

Hot Products: understanding, anticipating and reducing demand for stolen goods

Ronald V. Clarke

Police Research Series
Paper 112

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Policing and Reducing Crime Unit: Police Research Series

The Policing and Reducing Crime Unit (PRC Unit) was formed in 1998 as a result of the merger of the Police Research Group (PRG) and the Research and Statistics Directorate. The PRC Unit is now one part of the Research, Development and Statistics Directorate of the Home Office. The PRC Unit carries out and commissions research in the social and management sciences on policing and crime reduction, broadening the role that PRG played.

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Foreword

This report focuses attention on the products that are most likely to be taken by thieves. Theft is concentrated upon relatively few products. These products share a number of common attributes in that they are generally concealable, removable, available, valuable, enjoyable and disposable. Increasing our understanding of what thieves are likely to take, and why, is particularly important for crime reduction strategies aimed at tackling the underlying causes of crime. In particular, this report should assist the police greatly in tackling markets for stolen goods.

Earlier work on hot spots of crime and repeat victimisation have both stimulated important crime reduction initiatives and there is every reason to believe that the information contained in this report will be valuable for the development of new strategies which will be of equal importance.

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Acknowledgements

One pleasure of preparing this review has come from reading through many of the publications in this series. Not only have I learned a lot, but also I have discovered how much I am still in sympathy with the Home Office research agenda. Despite having departed for academia so many years ago, I still find that being policy-oriented makes Criminology more personally rewarding. Because it provides a reality check, I also believe that it makes for better science. Having said that, I should acknowledge how much I have benefited from discussions with my academic colleague at Rutgers, Marcus Felson, who pioneered the study of hot products.

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Executive summary

Crime is not spread evenly across all places, people or times and, to be effective, preventive measure must be directed to where crime is most concentrated. Focusing on 'hot spots' – those places with a high rate of reported crimes or calls for police assistance – has proved useful in directing police patrols and crime reduction measures. Similarly, giving priority to 'repeat victims' of crime has proved to be an effective use of preventive resources.

This publication argues that comparable benefits for prevention would result from focusing policy and research attention on 'hot products', those items that are most likely to be taken by thieves. These include not just manufactured goods, but also food, animals and works of art. The ultimate hot product is cash which helps determine the distribution of many kinds of theft, including commercial robberies, muggings, burglaries and thefts from ticket machines and public phone boxes.

A better understanding of which products are 'hot', and why, would help businesses protect themselves from theft and would help the police in advising them how to do this. It would help governments in seeking to persuade business and industry to protect their property or to think about ways of avoiding the crime waves sometimes generated by new products and illegal use of certain drugs. It would help consumers avoid purchasing items (such as particular models of car) that put them at risk of theft and may lead them to demand greater built-in security. Finally, improved understanding of hot products would assist police in thinking about ways to intervene effectively in markets for stolen goods. This publication is the first to review comprehensively what is known about hot products and what further research is needed to assist policy.

A review of the most stolen items for a variety of theft types led to some important conclusions, as follows:

1. For each kind of theft, specific items are consistently chosen by thieves. In residential burglaries, for example, thieves are most likely to pick jewellery, videos, cash, stereos and televisions. In shoplifting, the items at risk depend on the store. Thus, book shops in America are most likely to lose magazines and cassette tapes, while groceries, supermarkets and convenience stores are likely to lose cigarettes, video tapes, beauty aids and non-prescription medicines.
2. Despite this dependence on the setting, there is some consistency across settings in goods stolen. Certain items are at risk of being shoplifted wherever these are sold. These include cassettes, cigarettes, alcoholic drinks, and fashion items such as Hilfiger jeans and Nike training shoes. These are all enjoyable things to own and

consume. The British Crime Survey shows that, for thefts involving personal possessions, cash is more frequently taken than anything else – followed in order by vehicle parts (even when car radios are excluded), clothing and tools.

3. Which cars are most likely to be stolen depends on the purposes of theft. An American study found, for example, that joyriders prefer sporty models. Thieves looking for cars to sell, prefer expensive luxury models. Those seeking components to sell prefer models with easily-removable, good-quality, radios.

4. Vehicle body-type helps determine which lorries and commercial vehicles are stolen. Vehicles used by the construction industry, such as tippers, seem particularly at risk. This may be the result of a thriving second-hand market, which would make these vehicles easier for thieves to sell.

5. Though more research is needed, relatively few hot products may account for a large proportion of all thefts. For example, theft insurance claims for new cars in America in 1993-95 were twenty times higher for models with the worst theft record than those with the best.

Some of the key attributes of hot products are obvious, including their value, size and portability. These attributes are summarised by CRAVED, an acronym referring to six elements making products attractive to thieves: hot products must be **concealable, removable, available, valuable, enjoyable and disposable**.

While each of the elements of CRAVED may be important in explaining which products are stolen, *how much* they are stolen may depend critically on just one attribute — the ease of disposal. This reinforces the need for research into ways of disrupting theft markets, especially markets serving particular hot products. Other recommendations for policy-oriented research, include studies of the amounts of theft accounted for by hot products, when these products are most at risk, and who bears the costs of theft.

Policy makers also need research help with two vital tasks. First, they need help in anticipating and assessing technological developments that could result in new hot products and new ways of preventing theft. Right now, the potential needs to be assessed of several promising methods of establishing ownership and denying the benefits of theft. These methods include enhanced security coding of TVs and videos, tiny data tags that transmit signals that can be used to identify vehicles, micro-dot property marking and ‘smart water’ containing indelible dye. Second, they need help in finding ways to encourage business and industry to incorporate theft prevention in their products and their practices.

This assumes that hot products can be effectively protected without theft simply being displaced to other products. In fact, there is plenty of evidence this can be done. Thieves choose particular products for specific reasons, which other products may not satisfy. Moreover, studies of displacement in scores of settings have never found it to be one hundred percent. Indeed, rather than the risks being dispersed by prevention, its benefits have sometimes diffused beyond the focus of the measures. Offenders become aware that special measures are being taken, even if they do not know precisely their scope, and begin to exercise wider restraint.

More generally, the existence of large amounts of unprotected attractive property might both encourage habitual thieves to steal more, and tempt more people to try their hands at theft. If theft is made easy, there is likely to be more of it, and making it more difficult may lead to a more orderly, law-abiding society.

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1. Introduction

A recurrent theme of publications in this series has been that crime prevention must not be spread too thin. Rather than trying to prevent all crimes occurring everywhere, effort must be focused on those which will yield the greatest preventive benefits, whether defined in terms of their contribution to the overall rate of crime, their economic consequences or their role in promoting fear and disquiet. Having determined these priorities, it must then be decided how to focus effort to achieve the maximum effect. Crime is not spread evenly across all places, people or times, and preventive resources must be directed to where crime is concentrated – ‘the grease must be got to the squeak’ (Hough and Tilley, 1998).

Criminologists have recently described two important concepts that capture features of this concentration: ‘hot spots’ and ‘repeat victimization’. Hot spots, a geographic concept, refers to places (or addresses) that have a high rate of reported crimes or calls for police assistance (Sherman et al., 1989). It has been helpful in identifying places with concentrations of ‘street crime’, disorder and drug dealing. Repeat victimization, on the other hand, focuses on people or places that suffer a series of crimes in a relatively short period of time (Farrell and Pease, 1993). To date, the concept has been helpful in focusing efforts to prevent burglary or domestic violence, but promises to be of wider application.

A third concept which could help to focus preventive effort is ‘hot products’ — those consumer items that are most attractive to thieves. Throughout this paper, these items are defined quite broadly to include not just manufactured goods, but also food, animals and works of art. Perhaps the ultimate hot product is cash, which helps determine the distribution of many kinds of theft, including commercial robberies, muggings, burglaries, phone box vandalism and others. After all, Willie Sutton is supposed to have said he robbed banks because ‘that’s where the money is’. But there are many other important hot products. The goods most likely to be taken in residential burglary have repeatedly been found to include jewellery, televisions and videocassette recorders (‘videos’). Items taken in shoplifting exhibit a similar consistency: in American supermarkets the most stolen items include tobacco and liquor; in clothes shops, they include leisure wear, costume jewellery and high fashion items; in book and record stores, they include magazines and pop music cassettes. Certain cars are at much greater risk of theft than others and which models are taken depends on the nature of the offence: Those taken for joyriding are quite different from those taken for re-sale, and both are different from models which are stolen for spare parts. When the contents of cars are stolen, the radio is most likely to go and some makes of car radio are specially sought by thieves.

Hot products attract theft and thus their distribution helps to explain patterns of theft, including both hot spots (as in tourist locations where pickpockets lift wallets and purses) and repeat victimization (as when someone owns a car attractive to joyriders). Hot products can also help explain mini-crime waves caused by the sudden popularity of particular products such as training shoes or mobile phones, as well as larger increases in important categories of crime such as burglary or car theft resulting from the increased availability of consumer items attractive to thieves. Nearly twenty years ago, Cohen and Felson (1979) showed that the steep rise in residential burglary during the 1970's in the United States (and also in many other countries) was fueled partly by the proliferation of light-weight electronic goods, such as televisions and videos. This meant that most homes contained objects that could readily be converted to cash.

More important than their role in explanation, is the potential role of hot products in helping to focus crime prevention efforts. A better understanding of which products are 'hot', and why, would help businesses protect themselves from theft and would help the police in advising them how to do this. It would help governments when seeking to persuade business and industry to protect their property or to think about ways of avoiding the 'crime harvests' (Pease, 1997) sometimes generated by new products. It would help consumers avoid purchasing items (such as particular models of car) that put them at risk of theft and may lead them to demand greater built-in security. Finally, improved understanding of hot products would assist police in thinking about ways to intervene effectively in markets for stolen goods.

These points have been made before, but lacking to date has been a coordinated research focus on hot products. This paper makes the case for such research, which should pursue the twin objectives of improving understanding and assisting policy. To improve understanding, more information is required about which products are stolen in a variety of different contexts, and more refined theories are needed of what makes these products 'hot'. This requires research into the criminogenic properties of whole classes of products, such as videos and televisions to help explain why other light-weight electronic goods found in homes, such as food processors, are rarely taken by burglars. It also requires studies of why particular product brands attract more theft than others. For example, why are some makes of sneakers so much more likely to be stolen than others which sell equally well?

To assist policy, studies are needed of how much theft is generated by hot products, when and where are they most vulnerable, and what are the costs involved for businesses and the public. The last is a particularly complex question because theft

also carries some benefits: those who acquire stolen goods obtain things they could not otherwise have afforded, while manufacturers profit through the need to replace stolen items. Research is also needed on ways of protecting hot products, and making them more readily identifiable or less valuable when stolen (as in the case of security coded car radios). This is connected with the need for further research on ways of disrupting markets for stolen hot products, particularly of large consignments. Finally, ways must be found of helping policy makers identify new products that are likely to produce a 'crime harvest' and of persuading manufacturers to make products less attractive to thieves, without sacrificing commercial advantage.

These topics are addressed in subsequent sections of the paper, but first a more detailed look is taken in the next section at the products which are hot in a variety of different theft settings.

2. Which products are hot?

Because they have been preoccupied with the causes of criminal motivation (Felson and Clarke, 1998), criminologists have rarely studied the targets of theft. What limited information they have produced has come from studies of particular groups of offenders, such as burglars and shoplifters, which have sometimes included data about what is stolen. This data generally comes from police records or from interviews with victims and offenders, but it is limited by small and unrepresentative samples. It also lacks detail about the property taken, for example about age and make. Fortunately, more systematic information about targets of theft is available from three other sources:

- *The British Crime Survey.* Data about what is stolen in car thefts and burglaries for large and nationally representative samples of households has been obtained in the British Crime Survey. These data include information about crimes not reported to the police, which make them superior to those of the *Criminal Statistics* and the *FBI Uniform Crime Reports*.
- *Surveys by trade organizations.* Trade organizations for various sectors of industry and commerce in the United States, such as the National Association of Chain Drug Stores, have undertaken or sponsored surveys of goods stolen by shoplifters (and in some cases also by employees and burglars).
- *Government and insurance industry indices of vehicle theft.* Cars are uniquely important items of personal property by virtue of their size, their cost and their role in people's lives. Detailed records are maintained of the numbers of each model manufactured, licensed and insured. Model-specific indices of theft are routinely produced by government and insurance agencies for cars in Britain, the United States and Australia (see Clarke and Harris, 1992a). Recently, theft indices have also been produced in Britain for commercial vehicles.

These sources yield data about products taken for five categories of theft: residential burglary, theft from cars, theft of cars, commercial vehicle theft and shoplifting. Though a small number, these categories of theft are important and varied enough to provide a basis for generalizing about the kinds of products most attractive to thieves. They should also be sufficient for showing that theft is concentrated on a relatively narrow range of products, though they are limited for this purpose in one important respect. Only the vehicle theft indices provide data for the entire range of products at risk. Neither the BCS nor most of the trade association surveys contain information about property *not* stolen. As discussed in more detail below, this makes it impossible to calculate measures of theft concentration, such as the gini coefficient for theft and shoplifting, though, for the latter, this will become increasingly possible with improvements in electronic stock control.

Residential burglary

A greater variety of information has been published on what is stolen in the course of residential burglaries than for any other offence. The most recent and authoritative data come from the 1998 British Crime Survey (Budd, 1999). A sample of nearly 15,000 adults provided information about criminal victimisation in the previous year. On the basis of these data, it was estimated that there were 664,000 residential burglaries with loss in England and Wales in 1997. (There was also a large number of attempted burglaries and burglaries in which nothing was taken).

Table 1 shows that cash, videos, jewellery, stereo/hi-fi equipment, televisions and purses/wallets were the most stolen items, each being taken in more than 15 percent of incidents. A wide variety of other items are stolen, reflecting perhaps sheer opportunism and the idiosyncratic tastes or needs of individual burglars. Similar results have been found in smaller studies conducted in England and Wales (e.g. Maguire, 1982; Forrester et al., 1991; Kock et al., 1997) and in studies carried out overseas. For example, an analysis undertaken by the NRMA (1997) insurance company of about 15,000 burglary claims settled in Eastern Australia (predominantly New South Wales) during the financial year 1995/6¹, reports that jewellery was taken in 33 percent of incidents, videos/camcorders in 29.5 percent and cash in 27.8 percent. Perhaps the main exception to this pattern is that, in America, guns are quite frequently taken (Wright and Decker, 1994), probably reflecting the much wider ownership of firearms in that country.

¹ This number of 15,000 burglary claims paid is estimated from other data provided in the report: data presented suggests that the average payment was about AUS \$2,500, which by dividing into the total cost of payments of AUS37.3 million yields about 15,000 claims paid for burglary.

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Table 1: Items Stolen in Burglary British Crime Survey 1998

	Percent of Incidents
Cash	41
Video	35
Jewellery	34
Stereo/Hi-fi equipment	25
Television	16
Purse/wallet	16
Camera	13
Credit cards	13
Clothes	9
Computer equipment	9
Tools	7
Documents	6
Briefcase/bag	5
Cheque book	5
Bicycle	3
Mobile phone	2
Car/van	1
Car/van accessories	<1

Source: Budd (1999)

Despite the overall consistency of findings, marked local variations have been found in England and Wales in objects stolen during burglaries. Thus, Poyner and Webb (1991) found two distinct residential burglary patterns in the town they studied. Burglaries occurring in the older homes near the centre of the town, appearing to be committed by offenders on foot, mostly resulted in the loss of cash and jewellery. Those that were committed in the newer suburbs, apparently by more organised offenders with vehicles, were more likely to result in the theft of electronic goods such as televisions and videos.

Theft from cars

The best data on theft from private cars (during which the vehicle itself is not stolen) comes from the 1996 BCS (Mirrlees-Black et al., 1996). This gives an estimate of about 2.5 million such offences occurring in England and Wales in 1995. The main items stolen are shown in Table 2. A third of the thefts involved external parts such as wheels, badges and engine parts. There were nearly as many thefts of stereo equipment, including radios, tapes, CDs and speakers. About 10 percent of thefts involved property left in the car such as bags, purses and money.

Table 2: Items Stolen From Cars British Crime Survey 1995

	Percent of Incidents
External Parts	32
Stereo/radio	30
Bags/money	9
Tools	8
Telephone	3
Internal Parts	2
Petrol	> 1

Source: Mirrlees-Black, et. al. (1996)

Three percent involved mobile or car phones, a figure that is likely to increase as these items become more commonplace.

Information from other sources (e.g. Webb and Laycock, 1992) about items stolen from cars does not diverge significantly from that provided by the 1996 BCS, though one rider concerns the theft of badges. Juvenile ‘crazes’ of stealing badges, or ‘hood emblems’ as they are called in America, have been noted on both sides off the Atlantic. When these badges were ‘the thing to collect’ and sometimes the ‘thing be seen wearing’ during the 1960s and 1970s, an epidemic of stealing VW badges was documented by Mueller (1971) in America, which was halted, at least for a while, by redesign of the badge. Over ten years ago a craze for stealing VW badges was linked with the ‘Beastie Boys’, a rap-rock group, one of whose members used to wear a VW badge². Badges on some models of Mercedes, BMWs and Cadillacs have also been at risk.

Theft of cars

Cars are one of the most stolen items of personal property, partly because so many are left parked for long hours on city streets (Clarke and Mayhew, 1994; 1998). According to BCS estimates, about 3 percent of owners in England and Wales had a car stolen in 1991 (Mayhew et al., 1992). Common sense suggests these risks would be much higher than for most other large items of property owned by households such as furniture. Indeed, Cohen and Felson (1979) estimated the risk of automobile theft to be about 220 times greater than the risk for furniture and non-electric household durables (see below).

The risks of car theft are determined by many variables including where the owner lives, where the car is usually parked and the attractiveness of the model to thieves. As noted above, various model-specific indices of theft risk are available. In

² Philadelphia Inquirer, May 1, 1987, page B07, ‘Teenagers wearing hood ornaments. Car owners and dealers are beginning to complain’.

England and Wales, the Home Office Car Theft Index has been published twice, in 1992 and 1997 (Houghton, 1992; Crime Prevention Agency, 1997). This index is intended to focus public attention on car theft and to help persuade manufacturers of the need to produce more secure vehicles. The index for 1992 divided 50 'high volume' models³ into three risk groups – high, medium and low – as calculated on the basis of numbers stolen against numbers on the road.

³ *Accounting for nearly two thirds of the cars on the road.*

In America, two indices are produced annually, one by a U.S. government agency, the National Highway Traffic Safety Administration (NHTSA) and the other by an insurance-industry supported organization, the Highway Loss Data Institute (HLDI). Both indices are for new cars only (see Clarke and Harris, 1992a). The NHTSA index shows numbers of each model stolen by numbers manufactured each year. It is provided to identify 'high risk' models whose major body parts must be marked with an identifying number under the provisions of the 1984 Motor Vehicle Theft Law Enforcement Act. The HLDI index is provided to inform the insurance industry, the public and vehicle manufacturers and is based on the theft claims for cars during their first three years on the road. This index reflects theft experience for about 20 million insured vehicle years covering nearly 300 separate models. These are ranked on claim frequencies, the average cost of claims and a combination of costs and frequencies. The Australian model-specific theft risks, published by the insurance arm of the National Roads and Motorists Association, are similar to the HLDI data, but include all insured vehicles, irrespective of age (see Clarke and Harris, 1992a). Their principal limitation is that they cover cars only in New South Wales and are based on figures from only one insurer. Therefore, the data are based on a small number of vehicles.

Despite the globalisation of the motor industry, each country has a quite different mix of models. For example, the United States has many more Japanese models than England and Wales, many more 'sport utility vehicles' such as the Toyota Land Cruiser, The Range Rover and the Ford Explorer, and generally many more models with large engines. Even the same car in two different countries may occupy different market segments. For example, the version of the Vauxhall Astra marketed in the United States, the Pontiac Le Mans, was sold as a low-priced economy vehicle designed for first time buyers, whereas the Vauxhall Astra was marketed as a small family car. The performance versions of the Astra in England and Wales, which proved so attractive to joyriders (Spencer, 1992), were not sold in the United States and would have been regarded as seriously under-powered if they had been.

Differences in the models available mean that there is little cross-national consistency in those most stolen. Due to model changes, there is also little consistency over time in the most stolen models for any particular country. For example, small sport utility vehicles, such as the Suzuki Samurai, now rank among the most stolen models in the United States though they have only recently become available there.

Even so, some consistencies can be found in the theft indices for Britain, Australia and the United States. In all three countries, estate cars are at little risk of theft, while 'performance' models are at high risk (Houghton, 1992)⁴. These differences probably reflect the preferences of joyriders, who account for the largest proportion of car thieves in all countries. Since joyriders can indulge their tastes without worrying about the price of vehicles, there is also little direct relationship between the popularity of a model as reflected in sales and its risk of theft.

The theft indices also consistently show a considerable variation in risks among models. For example, the Home Office Car Theft Index for 1997 divides models into three groups: lower risk with a theft rates of upto 3 per 1000; medium risk with rates between 4 and 26 per 1000; and higher risk with rates in excess of 26 per 1000. For 1993-95 passenger vehicles, the HLDI model-specific rates for claim frequencies varied between 33 and 665 with an average rate of 100 (Highway Loss Data Institute, 1996). The model specific variation was even greater for mean costs per claim and mean annual losses.

None of the theft indices distinguish between the purposes of theft, but research has found that the variation in risk is greater for some forms of theft than others. By combining data from the NHTSA and HLDI indices and supplementing these data with model-specific information on recovery rates collected in an insurance-industry study, Clarke and Harris (1992a) were able to develop model-specific indices for three forms of car theft: (i) 'temporary use' (including joyriding), (ii) 'stripping' of parts such as radios, seats and wheels; and (iii) 'permanent retention' (cars that were not recovered). For 121 models sold in the United States during 1983-85, they found that the range in risk was greatest for stripping and least for permanent retention. For example, the most stripped vehicle, the Volkswagen Cabriolet, had an annual rate of stripping (141 per 1000 cars) more than ten times the average for all 121 models (13 per 1000), while the model at greatest risk of theft for permanent retention, the Mercedes 380SEL/500SEL (with 40 percent recovered) was less than twice as much at risk as the average for all 121 models (with 75 percent recovered).

⁴ 'Sporty' bicycles also seem to be particularly at risk: an unpublished BCS analysis by Mayhew and Unadkat found that the risks of theft for BMX and mountain bikes were twice as high as for ordinary bikes (Bryan-Brown and Savill, 1997).

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Table 3, which lists the highest risk models among the 121 studied by Clarke and Harris (1992a) shows important differences in the top-ranking models for each index. In the temporary use index, American-made ‘performance’ models predominated. Those at the top of the stripping index were mostly German models with good radios. In the permanent retention index, a mix of expensive luxury cars predominated, though some cheaper European cars were also at high risk. These results seem mostly consistent with the purposes of the theft. Joyriders will probably be seeking performance and acceleration; those looking for radios will prefer those of high quality which are readily interchangeable (as was the case with the European models); and those stealing cars for domestic resale or export will seek models with the greatest profit potential. Profit potential must include more than just the price of the vehicle since some very expensive cars such as Ferrari’s and Rolls Royce’s were rarely stolen — probably because the risks associated with stealing and disposing of such readily identifiable vehicles are too great and because the illegal market for them is tiny.

Table 3: Highest-Risk Models for Three Indices of Theft, United States, 1983-85

Make	Model	Stripping Rank	Temporary Use Rank	Permanent Retention Rank
Top-ranked cars for STRIPPING:				
Volkswagen	Cabriolet	1	26	77
Volkswagen	Scirocco	2	77	15
Saab	900	3	74	26
Volkswagen	Jetta	4	110	25
Mercedes	190D/E	5	101	4
BMW	Series 3	6	60	17
Peugeot	505	7	108	32
Mercedes	380SEL/500SEL	8	100	1
Mercedes	380SD/380SE	9	99	6
BMW	Series 5	10	67	14
Volkswagen	Rabbit	11	53	12
Audi	4000	12	112	42

Table 3: Highest-Risk Models for Three Indices of Theft, United States, 1983-85 (cont.)

Make	Model	Temporary Use Rank	Permanent Retention Rank	Stripping Rank
Top-ranked cars for TEMPORARY USE:				
Buick	Riviera	1	66	34
Toyota	Celica Supra	2	100	23
Pontiac	Firebird	3	52	37
Mazda	RX-7	4	87	42
Cadillac	Eldorado	5	55	22
Chevrolet	Camaro	6	54	32
Chevrolet	Corvette	7	13	93
Pontiac	Grand Prix	8	58	61
Chevrolet	Monte Carlo	9	50	59
Buick	Regal	10	47	68
Oldsmobile	Cutlass	11	49	91
Oldsmobile	Toronado	12	69	31
Make	Model	Permanent Retention Rank	Temporary Use Rank	Stripping Rank
Top-ranked cars for PERMANENT RETENTION:				
Mercedes	380SEL/500SEL	1	100	8
Porsche	911 Coupe	2	32	14
Porsche	944 Coupe	3	85	17
Mercedes	190 D/E	4	101	5
Nissan	300 ZX	5	29	27
Mercedes	300SD/380SE	6	99	9
Lincoln	Mark VII	7	27	113
AMC/Renault	Fuego	8	119	36
BMW	Series 7	9	72	18
Mercedes	380SL Coupe	10	43	19
Lincoln	Town Car	11	18	86
Volkswagen	Rabbit	12	53	11

SOURCE: *Clarke and Harris (1992b)*.

The appearance of some inexpensive European models such as the Renault Fuego and the Volkswagen Rabbit near the top of the permanent retention index in Table 3 may be due to the expense and difficulty of legally purchasing spare parts

⁵ *On the other hand, older cars are also more often parked on the street at night which greatly increases the risk of theft. According to British Crime Survey data, 24 percent of cars ten years old or more were usually parked in 'safe' places (i.e. not in the street outside the home) compared with 35 percent of cars three years old or less (Pat Mayhew, personal communication).*

for these cars, which would increase their risk of theft. Theft for spare parts may be part of the reason why theft rates decline following the major redesign of a model (Hazelbaker, 1997) and why older cars are more likely to be stolen than newer ones (Clarke and Harris, 1992b; Houghton, 1992). The illegal spares market for older cars and for models that have been in production for some time would be greater.⁵

The importance of the market for stolen vehicles is shown by an analysis of models stolen in Texas and other states close to Mexico. Field et al. (1991) found that the recovery rates of vehicles stolen in these states were significantly lower for models widely available in Mexico than for models not sold there. Following Miller (1987), they argued that theft rings exporting cars to Mexico will concentrate on models that are also made in Mexico because other models might call attention to themselves as illegal imports. In addition, potential purchasers of the stolen vehicles are more likely to buy familiar models which can be serviced in Mexico.

This analysis is consistent with other data showing large local variations in theft preferences. The preferred models for theft vary quite widely for different regions of the United States and different cities. Some of this reflects the variation in the mix of models available in different parts of the country. For example, Japanese models sell better on the East and West Coasts, in Texas and in Florida than in the Northern regions and the Mid-West. In other cases, fashion seems to play an important part. Thus, for many years the Honda Accord has been a favorite target of joyriders on the East Coast of America in the same way that the Vauxhall Astra GTE, the Ford Fiesta XR2 and Ford Escort XR3 have been favored by joyriders in some parts of England and Wales (Spencer, 1992; Light et al., 1993; Webb and Laycock, 1992)

Little of the variation in model-specific risks seems to be due to differences in security, although it must now be said that security standards in new cars have improved notably in recent years. As Houghton (1992) noted, surveys by consumer groups did, in the past, find repeatedly that the security of new cars was abysmal and that most could be entered and started by thieves with little effort. On the other hand, when high-risk models were given additional security protection, their theft rates were reduced considerably. Documented examples refer to the Vauxhall Cavalier, Ford Escort and Ford Fiesta in Britain (Houghton, 1992) and the Chevrolet Camaro and Corvette in the United States (HLDI, 1996).

Commercial vehicle and lor ry theft

Two recent PRC studies (Brown, 1995; Brown and Saliba, 1998) provide the best available information concerning theft of, (i) heavy goods vehicles (HGVs) and,

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(ii) light commercial vehicles (LCVs). HGVs weigh more than 3.5 tonnes and include a variety of rigid and articulated lorries, including long distance lorries, refuse trucks, tankers, car transporters and livestock carriers. LCVs weigh less than 3.5 tonnes and include light vans and pickups.

Both studies are based on national data, permitting a useful comparison of the findings. LCVs were at much greater risk of theft (19 per 1000) than HGVs (6 per 1000)⁶ and a larger proportion of LCVs stolen were subsequently recovered (41 percent) than HGVs (about 12 percent). In both these respects, as Brown (1998) argues, LCV theft resembles more closely patterns of car theft (about 22 per 1000 stolen; 59 percent recovered). This suggests that LCV theft contains a substantial proportion of joyriding incidents, which would not be surprising as many light vans and pickups in Britain are derived from cars. The suggestion is further supported by the circumstances of theft. LCVs, like cars, are most commonly stolen from residential areas, whereas HGVs are most stolen from industrial areas.

⁶ For reasons that are unclear HGVs are at much greater risk of theft in the United States than LCVs (Clarke and Harris, 1992b).

Both studies show that vehicles of particular body types are at more at risk of theft (see Tables 4 and 5). Thefts were concentrated on relatively few body types: for HGVs, three of eleven categories (tippers, drop-side and flat bed lorries) accounted for just over two thirds of thefts; and for LCVs, just two types out of twelve (panel vans and car-derived vans) accounted for nearly eighty percent of all thefts. These

Table 4: Heavy Goods Vehicles Stolen, England and Wales, 1994

Body Type	Number Stolen	Percent of Incidents	Theft Rate Per 1,000 Registered	Average Value (In Pounds)
Tipper	920	30.2	16	13,260
Drop-side lorry	582	19.1	27	7,934
Flat-bed lorry	565	18.5	14	9,705
Goods lorry	349	11.5	9	12,895
Livestock carrier	156	5.1	56	6,332
Insulated van	88	2.9	7	12,593
Skip loader	86	2.8	13	13,854
Tanker	29	1.0	2	18,856
Bottle float	12	0.4	3	—
Refuse disposal	10	0.3	1	27,250
Other	248	8.1	1	—
Total	3047	99.9	6	—

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were also the most common vehicles and the picture of vulnerability changes considerably when theft risks are calculated per 1000 vehicles registered. For HGVs, the lorries most at risk were livestock carriers (with a theft rate of 56 per 1000) and for LCVs it was tippers (39 per 1000).

Table 5: Light Commercial Vehicles Stolen, England and Wales, 1994/5

Body Type		Number Stolen	Percent of Incidents	Theft Rate Per 1,000 Registered
Car-derived van		18,866	40.0	23
Panel van		18,497	39.2	20
Pick-up		3,494	7.4	8
Flat/drop-side van		1,865	4.0	37
Luton van		1,035	2.2	34
Tipper		973	2.1	39
Box van		797	1.7	32
Bottle float		96	0.2	29
Insulated van		93	0.2	26
Fitted van		15	0.0	5
Refuse disposal		3	0.0	10
Other van		1,447	3.1	—
Total		47,181	100.1	19

Source: Brown and Saliba (1997)

The fact that tippers are among the most stolen vehicles, both for HGVs and LCVs, suggests that the construction industry may be particularly at risk. This is supported by data for industrial sectors. Both for HGVs and LCVs, the construction industry topped the list, accounting for 31 percent and 24 percent of thefts respectively. These data are limited by the absence of vehicle counts for the various sectors, which prevents calculation of theft rates. However, data about the loads taken support the suggestion that the construction industry is particularly at risk. Of the 16 percent of cases in which the HGV loads as well as the vehicle were lost, building and construction materials were the most common items taken (29 percent of cases)⁷.

One reason for the vulnerability of the construction industry may be a thriving second hand market for the vehicles used, which would provide both an incentive for theft and cover for illegal sales. This might also help explain the high risk of

⁷ The most stolen loads were building and construction materials (29% of missing loads); plant and work tools (19%) and foodstuffs (12%). Seventy-nine percent of stolen loads were worth less than 1000 Pounds, which suggests that the thieves were after the ~~low~~ not the load. This is supported by the fact that only 12 % of lorries stolen were recovered and that theft of cabs of articulated vehicles was common.

theft for livestock carriers. Many of these appear to be horse boxes used privately. They are the lowest value of all stolen HGVs, presumably because of their age. Private owners may generally be unwilling to purchase new horse boxes, which they are likely to use relatively infrequently, and may therefore look for these vehicles on the second-hand market. This would provide the incentive for thieves to supply this market. An alternative explanation is that 75% of these stolen horse boxes are Bedfords. There is, apparently, a large demand for Bedford spare parts and this would explain things if horse boxes are being targeted for dismantling.

As in the case of cars, older HGVs and LCVs have higher rates of theft, perhaps for the same reasons: older vehicles may be sought for spare parts and they might be looked after less carefully. These hypotheses cannot be tested with the available data. Nor is it possible to explore a number of other tantalizing findings, including the concentration of commercial vehicle theft in London and the South East, the high rates of theft for certain makes (particularly Bedfords among HGVs and Fords among LCVs), and the greater vulnerability of rigid lorries compared with articulated vehicles. Closer study of these findings would undoubtedly produce dividends for prevention.

Shoplifting

The most comprehensive data on shoplifted items comes from the National Retail Security Survey (NRSS), conducted annually in the United States by a consulting firm, Loss Prevention Specialists, with financial support from the Sensormatic Electronics Corporation, a manufacturer of electronic article surveillance systems (or merchandise tags). The 1995 survey contained data on 171,141 incidents of shoplifting resulting in apprehensions reported by 171 retail chains comprising 21,013 individual stores (Loss Prevention Specialists, 1996; Hayes, 1997).

The survey provides information about the most stolen items (i.e. those confiscated from apprehended shoplifters) for nineteen different retail segments (e.g. drug stores/pharmacies, supermarkets/groceries/convenience stores, book stores). The numbers of chains and stores in each segment vary greatly, apparently due to differences in the populations and the lack of systematic sampling. For seven of the retail segments, less than 300 shopliftings were reported in total. These segments are omitted from Table 6, which summarises the results for the remaining twelve.

As would be expected, the most stolen items differ for each segment, but there is still some consistency. According to Hayes (1997: 236): 'Across all markets, the items most frequently confiscated from shoplifters were tobacco products (in

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particular cigarettes), athletic shoes, and apparel (primarily logo and brand name apparel, designer jeans, or undergarments)¹. From the evidence of Table 6, he might also have included CDs/cassette tapes/video cassettes, medicines/beauty aids and jewellery. He interpreted these data as follows:

	Number of Chains	Number of Stores	Number of Apprehended Shoplifters	Most Stolen Items
Book shops	1	111	678	Cassette tapes; magazines
Department stores	12	641	10,995	Clothing; shirts; jeans; Hilfiger and Polo items
Discount stores	12	5,677	120,415	Clothing; undergarments; CDs
Drug Stores/Pharmacies	16	1,517	3,060	Medicines; beauty aids; cigarettes; batteries; birth control
Fashion merchandise stores	13	2,216	3,120	Sneakers
General merchandise stores	8	2,447	300	“Costume” earrings
Groceries/Supermarkets/Convenience stores	49	4,990	25,532	Medicines; beauty aids; cigarettes; video cassettes
Hardware/DIY stores	15	755	1,402	Hand tools
Recorded music shops	3	284	433	CDs
Sporting goods stores	4	241	4,047	Nike shoes
Theme park shops	8	152	1,881	Jewellery; key chains
Toy shops children’s apparel	3	408	603	Action figures;

Source: 1995 National Retail Security Survey (Hayes, 1997).

‘Although the type of merchandise may differ by retail outlet, it is evident that shoplifters usually target the most desirable goods for their own consumption, in order to conform with group norms, or to convert to cash. The items most frequently stolen tend to be expensive and in high demand, both to shoplifters and to the store’s honest shoppers’. (Hayes, 1997: 236).

Though useful, these data are limited in value. In some cases, the categories of stolen products are too broad to be informative (e.g. ‘clothing’). Very little information is provided about brands at risk and almost no information about the stock from which items were taken, beyond what can be inferred from store type.

Stores included in the survey were not randomly sampled and are grouped somewhat arbitrarily. For instance, convenience stores and supermarkets are combined, though they differ in many ways, including goods stocked, store layout and populations served. All of these variables may influence shoplifting patterns. Finally, goods confiscated from shoplifters may not be representative of all items stolen since undetected thefts may involve more easily concealed goods. In addition, store detectives who are responsible for most shoplifting apprehensions, seem to have their own views about the items most frequently targeted and concentrate their attention on areas of the store where those items are displayed (Ekblom, 1986; Poyner and Woodhall, 1987). No doubt these views are rooted in experience, but to a certain extent they might also be self-fulfilling prophecies.

For two of the retail segments covered by the NRSS, supermarkets and drug stores, information about stolen items is available from other industry surveys undertaken in the United States. Data for supermarkets is provided by two annual surveys reported by Commercial Service Systems Inc. and by the Food Marketing Institute. The 25th (and last) annual survey reported by Commercial Service Systems Inc. (1988) was undertaken in 1987 and analysed data for 9,832 shoplifters apprehended in 391 supermarkets located in Southern California. Apart from residual categories of 'Other food' and 'Other non-food', the most frequently recovered items in the U.S.A. were health and beauty products, cigarettes and fresh meat. The most recent survey of the Food Marketing Institute (1987) analysed data for 252,264 apprehended shoplifters from 11,816 supermarkets in the U.S.A. in 1996. The four items most frequently stolen in rank order were: cigarettes, health and beauty products, meat, and 'non foods'. Leaving aside the broad residual categories of other food' and 'other non food', the results from the two surveys are consistent. They also agree reasonably well with the NRSS and, even if they add little to the information it provides, therefore help to verify it.

For drug stores, the National Association of Chain Drug Stores (NACDS, 1997) in America has recently issued survey results, which, again, are broadly consistent with the NRSS⁸, but which also provide additional useful information. Undertaken in 1966, the survey covered ten drug store chains (e.g. American Drug, CVS, Eckerd, Genovese, RiteAid, Revco, Walgreens) accounting for more than 50% of sales in the United States. The chains were asked to identify their most stolen items out of the 15,000 to 35,000 SKUs (stock control units) typically carried by drug stores. Replies were received from eight chains and drew upon on three data sources: (1) inventory control systems; (2) opinions of store managers or so-called 'alpha' clerks (typically employed for many years); and (3) data from apprehensions.

⁸ The main discrepancy was that cigarettes were not identified in the NACDS survey as being vulnerable to theft. This may have been the result of sampling differences. It is possible that cigarettes are better protected in the eight high volume chains of the NACDS sample than in the sixteen chains of the NRSS sample.

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Each chain responded with a list of between 750-1,500 top 'shrink' items, which were then reduced to 230 SKUs 'common to 90 percent or more of the retailers', 46 of which were unanimously reported. These 46 SKUs fall into six product categories, many of which include the same item sold in a variety of quantities (such as Advil pain relievers). The six categories are: pain relief tablets/capsules (15); condoms and other birth control products (12); disposable razors (8); relief for piles (e.g. Preparation H) and other intimate conditions (5); decongestants and anti-histamines (5) and batteries (1).

The survey methodology leaves much to be desired – particularly troubling is the lack of consistency among chains in sources of data about theft – but the results are nevertheless useful. First, they provide unusual detail about product brands at risk. For example, Advil, Anacin, and Tylenol dominated the list of pain relievers most stolen and Trojan dominated the condoms. Second, their basis in the SKUs carried by drugstores helps place the theft risks in context. The 46 highest risk items, selected from an average of 15,000 to 35,000 SKUs per store, fell into a much smaller number of product categories. These products are small, higher priced and easily concealed. In some cases (such as batteries, razors and analgesics) they can find a ready market on the street, which makes them particularly attractive for addicts and other thieves who are more than casual shoplifters.

Some intriguing questions are raised by the results of the NACDS survey. For instance, are condoms at risk because young males steal them, in some cases to 'show off' to their friends? Are decongestants stolen because they help to produce a high when taken together with some illegal drugs? Are Advil, Anacin and Tylenol taken because they contain ingredients that can be used in making certain other illegal drugs, or are they taken simply because they are more expensive, better recognized and in greater supply than other analgesics? Are medicines for piles and other intimate conditions taken because people are too embarrassed to pay for them in the regular way (Hayes, 1997)? If so, this shows that crime can result from over-socialization, not just lack of socialization! It also suggests that sales might be increased and shoplifting reduced if the embarrassment could somehow be removed from purchasing these items⁹. Finally, does the concentration of risk on a small range of products mean that large reductions in theft might be achieved by similarly concentrating surveillance or other security?

Commentary

This review of hot products was not designed to be exhaustive. Too many areas of theft, both ordinary and unusual were omitted. Among the former would be

⁹ Embarrassment may also play a part in other kinds of theft. Librarians who mentioned books on sex as being among the most stolen items in a recent survey '...believed most readers were too embarrassed to borrow such stock legitimately.' Brown and Cooper, 1992: 14).

robberies, commercial burglaries and theft by employees. Among the latter would be the theft of art and antiquities, boat and aircraft theft, rustling and the poaching of rare animals. In addition, only the most reliable and accessible data sources were reviewed for the five areas covered. Nonetheless, a sufficient variety of theft types has been included, committed by offenders with a wide range of motives, to show that some products are much more vulnerable to theft than others. This is perhaps more apparent for residential burglary than for the other fields reviewed. The average household contains a vast array of goods, but burglars typically concentrate their attention on just a few of these, including cash, jewellery and electronic 'entertainment' items such as videos and stereo systems. The shoplifting data for particular retail segments, specially that provided by the NACDS survey of American drug stores, also suggests that thieves concentrate on a narrow range of products¹⁰.

There is also a surprising degree of consistency across retail segments in objects stolen. These include cigarettes, alcoholic drinks, music and audio cassettes, training shoes, beauty aids and designer apparel. Apart from their value to thieves, all these items are relatively small and easily concealed. As Poyner and Woodall (1987: 9) comment on reviewing reports of items confiscated from shoplifters in Oxford Street during July and December 1985:

'There was no mention of larger bulky items such as furniture, and audio and video equipment which could be readily found in Oxford street but which would be difficult to steal unnoticed'.

Because most studies ignore what is not stolen, this overview cannot look at hot products in a broader context of theft risks compared with property in general. In particular, it is not possible here to look at comparisons of theft rates for a wide range of different products – or to draw conclusions about the degree to which theft is concentrated on just a few products. Yet these are matters which are important for policy (see below).

Another important limitation of the data reviewed above is that goods are differentially protected by their owners depending upon their value. Thus, householders may lodge their most precious possessions in safes or banks, and stores may give better protection to their most vulnerable merchandise. This protection includes the deployment of detectives who, as mentioned above, will have their own views about vulnerable goods. In turn, this will bias shoplifting data based on apprehensions. In other cases, protective measures will more directly affect the ability of shoplifters to get at desirable merchandise. For example, cigarettes are not

¹⁰ Unfortunately, it is not always clear whether risks of theft are greatly out-of-line with market share since many hot products are also popular with honest shoppers. For example, while the 'rockin' pop' section of the HMV music store in Oxford Street, one of some 40 sections in the store, was found in a Home Office study to account for nearly a third of all cassettes stolen from the store, this proportion 'quite closely matches the section's share of the legitimate sales turnover' (Ekblom, 1986: 6). Again, while cigarettes are frequently stolen in convenience stores in the United States, they also account for about 25 percent of sales (National Association of Convenience Stores, 1997).

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on open display in many American supermarkets, but have to be purchased at a separate 'customer service' booth. Consequently, data on what is most stolen, however comprehensive, cannot provide a perfect measure of what thieves most desire; rather they measure what thieves desire *and* what they are able to steal.

Data for American supermarkets about products stolen by shoplifters and burglars illustrate this point (Food Marketing Institute, 1987). Like shoplifters in the day, burglars at night target cigarettes, liquor, medicines and beauty aids. As would be expected, however, these are taken in much larger quantities by burglars. Supermarket burglars also commonly steal cash, often from the in-store ATM machines.

**Table 7: Items Stolen in All Incidents Involving Theft of Personal Property
British Crime Survey 1996 and 1998**

		Percent of Incidents*	
		1996	1998
1	Cash	18.8	20.4
2	Vehicle parts/accessories (not radio)	11.3	13.7
3	Clothes	9.7	10.6
4	Tools	9.5	9.8
5	Purse/wallet	9.4	11.4
6	Bicycle	7.3	7.0
7	Car radio	6.2	6.2
8	Credit card	6.1	7.3
9	Stereo/hi-fi	5.8	5.4
10	Jewellery	4.7	4.2
11	Car/van	4.5	3.6
12	Briefcase or bag	4.2	3.8
13	Documents	3.5	3.0
14	Video/camcorder	3.0	3.1
15	Television	2.2	1.5
16	Cheque book	2.0	2.2
17	Camera	1.9	1.6
18	Computer equipment	1.5	1.3
19	Mobile phone	1.0	2.1
20	Motorbike/moped/scooter	0.7	0.6
21	Other	36.3	31.7
	Number of thefts (unweighted)	5291	4191

*Multiple responses permitted. Excludes "don't knows".

A final limitation of the review stems from its omission of commercial robberies, muggings, thefts from the person and petty larcenies. This results in cash being understated as a target of theft. Cash has been described by Felson (1998: 191) as ‘the mother’s milk of crime’. It may be the ultimate hot product. A previously unpublished analysis of BCS data, undertaken by Pat Mayhew of the Home Office (Research, Development and Statistics Department), helps show just how important cash is. The analysis identifies what items were stolen from people in the following crimes measured by the 1996 BCS: household burglary, theft/of from private motor vehicles, bicycle theft, theft from the person and street robbery (for definitions see Mirrlees-Black et al., 1998). From Table 7, it can be seen that the single item most frequently taken in both 1996 and 1998 was cash (respectively, 18.8 and 20.4 percent of incidents). Were it possible to include a wider category of thefts from business and government settings (including thefts by employees, commercial robberies and burglaries, thefts from parking meters, ticket machines, vending machines and the coin compartments of public phones), cash would no doubt assume an even larger role in theft.

3. What makes products hot?

Routine activity theory and VIVA

Many of the attributes favoring theft have already been mentioned or are obvious from the nature of the goods taken. Thus, it is easy to see why thieves are so attracted to cash. Unless bank notes are marked or their serial numbers recorded, cash is anonymous and almost impossible to identify as stolen. It is comparatively light weight and easy to conceal. And, unless in large denomination notes or small value coins, it can be immediately used by the thief.

Cohen and Felson (1979) specified the attributes promoting theft some twenty years ago in the course of their initial statement of routine activity theory, which holds that crime results from the convergence of a likely offender with a suitable target in the absence of a capable guardian. They defined suitable targets for crime in terms of their value, inertia, visibility and accessibility, which they encapsulated in the acronym VIVA.

VIVA was described in a single paragraph and was clearly not meant to be definitive. Cohen and Felson (1979: 591) referred to its four elements as 'such things' determining target suitability. Their focus on the tangible attributes of targets reflected the ecological premises of their theory. In particular, it reflected their insistence that crime is a physical event occurring in the real world and that it cannot be adequately explained by the abstractions of class and structure favored by the theories of the day. So as to distance themselves further from traditional criminology, they made no distinction between human victims of predatory crime and other inanimate crime targets. For them, human targets were no less subject to ecological principles, and VIVA was as applicable to the victims of rapes or muggings as to the targets of theft.

Today, largely because routine activity theory is broadly accepted, these rhetorical needs are not so pressing. Moreover, other complementary theories, such as 'rational choice' theory, have been developed (Clarke and Felson, 1993), which give a greater role to offender motivation without treating this in the abstract, deterministic terms that Cohen and Felson had criticized. Consequently, more emphasis can now be placed on the judgments of target suitability made by offenders,¹¹ and the dependence of such judgments on the offender's specific motives or intentions, without comprising the essential, concrete nature of routine activity theory.

The interdependence of motives and objective features of the crime setting is captured by the rational choice concept of 'choice structuring properties' (Cornish and Clarke, 1987), which refers to the characteristics of specific

¹¹ Indeed, much greater awareness of the offender's perspective is evident in the latest treatment of VIVA in the second edition of Felson's (1998) *Crime and Everyday Life*, which devotes nine pages to the model.

offences which affect offender calculations of the ease, risks and rewards of committing particular kinds of crimes. The rewards of crime are heavily dependent on the careful choice of targets and it can be assumed that offenders will be much more attentive to the differences between human and inanimate targets than VIVA would suggest.

Choice structuring properties include those affecting decision making at the point of committing the crime, which seems to be the implicit focus of VIVA. Inertia, visibility and accessibility all seem particularly relevant at this stage. But choice structuring properties also have a role at earlier and later stages of crime (Cusson, 1993; Cornish, 1994). Thus, target characteristics may suggest the idea of theft to potential offenders and encourage them to seek out settings where desired products may be found. Target characteristics can also be important when it comes to concealing or disposing of stolen goods. This is explicitly noted in a recent study of the scope for disrupting markets in stolen electrical goods: 'Criminals are interested in high value, portable items that are easy to dispose of and difficult to identify' (Kock et al., 1997: 11). Indeed, representatives of manufacturers, rental companies, insurance companies and security firms interviewed about ways of disrupting the market in these goods felt that:

'...the key issue was the unique identification of each electrical item. If this could be achieved, they felt, the problem would be well on the way to resolution.' (Kock et al., 1997: 11)

From VIVA to CRAVED

As argued above, VIVA has some serious limitations as a model of hot products. First, it was intended to cover all targets of predatory crime, not just the targets of theft. Second, by avoiding any consideration of motivation, it neglected the specific motives for theft. Third, it neglected those target characteristics important when contemplating theft and when seeking to conceal or dispose of goods. These limitations are addressed in the modification of VIVA offered below, resulting in the six components of the 'CRAVED' model of theft targets. CRAVED also takes account of recent findings on hot products reviewed above.

1. Available

Two of the four components of VIVA, visibility and accessibility, fall under a more general category of availability, which is a necessary condition of being hot: there was no car theft before cars were invented (Wilkins, 1964). At the macro level, the importance of availability is revealed in theft waves resulting from the

introduction of attractive new products, such as the mobile phones or laptop computers, which quickly establish their own illegal market. At the intermediate (meso) level, availability is important in terms of the accessibility of hot products to thieves. For example, the fact that cars become at greater risk of theft as they become older, may be a function of changes in their ownership: as cars age and are re-sold, they are more likely to be owned by people living in poorer neighborhoods, with less off-street parking and more offenders close by. At a micro level, availability may be expressed in terms of the visibility of objects at the point of theft. This is why householders sometimes try to conceal jewellery and cash from potential burglars.

2. Valuable

As VIVA recognizes, thieves will generally select the more valuable goods. This is particularly true of goods that are sold rather than kept. For example, one reason that cars that are around five years old are more at risk of theft is because the value of their parts is greater than that of the whole stolen vehicle. Goods taken for personal use obviously have value for thieves themselves. Thus, the joyriders are more interested in a car's performance than its financial value. Juvenile thieves, in particular, may select goods that are valued in the youth culture, whose ownership confers status. No doubt economists would like to reduce all these components of value to a particular currency value, but this seems unlikely to refine understanding of theft choices. Rather, this purpose will be served by considering separately the various components of value. Two components, in particular, merit separate treatment and these are distinguished below: the enjoyment of owning and using particular goods and the ease or difficulty of selling them.

3. Enjoyable

Residential burglars are more likely to take videos and televisions than equally available or valuable electronic goods, such as microwave ovens or food processors. Though not so apparent when VIVA was formulated, a common strand running through the research on hot products is that they are generally enjoyable things to own or consume¹²: alcoholic drinks; tobacco; cassettes; perhaps even condoms. This may reflect the pleasure-loving lifestyle of many thieves and the people who buy from them. Burney's (1990, cited in Barker et al., 1993) interview study with street robbers in Lambeth reported that the majority of the offenders interviewed said they robbed for money. 'By their accounts they spent the money on expensive clothes, particularly the expensive 'Nike' trainers, luxuries and cannabis' (Barker et al., 1993: 20).

¹² In his study of shoplifting, Walsh (1974: 94) characterises these goods as 'luxuries'.

4. Disposable

Since many items are stolen to be sold to others, the thief will tend to select things that will be easy to sell. This may be obvious, but its importance for explaining crime has been neglected. Only recently, has systematic research begun on the intimate relationship between hot products and theft markets (Sutton, 1998). Research by Langworthy and Lebeau (1992) has shown that the creation of a fencing market can stimulate theft. They showed that when police set up a 'sting' operation to buy stolen cars, this increased the rate of car theft in the immediate locality.

5. Removable

As VIVA recognizes, products that are easily moved are more likely to be stolen. Much security practice focuses on making valuable products less easy to remove. Pease provides a wonderful example from the Wild West, where hold-ups of wagons and trains carrying silver from the mines of California became a serious problem: 'It ceased when the silver was cast, not as smallish ingots, but as huge 600 pound lumps of metal' (Pease, 1997:235). How easily security measures can be defeated depends on the circumstances of theft. For instance, shoplifters are severely constrained in the number of bottles of whisky or packets of cigarettes they can steal without being noticed, but a 'commercial burglar' operating after hours may be able remove many cartons of alcohol and tobacco. This point is substantiated by the data from the Food Marketing Institute (1997) showing differences in what is stolen from supermarkets by shoplifters and burglars. Both groups target cigarettes, liquor, medicines and beauty aids, though these are taken in much larger quantities by the burglars.

6. Concealable

Items which cannot be concealed on the person are more difficult for the thief to remove. Those that cannot be concealed afterwards, or that are easy to identify later are also less likely to be stolen. This is one reason why students write their names in their books and why cars must be registered and licensed. It helps explain why car thieves do not generally steal Rolls Royce cars for their own use. Leaving them parked outside their homes would attract too much unwelcome attention. They are much more likely to steal less valuable cars that merge into the surroundings. The same principle also helps explain why cars stolen in the United States for export to Mexico are mainly models that are also sold there legitimately (Field et al., 1991). As a result, stolen cars do not stick out like sore thumbs. Other thefts may be concealed from even the owner. For example, it is much less risky to steal a Pound coin from a purse containing a lot of money than from one

containing a little. In the same vein, Mars points out in *Cheats at Work*, ‘...that large quantities of ‘unmeasurable material’ like bricks and coal are equally fiddle-prone, because the agents of control do not know precisely how much is there at any one time’ (Mars, 1983: 173).

Summary

As argued above, VIVA was never intended to be a definitive model of hot products. Rather, it was a first attempt to summarize the attributes of the broader class of targets of predatory crime. Had the authors focused on targets of theft, they might have produced a somewhat different model. Their wider theoretical concerns also led them to avoid the more subjective elements of target choice, which would be given a greater role today, particularly in the more recently developed rational choice perspective on crime. Finally, they seemed to have paid more attention to the actual commission of crime than to the equally important stages of contemplating crime and concealing or disposing of goods.

These theoretical limitations, together with the fact that VIVA was formulated before much research on hot products had been published, suggested that a more adequate model of target suitability could be developed. That offered above, which seeks to explain why hot products are so CRAVED by thieves, identifies six important properties: these products are generally Concealable, Removable, Available, Valuable, Enjoyable and Disposable. Of these six, VIVA did not sufficiently emphasize three -Concealable, Enjoyable, and Disposable – perhaps because it took too little account of what the thieves would do with the objects they steal (see Sutton 1995, p.405).

4. What research is needed?

Several research strategies will have to be employed in testing and developing CRAVED. More studies will be needed to explain why some kinds of goods seem to be criminogenic and why some product brands are preferred to others. The role of fashion in these preferences will need to be elucidated, perhaps through detailed interviews with thieves. Hot products for a wider variety of theft categories will have to be studied, including items taken by grave robbers, poachers, rustlers, traders in threatened species and other specialist thieves¹³. This cataloguing of hot products will not be enough on its own, however, because vulnerable products are given more protection. Consequently, they will not always appear in lists of the most stolen items. Studies of the protection given to different products will therefore also be needed in developing robust models of target choice.

These models are of more than academic interest. In particular, they will help in predicting which new products need to be given special protection. This might avoid what Pease (1997) and Eklom (1997) have described as the typical sequence when some new product is introduced: (i) the product is made available with little thought to its crime consequences; (ii) the crime consequences become evident; and (iii) the product is modified, but not before it has yielded a crime harvest.

This assumes that hot products can be effectively protected without thefts simply being displaced to other products — an assumption many police and criminologists are unwilling to make. When given information about hot products they tend to say: ‘Thieves have to steal something. It’s obvious that they will choose the most valuable things. If not televisions and videos, they would choose something else. So why bother to study this or try to do anything about it?’.

In fact, there is a wealth of information about effective ways to prevent theft. For instance, many successful ways to reduce theft of high risk cars have been reported in recent years, including parts marking (Rhodes, 1997), electronic key systems (Hazelbaker, 1997), vehicle tracking devices (Ayres and Levitt, 1998), and security-coded radios (Braga and Clarke, 1994). An even wider range of successes has been reported in reducing robberies for cash, including in banks (Gabor, 1990; Grandjean, 1990; Clarke et al., 1991), sub-post offices (Eklom, 1987), betting shops (Clarke and McGrath, 1990), convenience stores (Hunter and Jeffery (1997) and buses (Stanford Research Institute, 1970). Together with the rapidly increasing use of plastic cards for payment and the proliferation of automatic teller machines which means that people no longer have to carry large amounts of money (Felson, 1998), cash may even begin to lose its preeminent position as a hot product.¹⁴

¹³ It is encouraging that Conklin’s (1994) theoretical discussion of target choice by one such group of specialist offenders, *or* thieves, makes some mention of all the elements of CRAVED. Wider evidence of its generality is provided, (i) by an exhibition notice at the Viking Ships Museum in Oslo which reads, ‘The grave was desecrated in ancient times and the valuable jewellery which had certainly been placed there is now missing. The thieves were evidently not interested in things made of wood, leather or cloth...’, and (ii) by the answer given by a state official when asked why buffalo in Colorado were less often branded than other livestock: ‘You’d have to be a lot tougher to steal a buffalo than an elk or calf (The Economist, November 27, 1997, page 32, ‘New age, old irons.’).

¹⁴ Other examples of products that have lost their attraction for thieves due to changes in society are discussed by Cusson (1993) and Walsh (1994).

While this may result in some displacement to other theft targets, there is no reason to assume this would be complete. Thieves choose particular products for specific reasons, which other products may not satisfy. If joyriders cannot take my neighbour's sports car, they would be unlikely to take my old estate car. Moreover, studies of displacement in scores of settings have never found it to be one hundred percent. More commonly very little or no displacement has been found (see Hesselings's, 1994, review). Indeed, rather than the risks being dispersed by prevention, its benefits have sometimes diffused beyond the focus of the measures. For example, repeated counting of high risk goods in one electronics warehouse not only led to a drop in the theft of these goods, but also of other goods (Masuda, 1992). Presumably employees knew that the management were taking the problem seriously and they had better be careful.

It is also possible that if a store reduced thefts of the most desirable goods, it might experience a larger drop in shoplifting because thieves would be less tempted to come there to take not just the most desirable goods, but anything else they could find as well. More generally, it is quite possible that the existence of large amounts of unprotected attractive property might both encourage habitual thieves to steal more, and tempt more people to try their hands at theft. If theft is made easy, there is likely to be more of it. Making it more difficult may lead to a more orderly, law-abiding society.

These then are the reasons for adopting a policy focus on hot products. Research has a particular role in helping to identify and implement the best means of protection, and a program of studies designed to assist government policy in these ways is discussed below under five headings.

1. Measuring concentrations of risk

Information about the most stolen items needs to be placed in a broader context of risk if it is to be use to decision makers. One early attempt was reported Cohen and Felson (1979) who made rough comparisons of theft risks by relating UCR theft data for different categories of goods to the volume of these products transported yearly in the United States. They found, for instance, that the risk of motor vehicle theft was about 220 times as great as theft of furniture and non-electronic household durables. More recent studies showing different rates of theft for various models of cars and trucks has been reviewed above. These studies have been important in showing governments, manufacturers, insurers and owners which models most need security enhancements¹⁵.

¹⁵ For the private sector, the development of new electronic stock control methods should soon permit the routine comparison of shoplifting rates for different stock items. This information will help store managers in deciding whether to take expensive measures to protect their most stolen items.

It would also be helpful to know in evaluating likely policy outcomes what proportion of the overall problem of theft is concentrated on a few vulnerable items. Statistical measures of crime concentrations are provided by gini coefficients and Lorenz curves, which have been found useful in other policy areas. Thus, advocates of long prison terms for repeat offenders frequently quote conclusions from cohort such as: 'five percent of offenders account for fifty percent of offences'. This suggests that large drops in crime would result from identifying and locking up these habitual offenders for long periods of time.

Data about the extent to which crime is concentrated on hot spots and repeat victims has also been helpful to advocates of crime prevention. For repeat victims the concentration appears to be similar to that for repeat offenders (Farrell and Pease, 1993). For place of occurrence the concentration seems much higher. According to Sherman (1995), who compared calls for police assistance in Minneapolis with data from the Philadelphia Cohort Study, crime is about six times more concentrated by the address of occurrence than by the identity of the offender (see Weisburd, 1997).

There are vastly more possessions than people or addresses, and it would be difficult to estimate, let alone count, their number. It may thus be impossible to obtain measures of crime concentrations for the whole population of possessions, comparable to the measures available for the population of offenders, victims or addresses. The best that might be done would be to average crime concentrations obtained for a variety of product groupings. These groupings may need to be quite broad as theft concentrations could be less marked for goods in particular stores or for frequently stolen products such as cars. An alternative approach may be to compare BCS data on what is stolen in burglaries with detailed inventories of all household possessions, which would have to be developed specifically for this purpose. The advantage of this approach is that households probably own most of the variety of products available in modern societies.

2. Estimating costs

Trade associations and insurance companies sometimes publish figures about the money 'lost' to particular forms of theft, for example to shoplifting or residential burglary. These statistics are designed principally to draw public attention to the scale of the problems, but they are open to numerous criticisms from a scientific standpoint. The data used by insurers are often limited to known, reported instances of theft, while those used by retailers may be based on questionable assumptions about the proportion of 'shrinkage' due to theft. The costs of individual items stolen are often exaggerated both by victims making insurance

claims and by trade associations. The latter may base their calculations on retail values, when manufacturing or wholesale costs would be more appropriate.

Loss estimates rarely include 'inconvenience' costs to victims (Burrows 1991), police costs of dealing with theft reports, or criminal justice costs of dealing with apprehended offenders. In addition, these estimates never take account of the potential benefits of theft, not just to thieves, but also to people who unknowingly or not purchase stolen goods they could not otherwise afford. Marxists are not the only ones to recognise that theft results in the redistribution of material goods in society, not simply in their 'loss'¹⁶. Theft also brings profits to business, when victims replace stolen goods by purchasing new ones (Karmen, 1981). This is well understood by manufacturers and retailers, according to interviews reported by Kock et al. (1997). Finally, increased theft can justify higher premiums and therefore higher investment incomes for insurance companies (Litton, 1997).

¹⁶ *It should not be too readily assumed, however, that theft benefits the poor. On the contrary, the poor, especially the honest poor who may not be willing to buy goods that might be stolen, are probably hurt more by theft. They are more likely to have their houses burgled and their cars stolen. In addition, they may be less able to afford insurance cover and replace goods that are stolen.*

It should be clear from the above that attempts to quantify the theft 'losses' of hot products ought not to be undertaken lightly, though limited research of this kind could be useful for policy. First, research into the distribution of the theft costs for important product categories, such as automobiles, may be helpful to governments in formulating preventive strategies. A model for such research is an economic analysis of auto theft in the United States, which showed that most of the costs 'fall in the form of insurance premiums and government expenditures rather than in the form of losses to individual owners'. On the basis of this analysis it was argued that 'there should be government-mandated standards of design applied to all automobiles, since the private market is inadequate to the task of providing an optimal level of security' (Field, 1993: 69). Second, research into the public costs of dealing with theft of particular products, such as cellular phones which have been widely 'cloned' for use in drug dealing (Natarajan et al., 1995), may be helpful in persuading manufacturers to improve the security of these products. For example, manufacturers of cars with very high theft rates could be presented with notional 'bills' for the public costs of dealing with the theft of these models. Third, detailed analyses of the economic impact of the theft of hot products may assist in persuading retailers and others to invest in protective measures focused on these products. For instance, it is possible that shoplifting of hot products may have a greater impact on retail profitability than would be suggested by the value of these items alone. Shoplifters attracted by hot products may also steal other items from the store, or legitimate shoppers may be less likely to visit it, or linger there, when the most attractive items have already been taken by shoplifters (DiLonardo, 1997; Hayes, 1997). Finally, detailed costing data may be needed to evaluate measures taken to protect hot products.

A good example would be the evaluation recently published of parts marking legislation in the United States (Rhodes et al., 1997). This showed that the costs of marking the major body parts of high theft risk automobiles during 1984 to 1995 were substantially outweighed by the financial benefits resulting from reduced thefts of these cars.

3. Identifying times of most risk

The vulnerability of hot products to theft varies over time both at the macro and micro levels. At the macro level, Gould (1969) and Felson (1998) have argued that vulnerability to theft changes with a product's novelty and availability. Felson argues that any new product goes through four stages, which he calls innovation, growth, mass market and saturation. During innovation products appeal to rather few customers. They may be more difficult to use and to fence and are less likely to get stolen. Products in their growth and mass market periods are especially attractive for consumers and for thieves alike. This may have something to do with the good quality of certain products which frequently double-up as visible status symbols. Such visible exclusivity could perhaps be ameliorated at the design stage, but this lack of exclusivity would then have to be 'sold' to the public as a virtue (see Sutton 1998: 80).

When products reach the saturation stage, they are widely owned and inexpensive. This greatly reduces the market for fencing and their attractiveness to thieves. These speculations are supported by statements made by thieves interviewed in Sutton's (1998: 57) study of the markets for stolen goods, such as:

'You used to be able to get seventy to eighty pound for a video seven years ago – and now you would be lucky to get fifteen or twenty for it, because you can buy a video for seventy or eighty pound brand new...They [potential buyers] say: 'Well look I can get a video from a shop brand new no problems and I'm not going to get any trouble for it.'

Not all products will show identical patterns of vulnerability to theft. The criminal learning curve may be shallower for products that are completely new. Illegal demand for them may grow more slowly, but it may peak at a relatively high level. For products that are refinements of existing ones, the criminal learning curve may be steeper and illegal demand may initially be greater, but it may never reach very high levels before beginning to decline.

¹⁷ Differences between the two years in sample sizes and numbers of thefts make this a little uncertain.

Little research has been undertaken on the time course of product vulnerability to theft, apart from work by Gould and associates relating to the 'supply' of motor vehicles to illegal 'demand' for them (Gould 1969; Mansfield et al. 1974). Laycock (personal communication) has suggested that trends in property stolen, as measured by the BCS, provide a source of new data for such studies. For example, the BCS data in Table 7 suggest that videos and hi-fi equipment were stolen at similar rates in 1996 and 1998, whereas thefts of televisions declined in 1998.¹⁷ Contrary to Felson's (1998) speculations about the effects of an increasingly 'cash-less' society, thefts of money and of purses and wallets seem to have increased in 1998. Regular inspection of such trends may help to identify products that will continue to generate large numbers of thefts unless some preventive action is taken.

Tied to the novelty of products is the amount of advertising and media publicity they receive. Advertising of previously unavailable goods can make them familiar to both thieves and legitimate consumers, and therefore can simultaneously create desires to purchase and to steal them. Newspaper stories about thefts of new products might also play a role in accelerating the problem. It seems likely, for example, that media stories about the simple way in which the new London Underground ticket machines could be milked of cash contributed to the escalation of thefts from these machines (Clarke et al., 1994). Similarly, we should keep a 'weather eye open' on the tools that thieves are likely to possess, not least because the latest tools used by thieves become hot products for theft – such as cordless drills. We need also to monitor the spread of knowledge about ways to compromise new security systems (Mann and Sutton 1998).

Taking account of publicity would complicate the task of prediction, but added point is given to such research by Sutton's (1998) observation that intensive theft of new products may be particularly damaging at the 'growth' stage. This is because recycled stolen goods could undercut legal demand for the product at a critical point when it is achieving significant market penetration. Where this danger exists, he suggests that manufacturers might consider depressing illegal demand by reducing the prices of 'hot' new products more rapidly, and writing-off development costs over a longer period.

At the micro level, a hot product's vulnerability to theft varies over its life course as it moves from factory to consumer. It is important to study which are its points of maximum vulnerability to theft. The steps include manufacture, transporting, warehousing, retailing, ownership, and re-sale. Though hot products may be vulnerable at all these stages, the risks may be much higher per unit of time at certain points (say, transporting) than at others. This vulnerability may also vary

with the product. No detailed research investigating these matters has been reported, but it could have valuable implications for specific and cost-effective preventive strategies¹⁸.

4. Disrupting markets for stolen goods.

Commentators have expressed surprise that cars are not stolen at much higher rates than they already are. After all, they are valuable, poorly secured and often left unguarded in public car parks or on the street for long periods of the day and night. In fact, most cars are 'stolen' by joyriders who have little interest in keeping them or selling them, and theft for profit is rarer than often assumed. Part of the reason for this lies in the market for stolen vehicles. Cars are large and conspicuous objects. They cannot be readily concealed and their identity can fairly easily be established. If kept for the thief's own use, they may attract suspicion and they may be difficult to register or insure. Driving an unregistered or uninsured vehicle involves extra risks, if stopped by the police.

These reasons make it unlikely that many car thefts for profit are committed by casual thieves. But habitual thieves will also find it difficult to steal high volumes of cars, because few will have a ready means of disposing of them or storing them till they can be sold¹⁹. Some businesses deal in stolen cars or stolen parts, but these have to be extremely discreet in their operations or they would quickly attract police attention. Unless located in remote areas, they would have to be small or would have to have a substantial legitimate business as camouflage. If they became too large, greedy or careless they might very soon have the police at their doors.

This illustrates the powerful and intimate relationship between theft and the disposal of stolen goods — a relationship that has been neglected both by police and criminologists. Police have paid more attention to arresting thieves and burglars, than investigating and prosecuting 'handlers' (Kock et al., 1996). This is because theft and burglary are seen as more serious offences than handling, which is also difficult to prove. Similarly, criminologists have paid only passing attention to fencing in their studies of theft. They appear to have assumed that only the stage of making off with the goods is problematic, not disposing of them subsequently.²⁰ Only in more recent research has the interdependence of theft and fencing been explored (Cromwell et al., 1991; Tremblay et al., 1994). As mentioned, one study of a police sting operation designed to net car thieves has even concluded that the sting may have increased thefts in the immediate locality because thieves had somewhere new to sell their cars (Langworthy and Lebeau, 1992).

¹⁸ Levi et al. (1991) do consider however, the different ways in which credit cards are stolen, including theft of new cards being sent through the mail.

¹⁹ Why car radios continue to be stolen at such a high rate when they have been routinely fitted at manufacture for many years is not so difficult to understand in the light of the following observation by Kock et al (1996: 13): 'One handler had a network of 300 to 400 buyers, "all looking for the next model up, trying to get the ultimate stereo system".'

²⁰ When criminologists have studied fencing, they have focused on the careers and activities of particular individuals (e.g. Klockars, 1974; Steffensmeier, 1986).

The critical importance for policy of understanding the relationship between theft and the markets for stolen goods has been recognised in two recent Home Office studies (Kock et al., 1996; Sutton, 1998). In both it is recognised that high rates of theft may be driven by the existence of markets for certain stolen goods, and Sutton (1998: 2), in particular, pursues important questions of: ‘...whether buyers provide motivation for others to steal; whether this influences what is actually stolen and whether an increase in demand for stolen goods leads to an increase in theft’. His interviews with thieves and his analysis of the self-reported involvement of ordinary members of the public in buying stolen goods led him to conclude that ‘...markets for stolen goods should be seen as both a downstream consequence of theft and also as an underlying motivational force for much acquisitive offending’ (Sutton, 1998: 85).

This means that, while each element of CRAVED may be of equal importance in describing *which* products are stolen, *how much* they are stolen seems to depend mainly on the final element — how easy it is to dispose of the goods by selling them. This is because high volume thieves, who derive a substantial income from theft, must be able to dispose of the goods they steal. As habitual thieves are thought to commit a large proportion of all thefts, it becomes clear why disrupting markets for stolen goods is of such importance for policy.

Sutton (1998) identifies and distinguishes between five types of theft market, which vary in what they are like, who will be buying and selling goods in them, and what measures might disrupt them. Particularly important for the present discussion is his finding that different kinds of goods are sold in different ways. Jewellery tends to be sold to jewellers’ shops, car radios through networks of acquaintances, stolen credit cards and cheque books to dealers and users of illegal drugs – who use them to buy goods to sell for drugs. Shoplifted food and clothes tend to be sold through door-to-door sales and in pubs, and stolen cars to breakers’ yards. This suggests that research focused on the fencing of particular hot products may be a useful complement to the future studies that Sutton suggests should be focused on ways of disrupting the different kinds of markets. Some of these markets serving hot products may be highly specific, such as those supplying the demand for luxury cars in Eastern Europe (INTERPOL, 1994) or second-hand horse boxes in the home counties (Brown, 1995). Each may have to be studied in detail before effective and efficient interventions can be formulated.

5. Taking advantage of technology

Just as police and criminologists have neglected the stage of disposing of stolen goods, so too has most theft prevention, which has concentrated on measures such

as target hardening, burglar alarms and better lighting, which can be taken by potential victims to make crime more difficult and risky. But there are other approaches to preventing crime including removing excuses and reducing rewards (Clarke, 1997).

Removing excuses has been used mainly in dealing with everyday offences committed by ordinary people. One example would be attempting to deter casual shoplifters by reminding them that 'Shoplifting is Theft'. Another would be to reduce the embarrassment of purchasing medicine for intimate conditions, thus removing the excuse for stealing them. Manipulating the consciences of habitual offenders would be more difficult, though many of them say they would not steal from the elderly or the poor (Sutton, 1998). Perhaps the greatest scope for preventing theft through removing excuses, however, lies in Sutton's (1998) suggestion for a publicity campaign focused on the harmful effects of buying stolen goods.

There may be more potential for reducing rewards. This already has a long history in preventing theft. For example, people have branded their cattle and dyed their sheep for hundreds of years, and some African tribes are said to have practiced facial mutilation to make their women less attractive to marauders. These are examples of two important ways to reduce rewards, respectively property identification and benefit denial.

Developments in technology are giving these techniques many new applications, for example in the recent development of 'ink tags' which are used by clothing retailers to prevent theft. These tags cannot be removed by shoplifters without staining the garment with indelible ink (DiLonardo and Clarke, 1996). Security-coding of car radios is another example. Since these radios cannot be used when stolen, this may mean that society is finally escaping the era in which expensive radios were readily removed and fitted to other cars²¹. As consumers become better informed about the differential risks of theft attached to particular items, they may begin to demand that security be built into hot products. This is clearly more effective than designing items that are easy to steal, then using alarms and locks in an attempt to keep burglars at bay.

Security coding can increasingly be applied to home and office electronics, from computers to video machines. Pease (1998a: 44) has called attention to the need to include security coding for the new digital televisions²² which are poised to enter the market and which threaten to become the next generation of hot products and has explained how this might work:

²¹ Evidence on their effectiveness is somewhat mixed. Braga and Clarke (1994) report statistical data from Germany and Australia suggesting that security-coded radios have reduced theft and Kock et al. (1997) report that thieves avoid these radios. On the other hand, there are some reports that thieves can defeat coding with little difficulty (Sutton, 1998).

²² The new digital radios (especially car radios) may become even more at risk because they will be both expensive and compact (Evening Standard, July 15, 1998, page 57, 'Pity the poor listener.')

'Digital TVs have a uniquely identifiable microprocessor which can be interrogated remotely. Stolen TVs can thus be electronically deactivated., e.g. by using a Ceefax page containing the numbers of stolen TVs which is scanned automatically at switch-on. If a TV finds its own number, it switches itself off, and remains unusable.'

This combines benefit denial with identifying property, which is the same principle at work in 'Minder', a system that can detect stolen cars as they pass on the highway and radio a signal to cut-off the fuel supply (*The Observer* May 24, 1998, 'Car thieves forced into the slow lane.'). There are many other new applications of property identification – such as tiny data tags which transmit signals that can be used to identify vehicles, micro dot property marking and even 'Smart water' containing an indelible dye that shows under ultra-violet light, which can be sprayed on high theft risk items (Pease, personal communication). Sophisticated bar codes can be attached at manufacture to assist tracking of individual items. In 'source tagging', these bar codes are combined with electronic article surveillance technology to prevent theft from shops or other premises (DiLonardo, 1997b).

These examples show how rapid is the pace of technological development, on so many different fronts. Indeed, the possibilities for preventing theft are beginning to outpace the capacity of policy makers to evaluate them. In cases which bring tangible reductions in risk for individual people and businesses this may not matter greatly, because normal market forces should operate to make the technologies available to those who need them. Rather, the problem lies with technologies which could bring broad societal benefits, but whose costs would be borne principally by business and industry without bringing them any direct benefit. An example would be new technology to improve the security of all new cars, which manufacturers claim would increase costs and reduce sales. Consequently, they have been reluctant to improve vehicle security. They might be compelled to do so, just as they have been compelled to improve safety and fuel efficiency. Indeed, in America, manufacturers were required to provide parts marking for high theft risk cars under the provisions of the Motor Vehicle Theft and Law Enforcement Act 1984. This was bitterly resisted, even though the cost was less than \$5 per car. Governments in the United Kingdom have avoided legislation as a means of improving vehicle security. Instead they have relied on persuasion and have achieved some successes by this approach (Pease, 1998a). An alternative solution might be to require manufacturers to design in the capacity for a security upgrade. This could be readily slotted into existing products as an optional extra if it turns out that they are likely to be used in high risk areas or workplaces.

In some cases persuasion may not work or may only work when supported by irrefutable evidence about costs and benefits. Viewed in this light the task for theft prevention becomes extremely complex. It requires the technical capacity to:

- identify existing and future hot products needing protection;
- identify points of maximum vulnerability in space and time;
- estimate the economic costs of protection and costs of failing to act;
- identify and evaluate promising new preventive technologies;
- integrate criminological knowledge about the theft of hot products and their disposal;
- consider adaptive strategies likely to be employed by criminals in the face of reduced opportunities for theft of a particular kind (Eckblom 1997) ;
- publicise findings in an effective manner to reach manufacturers, businesses, governments and public opinion.

In addition to these technical capacities, effective theft prevention requires the organizational capacity to:

- alert the relevant government department(s) to new prevention opportunities;
- respond to requests for information about crime opportunities attached to new products;
- coordinate needed inter-ministerial action;
- identify opportunities to piggy-back upon other initiatives;
- consider incentives and rewards for the private sector,
- consider the need for other action if persuasion fails, possibly even along the lines of encouraging manufacturers not to 'recklessly' unleash hot products on the market because of the expensive consequences that this has for society.

Some of this work (examples have been repeatedly cited above) is already being done by various groups under the umbrella of the Home Office, including the Crime Prevention Agency and the Policing and Reducing Crime Unit (see Laycock and Tilley, 1995, for a comprehensive review). Pease (1998b) has proposed the formation of a Home Office unit dedicated to these tasks, within a broader framework of predicting and responding to 'crime futures'. Insofar as technology and business are central to these crime futures, it would be advantageous to consider theft together with other crimes. Some new products such as cordless drills and mobile phones are both targets for theft and facilitators of other crimes (Eckblom, 1997). But the unit should not be diverted from crimes whose solution lies principally in the private sector – or be distracted by consideration of broader 'social trends', or be allowed to 'explain' and not predict, or be allowed to do either without formulating and pursuing credible preventive actions.

5. Summary and conclusions

The results of this review bear out the suggestion made at the start that focusing policy and research attention on the most stolen goods — hot products — would produce important preventive benefits. More studies are needed, but theft does indeed seem to be concentrated on relatively few products. These vary with the context of theft, depending on the goods available, but there is also some consistency in what is most stolen across a wide variety of thefts. Thus, cash, jewellery, credit cards, fashion apparel, cigarettes and alcoholic drinks, videos and televisions, cassettes, cars and car radios, are among the items cited in a variety of studies. There is also patchy but consistent evidence that some product brands are preferred over other closely similar ones. Nike trainers and Hilfiger jeans would be contemporary examples.

Despite their variety, hot products have a number of elements in common, showing that thieves choose quite carefully what to steal. Building on Cohen and Felson's (1979) VIVA model of target suitability, it is argued that these choices can be explained by six features of hot products, summarised by the acronym CRAVED: they are generally concealable, removable, available, valuable, enjoyable, and disposable. This argues against the idea that reducing the theft of hot products will simply result in others taking their place. This would be true only to the extent that new targets satisfy the same general requirements as the old.

While the elements of CRAVED may explain what is stolen, how much is stolen seems to depend mostly on the last of these – how easily a product can be sold. This underlines the need for more research on the markets for stolen goods and how these might be disrupted. Indeed, hot products and fencing markets are but two sides of the same coin. Other recommendations for policy-oriented research, include studies of the amounts of theft accounted for by hot products, when these are most at risk, and who bears the costs. Also needed is research that will assist policy makers evaluate technology that might create new hot products or open up new possibilities for prevention (Ekblom, 1997). Finally, studies are needed to help them find ways of encouraging business to take measures that might reduce the risks of theft.

Many of these lines of inquiry are already being pursued directly by the Home Office. It has pioneered research on theft markets (Kock et al., 1997; Sutton, 1998) and continues to fund new studies on this topic. It is undertaking detailed studies of which particular models and kinds of vehicles are most at risk (Houghton, 1992; Brown, 1995; Crime Prevention Agency, 1997; Brown and Saliba, 1998). It has published many significant evaluations of theft prevention in the series issued by the Policing and Crime Reduction Unit. It has promoted studies of crime futures

and how government must position itself to respond to these futures (Ekblom, 1997; Pease, 1997). Finally, Field, a former Home Office economist has undertaken important analyses of the costs of car crime (Field, 1993).

In the light of this activity, one might ask whether a new focus on hot products is needed, indeed, whether the concept is needed at all. But the Home Office cannot do all the necessary work on its own. Through its links with contemporary 'opportunity' theory (Felson and Clarke, 1998), 'hot products' may serve to attract and focus the research interest of the wider academic community. Hot spots and repeat victimization have both stimulated new preventive thinking and research and there is every reason to expect the same from hot products.

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