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False Alarms in Dallas

Burglary is one of the most frequent major crimes committed in the U.S. (Genarro and Holmes 1994). Some 3,040,000 burglaries were reported nationwide in 1990. Victims suffered over \$3.4 billion in losses. Sixty-six percent were residential burglaries (Siegel 1992). In Dallas, residential and business burglaries accounted for roughly 17 percent of all index crimes reported in 1994 (Dallas Police Department 1995). Citizens across the spectrum fear burglary as much as any crime (Rountree and Land 1995).

Most police and fire chiefs agree alarm systems deter burglary (Ohlhausen 1993). For these and other reasons, the burglar alarm industry has expanded at a very rapid rate across the country. Unfortunately, alarm systems, costly as they are, are not perfect, and very often when police respond to an alarm call they find no offense has transpired. While it is necessary for some form of authority to respond to the alarm, police responses constitute a significant cost to taxpayers and a significant indirect subsidy to alarm companies. Simultaneously, public response to alarm systems has the effect of subsidizing law enforcement protection to those who can afford the alarm units, arguably at the expense of protection for those who cannot afford the systems.

The purpose of this bulletin is to examine alarm data for 1994 in Dallas, providing an analysis of economic and social costs. The bulletin concludes with discussion and suggestions for policies to address the problem of these alarms.

Providing Public Goods in Modern Context

Few would disagree that police protection is a public good—that is, government has an obligation to provide police protection to its citizens. However, security alarms are not

necessarily a public good; they are available to those that want and can afford them. Thus, they are a “private good,” in an economic sense. That is, they are only available on the basis of price; public considerations of relative “need” are not part of the decision. It therefore seems self-evident that providers and subscribers have a responsibility to bear the cost of such protection where it burdens the public unreasonably.

In Dallas, and elsewhere, when the system triggers a burglar alarm it is up to the police to respond to the call. The fact that the police are taxpayer-funded creates the situation of private alarm firms operating at artificially reduced cost. They offer the equivalent of police protection at virtually none of the cost. When private sector profits are supported at the expense of public safety, a problem clearly exists. This problem is compounded with the realization that private consumers are receiving an artificial subsidy on the cost of their “purchase.”

During episodes of bad weather, the volume of burglar alarm calls goes up significantly. The false alarms which occur during bad weather are frequently due to the poor quality of the alarm unit itself, to power surges, or to shoddy installation. Indeed, at times, the volume of alarm calls can overwhelm the available resources. When this happens, all citizens in an area are rendered vulnerable to criminal victimization.

Some public goods have always included “generic” price discrimination, e.g., access to national parks is price discriminate. Likewise, expenditures for waterways benefit recreational boaters. However, the issue of police department response to burglar alarms focuses attention on a more user-specific form of price discrimination. It raises ques-

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tions of the degree to which modern society has an obligation to provide identical services to all members of the body politic, and more particularly, questions of who has an obligation to pay for the delivery of address-specific services. Further, the "address-specific" alarm response dilemma is now widening to include automobiles.

New technologies, such as Global Positioning Systems, are emerging that will expand security and alarm system capabilities significantly. GPS automobile locators are an immediate result. Companies are already lobbying cities to track stolen vehicles. Unless specifically addressed, this will increase the costs of providing police services to taxpayers, but only those who can afford to "buy" the services or who "sell" the services, will benefit. This will mean a further subsidy to private industry and consumers of the technology by those who either choose not to buy the services or who cannot afford to pay for the services.

The Problem in Dallas

In 1994, the population of Dallas was 1,023,400, contained in 378 square miles. The Dallas Police Department (DPD) divides the city into six patrol divisions. Each patrol division has primary responsibility, within department guidelines, for law enforcement activities in their area. The six divisions have unique characteristics which are reflected in the different demographic and crime patterns exhibited in the data.

The physical sizes of the operations bureaus vary widely, from as small as 13.77 square miles to as large as 92.14 square miles. The population densities within the patrol divisions are also widely divergent (from as small as 82,600 to as large as 230,100). This is because the divisions were not created to be either geographically similar or to have similar populations; rather, they were created to reflect demand for police services relative to available human resources.

There is disagreement regarding where home burglars are likely to strike. According to Repetto (1974), private residences are very frequent targets where there is the appearance of affluence, ease of access to the neighborhood and relative isolation of the target. However, according to Cohen and Carter (1981), other factors highly related to the likelihood of burglary victimization include residing in a central city neighborhood, being young, having either a very high or very low income, and leaving the premises frequently unoccupied. This line of argument more closely approximates the burglary patterns in Dallas. Apartment complexes in Dallas experience high rates of burglary, as well.

There are concentrations of apartment buildings throughout the city. On the north side, there are thousands of apartment units concentrated along and conveniently adjacent to major highways. Many of these complexes experience high rates of criminal activities (e.g., aggravated assaults, rapes, burglary, motor vehicle related thefts and/or burglaries of motor vehicles, etc.).

Past research indicates reported burglaries are more likely to occur in those areas where property values are very high because the potential to steal valuable property is higher (Vito and Holmes 1994; Repetto 1974) or where there are concentrations of younger people and renters (Cohen and Carter 1981). Similarly, Covington and Taylor (1989) suggest inner-city neighborhoods which are "Gentrifying ... are likely, in early stages to have high offender rates or be near neighborhoods that do." Table 1 provides information on the number of housing units per patrol division, owner-occupant rates, the median value of those units, and median per capita incomes.

The two areas with the highest median property value and highest median per capita incomes, North Central and North East, have relatively low rates of owner-occupancy. Many upper-income professionals live in these two areas, and the greatest number of "high-dollar" housing construction is located in these two areas. At the same time, significant numbers of renters live in the older and smaller houses located in these areas, and there are a large number of apartment complexes there, as well. There are very dense concentrations of apartment complexes within these patrol division boundaries. Conversely, two of the lowest income and lowest property value areas in town, South East and South West, easily have the highest rates of owner occupancy in the city.¹ The Central patrol division, an area undergoing significant gentrification, has the lowest owner-occupancy rate in the city but is in the middle on other measures in the table.

It is easy to speculate from a review of the research literature and a cursory glance at Table 1 that burglaries should be prevalent in the North East and North Central areas of town since property values and household incomes are quite high and since the neighborhoods are immediately accessible by major highways and boulevards (Repetto 1974; Buck, et al. 1993). This assumption is reinforced by the presence of literally thousands of apartment units in the two areas (Cohen and Carter 1981). We might also conclude that the Central patrol division would be high on the list since it is a gentrifying area (Covington and Taylor 1989). In reality, burglar alarm calls are most common in the affluent North Central and North East sections, but actual burglaries are far more prevalent in the lower income areas.² In the Central Division, sector burglaries and alarms are proportionate.

Table 1

**Housing Units by Patrol Division: Comparing Occupancy
and Value and Per Capita Incomes**

Patrol Division	Total Units	Owner Occupancy	% Owner Occupancy	Median Value	Median Per Capita Income
Central	40,923	7,113	17.4%	\$87,500	\$20,882
North Central	54,860	14,362	26.2%	\$186,200	\$57,989
North East	56,421	21,540	38.2%	\$93,800	\$32,241
South East	50,299	27,272	54.2%	\$46,000	\$20,030
South West	30,146	15,106	50.1%	\$53,500	\$23,429
North West	44,190	13,867	31.4%	\$64,800	\$20,840
Citywide	276,839	99,260	35.9%	\$76,100	\$22,155

Source: 1990 U.S. Census data and DPD Computer/Crime Analysis Unit (C/CAU) data.

Note: Median values are for all units, not just for owner occupied units.

Burglar Alarms and Burglaries in Overview

Nationally, over the last ten years the number of dwellings that have burglar alarms has grown significantly. As of 1992, over 10 percent of all housing units in the United States were reported to have burglar alarms (Baig 1992). While alarms are widely recognized as an effective deterrent to burglars, most alarm calls received by the police are false alarms. In 1992, there were more than 14 million burglar alarm calls received nationwide; some 95 percent of these were false alarms (Daugherty 1993). Firms develop and market a variety of burglar alarm systems for use by commercial establishments and by households. These alarm units range from very high to very low quality. Installation and customer training procedures fall along the same spectrum. Consumers fearful of burglary purchase these units hoping to avoid victimization, or at least to avoid significant loss by a quick response.

In 1994 in Dallas, 17,681 residential and commercial burglaries were reported (see Table 2). In contrast, in 1994, 134,387 burglar alarm calls were received by the DPD. Of these alarm calls received, DPD dispatched officers to 124,013.³ From these, 1,737 Part 1 offense reports resulted, or one report for every 71.4 dispatches, or 1.4%. Table 2 compares actual burglaries with alarm calls and illustrates the number of true versus false alarm calls by patrol division. As indicated by Table 2, the vast majority of burglar alarm calls are false alarms; citywide, 98.7 percent.

North Central and North East, the two wealthiest areas of Dallas, generated 62,180 alarm calls, and over 99 percent were false alarms. Only 420 out of 62,180 (1 in 148) were

“true” alarms. These two sections of the city experienced 5,213 actual burglaries—less than one-third of the total number (17,681) which occurred in Dallas. Conversely, South East and South West generated 37,152 total alarm calls, of which 713 were “true” alarms. Residents of the south side of the city experienced 8,396 actual burglaries. The data offer some stark comparisons—40 percent fewer alarm calls, 59 percent more “true” alarms, and 62 percent more actual burglaries on the south side compared to the north side of the city. On the one hand, the southern operations bureaus cover more than twice the geographical area of the two northern bureaus. On the other hand, these data patterns are radically different from what one might expect from the literature. Especially surprising are the greater rates of actual burglaries in a comparatively poor section of the city.

The realization that the residents of the south side of town are far less able to afford alarm systems, especially monitored systems, leads to the observation that they are under-protected relative to the more affluent areas where such systems are more common. A similar observation can be made in the Central patrol division. Comparatively poorer than North Central or North East and far fewer alarm calls (a function of far fewer alarm systems), however, there were comparatively lower rates of actual burglary than in the more affluent areas. On the north side there are fewer actual burglaries, but far more calls—meaning far more officers than are necessary are tied up in responses. The DPD does not dispatch a unit to every burglar alarm call received, but when patrol units are dispatched, department policy requires two officers to respond. Therefore, every false alarm occupies two officers from dispatch to clearance.



Table 2

True and False Alarms and Actual Burglaries by Patrol Division

Patrol Division	Total Alarms	"True" Alarms	% of Total (True)	"False" Alarms	% of Total (False)	Actual Burglaries
Central	13,176	226	1.7%	12,950	98.3%	1,714
North East	27,567	259	0.9%	27,308	99.1%	3,305
South East	16,659	372	2.2%	16,287	97.8%	4,436
South West	20,493	341	1.7%	20,152	98.3%	3,960
North West	21,879	378	1.7%	21,501	98.3%	2,358
North Central	34,613	161	0.5%	34,451	99.5%	1,908
Totals	134,387	1,737	1.3%	132,649	98.7%	17,681

Source: Dallas Police Department Computer/Crime Analysis Unit (C/CAU) data.

Note: The "Actual Burglaries" column includes both "Alarm Calls" and burglaries which occurred at locations where there was no alarm system.

Commercial and Residential Burglaries and Burglar Alarms

Table 3 compares the number of residential burglaries to commercial burglaries and presents the number of actual burglaries (though not all burglaries had an associated burglar alarm). This table reinforces a fascinating juxtaposition. South West and South East, two of the poorest areas of Dallas, in terms of median household incomes and property values (U.S. Census Department), experience the highest levels of actual burglaries. Indeed, 47.8 percent (3,960 and 4,436 respectively) of all burglaries in the city (17,681) occurred in these two divisions (51% of all residential burglaries [6,465] and 38.5% [1,931] of business burglaries). Yet, only 27.6 percent (37,152) of alarm calls originated in these two divisions. Conversely, in the North East and North Central divisions, 46 percent of all burglar alarm calls (62,180) occurred. These two sectors of the city experienced only 29.5 percent of actual burglaries (5,213) in Dallas in 1994.

On the one hand, this comparison is a function of the relative expense of burglar alarm systems. Thus, one would expect more alarm calls in more affluent neighborhoods where alarm systems are more likely to be in place. On the other hand, far more burglaries—both residential and commercial—occurred in the poorer neighborhoods. Even though the northern divisions have both higher property values and denser concentrations of apartment complexes (which the literature suggests are predictors of burglary), it is the southern divisions which experience significantly higher rates of burglary—a finding at odds with much of the previous research.

The net effect is police resources are being utilized inefficiently. Due to the high incidence of false alarms, resources are being expended, especially in areas where numbers of alarm calls are high but actual burglaries are comparatively low. Since departmental policy requires that police officers respond to burglar alarm calls, the overall effect becomes one in which people who cannot afford burglar alarms subsidize those who can. Indeed, from one perspective, the poor, who are less likely to receive a rapid response to a telephone call reporting a burglary, are effectively paying for the well-to-do to have relatively more police protection because of the increased likelihood of alarm systems being in place. A different perspective would hold that the wealthier neighborhoods pay more in taxes and are thus receiving no more than their due—and perhaps in terms of aggregate police services, receive even less.

Cost Analysis

According to police department data, during 1994, DPD police officers responded to 124,013 burglar alarm calls. Spending an average of about 7.7 minutes travel time per call and just under 16 minutes on site with each call, the department expended a total of 2,930,943 minutes answering burglar alarm calls (see Table 4). According to the Dallas City Council's Public Safety Committee, the figure translates to \$4.1 million responding to and recording burglar alarm calls (this expenditure includes officers, data entry clerks, and other related costs). This is an average of a little more than \$33 per call.

Table 3

**Residential and Commercial Burglar Alarm Calls: Total Calls Received
and the Number of Actual Burglaries**

Patrol Division	Alarm Calls in Division	Actual Burglaries	Alarm Calls Per Burglary	Actual Residential Burglaries	Actual Business Burglaries
Central	13,176	1,714	7.7	1,062	652
North East	27,567	3,305	8.3	2,556	749
South East	16,659	4,436	3.8	3,406	1,030
South West	20,493	3,960	5.2	3,059	901
North West	21,879	2,358	9.3	1,117	1,241
North Central	34,613	1,908	18.1	1,469	439
Totals	134,487	17,681	7.6	12,669	5,012

Source: Dallas Police Department Computer/Crime Analysis Unit (C/CAU) data.

Table 4

Time Spent on Burglar Alarm Calls

Month	Calls Citywide	Average Travel Time Per Call	Average Time on Each Call Site	Total Call Time Per Month
January	9,653	7.45	15.87	225,108
February	9,173	7.53	15.79	213,914
March	9,498	7.41	15.51	217,694
April	10,443	7.72	15.89	246,559
May	11,132	7.72	15.89	258,040
June	11,199	7.57	15.86	262,393
July	11,323	7.65	16.25	270,620
August	10,342	7.73	16.08	246,243
September	9,488	7.77	16.38	229,135
October	10,681	7.74	15.42	247,372
November	10,520	7.75	16.23	252,270
December	10,561	7.93	16.84	261,596
Year	124,013	7.67	15.97	2,930,943

Source: DPD PS2E17 report.

Note: Times are expressed in minutes.

Very simple arithmetic conversion yields some startling results from Table 4. The 2,930,943 minutes are equivalent to 48,849 hours. This amounts to 1,221 40-hour work weeks. However, officers do not spend every minute of every shift on calls. DPD data indicate that officers respond to calls about two-thirds of each shift. The remainder of the shift is spent "down" on meals, filing reports, transporting prisoners, etc. Moreover, according to DPD staffing reports, for every three officers on the street, there are an average of two support staff (dispatch, 911 operators, data entry clerks, etc.) (Makres 1995).

Referring back to Table 2, 98.7 percent of all citywide burglar alarm calls in Dallas in 1994 were false alarms. Therefore, 48,214 work hours were spent on false burglar alarms in 1994. The DPD is expending \$4,067,000 every year responding to false alarms (\$4.1 million x 98.7% false alarms). The Dallas Police Department could recover 80 full-time officers, plus support staff, per year if all false burglar alarms were eliminated (Makres 1995).

However, it should be noted that some of the costs of responding to false alarms is recovered in fees and fines. The city of Dallas charges permit fees and fines as allowed under current state law. The state-allowed permit fee is \$25 for residential and \$50 for commercial burglar alarms. City ordinance conforms to state legislation which allows five "free" false alarms for residential or commercial calls in a 12-month period before \$50 service fees for subsequent false alarms are issued. In 1994, permit fees generated \$1,471,770 in revenues for the city. Service fees for "excessive false alarms" generated another \$922,925 (City of Dallas, Tax Office, Special Collections Division). This total of \$2,394,695 represents just over 58 percent of the estimated expenditures on false alarms (\$2,394,695/\$4,067,000). There remains an estimated \$1,672,305 gap between revenues generated and revenues expended.

Policy Issues

Efforts to address the problem of false alarms have been discussed in a variety of forums for years. Ohlhausen (1993) argues that most false alarms are caused by either technological, installation or user errors, as opposed to weather, power outages, or other accidental triggerings. He suggests a variety of approaches to solving these problems. Among these are technological improvements, repair and/or upgrading requirements, alarm verification, better training of both installation technicians and customers, fines and permits, and non-police (i.e., private security firms) response to the alarms. Ohlhausen further recommends that states and localities adopt laws and ordinances regulating security alarms.

In 1992, the Canadian Alarm and Security Association (CANASA) published the results of an extensive study of false alarms. An average overall false alarm rate of six per system per year was noted. According to CANASA, the major cause of false alarms is subscriber error, and about two-thirds of the false alarms result from activation of a motion detector.

CANASA recommends two approaches to reducing false alarm rates. One is the use of a double motion detector system. They argue that such a system would virtually eliminate false alarms. Related to this is the problem of entry/exit generated alarms. If the sensors were set to detect only forced entry rather than any entry where the system is not first deactivated, the rate of false alarms would be even further reduced.

CANASA disagrees with Ohlhausen regarding private firm response to alarms. CANASA opposes such a policy and believes only trained and uniformed officers should respond to alarm calls. Ohlhausen, however, notes that private firm response has been practiced for years in some localities and implies that some level of private security firm response is probably appropriate, especially in cooperation with police agencies. Such an approach would create a strong incentive for private security firms to assure minimum technological failure and maximum training of customers, since the cost of response would be borne partly by the alarm company.⁴ If firms had to respond to their own alarm calls they would have a very powerful incentive to assure optimum operation of their equipment. Also, they would be more likely to provide training for their customers. Otherwise, they would have to absorb the costs of customer error or faulty equipment.

An unknown number of consumer-purchased and installed alarms are in use in homes across Dallas. These alarm units create a chronic and potentially serious problem with false alarms. In an attempt to alleviate the problems of false alarms due to any cause, the city of Dallas has recently implemented a "no permit, no response" policy toward burglar alarms. The policy is expected to save thousands of hours per year. However, it would most likely be objectionable to those who have alarm systems already installed, since a major selling point for the systems is the implied promise of police response. Ignoring the calls could leave citizens vulnerable. This "was a key issue in looking at not responding to burglar alarm calls from alarm companies [but] it was determined we would not be leaving citizens vulnerable."⁵ But, citizens with alarms already in place need only purchase the appropriate permit to ensure police response. Another benefit would be additional revenues from permit sales to help offset the cost of police response to calls.

The main impediment to the adoption of more punitive policies is state law. The legislature will have to grant more autonomy to local governments before companies and subscribers can be compelled to absorb the costs of false alarms, as is supposedly the case with collective goods. In the meantime, even though improvements are being made, the taxpayers at large will continue to absorb the high costs visited on them by a relative few, and police departments will continue to be burdened by the inefficiencies generated by the very high rates of false alarms—because police protection is still, necessarily, a public good.

Notes

1. This may be due in part to the lower median value of the units, or to the relative lack of "attractive" apartments, entertainment, and so on, in these areas.

2. Clearly, the relative affordability of burglar alarms in the northern sections of the city will mean more alarm calls will originate in those areas. Whether the fact that there are more burglaries in the poorer parts of town is a testimony to the deterrent value of alarms is not clear, given the varied results reported in the academic literature.

3. If an alarm unit is "sound only," that is, it is not connected to a security company monitor, more than one neighbor is likely to call the police to report the noise. In this case, the dispatcher will record the alarm call but will not dispatch multiple units.

4. Under present circumstances in Dallas, security firms have no such incentives; thus, the taxpaying public is actually subsidizing private sector profits by "allowing" inefficient firms to operate making artificially inflated profits.

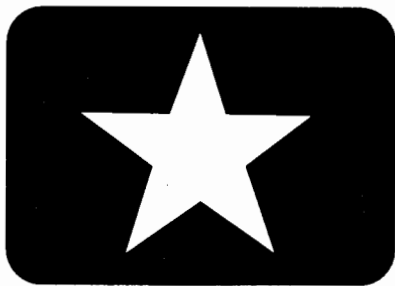
5. Quoted from an internal memo from the DPD Alarm Unit to Executive Assistant Chief Robert L. Jackson, Jr., of the Office of Field Operations.

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Note: The source of these data is the Dallas Police Department, but in no way is the text of this bulletin intended to reflect the official position or policy of the Dallas Police Department.



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