



Reducing the rewards of shoplifting: An evaluation of ink tags

Robert L. DiLonardo*³, Ronald V. Clarke⁴

³2882 Sandpiper Pl., Clearwater, FL 34622, USA

⁴School of Criminal Justice, Rutgers University, 15 Washington St., Newark, NJ 07102, USA

Abstract

Benefit denial devices in the form of 'ink tags' are relative newcomers to the retailing scene. If tampered with, these devices release ink and indelibly stain the garment to which they are attached. The effectiveness of these anti-shoplifting devices was examined in two small studies undertaken in a chain of apparel stores. It was concluded that ink tags may be more effective than electronic article surveillance (EAS) tags when used in the same retail environments.

Keywords: Denying benefits; Benefit denial devices; Mini-locks; Ink tags; Security-coding; Electronic article surveillance; Shoplifting; Situational prevention

1. Introduction

According to the rational choice perspective (Cornish and Clarke, 1986), crime is purposive behavior, always intended to bring some benefit to the offender. Consequently, an important category of situational prevention consists of 'denying benefits' of crime (Clarke and Homel, in preparation). The principle can be illustrated by the common clothes hanger, which has a looped end to fit over the bars in a closet. All clothes hangers operate in basically the same way, except for those found in hotel and motel rooms. The vast majority of these latter hangers, at least in the United States, are designed without looped ends and instead, fit into loops that fixed to the bar. Because of this design difference, the would-be thief knows that these hangers would be useless at home. The benefit of stealing the hangers has been denied, therefore, and they have effectively been removed as theft targets.

This concept of benefit denial was introduced into retailing in Europe in the 1980s by a Swedish company which manufactured plastic tags containing pressurized ink vials (DiLonardo, 1993). These tags were attached to apparel in the same way as the more

familiar electronic article surveillance (EAS) tags (Bamfield, 1994; Handford, 1994; DiLonardo, 1996), but, if tampered with, the ink vials broke and stained the garment. A warning to this effect was printed directly on the tag. A garment with an ink stain can neither be worn nor sold and, faced with the difficulty of removing the tag without ruining the garment, shoplifters avoided garments with tags. Unfortunately, the original products proved difficult to use in the retail environment and were soon compromised by shoplifters. As a result, the European experiment with these devices failed.

Improved products, using the same basic concept, have since been introduced successfully in the United States beginning in 1990. The ink tags now available are compact (little more than an inch in diameter), re-useable, and can be removed easily by shop assistants using a special tool at the point-of-sale. Devices that combine ink tags and EAS tags are also available. In addition to these ink tags, other products have been introduced for eye wear, jewelry, small leather products, video games, and other merchandise. In these cases, the devices consist of small locks or clamps that cannot be removed by shoplifters without damaging the item to which they are fixed.

Between 1991 and 1995 well over 50 million units of these 'benefit denial devices' (Hayes, 1991) have been sold to many of the largest retail chains. Over

* Corresponding author.

16% of respondents to the 1994 National Retail Security Survey reported that they were currently using benefit denial devices, and 7.7% of the respondents planned on increasing their use during the next year (Hollinger and Dabney, 1994).

2. The effectiveness of ink tags

While these devices have attracted a ready market among retailers, there has been no published study of their effectiveness. The present article, therefore, reports two small studies on the effectiveness of ink tags used in one large, nationally-prominent chain of over 1000 stores offering a wide variety of women's wear. In both studies, the measure of effectiveness employed is based on 'inventory shortage', which is the money lost when a retailer compares the amount of merchandise physically present in the store at a given time to the amount of merchandise that the statement of accounts shows should be present. Shortage could be due to shoplifting, to employee theft or to administrative error.

The retail chain in which the studies were undertaken consists of several different divisions, trading under their own store names, each concentrating upon a different category of women's wear such as Juniors' or Women's Sportswear. However, the responsibility for overall loss prevention activities was, and continues to be, centralized. In the early 1990s, EAS tags were used in those branch stores which had a sales volume and inventory shortage level high enough to justify the cost of the system (\$11,000). Approximately one half of the branch stores met this criterion and had been using EAS tags successfully. By virtue of the benefits of EAS, the average inventory shortage of all stores, with and without EAS, had dropped to a level of 1.74% of sales.

While the EAS program had been considered financially successful in the stores which could afford it, there were reasons (apart from cost) which precluded management from instituting the program chain-wide. In particular, the installation, maintenance and repair of the EAS systems became unwieldy and time consuming. In addition, the size of the electronic field produced by the EAS system interfered with merchandising practices, because EAS tags attached to garments near the door inadvertently activated the alarm.

Since ink tags are non-electronic, these maintenance and merchandising issues are largely eliminated and since they are less costly than an EAS system (\$7800 vs. \$11000), management was willing to test them adopting the same financial standards that were required of EAS products.

2.1. Study one

The first study involved 14 new stores which were opened with ink tags manufactured by a small, Florida-based supplier. These stores were geographically dispersed; were all branches of a single division; exhibited the similar demographic characteristics to the chain as a whole; and were opened between November 1990, and September of 1991. Physical inventories were taken at various times between 6 months and 1 year after opening. In cases where inventories represented less than a full year of data, the results were annualized (see Table 1). On an annualized basis after the introduction of ink tags, inventory shortages in the 14 stores averaged 1.49% of sales versus the chain-wide average of 1.74%, an improvement of 14%. Additionally, the return on investment with these benefit denial devices proved to be superior to the investment in EAS because the costs associated with the ink tag system were significantly lower.

2.2. Study two

A second study in the same chain involved the replacement of EAS with ink tags in four stores which incurred high shortages in spite of the use of EAS. These stores incurred an average shortage of 4.5% of sales before the replacement by ink tags. One full year after the replacement, shortages dropped about 42%, from an average of 4.5% of sales to an average of 2.4% (see Table 2).

Concurrently, management instituted a weekly tag counting program in each store using ink tags and the totals obtained were matched against the beginning

Table 1.
Fourteen new stores using ink tags

| Store | Month of installation | Annual shortage (\$) | |
|--------------------------------|-----------------------|----------------------|-------|
| 1 | Nov. 1990 | 8100 | |
| 2 | Nov. 1990 | 4100 | |
| 3 | Feb. 1991 | 1800 | |
| 4 | Mar. 1991 | 10000 ^a | |
| 5 | Mar. 1991 | 21 000 ^a | |
| 6 | Mar. 1991 | 14000 ^a | |
| 7 | Apr. 1991 | 11600 ^a | |
| 8 | Apr. 1991 | 5000 ^a | |
| 9 | May 1991 | 30400 ^a | |
| 10 | July 1991 | 34400 ^a | |
| 11 | July 1991 | 9800 ^a | |
| 12 | July 1991 | (1400) ^b | |
| 13 | Aug. 1991 | 22300 ^a | |
| 14 | Sept. 1991 | 5000 ^a | |
| Average shortage for 14 Stores | | 12 600 | 1.49% |
| Chainwide average shortage | | 16600 | 1.74% |

^aAnnualized data, ^bAnnualized 'overage'.

Table 2
Stores switching to ink tags from EAS comparison of annual shortages

| Store | Shortage before switchover (\$) | Shortage after switchover (\$) |
|--------|---------------------------------|--------------------------------|
| 1 | 52500 | 29700 |
| 2 | 38200 | 32700 |
| 3 | 60100 | 27200 |
| 4 | 40700 | 22000 |
| Totals | 191 500 4.5% of sales | 111600 2.4% of sales |

inventory. It was assumed that the program could be successful and shortage would be reduced if a high percentage of ink tags remained in the stores during the first 6 months of usage. A few tags were lost during the first few weeks — due either to shoplifting or to a clerk's failure to remove them at the point of sale. As time passed, however, instances of lost tags became rarer, indicating that potential shoplifters were being deterred or displaced. The total number of tags lost was statistically insignificant.

3. Summary and discussion

While generally indicative of the value of benefit denial devices in the retail environment, both the studies reported above have some limitations. In the first place, they both examined only ink tags and none of the other benefit denial devices now in regular use. Concerning the first study, while the 14 stores included were thought to differ little from those chain-wide, a quantitative comparison of relevant variable between the two groups of stores was beyond the resources available for the study. It is possible, therefore, that the relatively modest (14%) difference in inventory shortage between the 14 stores and the chain as a whole might be due as much to differences in store characteristics as to any additional preventive value of ink tags. Moreover, the 14 stores included in the study were all new ones and it is possible that this fact contributed to the lower shortage levels.

Data from the second study are more convincing in that ink tags were found to yield much lower shortage levels in the same stores than formerly yielded by EAS tags. However, only four stores were included in the second study, which is a limited base from which to draw general conclusions. It is also unclear how much of the advantage of ink tags was due to their comparative novelty and whether this advantage might dissipate as shoplifters found ways to compromise the tags. One way would involve obtaining a tag removal

device, though the crucial importance of keeping these secure is constantly emphasized by the suppliers.

In time, however, the most determined offenders can usually find ways to defeat any security system. Indeed, there is some recent evidence that ink tags are no exception. On the strength of these trials, the stores' management had concluded that these benefit denial devices prevent shoplifting better than existing, conventional methods. Nor did there seem to be customer resistance to the devices evidenced in terms of reduced sales and, consequently, the chain began to use them more widely. After 5 years of use, however, there are indications of a slight degradation in effectiveness, possibly due to the increased ability of shoplifters to compromise the tags. It is very important that the suppliers of ink tags carefully monitor the situation and modify their products as necessary to deal with any vulnerabilities.

4. Conclusions

Despite their limitations, the two small studies reported above provide useful evidence of the effectiveness of benefit denial devices in the retail environment. The second study, in particular, suggests that ink tags may be considerably more effective than EAS tags. When the latter were replaced by the former in four stores, shortage rates were reduced by more than 40% to 2.4% of sales (this latter figure includes shortages due to employee theft and administrative error, as well as to shoplifting). The change also resulted in significantly reduced operating and maintenance costs.

To our minds, there is something especially gratifying about the principle of benefit denial. Even though shoplifters may not be detected, they cannot enjoy their ill-gotten gains, which seems a fitting response to greed. A similarly gratifying result was achieved by the successful graffiti-cleansing program on the New York City subway, designed to deny tag-writers the rewards of 'getting up', i.e., having their handiwork displayed on the system (Sloan-Howitt and Kelling, 1990).

The principle employed by ink tags has been used for many years by banks in the form of devices that stain bundles of stolen bank notes with ink. Benefit denial has also found its electronic expression in the 'security coding' now routinely used to protect radios, cassette players, and CD players installed in automobiles. If these components are removed by a thief, they cannot be used without first re-entering the secret code number. Studies undertaken in the United States and elsewhere suggest that models of automobile with security-coded radios enjoy a reduced vulnerability to theft (Braga and Clarke, 1994). There seems little reason for not extending security-coding to other electronic goods such as VCR machines and

audio systems that are the targets of many residential burglaries. Mini-locks might also provide additional protection for some items of personal jewelry kept in homes. Exploring these possibilities could provide a much-needed stimulus to fresh thinking in the field of burglary prevention.

References

- Braga, A.A. and Clarke, R.V. (1994) Improved radios and more stripped cars in germany: a routine activities analysis. *Sec. i.* 5, 154-59.
- Bamfield, J. (1994) Electronic Article Surveillance: Management Learning in Curbing Theft. In: Gill, M. (Ed.), *Crime at Work*. Leicester, England: Perpetuity Press.
- Clarke, R.V. and Homel, R. In preparation. A Revised Classification of Situational Crime Prevention Techniques.
- Cornish, D.B. and Clarke, R.V. (1986) *The Reasoning Criminal*. New York: Springer-Verlag.
- DiLonardo, R.L. (1993) Fluid Tag Deterrents. *Retail Bus. Rev.*, June, 26-27.
- DiLonardo, R.L. (1996) Defining and measuring the economic benefit of electronic article surveillance. *Sec. J.*
- Handford, M. (1994). *Electronic Tagging in Action: A Case Study in Retailing*. *Crime at Work*, edited by Martin Gill. Leicester, England: Perpetuity Press.
- Hayes, R. (1991). *Retail Security and Loss Prevention*. Butterworth-Heinemann.
- Hollinger, R. and Dabney, D. 1994. *National Retail Security Survey Final Report*. Gainseville: University of Florida.
- Sloan-Howitt, Maryalice and Kelling, G.L. (1990). *Subway Graffiti in New York City: 'Gettin Up' vs. 'Meaning It and Cleaning It'*. *Sec. J.* 1,131-36.