Retail tagging to prevent shop theft

A security measure used by retailers to prevent theft.

First published
22 June 2017

Effect scale	Quality of evidence				
	Effect Impact on crime	Mechanism How it works	Moderator Where it works	Implementation How to do it	Economic cost
Mixed findings	■■■□ Strong	■■■□ Strong	■■■□ Strong	■■■□ Strong	

Focus of the intervention

Tags are a type of security measure commonly used by retailers to prevent the theft of products and packaged goods.

There are a variety of different types of tag, such as ink dye tags and electronic article surveillance (EAS) tags. Some of these are designed for specific products, such as bottles or clothing.

This review focussed on two types of tag. The first is EAS tags. These can take many forms, from large plastic tags attached to clothing to small magnetic strips with bar codes affixed to products.

EAS systems generally consist of three components:

- the electronic tag
- detector gates with built-in radio antennae (typically located at store exits)
- a control unit

EAS tags sound an alarm if they pass the detector gates without being removed or deactivated.

The second type of tag covered in this review are ink dye tags. Ink dye tags are non-electronic. Typically made of plastic and applied to clothing, these tags contain vials of ink. The ink is released if the ink tag is forcibly removed or tampered with, thereby spoiling the product.

In the interests of maximising profits, retailers often favour tags over other security measures because tagged items remain on open display and are therefore more accessible to staff and customers.

Effect – how effective is it?

There is some evidence that tagging has either increased or decreased shop theft, but overall it has not had a statistically significant effect on theft.

The review identified eight studies that reported quantitative data on the effectiveness of security tags in retail environments. Due to variations in research design and outcome measures, the review was not able to conduct a meta-analysis.

Accurately measuring shop theft was found to be a recurrent problem in the literature reviewed.

Six of the eight studies used the broader measure of shrinkage rather than theft – a term commonly used by retailers to denote preventable losses resulting from crime, administrative errors and product damage or wastage (see the general considerations section).

Across these eight evaluation studies, five showed decreases in theft, loss or shrinkage. One showed no effect and two showed increases in theft, loss or shrinkage following the implementation of tags. It is important to note that three of these studies compared different types of tags, rather than the effectiveness of tags versus no tags or tags versus some other security measure.

Moreover, in the two studies that found increases in theft, loss or shrinkage – a backfire effect – we cannot confidently attribute the negative results to the installation of tags.

This is because in both studies the installation of tags followed the removal of an existing prevention measure. For example, in one study, larger plastic EAS tags were replaced by smaller EAS tags, which are less visible and easier to remove. It is therefore possible that the apparent

backfire effect may be partly explained by the effectiveness of the previous, more visible tag regime.

Overall the evidence suggests that in order to prevent theft in retail environments, it is better to tag items than not to tag items.

Moreover, conspicuous tags were found to perform better than inconspicuous tags.

However, there appear to be differences in the effectiveness of different types of tags. The reasons behind this variation in effectiveness are considered in the mechanism section.

How strong is the evidence?

The review was sufficiently systematic such that many forms of bias that could influence the study conclusions can be ruled out.

It had an effective search strategy and found literature published through commercial and non-commercial means, including retailer reports.

The studies were assessed by multiple authors to ensure accuracy of information retrieval and the review considers the displacement or diffusion of crime control benefits from tagged to non-tagged items.

Since no meta-analysis was possible, issues of dependency and the possible effect of outliers are negated.

Mechanism – how does it work?

Different types of tag were proposed to reduce theft through different causal mechanisms. After reviewing the available literature, the review authors suggested three mechanisms.

The first mechanism refers to increases in the risk of getting caught. This was the most commonly cited mechanism in the studies identified in the review. This mechanism is associated mainly with electronic tagging systems that include an alarm component. The application of a tag means that if an offender were to try and illegally remove a tagged item, an alarm should sound and the theft could be better identified.

The second mechanism refers to reductions in rewards or denying the benefits to the offender. This mechanism was mainly discussed in relation to ink tags, which are non-electronic and predominantly used on clothing. Bottle neck tags work in the same way, requiring the bottle to be broken in order to release the tag.

The third mechanism relates to increases in the effort required by offenders to remove tags and circumvent the wider alarm system (in the case of EAS tags). It is plausible that the extra effort required to remove the tag (either in store or elsewhere) and circumvent the alarm system would be enough to deter some offenders from stealing tagged products.

Not enough information was available in the primary studies for the review authors to test any of these mechanisms. However, a detailed theory of change was set out in the review, which showed how the implementation of tags might plausibly lead to reductions in theft.

Moderators – in which contexts does it work best?

The review identified five key moderators which may influence the effectiveness of tags.

First is the shop and its staff. For example, if staff do not respond to sounding alarms, it would undermine any perceived or actual increase in risk to the offenders, and may in turn lead to more theft. However, false alarms may also lead to customer anger and embarrassment and a fall in repeat custom and sales.

Second, the type of shoplifters may impact upon the effectiveness of a tagging system. For casual shoplifters, a system that includes visible tags and signage may be enough to deter theft. For professional shoplifters, however, covert tags (which are invisible and may lead to arrests) may have a greater effect.

Third, the type of tag may affect its ability to reduce theft. Tags that are more visible offer potential thieves the impression that they will be apprehended, while tags that are less visible (or invisible) may only become obvious to thieves if the alarm sounds when they attempt to leave the store with a tagged item. If they are not stopped, the mechanism of increased risk of detection and apprehension is undermined.

Fourth, the type of merchandise sold in store will affect the tagging system. Some tags are only suitable for certain types of products (such as ink tags on clothing), while some inexpensive goods may not justify the cost of certain tags. The mix of products a store sells will determine the type of tags and the tagging strategy (for example, which product lines and full or partial tag coverage).

Finally, the response of the police and criminal justice system to cases of theft may influence levels of theft within a store and potentially the wider area. This concerns not only the decisions that agencies take but also the speed with which they – and in particular, the police – react. This in turn feeds back into the tagging strategies adopted by retailers.

Implementation – what can be said about implementing this initiative?

The review identifies several factors that would enable the implementation of an effective tagging system.

For example, ensuring that staff are properly trained to attach and detach tags and respond to alarms is considered crucial. This may include the ongoing monitoring of staff and the use of incentives to encourage compliance.

The type of tagging system being implemented will depend on the type of product, the type of store design and the costs. All of this must be considered before implementing any tagging system.

Whether the retailer implements tagging at source (by the manufacturer or distributor) or in store will have a bearing upon staffing and costs.

Equally, the decision to tag all products of the same type or apply fractional tagging (tagging only a percentage of those products) may impact upon the staff time required by the retailer.

Economic considerations – how much might it cost?

Although the studies identified in this review provided insufficient information for a cost-benefit analysis of tags to be conducted, information about the cost of tagging could be synthesised.

The cost of tags was found to vary widely across studies. Soft, disposable EAS tags are now available for as little as a penny each, while reusable EAS tags are estimated to cost around 20-35p.

The most expensive tags in terms of initial outlay appear to be ink tags, which are designed to be reusable. However, ink tags typically require less infrastructure and therefore have lower set-up costs than EAS tags, since they do not require electronic gates.

The tagging strategy employed by retailers also has cost implications.

One way in which retailers may reduce their expenditure is to apply tags in their own supply chain.

An additional approach is to work with a manufacturer who tags items at source, rather than to apply tags in-store. However, this may lead to the cost of tagging being forced upon manufacturers instead. The fact that manufacturers often supply multiple retailers who may all use different tagging systems makes this approach problematic.

General considerations

- The studies do not all have theft as their outcome measure, but use terms and categories such as loss and shrinkage. These include theft by customers but also includes theft by staff members or loss through other ways (such as damage to goods), which may not be affected by the application of tags.
- While this report was mainly concerned with theft as a final outcome of tagging, many retailers are understandably concerned with the economic returns associated with tagging, so may tolerate some increase in theft if an increase in sales also occurs.

Summary

There is some evidence that tagging has either increased or decreased shop theft, but overall it has not had a statistically significant effect on theft.

The presence of tags appears to be more effective than the absence of them and more visible tags are found to be more effective than more discreet ones.

Tags reduce theft through increasing the risk of the offender getting caught or reducing the rewards from stolen merchandise.

In order for tagging to be effective, retailers must consider:

- the types of products being tagged
- how to properly implement the wider tagging system
- how much it will cost

Reviews

Review one

Reference

- Sidebottom, A., Thornton, A., Tompson, L., Belur, J., Tilley, N., Bowers, K. and Johnson, S. D. (2017). **A Systematic Review of Tagging as a Method to Reduce Theft in Retail Environments**. What Works Centre for Crime Reduction, University College London

Summary prepared by

This narrative was prepared by UCL Jill Dando Institute and was co-funded by the College of Policing and the Economic and Social Research Council (ESRC). ESRC grant title: 'University Consortium for Evidence-Based Crime Reduction'. Grant reference: ES/L007223/1.

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