Police Staffing Observatory
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More with Less? Efficient Policing Amidst Staffing Shortages

Erik Alda

This PSO Perspective summarizes research on simulating means to improve police efficiency and achieve agency goals. This illustrative analysis can support police managers in making evidence-driven decisions on optimal staff allocation. It summarizes findings for three scenarios: addressing staffing shortages, enhancing output targets (i.e., increasing crime clearances), and achieving across-the-board efficiencies.

Police agencies across the United States in the early 2020s experienced an unprecedented crisis in staffing levels, when the George Floyd protests and the COVID-19 pandemic accelerated retirement and resignation trends (Mourtgos et al., 2022). Research by the Police Executive Research Forum (2023) found that, from 2019 to 2022, retirements surged by 19 percent and resignations by 47 percent. Such trends can exacerbate public safety crises and policing service availability and erode community confidence.

Limited staffing impacts police operations in many ways. For example, it may increase response times for emergencies, reduce proactive policing, and diminish interactions with the community. This places a strain on resources and forces police managers to make difficult decisions regarding the optimal use of their limited personnel.

Evidence-Based Resource Allocation

Strategic resource allocation can alleviate some negative impacts of staffing shortages by placing staff where they are most needed. Inverse Data Envelopment Analysis (InvDEA), a linear programming method, is a powerful and informative methodology for assessing organizational efficiency and resource distribution. Unlike traditional efficiency approaches, InvDEA offers insights on the precise input adjustments required to achieve desired levels of operational efficiency.

To demonstrate its uses, we constructed a simulated police department with 150 police sectors. Our baseline analysis using a traditional efficiency analysis model suggested an inefficiency level of 17 percent on average. The study showed that reallocative strategies would improve organizational efficiency without additional resources. The simulated agency dramatically improved its overall efficiency by reallocating current staff from underperforming sectors to more efficient ones. This highlights the benefits that could be gained from internal adjustments.

We also proposed three unique scenarios to illustrate the usefulness of this methodology and offer actionable solutions.

Scenario 1: Real-World Staffing Shortage

This scenario illustrates the operational constraints of many departments today, facing an average shortfall of 12 percent in sworn officers and civilian support staff (Adams et al., 2023). Interestingly, modeling improved efficiency by 4 percent. Further reallocating resources from inefficient to more efficient areas yielded another 3 percent improvement in overall performance. These findings suggest that sectors tend to

operate with either surplus or misallocated resources. This inefficiency might lead to poor service delivery.

Scenario 2: Enhanced Output Targets

The second scenario examined the resource allocation required to achieve a 20 percent increase in cleared crimes, that is, serious crimes for which there is an arrest. The results suggested an average of 23 percent excess inputs. This means that many precincts had a surplus of officers and vehicles, highlighting significant resource underutilization. Optimizing resources by reallocating them from inefficient to efficient precincts would increase crime clearances without requiring additional personnel and vehicles.

Scenario 3: Targeted Efficiency Improvements

The goal for this scenario was to improve performance by 20 percent across all sectors. We found that reallocating 19 percent of resources could achieve this goal. This scenario illustrates how this method could assist police managers in their staffing and deployment efforts to achieve a performance target.

Strategic Recommendations for Police Managers

Even in difficult staffing situations, it is possible to improve organizational efficiency using data-driven approaches. Steps to improve efficiency include optimally allocating resources for strategies and careful planning.

Police managers could benefit from evidence-driven applications such as InvDEA to detect inefficient staff allocation and inform decision-making for a robust organizational structure where limited resources are managed purposefully, community safety standards are upheld, and organizational efficiency is enhanced even during staffing shortages.

Erik Alda, Ph.D., is an Associate Professor of Criminal Justice at Marymount University. He specializes in public sector productivity with an emphasis on policing and police personnel management. His extensive research in law enforcement has equipped him with the skills to apply sophisticated analytical techniques to guide police agencies in strategically using evidence-based resource allocation.

About the Michigan State University Police Staffing Observatory

The Police Staffing Observatory (PSO) is a global collaborative of academics, scholars, practitioners, and students working with Michigan State University to promote evidence-based police workforce research, strategy, and operations. It aims to advance police workforce knowledge and its application through research and its dissemination, including practitioner partnerships.