# Hypotheticals and Writing Prompts

As we indicated in our original invitation letter, we have asked each of the participants to prepare a brief thought piece (approximately 5 single-spaced pages in length) that addresses a specific methodological challenge to evaluating the costs and benefits of policing practices. The hope is that these papers will help focus the discussion and make it more concrete. In addition, the *Journal of Benefit-Cost Analysis* has agreed to publish a subset of these papers in a special issue on cost-benefit analysis of policing. (At this stage, however, the papers need not be polished in the least.)

Toward that end, we have prepared two hypotheticals that describe actual choices facing departments (albeit in stylized form). Each hypothetical sets up the problem, and then provides a preliminary analysis of the sorts of costs and benefits that might need to be included in the assessment. Finally, we discuss briefly the sorts of data that might be available to support the analysis (though of course data collection practices vary widely by jurisdiction).

## I.      Proactive Enforcement

Ridgemont is a medium-sized city (~800,000) in the Southwest, approximately 2 hours from the border with Mexico. Like most cities in the region it is both economically and ethnically diverse. Approximately 40% of residents are Hispanic, 15% African American, 5% Asian, and the rest (40%) White. Crime is unevenly distributed throughout the city. Although overall crime rates are below average for a city of its size, Ridgemont has a number of high-crime neighborhoods that have been plagued by significant drug and gang activity in recent years.

Five years ago, as part of a broader crime reduction initiative, the Ridgemont Police Department (RPD) created an elite "proactive patrol" unit. Officers in the unit are deployed to high-crime areas and are instructed to make frequent use of automobile stops to create opportunities to search for weapons or drugs. Officers are trained to be on the lookout for suspicious persons or behavior (e.g. those with past involvement with drugs or gangs, people who fit the profile for drug or gang activity, individuals who appear unusually nervous when the officer drives by)—and then to use any one of a hundred possible traffic violations as a basis for making a stop. Once an officer pulls someone over, she can run a warrant check, engage the driver in conversation to potentially develop (or dispel) further suspicion, or ask the driver for consent to search the vehicle. Although people technically have the right to refuse consent to search, pretty much everyone says yes (including people with weapons and contraband in the car).

Although Chief Clyde Johnson had never conducted a thorough evaluation of the proactive patrol unit, anecdotal evidence suggested that it was a major success. In 2015 alone, the unit got 80 guns off the street, and confiscated over $1,000,000 in either drugs or cash. Officers in the unit reported high levels of job satisfaction: constantly being on the lookout for

potential targets added considerable excitement to routine patrol (and certainly was preferable to racing around town responding to calls for service).

However, just last month, an African American pastor from one of the churches in the area came in to file a complaint. He had been stopped while driving—unbeknownst to him, by an officer in the proactive patrol unit—and questioned for over 15 minutes about where he was going and why. The officer asked him for permission to search his vehicle, and when the pastor refused, the officer got pretty indignant. (The officer was not used to people saying no.) The pastor said he had been hearing similar complaints for years from others in the community.

Johnson asked one of his captains to pull what data they had on past stops made by the enforcement unit. Data showed that over 80% of stops made by this unit were of minority drivers. Officers were two times more likely to ask Black and Hispanic drivers for consent to search—but were in fact 50% *less* likely to find contraband as compared to searches of white motorists. Johnson also reviewed past complaints and found that a small number of community members had in fact complained about being singled out, though none of these complaints ultimately was sustained by internal affairs.

Johnson recently has heard from a number of chiefs who have disbanded or shifted the mission of similar units from proactive "enforcement" to more positive engagement between police and residents. He's not sold on the idea, but is starting to wonder whether the benefits of the proactive enforcement unit are worth the costs.

***Analysis of Costs and Benefits:***

Proactive enforcement of this sort can be a powerful law enforcement tool, particularly when it comes to drug enforcement and gun interdiction. Often these are crimes for which it is difficult for officers to develop sufficient cause to go after someone directly. On the other hand, virtually every driver on the road is guilty of violating at least *some* traffic ordinance (e.g. drifting across a lane marker, changing lanes without signaling, not coming to a full stop at a stop sign, just to name a few). The Supreme Court has held that such "pretextual" stops and searches do not violate the Fourth Amendment: so long as the officer had an objectively reasonable basis for making the stop, the stop is valid, irrespective of the officer's true motives for initiating the encounter.

The potential benefits of having a proactive enforcement unit include:

- Getting guns and drugs off the street;
- Enforcing outstanding warrants;
- Public safety, through either specific deterrence (by apprehending individuals involved in wrongdoing), or general deterrence (by sending a message to potential lawbreakers that they should leave guns and drugs at home);
- Traffic safety;
- Public perception of safety;
- Increased officer satisfaction.

On the other hand, as the hypothetical suggests, proactive enforcement also may impose significant costs, both on the department and the community:

- Staffing costs (including salary, benefits, and equipment);
- Administrative costs associated with handling any complaints that arise;
- Potential litigation costs (if any of the stops turn out not to be above board, or if plaintiffs bring a class action suit alleging a pattern of discriminatory enforcement; although such cases are extremely difficult to prove, litigation itself can be quite costly);
- Hassle costs for individuals stopped (including the time stopped, as well as any inconvenience that results from missed appointments, etc.);
- Privacy costs for individuals who are searched;
- Dignitary or psychological costs incurred by individuals who believe they were unfairly targeted;
- Community mistrust;
- Safety risk to officers and/or members of the public (approximately 15% of use of force incidents occur during traffic stops).

Then there are the additional considerations that we are unsure how to classify:

- Traffic fines and fees: Although municipalities often treat fines and fees recovered from traffic enforcement as a "benefit," economists tend to see that classification as dubious, because fines and fees impose a cost on society (because it is money that otherwise would be put to some other use).
- Opportunity costs: Time spent engaging in proactive enforcement is time not spent answering calls for service, or engaging with community members in a more positive way. But that is always the case for any policy choice (and thus perhaps should not be taken into account).
- Arrest and Incarceration Costs: For individuals found in possession of drugs or contraband, the costs of the stop and arrest are just the beginning. The arrest itself can carry a number of collateral consequences, including loss of housing, employment, or child custody. If the person is convicted these costs can increase exponentially. Then there are the costs incurred by the criminal justice system as a whole at all stages of the process from pretrial proceedings to guilt determination to custody to post-release supervision. One question is whether any or all of these costs should factor into the cost-benefit analysis. Our intuition is that they probably should, particularly if crime reduction counts as a benefit (after all, a substantial part of the crime reduction benefit likely is attributable to the incapacitation or deterrence effect of incarceration).

*Available data:*

One of the challenges to conducting cost-benefit analysis of policing is obtaining the necessary data. Below we highlight the sorts of data that agencies are likely to have on hand, as well as data that may be more difficult to come by. For some components of a cost-benefit analysis, such as incarceration or criminal justice system costs, it may be possible to rely on estimates derived elsewhere to at least approximate the relevant costs. You should assume that any partner agency on a cost-benefit project will share whatever data it has (even if the data is

not otherwise made public). And this list is of course preliminary—we look forward to getting your input both on the sorts of data that may be necessary and the possible sources one could look to.

- Administrative data: Agencies can easily determine personnel costs, and could probably estimate the administrative costs associated with resolving various categories of complaints.
- Traffic stop data: A number of agencies require officers to keep track of all traffic stops. At the very least, these data include the location of the stop, race and gender of the person stopped, whether a search was performed, and whether a citation was issued or an arrest made. Some jurisdictions also track the length of the stop, whether any search that took place was consensual or based on probable cause, and the nature and quantity of contraband recovered.
- Enforcement data: Agencies with more sophisticated record management systems may be able to count the number of guns a particular officer or unit recovers in a given period, as well as the number of wanted suspects identified through warrant checks.
- Crime data: Agencies typically keep detailed data on reported crimes and calls for service. At a minimum, records include the date, time, and location of the crime, as well as the nature of the offense. Agencies also keep track of clearance rates.
- Incarceration and criminal justice costs: Although it may be difficult to obtain jurisdiction-specific data, there have now been a number of careful studies done on both the social and budgetary costs of incarceration that could be used to inform any cost-benefit assessment.

***Prompts:***

(1) Some of the public safety benefits of proactive enforcement are fairly easy to measure (e.g. number of guns recovered, or number of warrants enforced), but difficult to quantify. How would you quantify the "benefit" of taking a gun off the street, or apprehending someone with an outstanding warrant? (And what data would you need to do this?)

(2) Some of the other benefits of proactive enforcement are much more difficult to measure. Without conducting a randomized control trial, how would you assess whether proactive enforcement has had any effect on crime rates? (And what data would you need to do this?)

(3) How would you monetize the dignitary cost of a stop to someone who believes they have been unfairly targeted on the basis of race?

(4) How would you monetize the cost of a consent search?

(5) Should arrest and incarceration costs be included as part of the cost-benefit analysis?

(6) How would you measure—and quantify—the effect that proactive enforcement has on community trust?

## II.    License Plate Readers

In 2011, Westville Police Department (WPD) acquired ten automatic license plate recognition (LPR) devices. LPRs are attached at the rear of patrol cars. They use optical character recognition to scan in license plate numbers as they travel—and run the scanned plates against various law enforcement databases. When a "hit" occurs, the LPR notifies the officers in the patrol car, who can stop the vehicle and investigate.

The original goal of acquiring the LPR system was to aid with detecting and deterring auto theft. Over time, however, the WPD has found that LPRs may be used in three other ways:

- *Outstanding Warrants:* Anytime an arrest warrant is issued, the WPD automatically checks the suspect's name against the state's DMV database to identify any vehicles registered in that name. WPD officers have located a number of suspects in fairly major cases just by driving around on routine patrol.

- *Enforcing Municipal Fines:* In Westville, the same database that tracks outstanding warrants also tracks unpaid parking tickets and other municipal fines. As it turns out, the vast majority of "hits" that officers get while driving around in LPR-equipped vehicles are for these minor infractions. When an officer spots a car with unpaid tickets, the officer can pull the driver over and either issue a warning or take the person into custody.

- *Ordinary Criminal Investigations:* In addition to checking plates against existing databases, the department also can geo-code and store the scans to create a database of where vehicles were at what times. On a few occasions, this has proven useful to the WPD when investigating other crimes. Once, reports of a robbery from a convenience store indicated the culprits had entered a white van. Video from a stationary camera outside the store provided the license plate number for the van. By entering it into the LPR database, the WPD found that its patrol cars regularly passed the van at a particular street address. They located the van there, and after a stakeout they apprehended the robbery suspects. However, with just 10 units in a city of 1.5 million, the agency's ability to use LPRs to solve crime depends largely on happenstance (had the robbery suspect not lived along a major thoroughfare it is unlikely that officers would have passed by the car enough to spot a pattern).

The WPD has decided it would like to have more LPR units, and plans to approach the city for funding. The WPD wants 15 additional mobile LPR units, as well as 30 "stationary" units, which it plans to place at major intersections as well as along major highways leading in and out of the City. The WPD Chief has heard that stationary units tend to be more accurate, and also typically scan a much larger volume of plates than can an officer on routine patrol. For this reason, stationary units are particularly useful in locating wanted suspects.

The City Council recently received a procurement request from the Chief, and is considering the proposal. The new units would be quite expensive—the equipment alone will easily cost up to $1.5 million, and then there are the costs of storing all of the data that the units capture. On the other hand, the Chief has explained that the new units will help save hundreds of

hours of officer time by enabling officers to locate suspects and stolen vehicles more quickly. The additional units also will enable the department to use the system in a more systematic way to assist in ongoing investigations.

One of the council members also expressed some concern about how the public would react to the new units. Although the WPD has heard few complaints, residents in nearby Pinemont recently raised a stink about that department's system. Apparently a Pinemont deputy had used the LPR system to track his girlfriend's whereabouts and learned she was having an affair with one of the mayor's aides. After the deputy confronted her, the aide leaked the story about the deputy's misdeeds to the press (which of course made everyone wonder who *else* the department was tracking).

### *Costs and Benefits*

The potential benefits of license plate reader systems include:

- Public safety (both through specific and general deterrence);
- Public perception of safety;
- Recovery of stolen vehicles.

The potential costs include:

- Cost of the devices and data storage;
- Officer time;
- Officer training;
- Risk of data breach (and associated costs to those whose data is made public);
- Privacy (particularly if LPR data is retained for longer periods of time);
- Community trust and legitimacy.

Depending on how LPRs are used, a number of factors might appear either as a cost *or* a benefit (or both):

- Intrusiveness: LPRs could potentially reduce the need for more intrusive policing by enabling officers to rule potential suspects in or out by reviewing LPR data instead of using more intrusive tactics (i.e. if LPR data can help identify the specific white van involved in a robbery, it may reduce the need to stop 20 white vans to look for suspects). On the other hand, if officers use LPR "hits" as a basis for traffic stops they would not otherwise have made, use of LPRs may increase the overall number of police-citizen contacts.
- Discrimination: LPRs could potentially reduce the effects of implicit or explicit biases in policing by giving officers a more objective basis for deciding which vehicles to stop. However, LPRs also could potentially reinforce or even exacerbate the discriminatory effects of policing. In many jurisdictions, LPRs are deployed primarily in high-crime, minority neighborhoods. If they also are used for traffic enforcement it is likely that residents in these neighborhoods (who often are least able to pay fines) will bear the brunt of enforcement.

Finally, there are a number of considerations that we are unsure how (or whether) to include:

- Efficiency: One of the oft-cited benefits of LPRs is that they can improve officer efficiency. It would seem that any efficiency gains would be reflected in the reduced "cost" at which public safety "benefits" are attained—but we wonder if efficiency ought to be incorporated in some way into the analysis;
- Traffic enforcement revenue: As with proactive enforcement there is a question of whether revenue ought to count as a benefit.

### *Available Data*

Although there is hard data on some aspects of LPR use, some of the oft-cited benefits of LPRs are purely anecdotal. Every chief we've spoken to about LPRs has at least one or two stories about major cases that LPRs helped crack, but as far as we can tell, no agency tracks the use of LPRs in criminal investigations in any systematic way. Two studies have used randomized control trials to examine the crime-reduction benefits of LPRs.[1] Both studies found that LPRs had no appreciable deterrent effects (on either automobile theft or crime generally). One of the studies also examined clearance rates, and found that LPRs did make officers more efficient in tracking down violators and recovering stolen vehicles.

That said, agencies with robust auditing systems in place are likely to have the following data on hand:

- Equipment and Staffing Costs: Agencies should be able to provide data on the costs of equipment and storage, as well as the number of officers who are assigned either to operate LPR units or assist in maintaining the LPR system.
- LPR Use: Data on LPR use is likely to include the number of scans and hits, as well as the number of hits that result in a traffic stop or other enforcement action. Depending on how an agency's record-keeping system is organized, agencies may be able to link specific enforcement actions (recovery of a stolen vehicle, arrest of a wanted suspect) to LPR use.
- Crime data: Agencies keep detailed crime data, including vehicles reported lost or stolen. As we note above, records typically include the date, time, and location of the crime, as well as the nature of the offense. Agencies also keep track of clearance rates.

### *Prompts:*

(1) One of the oft-cited benefits of LPRs is that they improve clearance rates for vehicle theft. How would you quantify the benefit of recovering a stolen vehicle and catching the perpetrator? (And what data would you need to do this?)

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[1] Cynthia Lum et. al., *License Plate Recognition Technology: Impact Evaluation and Community Assessment* (2010); Bruce Taylor et al., *Combating Auto Theft in Arizona: A Randomized Field Experiment with License Plate Recognition Technology*, Police Executive Research Forum, Washington, D.C. (2010).

(2) Another benefit of LPRs is that they could potentially provide an important lead in a criminal investigation (e.g. the convenience store robbery case described above). How would you monetize this benefit? How do you account for the fact that the crime might (or might not) have been solved in some other way? (And what data would you need to do this?)

(3) The two existing studies on the efficacy of LPRs have focused primarily on whether they have some effect on crime rates. Without conducting a randomized control trial, how would you assess whether LPRs have had any effect on crime?

(4) How would you monetize the privacy costs of deploying LPRs and retaining LPR data for at least one year? (And what data would you need to do this?)

(5) How would you assess the effect that LPR deployment has on community trust? And how would you monetize that cost?