderate, and low crime) with control stations chosen through a systematic matching procedure. We find that there are large and significant reductions in the targeted areas (termed "polygons") for high- and moderate-property- crime stations as compared with the control stations. We also do not find evidence of displacement but instead evidence of significant diffusions of crime control benefits. Importantly, property crime declines occurred in these stations overall. Significant benefits were not found for the low-crime treatment station. We attribute this to the low base rate of crimes and low resource allocation in this station.

Policy Implications: These findings suggest that the EMUN reform provides a potential model for institutionalizing problem-oriented policing as an organizational reform. EMUN attempted to support and reinforce each of the main steps of the problem-oriented

policing model. It also developed sophisticated computer tools to aid in this process that not only supported problem-solving efforts but also allowed for wide-scale supervision of each stage of the POP model.

In 1979 Herman Goldstein proposed a new approach to policing that would refocus the police on the goal of solving problems and would expand the toolbox of policing so that innovative problem solving was a key part of the policing lexicon—what is widely termed "problem-oriented policing" (POP) today. His proposed reform has become one of the most important innovations in policing over the last 50 years and has been widely adopted by police agencies in the United States and around the world (Weisburd & Majmundar, 2018). Reviews of the effectiveness of problem solving as an approach suggest meaningful crime prevention benefits (Hinkle et al., 2020; Weisburd & Majmundar, 2018; Weisburd, Telep, Hinkle, & Eck, 2010). But at the same time, there is widespread agreement by scholars that Goldstein's organizational vision of problem-oriented policing has seldom been realized in practice (Boba & Crank, 2008; Leigh, Read, & Tilley, 1996; Maguire, Uchida, & Hassell, 2015; Sollund, 2007; Tilley & Scott, 2012).

Problem-oriented policing in the field is often a "one-off" response to specific problems (Mazerolle, Rombouts, & McBroom, 2007; Scott & Kirbey, 2012; Tilly & Scott, 2012) with little strategic coordination in the larger context of police agencies. Some scholars describe problem-oriented policing, even in programs that seem to generate meaningful crime prevention benefits, as a form of "shallow problem solving" seldom going much beyond traditional policing tactics (Braga & Weisburd, 2019; see also Boba & Crank, 2008; Bullock & Tilley, 2009). Despite Goldstein's original call for organizational reform, problem-oriented policing in practice has generally been implemented at the "front-line service delivery" level and has seldom been institutionalized in the broader organizational context of policing (Cordner & Biebel, 2005; Leigh et al., 1996; Maguire et al., 2015; Tilley & Scott, 2012). More generally, the lack of institutionalization of evidence-based reforms has been a major barrier to their successful diffusion in policing (Lum & Koper, 2017).

In this article, we focus on a recent effort, called "EMUN," in the Israel National Police (INP), to institutionalize problem-oriented policing across the entire national network of police stations. EMUN follows a small group of other efforts by innovative police executives to implement problem solving on a large scale (e.g., see Mazerolle et al., 2007; Mazerolle, McBroom, & Rombouts, 2011; Scott & Kirby, 2012; Weisburd et al., 2010). As we illustrate below, however, EMUN institutionalized its efforts through a coordinated system of reforms, backed by an innovative data platform, meant to support and reinforce the key elements of the POP model. We detail a quasi-experimental evaluation of the EMUN reform's impacts on property crime that illustrates the potential effectiveness of the program. Our findings suggest that the EMUN system created an organizational climate of evidence-based problem solving in which not only commanders but also ordinary police were exposed directly to the message of the reform and contributed to the process. In our discussion, we consider the implications of our findings for policing more broadly, as well as the limitations of the present study.

1 | INSTITUTIONALIZING PROBLEM-ORIENTED POLICING

It is clear that Goldstein intended for problem-oriented policing to be implemented at the organizational level. As Tilley and Scott noted:

> Goldstein had originally thought that POP would be performed at the highest levels of a police organization, such as the planning units that are commonly found in larger agencies: what would be required are newly trained staff and a reorientation of management that comes to appreciate that practice needs to be informed by knowledge…In practice, POP was introduced and implemented much closer than expected to front-line service delivery. (2012, pp. 126–127)

Although Goldstein's original formulation of problem-oriented policing raised questions of organizational reform, his seminal 1979 article focused primarily on how problem-oriented policing could be carried out in the field. More generally, scholars have paid little attention to how problem-oriented policing can be institutionalized in police organizations.

This is not to say that scholars have not been concerned with how organizational reform can aid problem solving. Indeed, many studies have talked about how problem solving can be supported by changes in the metrics that police use for success (e.g., Bayley, 2006; Manning, 2010; Skogan et al., 1999; Weisburd, McElroy, & Hardyman, 1988), or in the ways that problem solving should be nested in police organizations (e.g., see Goldstein, 1990; Walker, 2016; Weisburd, Willis, Mastrofski, & Greenspan, 2019). In turn, a good deal of study has documented how traditional police supervisory approaches hinder problem-oriented policing (Buerger, 1994; Capowich & Roehl, 1994; Cordner & Biebel, 2005; Read & Tilley, 2000; Weisburd et al., 1988).

This failure to institutionalize POP at the organizational level is not limited to problem-oriented policing, and it can be seen more generally as an impediment to successful implementation of innovative policing programs. As Lum and Koper (2017) remarked in regard to problem-oriented and community-oriented policing, another innovation pioneered by Goldstein (1987):

> Community policing and problem-oriented policing were likely viewed and developed as broader philosophies for policing, ones that should occupy the minds of every police officer and supervisor during his or her daily activities. Unfortunately, community and problem-oriented policing have not panned out in these ways because they were not institutionalized into the everyday systems of policing. (Lum & Koper, 2017, p. 151)

The impacts of a failure to institutionalize POP can be seen directly in the research literature, which includes a long series of descriptions of problem-oriented policing programs where the problem-solving process is weak or where problem solving is idiosyncratic and not part of a larger organizational effort (Braga & Weisburd, 2019; Buerger, 1994; Capowich, Roehl, & Andrews, 1995; Eck & Spelman, 1987; Goldstein & Susmilch, 1982; Read & Tilley, 2000). There is substantial evidence that the principles envisioned by Herman Goldstein are not being practiced in the field (Boba & Crank, 2008; Castillo, 2019; Maguire et al., 2015; Sollund, 2007; Tilley & Scott, 2012).

Deficiencies in current problem-oriented policing practices exist in all phases of the process. Several scholars have identified challenging issues in the substance and implementation of many POP projects, including the tendency for officers to conduct only a superficial analysis of problems

and rushing to implement a response, the tendency for officers to rely on traditional or faddish responses rather than conducting a wider search for creative responses, and the tendency to ignore the assessment of the effectiveness of implemented responses (Cordner, 1998; but also see Clarke, 1998; Read & Tilley, 2000; Scott & Clarke, 2000; Tilly & Scott, 2012). In his review of several hundred submissions for the Police Executive Research Forum's Herman Goldstein Award for Excellence in Problem-Oriented Policing, Clarke (1998) lamented that many problem-oriented policing projects bore little resemblance to Goldstein's original idea. Eck commented in 2000 that contemporary problem-oriented policing is but a shadow of the original concept, an assessment that remains relevant today.

Although many scholars have noted the failure of problem-oriented policing to be institutionalized widely in police agencies, such institutionalization was very much on the minds of the originators of the first department-wide implementation of POP in Newport News in the 1980s (Eck & Spelman, 1987). Drawing on Goldstein's work, and with his involvement, Eck and Spelman developed what is now the dominant model for implementing problem-oriented policing—SARA. It proposed that police would first Scan for problems that warranted police attention, then use multiple sources to Analyze the underlying causes of problems, develop Responses that often used innovative tools, and finally Assess whether the responses have been implemented and whether they had the desired impacts. In their original formulation of SARA and its implementation in Newport News, Eck and Spelman sought to create a policing model that would be institutionalized broadly throughout the agency. They noted that an operational system had to be designed and tested in which:

- Officers of all ranks and from all units should be able to use the system as part of their daily routine.
- The system must encourage the use of a broad range of information, including but not limited to conventional police data.
- The system should encourage a broad range of solutions, including but not limited to the criminal justice process.
- The system should require no additional resources and no special units.
- Finally, any large police agency must be able to apply it. (Eck & Spelman, 1987, p. xix)

They developed training meetings throughout the department and documented specific successful problem-solving efforts. But as Eck and Spelman (1987, p. 97) noted, problem-oriented policing was "far from being fully institutionalized" when they completed their report. Although Newport News provided key guidance to police agencies, a system of the type they imagined to support implementation and institutionalization of problem-oriented policing was not fully developed.

It is important to note that some police executives have tried to develop broad organizational reforms to support the institutionalization of problem solving in policing. One of the earliest of these was the development of Compstat, a program led by Commissioner William Bratton in New York City and developed in the early 1990s (Bratton, 1999; O'Connell & Straub, 2007; Silverman, 1999). Bratton did not directly adopt a problem-oriented policing model. Nonetheless, his reform has been described as a "comprehensive approach for mobilizing police agencies to identify, analyze and solve public safety problems" (Weisburd, Mastrofski, McNally, Greenspan, & Willis, 2003, p. 427).

Although Compstat promised an organizational reform that would encourage innovative problem solving, research has suggested that there was an internal contradiction to the Compstat

model that hindered its ability to achieve these goals. A national survey of police agencies conducted by the Police Foundation found that in its wider implementation in police agencies around the country, Compstat programs generally emphasized traditional elements of command and control but were less likely to carry out innovative problem-solving efforts on a broad scale (Weisburd et al., 2003). In ethnographic field work in three model Compstat agencies, innovative problem solving was seldom observed (see Willis, Mastrofski, & Weisburd, 2004a, 2004b):

> We did witness some innovation, such as the successful use of a comprehensive and coordinated problem-oriented approach to shutting down a dilapidated, crime-ridden rooming house in one jurisdiction, but this was the exception, not the norm. The vast majority of problem-solving approaches identified in these model CompStat agencies relied on traditional police strategies that had been used before – in particular, asking patrol officers to identify suspects and keep an eye on things, area saturation, stepping up traffic enforcement, "knock-and-talks," and increasing arrests. (Weisburd et al., 2019, p. 425)

The failure to achieve more in-depth problem solving in Compstat departments harkens back to Lum and Koper's (2017) criticisms of problem-oriented policing noted earlier. Compstat was not institutionalized throughout the NYPD. As Weisburd et al. (2019, p. 424) noted, "The … rank and file remain largely oblivious to CompStat. … it intrudes little, if at all, into their daily work [Willis, Mastrofski, & Weisburd, 2004b]. As one patrol officer put it, 'If you don't go [to Compstat meetings], you don't know.'"

A more recent reform developed in Australia, and built in part on the Compstat approach, more directly linked itself to the problem-oriented policing model, as indicated by the name of the reform—PSM (The Problem Solving Model).[1] Like Compstat, PSM was developed by a charismatic police leader who sought to reform a large police agency, in this case, the South Australian Police. Indeed, Mazerolle, Darroch, and White (2013) attributed the program's success in reducing property crime to the persistence and leadership of the Commissioner who created and led the reform for a decade:

> Commissioner Hyde's leadership rebuilt SAPOL from the top down and bottom up. … He recrafted the organization around problem solving and the best of available police innovations through long-term unremitting transformative leadership. He (Hyde) kept SAPOL focused on problem solving, eliminated obstacles and was uncompromising about keeping SAPOL on task. … A clear association was identified between the strength and determination of Commissioner Hyde's leadership and the implementation, persistence and effectiveness of the PSM model over more than a decade. (Mazerolle et al., 2013, p. 548)

The vehicle for institutionalizing PSM was the performance outcome review (POR), which like Compstat meetings allowed the Commissioner to have direct interaction with and supervision over regional commanders.

Importantly, however, the PSM reform did not simply focus on management control but placed emphasis on "POP methodologies" (Mazerolle et al., 2013, p. 547). Mazerolle et al. reported on regular "tasking and co-ordination group meetings" that would identify "emergent crime and disorder problems" and coordinate the use of "POP methodologies to reduce opportunities for crime." Unfortunately, as Mazerolle et al. (2013, p. 557) noted, their evaluation did not have qualitative

data on the institutionalization of PSM, and it is difficult to identify precisely how PSM encouraged the embedding of POP into the routine activities of the organization, nor to what extent its message was diffused through it.

2 | EMUN AND THE INSTITUTIONALIZATION OF PROBLEM-ORIENTED POLICING

The EMUN program ("Strategies for Prevention and Managerial Focus," the acronym spells the word "trust" in Hebrew), like earlier reforms we have described, was initiated in 2016 by an innovative police executive who sought to institutionalize problem-oriented policing. Commissioner (in Hebrew "General Director") Roni Alscheich, an outsider (previously Deputy Head of the General Security Services), had been appointed to carry out broad reforms in a policing service that had come under increasing criticism in the previous few years (Kubovich & Harel, 2015). His goal was to place prevention and problem solving as the most important goals of policing in Israel (Eisenbud, 2017). He sought at the outset to create an organizational system that would aid and reinforce innovative problem-solving efforts. His approach focused directly on the problem-oriented policing model as proposed by Eck and Spelman (1987).

EMUN shares similar attributes with other organizational reforms that have attempted to encourage problem solving. It used strong leadership to articulate values and encourage a problem-oriented approach to policing. The implementation plan included meetings of the commissioner with all senior commanders to introduce the reform, a workshop outlining the aims and technical aspects delivered by organizational consultants at each station across the country, and a training module for new recruits to the organization. The message of problem solving at a local level while consulting the community was infused throughout the organization in this fashion.

Importantly, EMUN sought to institutionalize all four steps of the POP model. The mechanisms of the process are in line with those described by Lum and Koper [2017; see also Nutley, Walter, and Davies (2007) on translating research to practice in public services]. Lum and Koper (2017, p. 150) argued that for evidence-based approaches to succeed they need to be "embedded into the systems of practice through standards, policies, procedures, and tools, or where funding or other resource or accountability mechanisms are used to coerce their use." As can be gleaned from the description of the EMUN reform below, it included the core elements described by Lum and Koper (2017): a crime analytics system; a change in strategic planning and management; engaging of the public; and new mechanisms for assessing performance that shift incentive and promotion structures. This approach is also aligned with Scott and Kirby's (2012) manual of how to structure and manage a problem-oriented police organization (for example, clarifying roles and responsibilities and developing the agency's ability to define, analyze, and assess problems), as well as with Boba and Crank's (2008) discussion of the paths and challenges to institutionalizing problem-oriented policing.

2.1 | Institutionalized scanning

EMUN institutionalized scanning by basing each station's yearly work plan on the identification of three problems that would be at the focus of the station's efforts and resource allocation. A "problem" is a significant crime or public order disturbances issue in the station's jurisdiction (the geographical area policed). This means that problems were no longer identified at the

district or national level, as was the case in the past in Israel, and no longer mostly reflected the "national priorities"[2] or those of the district commanders. Instead the problems needed to represent a meaningful local problem. This "meaningful-ness" was judged using a combination of criteria: First, it had to be seen as a problem by the stations' commanders based on local crime trends and their knowledge and expertise. But in addition, it also had to be seen as a problem by the residents of that locality. This was measured using a new survey that began that year, that assessed at the station level the crime problems residents were most concerned about (it also assessed local satisfaction with the police).

Scanning for problems became part of the yearly work cycle. The "problems" were part of several broad categories: property crime, violence, gun crime, traffic disturbances, noise disturbances, and so on. Beyond the identification of the crime category, to choose a crime problem, it had to be based on data that showed a real and consistent problem that was focused within a specific locality, usually a neighborhood (these locations were termed "polygons," referring to a continuous and usually convex area). Without being able to demonstrate this, the yearly strategic plan was not authorized. This authorization process was a standardized part of EMUN, carried out in the last months of each calendar year in preparation for the coming year. Stations had to enter a dialogue with the district and national command [specifically the Planning, Measurement and Information Unit (PMIU) at the strategy branch of Central Headquarters] to determine what the three problems would be. At least one problem had to reflect the priorities of the residents (which were usually more around order problems than crime—noise, traffic, etc.).

The station's choices of problems and locations were first presented to district command, then to national command, and were only accepted if they met numerical cut-offs (for example, in large stations there had to be more than 100 cases of property crime in the past year within the polygon). This dialogue process was routinized and became a fixed organizational process.

2.2 | Institutionalized analysis

For the yearly plan to be approved, the stations also had to present an in-depth analysis of the crime and disorder data, augmented by local knowledge of police officers in the station or of the citizens experiencing it. The central method for institutionalizing this aspect of the EMUN model was the creation of a sophisticated crime analysis system, which was introduced simultaneously with the reform and given the same name: the EMUN system. This sophisticated computer system was installed on each and every workstation across the organization, available to all ranks from field officers to middle managers to station commanders and up to central command. It was designed by in-house specialists: crime analysts, GIS experts, and business intelligence engineers. It provided a user-friendly interface for analyzing crime-and-disorder patterns at the level of place, months, and hours of the day (see Figure 1: screenshots of the EMUN computer system). The crime statistics could be viewed numerically at different levels: the entire station, a neighborhood, a polygon, or street segments. By simply clicking on a map icon, the data could be viewed on a map format as part of a "geographic portal" (see Figure 1, screen 2: "geographic portal"). The system is integrated with other police systems so each "event" in the system (which can be seen as a color-coded dot on the map) could be tracked in terms of its case status in investigations and the courts. This analysis process meant that stations focused their efforts to deal with the issues of choice in the geographical areas most affected, sometimes with attention to specific hot spots.
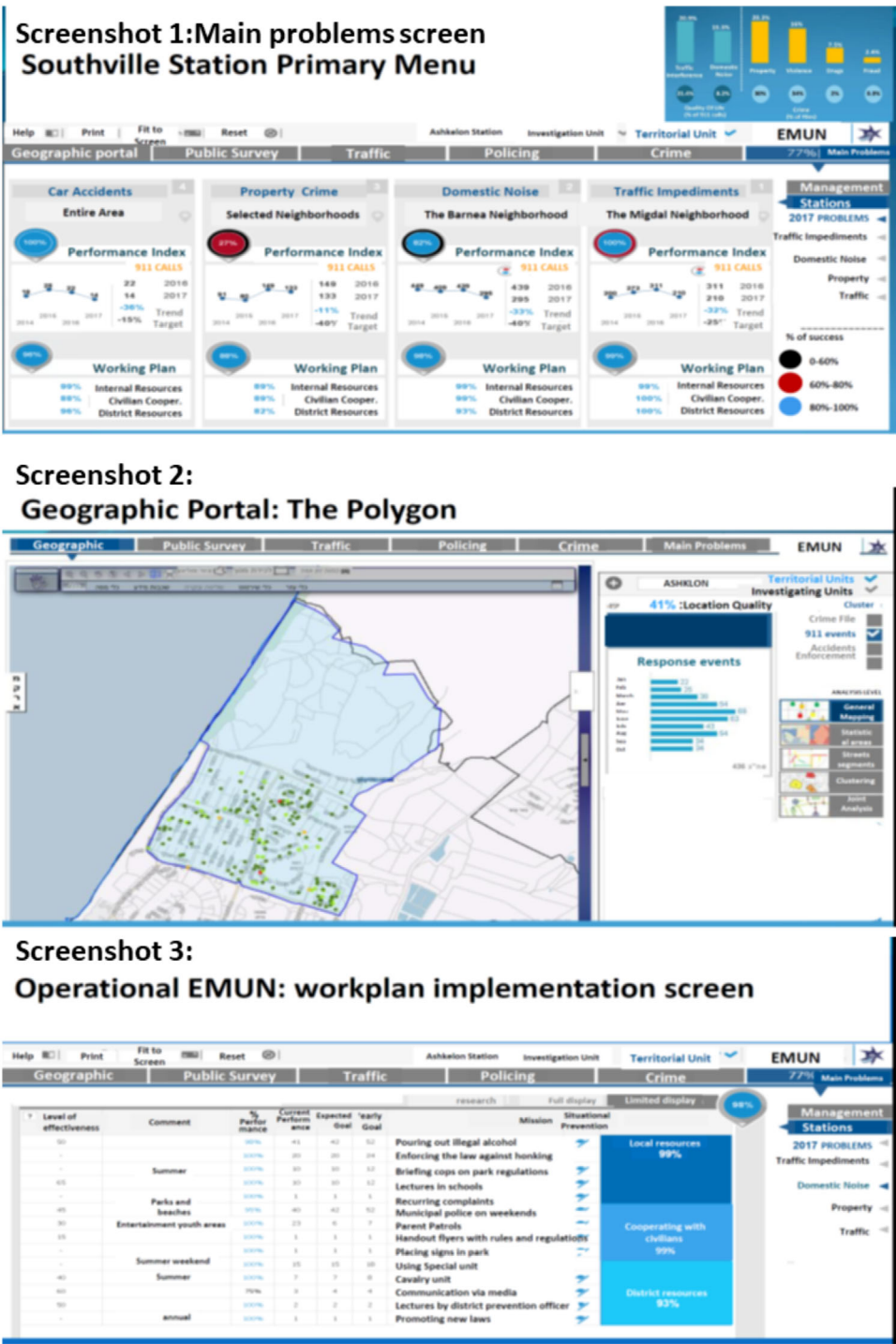
FIGURE 1 Screenshots of the EMUN Computer System [Color figure can be viewed at wileyonlinelibrary.com]

Note. These images are translated versions of the actual interface of the system including actual crime data and performance indicators, as would be available to an anonymized police station in the south of Israel during a specific day in May 2017.

Stations were also encouraged to "back up" this analysis by gathering input from citizens using roundtable discussions or through dialogue with community leaders. Such input could be used in justifying the choice of problem to central command.

2.3 | Institutionalized response

For each problem identified and analyzed, the station had to create an action plan ("attack plan" as it was termed). This plan had to correspond directly to the analysis of the problem. It had to include a range of actions to be taken to both prevent and police the problem. Although each station could choose its own list of actions, the reform shaped the responses by including several parameters. First, as befitting the strong connection between situational prevention and problem solving, situational prevention techniques (Bowers & Johnson, 2016; Cornish & Clarke, 1987, 2003) had to account for a third of the actions listed. This was meant to embed a preventive approach to policing in the stations' work and steer them away from using only traditional modes of policing.

Second, the actions had to rely on three types of resources: the stations own resources, which included primarily its manpower and police squads; district resources, which included a variety of "hard-to-reach" resources (from specialized crime units, technology, and paramilitary units) that traditionally only large stations had access to, and that would be key to dealing with the problem; and external resources, including resources from local municipalities (for example, use of the municipality's existing CCTV or using the municipality's budget to set up CCTV), other government actors (for example, joint projects with social workers or the welfare ministry) or private sector (for example, collaborations with security officers of a train company). This last aspect encouraged all stations to lead third-party policing efforts as "aggressive partners with other public agencies" (Goldstein, 1979; p. 257; see also Mazerolle & Ransley, 2019). In an austerity context in which police have limited resources, station commanders found themselves thinking outside the box, as well as looking for alternative solutions. It should be emphasized that this was not simply a suggestion: Without incorporating all three types of resources, as well as situational prevention elements, the action plan was not approved.

Although evidence-based policing was never part of the selling point of the reform in internal discussions, the resulting action plans nonetheless reflect evidence-based practice because the reform embedded these elements as strategies stations had to integrate into their daily work (Lum & Koper, 2017). As a result, at least some actions in each work plan include policing strategies that have been found effective in empirical studies: hot-spots policing (Braga & Weisburd, 2019; Braga, Papachristos, & Hureau, 2014; Sherman & Weisburd, 1995), which was a central element in the reform—all problems were tied to specific places; situational prevention (Cornish & Clarke, 1987, 2003); and third-party policing (Cook, 2011; Cook & MacDonald, 2011; Mazerolle & Ransley, 2019; Meares, 2006). Indeed, during the program, stations literately scored points in the internal performance evaluations by incorporating tactics from evidence-based strategies into their work plan.

Each problem was assigned a coordinator from the senior ranks of the station who became responsible for delivering the plan. They were chosen both on the basis of the relevance of their job descriptions to the problem (e.g., head of investigations or head of operations) but also based on merit. This created a taskforce approach for dealing with problems, with the coordinator enlisting all relevant personnel and position holders to work together in implementing the response, as part of the everyday operations of the police station. Part of the coordinators' responsibilities was to document the planned outputs on a weekly basis, ensuring supervision of implementation by

frontline officers. By creating this position, EMUN changed the management and supervision structure of the organization (see Lum & Koper, 2017).

2.4 | Institutionalized assessment

The assessment aspect of the EMUN reform aimed to create a system characterized by transparency and accountability, in which each station competes with itself rather than with others. It did not ignore the hierarchical, achievement-driven organizational police culture but shifted the focus of attention from how stations were preforming on a long list of crime statistics to how they were performing in dealing with their chosen problems. It also shifted the meaning of success: Success was now measured in prevention, not only in outcomes like numbers of arrests. Every police station and every police unit were asked to review its actions by referring to their contribution to the prevention of crime.

The key mechanism to institutionalizing the assessment can again be found in the crime analysis system that doubled as an assessment system. The "home page" of the system is termed the "problems page" (Figure 1, screen 1: "main problems" screen). On this page the three chosen problems of that year (as well as the fourth generic "traffic accidents" problem) are displayed with clear visual indications of how the station is performing. The screen is divided into four, a section for each problem. In each section, the problem category is named alongside the geographical location (i.e., Domestic Noise and Flowers Neighborhood) and, below this, the statistics indicating whether crime reductions were being achieved across time. The performance was displayed using both a percentage score and a color-coded indication if the station was meeting its targets of reducing crime in comparison with the previous year. Different colors (blue, black, and red) provided a quick indication of the station's status regarding crime within the polygon (the chosen area the station focused on) as well as outside it in the entire station area. At the bottom of this problem screen, a different score was displayed, reflecting the implementation of the action plan (i.e., were the outputs listed in the action plan carried out), with the three types of resources (internal, district, and external) each given a score (see Figure 1 screen 3: implementation of the action plan).

The EMUN system ensured analysis, response, and assessment were not disjointed elements of a process but an on-going holistic work process. It is a live system, which updates automatically and is available on each organizational computer. The assessment became a constant activity. Station commanders and top officers began and ended each day with the problems screen. They and their superiors (district and national command) could track their performance and decide whether different actions should be used that may improve their ability to deal with problems.

The performance system was also available to all officers in the station and indeed was used to communicate the station's achievements and failings; it was a strategy to involve the frontline officers needed for successful implementation of the action plan. Other stations could also see this information, and it was often used to inform peer learning across the organization: What have they done that I could do? The central command published half-yearly advice on actions that had led to the best results in each problem category to encourage stations to examine and revise their action Plans and improve their outcomes. If performance indicators were low, the station command was encouraged by Central Headquarters to assess whether this was a result of deficiencies in carrying out planned activities or a problem with the plan itself; in which case, the plan should be revised.

3 | EVALUATING THE EMUN REFORM: THE CASE OF PROPERTY CRIME

The INP chose property crime as the key outcome for the evaluation project.[3] Property crime in Israel, as in the United States and many other countries, is the most common problem to be dealt with by police, and it occupies a central place in resource allocation. In 2017, 34% of crime incidents in Israel were property crimes, as contrasted with 20% violent crimes (Annual Statistical Report, 2017). A national survey of communities conducted by the INP found that property crime ranked second in crime problems that citizens were concerned about, after traffic offenses (Annual Statistical Report, 2017, p. 84). The INP defined property crimes for the purpose of the EMUN intervention as including burglary of house, burglary of business, stolen car, and theft from a car.

Because the EMUN initiative was implemented before our work began, we could not use a randomized design to assess the program. The challenge we faced was to identify a quasi-experimental method that could demonstrate plausible counterfactuals, thereby aiding in making causal claims regarding the effectiveness of this treatment package and the organizational approach more generally. The strategy chosen (see below) was to compare property crime rates at three randomly selected stations that chose to focus on this problem ("intervention stations") as part of the EMUN reform with matched stations that did not focus on property crimes during the same time frame ("control stations").

3.1 | The intervention stations

As described above, a defining element of EMUN—as a reform that institutionalizes POP—is that each year stations choose three local problems to focus on ("scanning"). For property crimes to be chosen means they were significant in the eyes of that station's commander, and that the District and Central Command were convinced of this. To reach the threshold of a problem being considered a significant, "burdening" problem that was worth targeting, it had be a) extensive enough in terms of the crime statistics at the station-wide level and b) reach a numerical cut-off within a defined geographical location.[4] As described above, this area was termed a "polygon," and it is where the station's efforts were focused. The problem in the intervention stations was chosen not as a general property crime problem but as a unique manifestation of either one or all four of the property crime subtypes in a clearly defined location. In addition, it had to be c) seen as important to the local residents, as was determined by the station-level representative survey assessing citizen's priorities.

In 2017—the first full year in which the EMUN program was implemented— more than a third of stations chose property crime as one of the problems they would focus their efforts on (as part of the institutionalized scanning stage). These stations, which are of varied sizes, located all across the country, and serving diverse populations, make up our selection sample for intervention stations. The inclusion criterion was all stations that chose to focus on property crime in 2017 but had not done so in 2016 (as this would have given them a "head start" advantage). We excluded from this pool stations with unique characteristics, for example, new stations, or stations serving East Jerusalem and the West Bank. Twenty-two stations met these criteria. To also ensure the diversity of stations included in the study in terms of the breadth of the problem, one station was chosen randomly from each of the three crime levels defined for the study. The levels were set after

examining the distribution of the stations according to property crime volume: a low level (less than 450 cases per 100,000 residents), a moderate level (450–900 cases per 100,000 residents), and a high level (more than 900 cases per 100,000 residents).

3.1.1 | Characteristics of the intervention stations

Station A was selected from the pool of stations in which there was a high volume of property crime in the station. It is one of the country's larger police stations, serving a sprawling urban area as well as its sparsely populated surroundings. The polygon chosen as the focus of treatment included a large disadvantaged residential neighborhood with some commercial pockets, a hospital, a large university campus, and a train station. As part of the analysis stage, the station identified several discrete property crime "problems" within the polygon. The yearly action plan, which forms the institutionalized response stage, included 11 strategies and tactics that were tailored to dealing with these particular problems. For example, one problem involved thefts from cars in the hospital parking lot, and part of the strategy for dealing with this was to initiate collaboration with the head of security at the hospital. Our process evaluation indicated that of the 11 actions, several were novel for this station, mostly the third-party policing efforts and varied situational prevention techniques (including road closures, supervision of alcohol sales, and awareness-raising initiatives). Five items related to improving existing practices in terms of both quantity (more patrol in "hot" areas) and quality (using a more sophisticated technological apparatus for intelligence gathering).

Station B was selected from the group of stations with a medium volume of property crime. It is a large station in the center of Israel that serves a medium-sized city with a mixture of urban and suburban areas, as well as several towns that surround the city. The polygon included two well-off residential neighborhoods that experienced high volumes of breaking and entering and car thefts. The neighborhoods are located on the southern edge of the city; this location, with easy access to escape routes, was analyzed as both a cause of the problem and a possible key to dealing with it. Making connections between crime and place was a significant part of the station's response plan.

The process of analyzing the problem and designing the response to deal with it drew on in-depth analysis of crime statistics, and an on-going process of consultation with the city's residents as well as police officers across all ranks. Ensuring the buy-in and involvement of the station's personnel was deemed as central to the success of implementing these strategies, and was achieved through constant communication and quality supervision. The yearly action plan noted nine interventions, including three that have been identified in the literature as effective for reducing property crime: street lighting (Welsh & Farrington, 2008a), CCTV (Eck & Guerette, 2012; Piza, 2018; Welsh & Farrington, 2008b, 2009), and neighborhood watch (Bennett, Holloway, & Farrington, 2008).

Other interventions concerned focusing station personnel and other resources to address specific trends; for example, the analysis stage revealed breaking and entering carried out by construction workers coming from a nearby site on Wednesday nights before they traveled home for the weekend. The response included prevention through enforcement of unlawful hiring practices at the construction site managers' level.

Station C was drawn from the group of low-rate property crime stations. It is a small station serving two small cities and the large countryside in between them. In recent years, it dealt with stretched resources as a result of a steep rise in population in the larger of the two cities. The polygon selected covers the entire area of the smaller city and an adjunct town. The yearly action

plan included nine discrete interventions. One of the main findings of the process evaluation was the limiting effect of the scarcity of resources—both actual and symbolic—on the successful implementation of problem-oriented tactics.

Although the analysis of the problem pointed to a numerous potential responses, these could not be realized. For example, even though the station aimed to gain access to regional municipal resources, it was not able to achieve this goal. Commanders tried to make the best use of existing resources by including as part of their response "low-cost" solutions such as concrete barriers on the city's outskirts and awareness-raising sign-posting directed at both criminals and citizens; both tactics were categorized as situational prevention.

3.2 | Selecting the control stations

Once the intervention stations were selected, two control stations that did not select property crime as a focus for either 2016 or 2017 were matched to each intervention station. We chose a two-station match approach because we wanted to decrease the potential error of having unusual outcomes in a specific station. We thought that evidence of consistent impacts relative to two matched controls would provide greater validity to our findings. Similarly, much different impacts would raise questions regarding the validity of drawing conclusions from the comparisons.

Control stations were matched to each selected intervention station on the basis of geographical characteristics, including the total area of jurisdiction; demographics within its jurisdiction, including population size in the area of the station, population density in the jurisdiction inhabited area, median income, and proportion of registered Jewish residents; and operational characteristics of the station, including number of property crime cases in 2016, and the total number of calls to the emergency dispatch service in 2016.[5]

Matching using predictive modeling, such as propensity score matching, was not feasible as a result of the small pool of possible control stations. Instead, the matching station characteristics were first standardized, and then each station was represented by a point in a multidimensional space where each dimension represented one standardized characteristic. Finally, the Euclidean distance between each selected intervention station and all possible control stations in the multidimensional characteristics space was calculated and used as a measure of similarity. Each characteristic received equal weighting as there was no a priori rationale to assume priority for some of the station attributes over others. The two possible control stations most similar to each selected intervention station were chosen as controls.

To validate the control stations, the stations identified were then reviewed by the central command unit (PMIU) in charge of implementation of the EMUN reform. This phase of control selection oversight made sure that the selection made sense to specialists that work in the field, harnessing existing organizational knowledge not available to the researchers. A control station that was found to be an unfit match by the unit was replaced with the possible control station that was next closest to the intervention station. One low-rate intervention station control was disqualified as a match at a later time in the study, and it was removed from analysis without replacement as a result of difficulty in completing data collection. Hence, the low-rate intervention station was compared with only one control station.

To compare intervention and control station impacts in the polygon area, a comparable control polygon had to be created for each control station. To identify control polygons, we mimicked the organizational process for defining and approving polygons in the treatment stations. Researchers met with control station commanders and their staff (the heads of detective offices

and intelligence officers), asking them to identify a relevant area they would have chosen, if they would have focused on property crimes. The control stations' command team was provided with the data that would have been available to them at the end of 2016 to make that decision, and several guiding questions to assist them in marking such an area on a map. The polygons that were marked were then examined by the PMIU and the INP Geographic Analysis Unit for verification and adjustments, similarly to the original polygon selection process.

3.3 | Statistical analysis

We measured crime outcomes based on the number of new investigation cases opened, a measure roughly equivalent to crime incidents in American police agencies. The analysis implemented a difference-in-differences (Donald & Lang, 2007) design, comparing the number of property crimes in the year prior to the EMUN initiative to the year after the intervention started. Change before and after the intervention was compared between intervention and control stations to remove any national trends in property crime. Analyses were conducted using Poisson regression with time period (before vs. during the experiment), station (intervention vs. control), and the interaction between time period and station (treatment versus control) as independent variables. The dependent variable was the number of newly opened investigation cases for property crime each month. The monthly count allowed for random error estimation, ensuring multiple data points in every time period for every station, while maintaining reasonable numbers of incidents that fit the Poisson assumption. The model for the analyses can be represented as follows:

$$R = e^{(\beta_o + \beta_s I_s + \beta_t I_t + \beta_{s(t)} S_{(t)})}$$

The analysis was designed to test the impact the EMUN initiative had on property crime at three levels: inside the polygon, outside the polygon, and at the jurisdiction level. The analyses at the polygon level tell us whether the intervention had the desired impacts in the areas where the intervention was focused. This is the main test of the treatment. But a key question is whether if there was a treatment impact it displaced crime (Repetto, 1976) to areas outside the polygon, or whether it led to a diffusion of crime control benefits in those areas (Clarke & Weisburd, 1994). This was tested by comparing intervention and control trends outside the polygon. Lastly, we conducted a general assessment of the intervention in the station to examine whether the intervention reduced crime in the jurisdiction overall (in contrast to the control stations). These analyses respond to the concern that targeted initiatives may not have overall jurisdictional impacts (Nagin & Sampson, 2019). Analysis was conducted for each pair of intervention-control stations separately, and it is presented for each of the three treatment stations, representing low, moderate, and high rates of property crime.[6] Normality of error terms was conducted using the residuals of the models. Since the analysis is based on serial data, autocorrelation was initially tested on station-level data. Only autocorrelation for lag 1 was found, and it was small (r1 = .189). The autocorrelation was also evident in analysis of the normality of the error term, showing appropriate shape and low skewness but a slight under-dispersion. The effect of the under-dispersion, tested by comparing a Poisson regression model with a quasi-Poisson model, was negligible, resulting in similar results. Hence, the autocorrelation and its resulting under-dispersion were not accounted for in the model.

T A B L E 1 Comparison by Poisson regressions of high-crime intervention station (A) with respective controls inside and outside the polygon, and in total

Variable	Inside polygon			Outside polygon			Total		
	Diff.	*Z*	*p*	Diff.	*Z*	*p*	Diff.	*Z*	*p*
Vs. control 1									
Station	−39.3%	−6.21	<.001	92.0%	26.24	<.001	72.9%	23.39	<.001
Time	2.0%	.25	.80	−.5%	−.20	.84	1.8%	.69	.49
Station × Time	−48.9%	−4.17	<.001	−5.4%	−1.13	.26	−10.8%	−2.44	.015
Vs. control 2									
Station	−59.3%	−11.97	<.001	31.0%	12.21	<.001	17.8%	7.84	<.001
Time	−7.0%	−1.02	.31	7.3%	3.09	.002	7.7%	3.36	<.001
Station × Time	−39.9%	−3.38	<.001	−17.2%	−4.26	<.001	−18.5%	−4.88	<.001

Notes. Diff. denotes rate of difference between conditions compared with the control station and the time period prior to intervention. Station denotes overall difference between stations throughout the study period. Time depicts average trends over time. The interaction term between treatment and time denotes difference in trends between stations.

4 | RESULTS

The main results for our high-crime-rate station are presented in Table 1. The relevant variable of interest is the interaction between station and time, which represents the difference of difference for treatment versus control stations. In the tables, we exponent the coefficients to provide an easier interpretation of the outcomes. The raw outcomes of the analyses are reported in Appendix A. As compared with control station 1, there was a relative almost 50% decline in property crime in the polygon in the treatment station, which was significant at the .001 level. The impact was also large when compared with control station 2 where there was an almost 40% relative decline in property crime in the polygon. There is no evidence of displacement in either comparison, and in the comparison with control station 2, there is a 17% decline in property crime outside the polygon (p < .001). For the stations overall, there are statistically significant relative declines of 11% and 19%.

The results are similar in the moderate-crime station comparisons (Table 2). For the comparison with control station 1, the time by station interaction suggests that there is almost a 50% decline in property crime within the polygon in the treatment as contrasted with the control station. There is almost a 30% decline outside the polygon, as well as a more than 30% decline in the treatment as compared with the control station in the jurisdiction overall. These outcomes are all statistically significant at greater than the .001 level. In the comparison with the second control station, the reduction is more than 40% within the polygon (p = .004). The results outside the polygon still are in the direction of a diffusion of benefits but overall insignificant. There is an overall statistically significant 12% relative reduction in crime (p = .015) in the jurisdiction as a whole.

As noted above, the low-rate intervention station was compared with only one control station (Table 3). In this case, there was also a relative decline in the polygon in the treatment station, but it was modest and not statistically significant. We do observe a relative increase in crime outside the Polygon of 50%, although the result is not statistically significant at the .05 level (p = .058) likely because of the smaller number of events in the low-crime-rate stations. There is also an increase in crime in the treatment station relative to the control station in the station overall, but again this result is not statistically significant (p = .187).

TABLE 2 Comparison by Poisson regressions of moderate-crime intervention station (B) with respective controls inside and outside the polygon, and in total

Variable	Inside polygon			Outside polygon			Total		
	Diff.	Z	p	Diff.	Z	p	Diff.	Z	p
Vs. control 1									
Station	−19.1%	−3.48	<.001	−11.5%	−5.02	<.001	−12.5%	−5.89	<.001
Time	−13.9%	−2.49	.013	.1%	.03	.98	.1%	.06	.95
Station × Time	−49.8%	−5.67	<.001	−29.6%	−7.216	<.001	−32.8%	−8.80	<.001
Vs. control 2									
Station	215.3%	12.56	<.001	48.1%	14.06	<.001	59.8%	17.66	<.001
Time	−21.4%	−2.44	.015	−14.6%	−5.45	<.001	−15.3%	−5.78	<.001
Station × Time	−41.2%	−2.91	.004	−7.1%	−1.33	.185	−12.1%	−2.42	.015

Notes. Diff. denotes rate of difference between conditions compared with the control station and the time period prior to intervention. Station denotes overall difference between stations throughout the study period. Time depicts average trends over time. The interaction term between treatment and time denotes difference in trends between stations.

TABLE 3 Comparison by Poisson regressions of low-crime intervention station (C) with its respective control inside and outside the polygon, and in total

Variable	Inside polygon			Outside polygon			Total		
	Diff.	Z	p	Diff.	Z	p	Diff.	Z	p
Station	76.6%	3.95	<.001	4.7%	.42	.671	27.0%	2.79	.006
Time	47.4%	2.57	.010	28.2%	2.26	.024	31.2%	3.00	.003
Station × Time	−10.9%	−.40	.688	51.1%	1.90	.058	25.4%	1.32	.187

Note. Diff. denotes rate of difference between conditions compared with the control station and the time period prior to intervention. Station denotes overall difference between stations throughout the study period. Time depicts average trends over time. The interaction term between treatment and time denotes difference in trends between stations.

Both because we only have one comparison for this station, and because the results are not statistically significant, we do not want to overinterpret our findings. Nonetheless, our qualitative work, as noted earlier, suggests that this outcome could be a result of the limited resources available to this station with which to implement the treatment.[7] The entire station had only two police squads per shift with which to police its entire jurisdiction, EMUN problems included. In turn, it did not manage to secure additional resources from the district, and the station did not have the political capital to impel the local council to join its efforts to prevent property crime, resulting in an absence of the third-party policing component of the treatment.

5 | DISCUSSION

We find that EMUN achieved its crime prevention goals, at least in the examples of moderate- and high-crime police stations. And the crime prevention benefits we observe in our quasi-experimental comparisons are meaningful. Within the polygon areas where the interventions were focused, we observed relative declines in property crime rates of 40% to 50%, and we find a diffusion of crime control benefits to areas outside the polygon target areas. The reform accordingly led to strong prevention benefits in the targeted locations, and those benefits seemed to diffuse outside the polygons. Given recent concerns that targeted place-based approaches may

not lead to jurisdictional impacts (Nagin & Sampson, 2019; Weisburd & Majmundar, 2018; Weisburd, Braga et al., 2017), our findings of significant reductions in the stations overall is particularly important.

The EMUN reform builds on earlier efforts in Newport News, New York, and Australia, as well as other jurisdictions. For example, it recognizes the importance of leadership (see Eck & Spelman, 1987; Weisburd et al., 2003), especially the key role that a police commissioner has in changing the culture of police agencies (see Mazerolle et al., 2007). It also adopted the organizational approach of emphasizing accountability through publicizing the achievements (and failures) of local commanders (Mazerolle et al., 2007; Weisburd et al., 2003). But EMUN added to this a coordinated system of support and control that focused directly on each of the four stages of problem solving in the SARA model. We described this in detail earlier, but we think that the success of EMUN is very much linked to the ways in which the EMUN computerized system aided and reinforced scanning, analysis, response, and assessment. The EMUN system was as much part of the efforts to institutionalize the reform as was the philosophy that surrounded it.

Another key advantage of the EMUN reform in institutionalizing POP was its diffusion of its message to the broad array of police officers in the stations. In New Port News, evaluators were concerned about the fact that problem solving was not diffused across the agency but was primarily experienced by the minority of officers that had been involved in problem-solving projects. As we noted earlier, Compstat primarily impacted commanders and especially those that came to Compstat meetings: "If you don't go [to CompStat meetings], you don't know" (Weisburd et al., 2019, p. 424). In contrast, in EMUN, commanders and ordinary police officers were exposed directly to the message of the program not simply through training and meetings but also through the computerized EMUN system. The success of meeting the problem's target score became their personal success stories. And commanders understood the key role of ordinary police officers. As one police commander told us, "This is a (reform) process that begins with implementation. All the people involved need to understand the rationale."

Our process evaluation suggested that this was not simply rhetoric. The screenshots of the "problems screen" of EMUN were sent to station officers daily via WhatsApp, and the results of data communicated regularly at meetings for all levels. One commander told us:

> Today all officers are in a WhatsApp group (for this purpose). From the desk sergeant to the most senior officer. And using polygons (as a work process) has caught on, meaning it has put center stage the mapping of prominent streets. The patrol units are required to allocate a squad car in favor of the polygon and provide updates on its status. It is hierarchical (only in the sense that) it is the station commander's policy. The work ethic is down to the individual. … The prioritization trickled down from above.

And this diffusion of the message of EMUN in the stations seems to have overcome some of the weaknesses of the problem-solving approach noted in evaluations of POP. Our process evaluation suggested that the EMUN reform was delivered with relative fidelity (Litmanovitz, Hasisi, Weisburd, & Tshuva, 2019). All three treatment stations included all core components of EMUN. They scanned, analyzed, and provided responses to the geographically focused property crime problems in the jurisdictions. There is a variation in how this was operationalized, and we observed for example generic analysis techniques alongside more innovative ones, such as an on-going consultation with veteran rank-and-file officers to use their insights. But all three of the stations'

action plans included situational prevention techniques, third-party policing, hotspots policing, and community-related initiatives.

And these prevention approaches were often innovative. For example, in one case, the police used boulders to prevent access to areas where problems had been identified. The commander in the station noted: "There was an (unpaved) passage in the polygon that served as an escape route (for property crime gangs). So through city hall, through our connections to them, city hall placed concrete boulders and we blocked the possibility for cars to enter and exit."

In another station, a senior crime analyst described their growing reliance on third-party policing:

> In terms of collaborations I feel a change in how we collaborate with city hall. Once we had that focus of getting them on board for situational prevention it opened the door to dialogue, consultation, and working together. The discussions regarding the polygon—because it was part of a policy—we could push and push until we got (what we needed). When we understood it was working we mobilized them towards more tasks.

The head of patrol in another station described their use of hot-spots policing approaches: "To work on property crime you need to use road blocks, you need community officers, you need volunteers, you need to map the phenomena, map the hours. To make a significant reduction (you need to) show them we are there. (The criminals) definitely saw more officers."

Our process evaluation suggests that despite the broader diffusion of the message of the EMUN reform, and its institutionalization of problem-oriented policing, elements of the EMUN system departed from the original POP model in specific ways. For example, problems in the EMUN system were sometimes defined in broad terms, in contradiction of the goal of focusing on specific crime problems (Eck & Spelman, 1987). This was a result of stations artificially enlarging their polygon by adding on more streets or areas until they reached the numerical cut-off that would allow them to select the problem. In extreme cases, they were led to choosing entire small towns as their polygon, even though the problem as they analyzed it was in a specified area. For the same reason—of meeting a numerical cut-off—some stations added on subtypes of property crime instead of focusing on a defined problem; for example, instead of focusing on theft from private homes, they dealt in parallel with thefts from businesses, even though it was not part of the same phenomenon and lacked internal coherence.[8] There was also concern among some commanders that focusing so heavily on one problem would lead to ignoring others in the station.[9] Although this kind of standardization of what should count as a problem is necessary in organizational programs, it came with a price.[10]

In turn, although there was a strong community element to the EMUN reform, in practice, the problems identified revolved around traditional crime and disorder problems. Property crime was a key focus because of community concern. Nonetheless, the focus on crime and disorder reported to the police as an important criterion for focusing on a problem limited the scope of problems identified.

Finally, we think that further testing in other contexts is essential before reaching definitive conclusions regarding the success of the EMUN reform. Although our quasi-experimental design identified strong matched comparison stations, we recognize that such designs do not rule out all threats to the validity of the outcomes measured. Experimental evaluation designs are needed, and such designs should ideally address multiple crime problems. In turn, even though we think Israel provides a relevant setting for other Western democratic police agencies, the centralized

nature of its organizational structure is very different from that of the United States, and more similar to that of the United Kingdom and Europe. In implementing the EMUN reform in other countries, the specific similarities and differences with Israeli police structure and organization need to be taken into account.

6 | CONCLUSION

In this article, we described and evaluated a program that sought to overcome the challenge of institutionalizing problem-oriented policing by focusing specifically on institutionalizing each step of the POP model. Our findings suggest that the EMUN reform did lead to strong crime prevention benefits in terms of our main outcome, property crime. Although these findings are drawn from only one evaluation of a key crime problem in one national policing agency, we believe that they provide important data and insights about the potential for institutionalizing problem-oriented policing.

CONFLICT OF INTEREST
The authors confirm that they have no conflict of interest to declare.

ORCID
David Weisburd https://orcid.org/0000-0003-3778-5190

ENDNOTES
[1] We note that there have been other policing reforms that have tried to institutionalize problem-oriented policing through approaches such as the performance management system in Lancashire Constabulary described by Scott and Kirby (2012) or the New Zealand's police service effort to train officers to a problem-oriented mindset from the recruitment stage (see https://www.police.govt.nz/about-us/nz-police/overview). These approaches have not yet been evaluated as an organization-wide reform.

[2] There is one exception to this: All stations had to include in their list of yearly problems traffic accidents. This reflected the commissioner's and the minister's decision to address this issue.

[3] We were also asked later in the project to examine three other crime categories: violence, traffic offenses, and gun violence. In the case of violence, the implementation of the program was flawed in the stations examined and prevented a valid assessment of program outcomes. The lesson learned by the project in that case was the importance of focusing on similar types of crime outcomes in the definition of the problems in the stations. In the case of traffic offenses, we followed the same methodology used in this article (see Weisburd, Hasisi, Litmanovitz, Tshuva, & Trahtenberg, 2019). The findings follow those reported here with a strong deterrent impact of the EMUN approach. Finally, in the case of gun violence, we were not able to carry out quasi-experimental analyses because of the difficulty of finding valid station matches; we did conduct a process evaluation.

[4] This cut-off changed according to the station size, with the minimum being 50 property crime events a year in a defined geographical location for small stations and 100 events in large stations.

[5] The variables number of police officers and inhabited area were removed from analysis because they were found to be highly correlated with other characteristics (i.e., the number of incidents and population size and density, respectively).

[6] A mixed model, including all stations and considering individual station effects as random, was also conducted, yielding similar results to the results presented regarding effect inside the polygon. Since the results for the total jurisdiction in low-crime stations was opposite to the other stations, the total effect was not significant when combining the stations.

[7] Alongside the quantitative evaluation, the study included a process evaluation, which focused on the strategic yearly workplan for dealing with property crime in each station (Litmanovitz, Hasisi, Weisburd, & Tshuva, 2019).

The evaluation intended to capture aspects of both the fidelity of the intervention (did it indeed include policing approaches and tactics that are recognizable as problem-oriented policing?) and of its quality (how well was the program implemented in practice and not only on paper?).The data for this assessment are drawn from the EMUN computer system, which tracked implementation, as well as in-depth interviews conducted with station personnel (including either the station commander or his deputy, and other officers central to the implementation of the treatment, from the head of the patrol department to community officers). There were between three and five–5 individuals interviewed at each station. The data were then analyzed using an implementation assessment tool that takes into account the flexible, localized nature of the program (Tunstill & Allnock, 2012).

[8] This same aberration was also found in the two additional studies conducted of traffic disorder problems and violence problems (see Weisburd et al., 2019).

[9] Although we were interested in examining this question, the fact that multiple problems were focused on in the stations made it difficult to isolate such displacement impacts.

[10] It is interesting to note in this regard that EMUN, like PSM, Compstat, and other organizational reforms have tried to overcome what Goldstein (1979) described as the "means over end syndrome" in policing. Yet as we note here, by creating organization-wide programs, police agencies necessarily end up emphasizing means over ends, thus, pointing to an internal contradiction in such efforts. We thank one of the anonymous blind reviewers of the article for this insight.

REFERENCES

Annual Statistical Report. (2017). *Strategy Department, Israeli National Police*. Retrieved from https://www.gov.il/BlobFolder/reports/police_statistical_abstract_2017/he/shanton_2017.pdf

Bayley, D. H. (2006). *Changing the guard: Developing democratic police abroad*. Oxford University Press.

Bennett, T., Holloway, K., & Farrington, D. (2008). The effectiveness of neighborhood watch. *Campbell Systematic Reviews*, *4*(18), 1–48.

Boba, R., & Crank, P. J. (2008). Institutionalizing problem-oriented policing: Rethinking problem solving, analysis and accountability. *Police Practice and Research*, *9*(5), 379–393.

Bowers, K. J., & Johnson, S. (2016). Situational prevention. In D. Weisburd, D. Farrington, & C. Gill (Eds.), *What works in crime prevention and rehabilitation: Lessons from systematic reviews* (pp. 111–136). Springer.

Braga, A. A., Papachristos, A. V., & Hureau, D. M. (2014). The effects of hot spots policing on crime: An updated systematic review and meta-analysis. *Justice Quarterly*, *31*(4), 633–663.

Braga, A. A., & Weisburd, D. (2019). Critic: Problem-oriented policing: The disconnect between principles and practice. In D. Weisburd & A. A. Braga (Eds.), *Police innovation: Contrasting perspectives* (pp. 182–204). 2nd ed Cambridge University Press.

Bratton, W. J. (1999). Great expectations: How higher expectations for police departments can lead to a decrease in crime. In R. H. Langworthy (Ed.), *Measuring what matters: Proceedings from the policing research institute meetings* (pp. 11–26). National Institute of Justice.

Buerger, M. E. (Ed.). (1994). *The crime prevention handbook: Securing high crime locations*. Crime Control Institute.

Bullock, K., & Tilley, N. (2009). Born to fail? Policing reform and neighborhood problem solving. *The Police Journal*, *82*, 117–133.

Capowich, G., & Roehl, J. (1994). Problem-oriented policing: Actions and effectiveness in San Diego. In D. Rosenbaum (Ed.), *The challenge of community policing: Testing the promises* (pp. 127–146). SAGE.

Capowich, G. E., Roehl, J. A., & Andrews, C. M. (1995). *Evaluating problem-oriented policing: Process and outcome in Tulsa and San Diego*. ISA, Institute for Social Analysis.

Castillo, F. (2019). Obstacles to problem oriented policing in Montevideo. *Policing: An International Journal of Police Strategies and Management*, *42*(3), 334–346.

Clarke, R. V. (1998). Defining police strategies: Problem solving, problem-oriented policing and community-oriented policing. In T. O'Connor & A. C. Grant (Eds.), *Problem-oriented policing: Crime-specific problems, critical issues, and making POP work* (pp. 315–329). Police Executive Research Forum.

Clarke, R. V., & Weisburd, D. (1994). Diffusion of crime control benefits: Observations on the reverse of displacement. *Crime Prevention Studies*, *2*, 165–184.

Cook, P. J. (2011). Co-production in deterring crime. *Criminology & Public Policy*, *10*(1), 103–108.

Cook, P. J., & MacDonald, J. (2011). Public safety through private action: An economic assessment of BIDs. *The Economic Journal*, *121*(552), 445–462.

Cordner, G. (1998). Problem-oriented policing vs. zero tolerance. In T. O'Connor Shelley & A. C. Grant (Eds.), *Problem-oriented policing: Crime-specific problems, critical issues, and Making POP work*. Police Executive Research Forum.

Cordner, G., & Biebel, E. (2005). Problem-oriented policing in practice. *Criminology & Public Policy*, *4*(2), 155–180.

Cornish, D. B., & Clarke, R. V. (1987). Understanding crime displacement: An application of rational choice theory. *Criminology*, *25*(4), 933–948.

Cornish, D. B., & Clarke, R. V. (2003). Opportunities, precipitators and criminal decisions: A reply to Wortley's critique of situational crime prevention. *Crime Prevention Studies*, *16*, 41–96.

Donald, S. G., & Lang, K. (2007). Inference with difference-in-differences and other panel data. *The Review of Economics and Statistics*, *89*(2), 221–233.

Eck, J. E. (2000). *Problem-oriented policing and its problems: The means over ends syndrome strikes back and the return of the problem-solver*. Unpublished manuscript. Cincinnati, OH: University of Cincinnati.

Eck, J. E., & Guerette, R. T. (2012). Place-based crime prevention: Theory, evidence, and policy. In B. Welsh & D. P. Farrington (Eds.), *The Oxford handbook of crime prevention* (pp. 354–383). Oxford University Press.

Eck, J. E., & Spelman, W. (1987). *Problem-solving: Problem-oriented policing in Newport News*. Police Executive Research Forum.

Eisenbud, D. K. (2017). November 19). Police: Reforms have reduced tensions, improved relations with citizens. *The Jerusalem Post*. Retrieved from https://www.jpost.com/israel-news/police-reforms-have-reduced-tensions-improved-relations-with-citizens-514649

Goldstein, H. (1979). Improving policing: A problem-oriented approach. *Crime & Delinquency*, *25*(2), 236–258.

Goldstein, H. (1987). Toward community-oriented policing: Potential, basic requirements, and threshold questions. *Crime & Delinquency*, *33*(1), 6–30.

Goldstein, H. (1990). *Problem-oriented policing*. McGraw-Hill.

Goldstein, H., & Susmilch, C. (1982). *Experimenting with the problem-oriented approach to improving police service: A report and some reflections on two case studies* (Vol. 4). University of Wisconsin Law School. Retrieved from https://www.popcenter.org/Library/researcherprojects/Developmentof_POPVolIV.pdf

Kubovich, Y., & Harel, A. (2015, September 25). Shin Bet Deputy Chief nominated as next Israel Police Chief. *Haaretz*. Retrieved from https://www.haaretz.com/.premium-shin-bet-deputy-chief-nominated-as-next-israel-police-chief-1.5402486

Litmanovitz, Y., Hasisi, B., Weisburd, D., & Tshuva, S. (2019). *Evaluation of the EMUN reform: A process study: Property crimes* (Report No. 3). Institute of Criminology, The Hebrew University.

Leigh, A., Read, T., & Tilley, N. (1996). Problem-oriented policing Brit Pop. In B. Webb (Ed.), *Crime prevention and detection series* (Paper 75). U.K. Home Office, Police Research Group.

Lum, C. M., & Koper, C. S. (2017). *Evidence-based policing: Translating research into practice*. Oxford University Press.

Maguire, E. R., Uchida, C. D., & Hassell, K. D. (2015). Problem oriented policing in Colorado Springs: A content analysis of 753 cases. *Crime & Delinquency*, *6*(1), 71–95.

Manning, P. K. (2010). *Democratic policing in a changing world*. Paradigm.

Mazerolle, L., Darroch, S., & White, G. (2013). Leadership in problem-oriented policing. *Policing: An International Journal of Police Strategies & Management*.

Mazerolle, L., & Ransley, J. (2019). Third-party policing. In D. L. Weisburd & A. A. Braga (Eds.), *Police innovation: Contrasting perspectives*(2nd ed, pp. 347–365). Cambridge University Press.

Mazerolle, L., McBroom, J., & Rombouts, S. (2011). COMPSTAT in Australia: An analysis of the spatial temporal impact. *Journal of Criminal Justice*, *39*, 128–136.

Mazerolle, L., Rombouts, S., & McBroom, J. (2007). The impact of Compstat on reported crime in Queensland. *Policing: An International Journal of Police Strategies and Management*, *30*(2), 237–256.

Meares, T. L. (2006). Third-party policing: A critical view. In D. L. Weisburd & A. A. Braga (Eds.), *Police innovation: Contrasting perspectives*(2nd ed, pp. 207–224). Cambridge University Press.

Nagin, D. S., & Sampson, R. J. (2019). The real gold standard: Measuring counterfactual worlds that matter most to social science and policy. *Annual Review of Criminology*, *2*, 123–145.

Nutley, S. M., Walter, I., & Davies, H. T. (2007). *Using evidence: How research can inform public services*. Policy press.

O'Connell, P. E., & Straub, F. (2007). *Performance-based management for police organizations*. Waveland Press.

Piza, E. L. (2018). The crime prevention effect of CCTV in public places: A propensity score analysis. *Journal of Crime and Justice*, *41*(1), 14–30.

Read, T., & Tilley, N. (2000). *Not rocket science? problem-solving and crime reduction. Crime reduction research series* (No. 6). Home Office Policing and Reducing Crime Unit.

Repetto, T. (1976). Crime prevention and the displacement phenomenon. *Crime & Delinquency*, *22*, 155–177.

Scott, M., & Clarke, R. V. (2000). A review of submission for the Herman Goldstein Excellence in Problem-Oriented Policing Award. In C. Sole Brito & E. Gratto (Eds.), *Problem oriented policing: Crime-specific problems, critical issues, and making POP work* (Vol. 3). Police Executive Research Forum.

Scott, S. M., & Kirby, S. (2012). *Implementing POP leading, structuring and managing a problem oriented police agency*. Centre for Problem Oriented Policing.

Sherman, L. W., & Weisburd, D. L. (1995). General deterrent effects of police patrol in crime "hot-spots": A randomized controlled trial. *Justice Quarterly*, *12*(4), 626–648.

Skogan, W. G., Hartnett, S. M., DuBois, J., Comey, J. T., Kaiser, M., & Lovig, J. H. (1999). *On the beat: Police and community problem solving*. Westview.

Silverman, E. B. (1999). *NYPD battles crime: Innovative strategies in policing*. Northwestern University Press.

Sollund, R. (2007). The implementation of problem-oriented policing in Oslo, Norway. In K. T. Foreling (Ed.), *Criminology research focus* (pp. 175–193). Nova Science.

Tilley, N., & Scott, M. S. (2012). The past, present, and future of problem oriented policing. *Policing*, *6*(2), 122–132.

Tunstill, J., & Allnock, D. (2012). Sure Start local programmes: An overview of the implementation task. In J. Belsky, J. Barnes, & E. C. Melhuish (Eds.), *The national evaluation of Sure Start: Does area-based early intervention work* (pp. 79–96). Policy Press.

Walker, S. (2016). *The history of proactive policing in the U.S.* (Paper prepared for the committee on proactive policing—effects on crime, communities, and civil liberties). National Academies of Sciences, Engineering, and Medicine.

Weisburd, D., Hasisi, B., Litmanovitz, Y., Tshuva, S., & Trahtenberg, T. (2019). *Evaluation of the EMUN reform: Traffic offences* (Report No. 2). Institute of Criminology, The Hebrew University.

Weisburd, D., & Majimundar, M. K. (Eds.) (2018). *Proactive policing: Effects on crime and communities*. National Academies Press.

Weisburd, D., Mastrofski, S., McNally, A. M., Greenspan, R., & Willis, J. (2003). Reforming to preserve: Compstat and strategic problem solving in American policing. *Criminology & Public Policy*, *2*(3), 421–456.

Weisburd, D., McElroy, J., & Hardyman, P. (1988). Challenges to supervision in community policing: Observations on a pilot project. *American Journal of Police*, *7*, 29.

Weisburd, D., Telep, C. W., Hinkle, J. C., & Eck, J. E. (2010). Is problem-oriented policing effective in reducing crime and disorder? *Criminology & Public Policy*, *9*(1), 139–172.

Weisburd, D., Willis, J. J., Mastrofski, S. D., & Greenspan, R. (2019). Changing everything so that everything can remain the same: Compstat and American policing. In D. Weisburd & Braga A.A. (Eds.), *Police innovation: Contrasting perspectives* (2nd ed, pp. 417–438). Cambridge University Press.

Welsh, B. C., & Farrington, D. P. (2008a). Effects of improved street lighting on crime. *Campbell Systematic Reviews*, *4*(13). Retrieved from https://www.campbellcollaboration.org/lib/project/45/

Welsh, B. C., & Farrington, D. P. (2008b). Effects of closed-circuit television surveillance on crime. *Campbell Systematic Reviews*, *4*(17). Retrieved from https://www.campbellcollaboration.org/lib/project/49/

Welsh, B. C., & Farrington, D. P. (2009). Public Area CCTV and crime prevention: An updated systematic review and meta-analysis. *Justice Quarterly*, *26*(4), 716–745. https://doi.org/10.1080/07418820802506206

Willis, J. J., Mastrofski, S. D., & Weisburd, D. (2004a). COMPSTAT and bureaucracy: A case study of challenges and opportunities for change. *Justice Quarterly*, *21*(3), 463–496.

Willis, J. J., Mastrofski, S. D., & Weisburd, D. (2004b). *Compstat in practice: An in-depth analysis of three cities*. The Police Foundation.

APPENDIX A: RESULTS OF THE PAIRWISE REGRESSION MODELS

TABLE A1 Detailed results of pairwise comparisons with the high-crime intervention station

	Inside polygon				Outside polygon				Total			
Variable	**B**	**SE**	**Z**	**p**	**B**	**SE**	**Z**	**P**	**B**	**SE**	**Z**	**p**
Vs. control 1												
Station	−.499	.080	−6.21	<.001	.652	.025	26.24	<.001	.548	.023	23.39	<.001
Time	.020	.079	.25	.80	−.005	.025	−.20	.84	.018	.026	.69	.49
Station × Time	−.671	.161	−4.17	<.001	−.056	.049	−1.13	.26	−.114	.047	−2.44	.015
MSE	.270				.164				.158			
−2LL	257.3				483.7				496.4			
Vs. control 2												
Station	−.899	.075	−11.97	<.001	.270	.022	12.21	<.001	.164	.021	7.84	<.001
Time	−.073	.071	−1.02	.31	.070	.023	3.09	.002	.074	.022	3.36	<.001
Station × Time	−.509	.151	−3.38	<.001	−.189	.044	−4.26	<.001	−.205	.042	−4.88	<.001
MSE	.314				.133				.132			
−2LL	307.4				474.4				493.5			

TABLE A2 Detailed results of pairwise comparisons with the moderate-crime intervention station

	Inside polygon				Outside polygon				Total			
Variable	**B**	**SE**	**Z**	**P**	**B**	**SE**	**Z**	**P**	**B**	**SE**	**Z**	**p**
Vs. control 1												
Station	−.212	.061	−3.48	<.001	−.122	.024	−5.02	<.001	−.134	.023	−5.89	<.001
Time	−.150	.060	−2.49	.013	.001	.033	.03	.98	.001	.017	.06	.95
Station × Time	−.689	.122	−5.67	<.001	−.351	.049	−7.216	<.001	−.397	.045	−8.80	<.001
MSE	.332				.180				.183			
−2LL	349.1				518.4				561.3			
Vs. control 2												
Station	1.148	.091	12.56	<.001	.393	.028	14.06	<.001	.469	.027	17.66	<.001
Time	−.241	.099	−2.44	.015	−.158	.029	−5.45	<.001	−.166	.029	−5.78	<.001
Station × Time	−.531	.182	−2.91	.004	−.074	.055	−1.33	.185	−.129	.053	−2.42	.015
MSE	.570				.198				.199			
−2LL	325.7				501.0				532.8			

T A B L E   A 3   Detailed results of pairwise comparisons with the low-crime intervention station

Variable	Inside polygon				Outside polygon				Total			
	B	*SE*	*Z*	*P*	*B*	*SE*	*Z*	*P*	*B*	*SE*	*Z*	*p*
Station	.569	.144	3.95	<.001	.046	.109	.42	.671	.239	.086	2.79	.006
Time	.388	.151	2.57	.010	.248	.110	2.26	.024	.272	.091	3.00	.003
Station × Time	−.115	.289	−.40	.688	.413	.217	1.90	.058	.226	.171	1.32	.187
MSE	.681				.621				.467			
−2LL	243.4				293.5				307.2			