The Economics of Crying Wolf

By Erwin A. Blackstone, Simon Hakim and Uriel Spiegel

At then-President Clinton's behest, Congress appropriated funds to hire an extra 100,000 police officers. But one might ask whether the money was well spent; the police provide many services, like response to burglar alarms, that on first glance seem public but are really private in nature. If the police could shed the nuisance of responding to false alarms, some 35,000 officers could be freed to chase alleged perpetrators.

Nearly a half century ago, Paul Samuelson elaborated on the idea of goods and services that would not be created in optimal quantities by free markets – for example, national defense. Without government to force all to share the cost, each person would have a strong motive to become a "free rider" who got to hide behind all those Abrams tanks, F-14 Tomcats and Patriot missiles free of charge.

Another Nobel Prize winner, James Buchanan, elaborated on Samuelson's idea by defining a "club good," a narrower sort of public good. For pure public goods, the size of the consuming group is the entire society. In the case of a club good, the group is smaller and the value of the good to individuals declines with the size of the population

and the distance from the source of supply. Think of an urban park, for example.

Such services may incorporate public and private attributes. Public intervention is easily rationalized when one of the following conditions exists:

- The size of the interacting group is large, and output is indivisible. As such, exclusion is impossible or very expensive and free riding is possible.
- The good yields significant positive or negative externalities.
- The good exhibits significant economies of scale that yield a natural monopoly.

How do emergency services – fire protection, police response to burglar alarms, ambulance services, Coast Guard sea rescue – fit in? With all these services it is unclear before the fact whether they are public or private. Such a determination can be made only after the service is actually provided.

When a real break-in occurs, for example, the public interest requires a police response to catch the intruder. After all, apprehending burglars diminishes the pool of miscreants and reduces the probability that others will become victims. Detention also deters future crimes by raising the cost of criminal activity.

On the other hand, response to a false alarm is an ordinary private good, and free market economists would be quick to conclude that government intervention would lead to waste. If a potential victim makes an error and a signal is dispatched, there is no obvious reason for the public to pay for a police response. The same principle holds for alarm system malfunctions. Indeed, there is no better case for government response to false alarms than for the government to provide car towing services on private driveways.

The key distinction between responding to a car stuck in a driveway and responding to burglar alarms is that the latter has both public and private attributes. Before the fact, response is a public good at a probability level of, at most, 6 percent, since no more than one alarm in 16 turns out to be the real thing. Only after the fact does it become clear whether a public or private service was appropriate.

THE FALSE ALARM PROBLEM

We chose police response to alarms as a case study for all emergency services. Alarm systems are purchased from private dealers, who sign up alarm owners for monitoring by private central stations. Large dealers usually do their own monitoring, while smaller ones contract out the service.

When an alarm is activated, a signal goes to the central station that monitors the alarm. When the central station suspects foul play, it requests police response. More than one officer is typically required to provide backup in case an intruder is still at the scene. Once dispatched, the police will typically proceed to the site, even if the central station subsequently sends out a cancellation notice.

The data show that 94 to 99 percent of all

activations are false. The percentage was even higher in DeKalb, GA, where the police found that only 39 out of a whopping 144,000 alarm calls logged in the year 2000 were for actual burglaries. Ironically, alarm ownership increases annually by a substantial 8 to 10 percent, yielding an almost identical rise in false activations.

Roughly three false alarms in four are caused by subscriber error, another 10 percent by equipment malfunction and the remainder by weather or telephone problems. On average, each system activates falsely 1.3 times a year. Commercial alarms are activated at three times the residential rate. Banks, schools and municipal facilities are the worst offenders, falsely activating at seven to ten times the residential rate.

The cost of responding to false activations includes manpower and vehicle time. We calculated the average cost to the Philadelphia police department for alarm response in 1995 to have been $28 for 151,000 activations, of which 97.4 percent were false. The average cost for Dade County, FL was $24 for 121,717 false activations in 1995, while Reno, NV suffered 11,185 alarm calls at an average cost of $72. The list goes on, with Phoenix logging 47,075 activations at $73 each and Salt Lake City enduring 8,213 false activations at an average cost of $60.

Portland, OR, estimated that in 1998 the equivalent of 45 full-time officers were needed to respond to the city's false activations. Winston-Salem, NC, used the equivalent of seven officers, Philadelphia, 52, and Los Angeles, 100. Nationwide, false alarm calls for police response constituted 10 to 20 percent of all calls. In Palm Beach County, FL, (home of the hanging chad and the butterfly ballot) the percentage was an astounding 23.6 percent.

Police budgets rise at less than 3 percent annually, while false alarm response rises by almost 10 percent. Hence, the price of false alarms includes not only major outlays for police personnel but also the diversion of police officers from other tasks.

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Police have reacted to the false-alarm problem by imposing high or escalating fines for repeat false activations, ceasing to respond to repeat offenders, educating alarm activators on how to improve their systems, imposing registration of alarms and requiring dispatchers to use 900-number lines that bill modest fees for each call.

The normal practice is to collect an annual registration or permit fee of $10 to $50 for alarms. The police typically allow three free responses annually to false activations. In Montgomery County, MD, the fourth false

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activation costs $50, and the price escalates for additional false activations to as high as $1,000 for residential and $4,000 for commercial establishments.

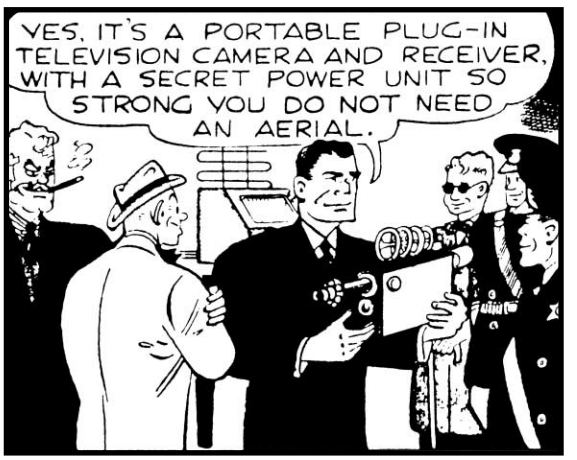
Many ordinances introduce cumbersome provisions. In Vancouver, BC, the first three responses are free, but the fourth for a residence is $75 and for commercial users $125 to $250, depending on the size of the business. The next three are free, and the next is double the amount of the fourth (Of course, false alarms in leap-year months beginning with the letter N incur a 16 percent surcharge...)

Wait – this gets better. In Palm Beach, the first two false alarms were free in 1999. The third and fourth were priced at $25, then response was suspended and a fee of $50 was charged for reinstatement of registration. The fifth and sixth alarms were priced at $25, but after the sixth $100 was charged for reinstatement. The seventh and eighth false alarms were priced at $25 with a $250 reinstatement fee after the eighth. Additional false activations required the same $25 fee, but after the 10th, the reinstatement charge was $350 and after the 12, $500.

A new simpler ordinance, passed in 2000, complicated matters in a different way. Now in Palm Beach, the registration fee for alarm users depends on the total number of false activations logged by customers of the dealer who services the alarm. Thus, the registration fee of any subscriber depends on the number of false alarms by the other customers of the same dealer.

Another practice is simply to stop response after a certain number of false activations. In Redmond, WA and Santa Ana, CA the police stop responding after the sixth false activation in a calendar year. Miami Beach suspends after the seventh.

Phoenix pioneered the use of educational programs for chronic alarm abusers. The police hold classes to explain the duties of alarm owners to keep their equipment working properly, the details of the alarm ordinance and some means to prevent false dispatches. The alarm industry also initiated two partnership programs with the police though which frequent false activators were identified and educated in order to prevent further occurrences.



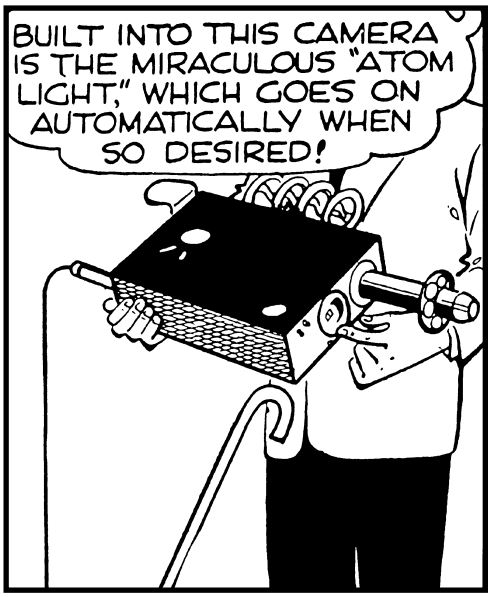
Toronto charges $77 for all false activations and stops responding after the fourth within a year. The immediate effect after the ordinance was adopted in 1996 was a shift of more than 90 percent of subscribers to private guard response, resulting in a 60 percent reduction in false-alarm incidents. Clearly, the high pricing of police response was successful in creating a competitive private response market. Further, Toronto's ordinance makes the private central station responsible for the fines.

The alarm industry is challenging this get-tough practice in the courts, and the issue is still in litigation. Charging the central station reduces transaction costs for the police, who can avoid dealing with thousands of false activators. However, if a central station does not pay its fines, all of its subscribers lose

police response, including many who did not falsely activate their systems.

IS IT WORKING?

The basic problem here is that no one except the police has a direct interest in reducing false alarms. The typical alarm owner falsely activates his system 1.3 times a year. And since



most communities allow three false activations annually, the alarm owner incurs no charges. Repeat activators are often municipal facilities like schools that do not have to pay fines, or commercial establishments that pay the fines and write them off as a routine cost of doing business. One Illinois bank budgeted $12,000 annually for false-alarm fees.

Alarm dealers, for their part, view police response as a gift. They sell the hardware and then charge monthly fees for managing a response system that is largely provided by the police. Dealers consider false activation to be someone else's problem and apparently have little interest in spending on a collective solution. Hence, dealers and alarm associations contest police efforts to limit response except for nonpayment or for repeat activators or to shift responsibility for fines to dealers.

We find it ironic that private industry prefers government intervention to encouraging a new form of business – companies offering comprehensive alarm response – to develop. Central stations today are supposed to verify that an actual intrusion took place and only then contact the police. One explanation for their reluctance is the risk of a "false negative" – a call that is verified as false even though a real break-in did occur. In such cases, central stations may be legally liable. So they are inclined to dispatch the police whenever there is the slightest chance of a break-in.

The reflexive fix – to discipline careless use of alarms by ceasing to answer calls – is inappropriate from the economist's perspective. Suppose a person has a habit of kicking his refrigerator and breaking its door. Maintenance services are happy to fix it as long as the ill-tempered refrigerator offender is willing to pay. Indeed, the more calls, the better it is for the repair company. By the same token, there is no reason to deny response to a false activation as long as the violator pays the full cost.

The police often charge higher fees for responding to alarms at commercial establishments than at residences and exempt municipal facilities from charges. In all these cases, prices are divorced from cost because there is no market to drive the price structure. Below-cost response induces carelessness and drains police resources. Schools pay for electricity and textbooks, so why not for police response to false alarms?

Similarly, local ordinances impose high charges to discourage false activators. That deterrent seems intuitively correct, but it, too, causes a misallocation of resources. If the charge is higher than the real cost to the po-

lice department, some households and businesses will refrain from buying alarm systems and some owners will not activate their systems. Society will then suffer from a lower level of security. By the same token, charging less than the real cost artificially encourages the use or abuse of alarm systems.

Most communities use escalating fees for response to repeat false activations. If the marginal cost to the police remains the same, then raising fees yet more will simply discourage the purchase and use of alarms whose benefits exceed their costs. The evidence suggests that repeat visits to the same address do not cost more to the police – and may well cost less.

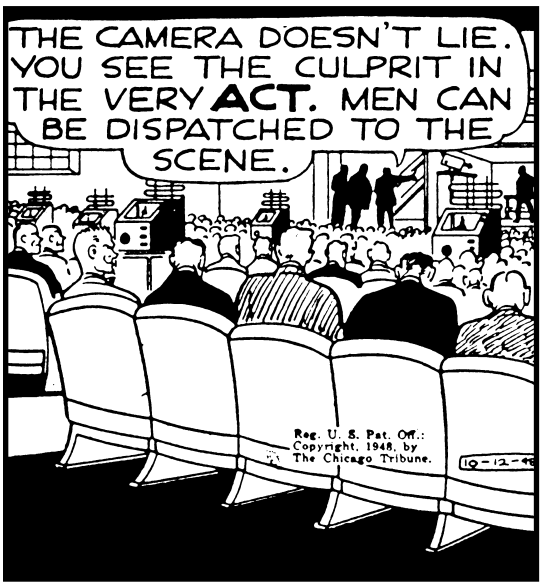
When the police respond to false activations, people who do not own alarms and alarm owners who are careful about their systems subsidize the careless. There is no justification for such cross-subsidization. Indeed, since the cost of false alarms is imposed on the police (and thereby on the community), there is no justification for any free responses. False activations should be charged from the first incident.

WHAT WOULD ADAM SMITH DO?

The solutions implemented by police departments and the alarm industry have, at best, put a Band-Aid on the false alarm problem. In our view, the problem can be overcome only if the hybrid nature of the service is recognized and an appropriate competitive market solution for the private segment of the service is implemented.

Efficiency requires that both the public and private sectors be involved. Private response should be dispatched to all activations. In the case of an actual intrusion, private security at the scene can request police response. Since the police would no longer respond to false activations, they would be more motivated to respond rapidly and efficiently to actual events – which are, indeed, a public good.

In an efficient market, each alarm owner would contract with a private company for such a service. Since response to alarms is labor intensive, the potential for economies of scale are limited. So, in large urban areas, one would expect that many companies could provide the service efficiently – a precondition for a competitive market.



Competition among providers would presumably spur innovation and reduce costs. What's more, providers would be able to use lower cost labor – security guards as opposed to the police – as initial responders. A competitive market would replace a public monopoly, and cross-subsidization between alarm activators and others would cease. Consumers would presumably also get the benefit of market-driven variety, paying more for faster, more reliable responses.

Some interesting implementation questions remain. Should the police stop responding to burglar alarms under all conditions?

What should happen if no private response emerges in a sparsely populated area?

The delivery of service by the public police monopoly might not be efficient. Unfortunately, in small markets consumers would have to endure the lack of competition. But there may be a more positive role for public enterprise here than one might first expect.

Recall that regulated monopolies are undesirable because they may produce inefficiently, may cross-subsidize and may erect entry barriers to maintain their monopoly power. Hence, if the police wish to retain the service as a non-monopoly, they need to price it at their long-run marginal cost and allow others to provide the service under competitive conditions. The police probably enjoy "economies of scope" in the sense that providing alarm response could lower the cost of other services and the other services could lower the cost of alarm response. As a result, we think consumers would gain if the police were allowed to compete.

Privatization of alarm response could take two forms. The police could contract out the service to a private company to serve the entire or part of the jurisdiction, much as municipalities have granted franchises to cable television operators. Alternatively, entry to the response business could be open to all interested parties. The latter is surely preferable, since it would short-circuit all the standard problems of creating appropriate incentives for government-regulated monopolists to deliver services at prices that reflect cost.

ADAM SMITH LIVES

Las Vegas utilizes a system close to our model. In 1991 the chief of police adopted a non-response policy on his own initiative. Before the change, responses took 45 minutes on average and involved two officers. Only 1 to 2 percent of calls were valid alarms. Since then, the police have responded to alarms only when dispatched by an agent at the scene. Police response is now faster.

The agents are usually guards from a private response company. They remain outside in case a crime is in progress, watching the exits until the police arrive. The annual budgetary savings exceed $600,000, with no apparent sacrifice in security. In fact, the burglary rate diminished from 1,600 per 100,000 residents in 1990 to 1,187 in 1998.

In 1999 Salt Lake City police responded to some 8,300 alarms, 99 percent of which were false. Near the end of 2000, the city adopted the Las Vegas model and, within months, seven companies were offering private response for fees that were substantially less than the $60 average cost for the police. The private response time ranged from 2 to 20 minutes, compared with the 40-minute average the previous year. Most striking, perhaps, the number of false alarms fell from 773 in December 1999 to just 3 in December 2000, as alarm owners adapted to a world in which they paid for response service.

The bottom line: Free markets work in the oddest places, given the chance. M