PROGRAM EVALUATION RESEARCH: AN EXPERIMENTAL COST-EFFECTIVENESS ANALYSIS OF AN ARMED ROBBERY INTERVENTION PROGRAM

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An armed robbery alarm system was implemented in 48 different stores in two separate geographical areas for 6 months and 12 months, respectively. The alarms were placed in the two separate areas at different times and all alarms were eventually removed. Thus, multiple baseline and reversal strategies were used to evaluate program impact. A device planted in a cash drawer was triggered whenever "bait" money was removed from the drawer sending an alarm signal directly to police cars and headquarters. On-scene apprehensions of armed robbers within target stores were greatly increased even though the armed robbery systems did not deter robbery incidents nor influence the court disposition of the cases. There was also no crime deterrence, crime displacement, or increased apprehensions in either the immediate neighborhoods of target stores or on a city-wide basis. The cost effectiveness of the program was calculated to be poor even though the program is being maintained because of the absence of an alternative robbery apprehension technology.

DESCRIPTORS: evaluation research, cost analysis, police

Research into the crime reduction efficiency of police patrolling procedures has often resulted in "no effect" outcomes. Experimental evaluations by Kelling, Pate, Diekman, and Brown (1975); Schnelle, Kirchner, McNees, and Lawler (1975); and Schnelle, Kirchner, Casey, Uselton, and McNees (1977) have demonstrated the inefficiency of increased levels of police car patrol as a crime reduction technique. This research has stimulated both notable controversy and further efforts to evaluate alternative forms of police patrolling.

Thus, recent research in San Diego (Boydstun, 1976) and in Nashville (Schnelle, Kirchner, McCrae, McNees, Eck, Snodgrass, Casey, and Uselton, 1978) has indicated that specialized patrol procedures may have impact on some specific crimes. Boydstun (1975) reported that if police officers frequently interviewed people,

a technique called field interrogation, there were some mild reductions in malicious mischief and burglary incidents. Schnelle et al. (1978) reported data showing the cost efficiency of helicopter patrol in reducing home burglaries within some specific areas of Nashville.

Consistent with this emphasis on developing specialized types of police anti-crime procedures, attempts have been made to design police procedures that will lead to reductions in armed robbery of businesses. One such armed robbery procedure in particular had received attention in over 44 police departments. The procedure is a silent early warning alarm system which is designed to alert police while an armed robbery is in progress. The early alarm should speed police response time and lead to an increase in apprehensions. The National Institute of Law Enforcement and Criminal Justice made an initial attempt in 1976 to evaluate the efficiency of the procedures. Armed robbery data collected from 22 departments indicated mixed results

(Criminal Justice Newsletter, 1976). Some departments reported increased apprehensions due to the system while others were reported to be in the progress of eliminating the system due to ineffectiveness.

In 1976, the Early Warning Robbery Project evaluation concluded that it was not known if the systems were generally effective and outlined the need for more specific information concerning the following points (Criminal Justice Newsletter, 1976): (1) Do the systems lead to increased apprehension rates? (2) Is there any evidence that the systems produced a deterrent effect on armed robberies? (3) What is the cost effectiveness of the armed robbery project?

To answer the latter three questions and to obtain an overall view of program efficiency, it was necessary to monitor multiple measures. These measures could be grouped in three categories.

In regard to the question of apprehension rates, two specific measures were collected: on-scene armed robbery arrests and robbery arrests that took place more than 10 min after the robbery occurred. On-scene arrests were considered an important effectiveness measure because the program was designed to improve police response time to an armed robbery alert. The applied significance of this response time improvement should primarily be reflected by an increase in on-scene arrests. If the response times were improved, but not enough to increase on-scene arrests, then the value of the quicker responses would be insignificant. One potential problem with an early police arrival was the possibility that hostage situations might develop or that more people would be injured because of police encounters with armed robbery perpetrators at the robbery scene. Thus, injury statistics were closely monitored since increases in injury statistics would lead to program termination, irrespective of other program outcomes.

The second class of measures collected concerned the deterrent quality of the alarm program. The primary deterrent measure collected was the reporting of armed robbery incidents in business establishments. Even though the presence of the alarms was not advertised or intentionally made visible, there were several program factors that might influence robbery incidents. First, the employees knew of the alarm presence and might have communicated this fact to customers. Alternately, if there were employee involvement in armed robberies, then certainly the alarms would resolve false employee robbery reports. Secondly, the police answered several alarms to almost all target stores that were either false or real. These latter episodes should increase the impression of a police presence. Thirdly, if actual arrest rates increased in the target stores, then a decrease in robbery incidents might occur if there is a correlation between arrest and crime incident rates. Another offense incident measure of interest was armed and strong armed robberies of individuals, as opposed to robberies of stores. This measure was relevant to detecting possible displacement effects that might have been due to the armed robbery program that was directed only toward businesses. If the program were successful in reducing business robberies, then an increase in the rates of nontargeted robberies could potentially occur. The most logical such nontargeted offense was robbery of individuals.

The final category of measures relevant to evaluation was program costs and benefits. Obviously, the police budget must be capable of sustaining the program past the experimental period no matter what the apprehension or deterrence outcomes are. Alternately, a basic idea of the cost per unit of program outcome is critical in comparing the alarm program to other crime control programs that might be considered. The cost measures that were collected included the marginal costs of buying and maintaining the alarms. The fixed costs of the specialized personnel who monitored the alarm were also considered, separately from the marginal costs. The rationale for this distinction lies in the fact that marginal costs are costs

that occur only because of the presence of the program; and hence if the program is ever terminated, these costs would be saved. Fixed costs would occur even if the program were not present, even though the fixed cost personnel could be redeployed in other program areas if the armed robbery program were abandoned. The benefit measure collected was the property recovery rate that resulted when perpetrators were apprehended in the target stores. In practice, if an armed robber is not apprehended on scene, then the probability of recovering stolen property is remote. Thus, a prime benefit of on-scene arrests should be increases in property recovery.

In sum, an experimental program designed to increase apprehension rates must be evaluated in the context of all measures that could be influenced by improvements in apprehensions. The body of information outlined in the three categories of measures is relevant to future decision making concerning program continuation. Any one of the three categories of measures outlined could lead to decisions to terminate the armed robbery program completely independent of effects the program produced on the other measures.

METHOD

Armed Robbery System

The armed robbery program that is evaluated was implemented in the Nashville area between July, 1976, and December, 1977. The armed robbery system used a small transmitting device which could be placed unobtrusively in a cash drawer. Bait money was attached to the device by a metal clip. When the money was removed, a prerecorded robbery alarm message was transmitted to receivers in both a squad of four unmarked police patrol cars and police headquarters. The transmitted message was a repeated recording: "*10-53* (robbery in progress) *at* (location)." The special team of unmarked cars patrolled Tuesday through Saturday from 3 p.m. to 11 p.m. (high risk armed robbery times).

If the alarm sounded, the unmarked cars went to the scene and were followed by back-up units dispatched by headquarters. If the unmarked cars were not on duty, only marked cars were dispatched. Police officers were instructed not to enter the premises unless they were certain the robbery suspects had departed. Otherwise, they were told to stop all people leaving the alarm location. All officers in the special team were instructed to patrol within the zones in which the alarms were placed, but not to concentrate on, or "stake out," the specific stores which contained the alarm systems. The latter instruction was designed to reduce police visibility at the alarm sites.

Setting

The ideal area for the armed robbery alarms was considered to be an area which combined the following characteristics: (1) A high frequency of armed robberies occurring in a small geographic area. The small area was considered important so that police response time could be minimized. (2) A location from which alarms could be monitored simultaneously by unmarked patrol cars, and by headquarters. Headquarters monitoring was important because if the unmarked patrol cars were out of service, other patrol cars could be dispatched to the scene.

A computer-aided analysis of armed robbery rates in Nashville over a 2-year period identified 12 police zones out of 33 which accounted for 85% of all Nashville armed robberies of businesses. Five of these zones were eliminated as potential target sites for any of the following reasons: (1) The stores were spaced over too large an area; (2) The stores were not connected by easily accessible streets; or (3) It was difficult to monitor the alarm system from headquarters. The two target zones used in this evaluation were selected from the remaining seven. Store owners who had been robbery victims were approached in the two target zones. In the first zone, 20 store owners agreed to the

installation of alarm systems. In the second tar-get zone, alarms were installed in 28 stores.

Evaluation Design

The design employed to evaluate the armed robbery program was a combination of multiple baseline and reversal procedures. The combined robbery alarm and special patrol intervention was sequentially applied and terminated in the two target zones. In Zone 1, the intervention operated for 6 months (March, 1976 through August, 1976). The program began in Zone 2 the month following its termination in Zone 1 and continued for 11 months (September, 1976 through July, 1977). Baseline measures were collected in both zones throughout a period be-ginning 12 months before intervention in Zone 1 (March, 1975) and ending 5 months after termination of the program in Zone 2 (De-cember, 1977).

DEPENDENT MEASURES

Apprehensions of Suspects

Throughout the baseline and intervention periods, the frequency of arrests of suspects on armed robbery charges was monitored in the two target zones. Copies of arrest reports were retrieved from the central records office and were sorted by target zone and by target store. Any changes in arrests for armed robbery in the target zones that were not made at a target store or within 10 min of an alarm provided a measure of the general effectiveness of in-creased armed robbery patrol. Changes in the frequency of "on-scene" arrests—those made specifically at target stores and within 10 min of an alarm—are a measure of the specific effects of the alarm system—robbery patrol package.

Armed Robbery Incidents

The frequency of armed robbery incidents in all businesses, as well as armed and strong armed robberies of individuals, in Metropolitan Nashville was monitored before, during, and after the intervention periods. Copies of armed robbery incidents reports were retrieved from the central records office. They were sorted ac-cording to whether the incidents occurred out-side the target zones, within the target zones, and within the specific target stores.

Changes in the frequency of armed robbery incidents outside the target zones provided a measure of potential general deterrent or gen-eral displacement effects of the intervention. Within the target zones, changes in the fre-quency of armed robbery are a measure of local deterrence or local displacement effects. Any changes in the frequency of armed robberies within the target zones themselves are direct measures of the specific deterrent effect of the robbery alarm program.

The term deterrence refers to a decrease in the frequency of target incidents. The term dis-placement refers to an increase in the frequency of target incidents or similar incidents, such as armed robbery of persons or strong-arm robbery (i.e., forceful robbery, but without use of a deadly weapon). All incident reports were closely analyzed to determine if personal injury occurred during the armed robbery episode. All injuries must be reported in the robbery incident reports.

Cost Benefit and Cost Effectiveness

Cost-benefit attempts to determine the abso-lute worth of a program, whereas a cost-effective-ness analysis is concerned with its value relative to other possible programs.

In addition to evaluation of the armed rob-bery alarm program on dimensions of arrest and crime incident frequencies, program costs were compared to identifiable monetary bene-fits (cost-benefit analysis), officer salary, equip-ment cost, and other operating expense data collected through the administrative service bu-reau of the police department. The value of property recovered when armed robbery sus-pects were apprehended during the program was obtained from armed robbery incident reports.

A cost-effective analysis was also performed to supplement the cost-benefit data. The cost-

effectiveness approach does not attempt to compare program costs and goal achievement on a monetary dimension. Rather, the analysis determined the cost per arrest of armed robbery suspects under the armed robbery alarm program. This unit cost can be directly compared to the known unit costs of alternative programs. Thus, a ranking of programs can be achieved in terms of the relative magnitude of the program's effects expressed as a unit-cost.
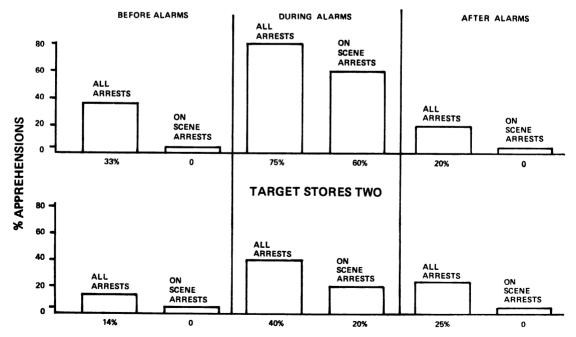
RESULTS

Apprehension of Suspects

The alarm program produced a dramatic increase in on-scene arrests of suspects in both groups of target stores during the intervention periods. There were nine on-scene arrests in target group 1 and three such arrests in target group 2. In addition, five persons were arrested on-scene for "till-tapping," that is, taking money from the cash drawer while the clerk's attention

is diverted. Furthermore, during 1976, there were only four on-scene armed robbery apprehensions in the entire city.

Figure 1 displays the arrest data in terms of the percentage of armed robbery incidents in which a suspect was arrested. The figure compares arrests made on scene with the percentage of armed robberies in which a suspect was arrested at a later time. Examination of the figure reveals that only armed robbery arrests made on scene increased during the program in both groups of target stores. On-scene arrests were made in 60% of all robbery incidents in target group 1 and in 20% of such incidents in target group 2.

The robbery alarm and special patrol program did not lead to greater arrest rates for suspects not apprehended on scene. Neither was the program completely successful in apprehending suspects on scene. In six of the instances in which a suspect was not apprehended on scene, equipment malfunctions prevented broad-

Fig. 1. The percentage of armed robbery incidences of businesses that resulted in apprehensions for both groups of target stores before, during, and after the alarm program.

cast of the alarm. In the remaining instances, police response was simply not quick enough to prevent the suspect's flight from the scene.

Although the alarm program led to greater numbers of on-scene arrests in the target stores, there were no consistent changes in armed robbery arrests in other stores. There were 6.7 robbery arrests per 6-month block before the program, 6 per 6-month block during the program, and 2 per 6-month block after the program. Finally, there was no incident in which any injury was incurred in the process of an armed robbery apprehension during the program period.

Armed Robbery Incidents

In the target zones and in the specific groups of target stores, the armed robbery alarm and special patrol program had no consistent effects on the rates of armed robbery. Thus, there was no evidence for either local deterrence or displacement of armed robberies. Nor was there any indication that the program deterred armed robberies in the target zones or in the target stores themselves.

Table 1 shows the average number of armed robberies per month in the target zones and in the specific groups of target stores. The substantial increase in armed robberies in target group 1 was due to a single month in which there were seven armed robberies. This increase occurred in the second month of the intervention period, and it was the largest deviation in the monthly robbery rate over the entire 36 months of evaluation. This result may not be surprising in view of the fact that the armed robbery program was not designed to emphasize police visibility. However, during this evaluation there were 23 false alarms to which both plain clothes and uniformed officers responded. When the latter responses are added to the 30 times that the police responded to true alarms, it becomes obvious that some degree of heightened visibility was present at target stores despite police efforts to the contrary. In other areas of Nashville, not specifically targeted for the intervention, there

Table 1
Average Number of Armed Robberies Per Month

		Before	During	After
Target Stores	1	0.8	2.5	0.3
	2	1.4	1.3	0.7
Target Zones	1	2.2	3.0	1.9
	2	3.8	3.1	3.0

was a general trend downward in the number of armed robberies that was not accelerated during the alarm program.

The average number of strong-arm robberies did not change appreciably over any phase of the evaluation. Strong-arm robberies averaged 42.8 per month during baseline, and 42.5 during intervention.

Cost-Benefit and Cost-Effectiveness

A cost-benefit analysis of the armed robbery program does not look promising in view of the fact that the prime benefit of the program was an increase in apprehensions and not a decrease in the frequency of armed robberies in the target zones. Since there is no direct evidence to link increased apprehensions with eventual decreases in crime rates, it is difficult to attach a dollar value to the arrest benefits. The costs of the program are easier to measure and can be broken down into two areas: (1) fixed costs which were present irrespective of the presence or absence of the alarm program, *i.e.,* officers salaries and car equipment, (2) marginal costs, which are expenses incurred by the police department specifically because the armed robbery program was implemented. The fixed costs in this case totalled approximately $90,000 in officer salaries and car equipment for the 18-month period of the armed robbery evaluation. The marginal costs were approximately $47,000 for the alarm systems and associated equipment. The only savings produced by the program that can be easily documented is the property recovered in the instances in which the armed robbers were captured, and the instances in which till-tappers were arrested. The total estimated property re-

covery in the instances was approximately $17,000. Thus, if property recovery rates are designated as benefits and compared against either fixed or marginal program costs, then an unfavorable cost-benefit ratio exists ($17,000 *vs.* $47,000 in marginal costs and $90,000 in fixed costs). However, given the fact that a goal of police departments is to make apprehensions, the armed robbery program should perhaps be evaluated by a cost-effectiveness approach rather than a cost-benefit approach.

A cost-effectiveness approach is different from a cost-benefit approach primarily because cost effectiveness analyzes the ability of programs to achieve goals relative to program costs. No attempt is made to assign monetary value to the goals, and thus, no attempt is made to compare program costs and program goals on a monetary dimension. Thus, the cost-effectiveness approach enables one to rank programs as to the magnitude of their effects relative to costs, but it does not ascertain whether a program is worthwhile in the sense that benefits exceeds cost (Levine, 1975). In the present case, the average cost per apprehension (armed robery and till-tapping) was approximately $6,523.34 if fixed and marginal costs are considered together and $2,238 if only marginal costs are considered. The marginal cost per apprehension figure is high due to the fact that it consists largely of equipment investment costs. This equipment is now available to be used in future years so that in the future there would be no investment costs to be considered in the marginal program costs; and thus the future marginal cost per apprehension figure will be lower. To derive a better marginal cost estimate, it would be necessary to prorate the equipment cost over the total duration of the armed robbery program. The technique of discounting makes possible the latter analysis and includes the investment opportunity lost costs of making the initial $47,000 investment.

For example, if the equipment is expected to last 5 years and if the foregone interest of making a $47,000 investment is 6% (derived from interest ·paid by banking institutions), then an estimate of yearly marginal costs could be derived from the following formula (Wallace, 1967):

$$\text{Costs} = \text{CO} \frac{i \times (1 + i)^N}{(1 + i)^N - 1}$$

Where CO = investment costs; i − investment loss; and N = duration of program.

Specific to the armed robbery program this formula would be as follows:

$$\text{Costs} = 47,000 \frac{.06(1 + .06)^5}{(1 + 0.6)^5 - 1} = 11,280$$

This $11,280 figure plus the annual maintenance cost (estimated to be approximately $500 per year) would lead to yearly marginal program cost estimate of $11,786. If the yearly rate of apprehensions were maintained at the level achieved in the first 18 months (14.04 per year) then a 803.41 marginal dollar cost per arrest results. If fixed and marginal costs are considered for a 12-month period then each arrest cost approximately $5,076.62.

DISCUSSION

The most dramatic outcome of the armed robbery program was the change in on-scene arrests. That the program was responsible for the improved arrest rates is well documented. The fact that on-scene and total armed robbery arrests increased dramatically in both groups of target stores only when the alarm program was initiated and at no other time provides one source of direct evidence that the alarm program, and not alternative factors, was responsible for the increases. Furthermore, following reversal design logic, the fact that the arrests decreased after the alarms were removed from the target stores provides independent proof that the alarm program was the critical variable responsible for increased arrests.

The fact that arrest rates were not influenced in the immediate zones in which the target stores were located points out that the arrests made in the target stores were directly facili-

tated by the alarm system component and were not simply due to an increase in police presence. If increased police presence were the critical variable then a general increase in armed robbery arrests in the immediate neighborhood of the target stores would have occurred. It is to be remembered that the police units did not specifically stake out the target stores. Instead, they patrolled the general neighborhood in which the alarms were located.

The success of the program in increasing arrest rates is somewhat diminished by the crime incident and cost measures. The fact that armed robbery rates were not reduced even in the actual target stores where arrests were made suggests that the stores did not become a discriminative stimulus for punishment.

Since no crime reduction occurred, the only direct cash benefit that could be traced to the program was improved property recovery rates which did not match the program costs. Thus, to produce crime reduction effects with consequent improvements in the cost-benefit picture, it might be necessary to clearly identify the stores protected by the alarm system. This latter advertisement would increase the association between the target stores and the probability of punishment in the same way shoplifting was reduced as reported by McNees, Egli, Marshall, Schnelle, and Risley (1976). In the McNees *et al.* article, shoplifting rates were reduced when frequently stolen merchandise was specifically marked as the target of a shoplifting prevention program. More general anti-shoplifting advertising not related to specific merchandise did not reduce theft rates. The advertisement must be accomplished so as not to reduce the apprehension capabilities of the program. Both crime reduction and apprehension goals might be accomplished if a large number of stores advertised on their premises that they were participating in a police armed robbery project. If the alarm system were rotated among smaller samples of these stores, and in addition were also placed in unadvertised stores, then perhaps better crime reduction and efficient apprehension would result. The latter rotation procedure would essentially place the advertised stores on an intermittent schedule of punishment, while still maintaining all stores as a discriminative stimulus for arrest.

The cost effectiveness of the program was assessed by analyzing the cost per arrest ratio. The primary usefulness of cost-effectiveness data is that they permit the comparison of diverse programs on a common dimension. The marginal cost per arrest of $803.41 and the fixed marginal cost per arrest of $5,076.62 appear to be excessive. Unfortunately, an extensive review of the criminal justice literature did not reveal alternative experimentally validated robbery prevention programs, nor were comparison cost effectiveness data available. Thus, the cost data derived from the Nashville evaluation will have to be used as the frame of reference against which future programs can be compared.

The Nashville cost data have led to the administrative decision that the program will be modified to reduce the fixed cost per arrest ratio. Camera attachments will be added to the alarm systems so that pictures can be obtained of robbery perpetrators when the alarm is triggered. Such photographic evidence should eliminate the need for the fixed cost personnel who now monitor the alarms. If apprehension rates can be maintained, then the lower marginal cost of the program would be the primary cost factor in future cost-effective programs.

Data concerning the eventual case dispositions of people arrested due to the robbery program are difficult to interpret due to the relatively small number of arrests and the absence of an adequate comparison base. Despite the fact that dispositions were not considered primary data, the case outcomes of the people arrested under the armed robbery program were followed for a 2-year period. The charges against two of the people arrested under the alarm program were dismissed at the grand jury level. In one case, a store employee observed a man getting out of his car with a shotgun. The employee activated the alarm and the police arrested the armed man prior to his entry into

the store. The charge of attempt to commit an armed robbery was disallowed. In the second case, two men ordered a store employee to give them money, even though no weapon was displayed. Arrest of the two men subsequent to alarm activation revealed that the men possessed no weapons. The successful defense was that these men were joking. In addition, the length of the sentences given to people successfully arrested and prosecuted was approximately 8.2 years. This is not dramatically different from the length of the sentences given to a randomly selected sample of 60 people arrested for armed robbery of businesses in 1975 (7.8 years).

In sum, the paper has presented an example of program evaluation that is characterized by multiple outcome measures and time series design methodology. In particular, the role of cost data in interpreting other outcome measures is well illustrated in the robbery evaluation. Strong experimental evidence is available which indicates that the intervention was successful in increasing on-scene arrest rates. If the arrest data were taken alone, the program would be termed a success, and the program would probably be institutionalized without modification. However, the cost data led to the decision to modify the program in a manner that will hopefully lead to a more favorable cost-benefit ratio. This new program can be evaluated along the lines described in the present article and new outcome data can be interpreted against the comparison data currently provided.

Thus, this paper provides an example of how evaluation data should shape the implementation of agency procedures. The applied value of evaluation data is at least partially judged by its usefulness in guiding program operations.

This data utilization function and the role of evaluation research in the daily operating procedures of police agencies are illustrated in this article.

REFERENCES

Boydstun, J. E. *San Diego field interrogation: Final report.* Police Foundation, 1909 K Street, N.W., Washington, D.C., 1975.

Kelling, G. L., Pate, T., Diekman, D., and Brown, C. E. *The Kansas City preventive patrol experiment: A summary report.* Police Foundation, 1909 K. Street, N.W., Washington, D.C., 1975.

Levin, H. R. Cost effectiveness analysis in evaluation research. In M. Guttentag and E. L. Struening (Eds), *Handbook of evaluation research.* Beverly Hills-London: Sage, 1975, 89-121.

McNees, M. P., Egli, D. M., Marshall, R. R., Schnelle, J. F., and Risley, T. R. Shoplifting prevention: The effects of anti-shoplifting signs and publicly identifying frequently missing merchandise. *Journal of Applied Behavior Analysis,* 1976, **9**, 399-405.

Schnelle, J. F., Kirchner, R. E., Casey, J. D., Uselton, P. H., and McNees, M. P. Patrol evaluation research: A multiple-baseline analysis of police patrol during day and night hours. *Journal of Applied Behavior Analysis,* 1977, **10**, 33-40.

Schnelle, J. F., Kirchner, R. E., McCrae, J. W., McNees, M. P., Eck, R. H., Snodgrass, S., Casey, J. D., and Uselton, P. H., Jr. Police evaluation research: In experimental and cost benefit analysis of a helicopter patrol in a high crime area. *Journal of Applied Behavior Analysis,* 1978, **11**, 11-21.

Schnelle, J. F., Kirchner, R. E., McNees, M. P., and Lawler, J. M. Social evaluation research: The evaluation of two policy patrolling strategies. *Journal of Applied Behavior Analysis,* 1975, **8**, 353-365.

Wallace, R. L. Cost and revenue associated with increased sale of T.V.A. power. *Southern Economic Journal,* 1967, **33**, 526-529.

We don't know yet if store alarm projects work. *Criminal Justice Newsletter,* June 7, 1976.