



JDiBrief – Crime

Metal theft: SUMMARY (1 of 5)

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Metal theft is common and costly. It refers to incidents in which items are stolen for the value of their constituent metals. Such items vary enormously, from air conditioning units being stolen for their copper tubing to the theft of catalytic converters for their palladium, radium and aluminium. The absence of a specific metal theft crime category limits the confidence we can place in estimates on the extent of the problem. Nonetheless, regional, national and international figures suggest large increases in the volume of metal theft over the past decade, largely attributed to steep increases in the price of many metals.

Metal theft is a clear illustration of how societal changes can generate opportunities for crime: increased (global) demand for metals and associated price increases tilt a traditionally undesirable crime target to desirable. It is important to consider that the same may also apply to other commodities that are not traditionally stolen, but which are susceptible to price increases.



PLACE: The widespread use of metals means that opportunities for metal theft are vast. Theft tends to concentrate at places where opportunities are plentiful and where guardianship is low, so reducing the risk of an offender being detected. Common locations include railway lines, churches and construction sites. Research in the US suggests that levels of metal theft are higher in cities that have a greater rate of scrap metal outlets.

OFFENDER: Metal thieves can be thought of as occupying two groups. The first are those that steal metal-bearing items. These include opportunists who exploit easily removable items to make a profit, as well more organized groups equipped to steal metal on a grander scale and with a working knowledge of the scrap metal industry. The second group concerns those that trade in stolen metals. These individuals might be complicit in the crime or purchase metals unknowingly. ‘Insiders’ who are working in or are familiar with industries where metals are common can populate either group.

TARGET: Metal theft takes many forms, reflecting the numerous applications for which metals are used. Common targets include beer kegs, manhole covers, catalytic converters, air conditioning units, copper wiring and cabling, lead from roofs and bronze plaques and statues. Most have experienced rapid price surges in recent years.



IMPLEMENTING RESPONSES: Despite a flurry of activity designed to reduce metal theft, robust evaluations of implemented measures are rare. Evidence to inform the selection of suitable strategies is therefore lacking. Measures that have been put in place tend to concentrate on increasing the difficulty in stealing metals and increasing the risks associated with disposing of them. This is against a backdrop of repeated calls to alter outdated UK legislation in ways that thwart the illegal trade in metals.



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Metal theft: CRIME OVERVIEW (2 of 5)

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DEFINITION: Metal theft refers to the illegal removal of items for their constituent metals. It can take numerous forms, from the theft of copper railway cabling to the theft of lead from church roofs. Unlike other items targeted in thefts, stolen metals have little inherent value to the metal thief; profit is only generated upon sale. For this reason, it is assumed that many items are stolen with the intention of being sold to scrap metal merchants.

Research on metal theft is limited, particularly reliable evaluations of efforts to reduce metal theft (or specific types of metal theft). This absence is partly explained by the difficulty in accessing metal theft data from police recorded crime statistics. In England and Wales there is no metal theft offence category; the theft of metal-bearing items can therefore be recorded under several crime categories (typically 'theft other'); making the extraction of relevant data difficult. What's more, disentangling metal thefts from other crime types can be tricky. Simply put, metal theft refers to incidents where the guiding motivation for theft relates to the material from which an item is made, not its form or function. So, for example, a (metal) bicycle stolen for transportation purposes does not count as metal theft going by this definition.

TRENDS: Metal theft is one of the fastest growing crime types internationally. This is noteworthy because most industrialised countries have witnessed general reductions in acquisitive crime over the last decade. Precise estimates on the extent of metal theft nationally are difficult to obtain because of the absence of a designated metal theft crime category. The British Home Office estimate that there were around 100,000 police recorded metal thefts in 2010/11. According to British Transport Police recorded crime data, the levels of copper cable theft have increased rapidly from 2005/06 to 2010/11.

CAUSAL FACTORS: Significant increases in the price of many metals - mainly attributed to a global supply-demand imbalance - are recognised as the main contributor to the surge in metal thefts. This is supported by research analysing the relationship between copper price and copper cable theft from the British Railway Network (see Figure 1 and the resources page for the paper by Sidebottom and colleagues which this is taken from). Together with the wide availability of metals, it is argued that price increases have generated greater opportunities for offenders to sell stolen metals at financially rewarding prices at a low risk of detection.

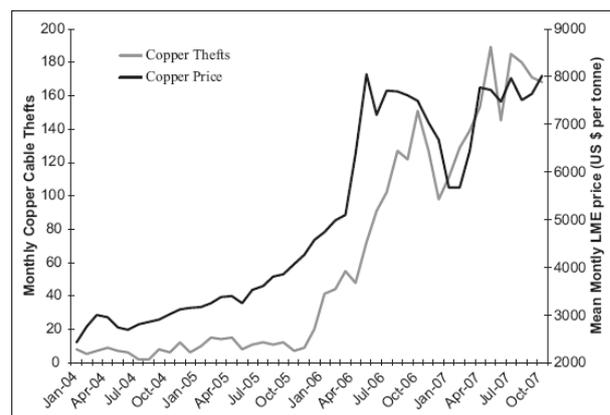


Figure 1 - Monthly copper cable thefts and copper price. Reproduced with kind permission from SAGE.

HARMS: The harms associated with metal theft are considerable, both to national infrastructure (i.e. thefts from telecom and utility companies) and national heritage (i.e. thefts from and damage to historic buildings). In 2010/11 the theft of railway cabling is estimated to have caused disruption to over 35,000 rail services and £16 million in replacement costs. Just a few metres of severed railway cable can generate massive disruption to the railway network. The cutting of power lines or utility cables also carries significant risks of injuries and deaths to the metal thieves.



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Metal theft: ANALYSIS (3 of 5)

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Research and analysis of metal theft has found the following general trends:

PLACE: Metals are ever-present in contemporary society, meaning that opportunities for metal theft are widespread. Places that appear particularly vulnerable to metal theft are railway networks, abandoned housing and churches and graveyards. These concentration patterns are attributed to a lack of guardianship at such locations.

Research in the U.S. shows that metal theft tends to be higher in cities with a greater number of scrap metal yards per 100,000 residents. Given the finding that offenders often prefer stealing items that they can sell quickly and easily, it is plausible that an easily accessible, specialised market for metals might act as an incentive to steal.

OFFENDER: Metal thieves can be organised into two broad groups: those that steal metal-bearing items (thieves) and those involved in the trade in stolen metals (scrap metal buyers). The former is comprised of three types of offender:

- The opportunist. These offenders may not purposefully seek out metals to steal but will exploit easy opportunities where adequate guardianship is lacking.
- Organised groups. These offenders tend to steal large quantities of metals and have good knowledge of the scrap metal industry.
- Drug addicts. It is commonly stated that drug addicts steal metals to feed their habit. These offenders likely steal small amounts of metal that can easily be sold for profit.

Scrap metal buyers play a key role in the metal theft problem. They are responsible for converting stolen metals into cash (or in some cases drugs), thus providing a financially rewarding incentive to steal. Scrap metal buyers may be intermediate fences or scrap metal merchants. What's more, they may purchase stolen metals knowingly or unknowingly. Finally, 'insiders' familiar with or working in metal-rich industries might populate either offender group, through stealing metals themselves or colluding with other offenders on the location of - or means to steal - metals.

TARGET: Metal theft can take many forms. Common targets include beer kegs, manhole covers, catalytic converters, air conditioning units, copper wiring and cabling, lead from roofs and bronze plaques and statues. Variation in the types of metal theft in an area might reflect variations in the number of opportunities available for different metals and/or the ease with which they can be stolen, as well broader fluctuations in the price of different metals.

Active metals – such as 'live' power cabling – tend to generate greater damage than the theft of inactive metals – such as copper piping from abandoned homes. A common difficulty experienced by police forces and the scrap metal industry is distinguishing legitimate from stolen metals. Many metals bear little, if any, unique features to determine their source and/or owner.





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Metal theft: IMPLEMENTING RESPONSES (4 of 5)

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The recent surge in metal thefts has prompted the implementation of several prevention schemes. In the UK this has been alongside repeated calls for changes to relevant legislation, particularly updating the Scrap Metal Dealers Act 1964 to help thwart metal thieves and increase the transparency of the scrap metal industry. Presently, reliable evidence on the effectiveness of preventive measures is limited. Robust evaluations to complement anecdotal reports are required. An important requirement of any evaluation of metal theft prevention activities is to demonstrate that any changes in the levels of theft cannot be explained by simple changes in the price of metals.

Efforts to reduce metal theft have tended to focus on two areas: 1) making it harder to steal metals and 2) making it riskier or less rewarding to sell stolen metals. These are expanded on below:

1. Across several crime types, evidence demonstrates that increasing the effort required to steal an item can lead to reductions in the levels of theft. Various target hardening schemes have therefore been implemented to reduce the ease with which metals can be stolen. These include the implementation of security measures, such as the chaining of manhole covers or the caging of air conditioning units. It can also refer to changes in practice to remove available targets, such as not leaving copper piping at building sites or copper cabling alongside railway lines. In addition, measures have been put in place to increase the security at places where metals are commonly found. Removing gaps in perimeter fences near railway lines and controlling access to utility companies or construction sites are common examples.
2. **Property marking:** Many groups affected by metal theft now use invisible forensic technology to tag their metals. The rationale is that ‘tagged’ metals will be easier to identify as stolen – overcoming the target anonymity problem – and therefore increasing the risks associated with disposing of stolen metals. It can also be used as an intelligence gathering tool to track where stolen metals tend to be sold. Anecdotal accounts report some success following the implementation of such schemes. However, success is dependent on incentivising scrap metal buyers to routinely test whether metals are ‘tagged’ and to refuse purchasing those that are.

Disrupting the market: Selling stolen metals for profit is recognised as the primary motivation of metal thieves. Scrap metal yards and pawn shops provide a specialised ready market. It follows that intervening in such markets in ways that impede the sale of stolen metals while having little effect on the trade of legitimate metals should lead to reductions in the problem. A common disruption technique has been to encourage scrap metal merchants to request that all their customers provide personal details (such as a photographic ID) when selling metals. Initial evidence from a police operation in the North East of England – Operation Tornado – indicates that this strategy is effective in reducing the levels of metal theft in the targeted areas. Success however is dependent on identifying the scrap metal buyers in the area and forging effective relationships to ensure high levels of participation in and adherence to such a scheme.





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Metal theft: RESOURCES (5 of 5)

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GENERAL RESOURCES

- Kooi, B. (2010). Theft of Scrap Metal. Problem-Oriented Guides for Police Series. Guide No. 58. U.S. Department of Justice, Office of Community Oriented Policing Services. Available at: http://www.popcenter.org/problems/metal_theft/
- Sutton, M. (2010). Stolen Goods Markets. Problem-Oriented Guides for Police Series. Guide No. 57. U.S. Department of Justice, Office of Community Oriented Policing Services. Available at: http://www.popcenter.org/problems/stolen_goods/
- Metal Theft website: www.metaltheft.net/

UK GOVERNMENT REPORTS

- Clarke, R.V. (1999). Hot Products: Understanding, Anticipating and Reducing Demand for Stolen Goods. Police Research Series, Paper 112. London: Home Office.

A SELECTION OF ACADEMIC PAPERS AND BOOK CHAPTERS

Bennett L. (2008). Assets Under Attack: Metal Theft, the Built Environment and the Dark Side of the Global Recycling Market. *Environmental Law and Management*. Vol 20, pp.176-83.

Sidebottom, A., Belur, J., Bowers, K., Tompson, L. & Johnson, S. D. (2011). Theft in price-volatile markets: on the relationship between copper price and copper theft. *Journal of Research in Crime and Delinquency*. Vol 48(3), pp. 396-418.

Whiteacre, K., Medler, L., Rhoton, D. and Howes, R.. (2008). Indianapolis Metals Theft Project: Metal Thefts Database Pilot Study. University of Indianapolis, Community Research Center.