DIFFERENTIAL SHOPLIFTING RISKS OF FAST-MOVING CONSUMER GOODS

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ABSTRACT

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In 2011, shoplifting accounted for over $50 billion in costs to retailers. It has been estimated that, in 2012, stores had to "mark-up" the price of products by 10 to 15 percent to make up for losses. Thus, shoplifting is a burden paid for by stores and honest customers. Shoplifting is an opportunistic crime and shoplifters are attracted to expensive and luxurious products. However, there is a good deal of theft of lower-priced and "everyday" products known as fast-moving consumer goods (FMCG). FMCG are found in drug, grocery and supermarket stores. Some examples of FMCG are toothpaste, razors, vitamins, deodorants, and cosmetics. Although these products are relatively inexpensive, they are purchased, consumed and shoplifted more than other products because of their nature and purpose. Their total dollar values of theft easily surpass other, less-frequently stolen but luxurious products. They are also the main products to be shoplifted and resold at illicit markets. A large amount of FMCG shoplifting is motivated by illicit market demand. Certain products are preferred over others because of their attributes. Models of theft preferences (e.g., CRAVED) have proven effective promise in explaining variation in general theft. To better understand variation in product theft, this study tests CRAVED – the general model of theft preferences, and a new model of theft preferences – AT CUT PRICES – which is based on disposability attributes. This study produced three main findings: 1) CRAVED explained variation in FMCG theft better than the new, theoretical AT CUT PRICES model; 2) The availability and size of products were the strongest

predictors of theft in both models; and 3) An exploratory analysis found some evidence that some products, having roles or function in illicit drug use, are stolen at high rates. There are theoretical and policy implications derived from this research, including: 1) Designing and manufacturing products and their packaging so they are difficult to conceal; 2) Notifying stores to be aware of which products are stolen for their drug properties, so they can safeguard them appropriately; and 3) Informing stores and government agencies of the nature and extent of theft for commonly-abused non-prescription drugs.

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DISSERTATION SUMMARY

This goal of this study is to understand how certain properties of products would cause their shoplifting rates to vary. More specifically, the study investigates the variation and patterns in rates of theft for fast-moving consumer goods (FMCG) from U.S. supermarkets based on a number of product attributes. The study has seven chapters, which are summarized below.

Chapter one introduces the general problem of shoplifting and presents a review of the literature. First, the crime of shoplifting is defined and described. Methods of shoplifting are then covered; a typical sequence of events shoplifters follow is also presented. Next, the many negative effects caused by shoplifting are presented. The next section provides a typology of shoplifters, including petty thieves, more determined thieves, and organized groups. A section is then dedicated to a review of the literature on organized retail crime groups. The next sections discuss retail and law enforcement responses to shoplifting, as well as official sanctions. The topic of how shoplifting incidents is measured is next. The final two sections of the chapter discuss the shoplifting of fast-moving consumer goods, how shoplifting is related to drug abuse, and the special problem of shoplifted products with roles in illicit drug use.

Chapter two provides an overview of the theoretical background that guided the methodology of this study. First, a general description of the environmental and situational explanations of theft is presented. Next, the two guiding theories for the

research – Routine Activity Theory and Rational Choice Theory are summarized. The concept of "hot products" and the CRAVED model are then discussed. Finally, the new model being tested first in this research – AT CUT PRICES – is discussed.

Chapter three provides an overview of the study's research design. Information about the source of the data analyzed and the operationalized dependent variable is discussed. For this study, stolen FMCG products were the unit of analysis. A rate of theft was calculated that served as the dependent variable and proxy measure for theft. This measure was used as the dependent variable in all three analyses in the study.

Chapter four presents the results of the AT CUT PRICES analysis, which measures variation in product theft rates as a result of change in disposability attributes. The chapter presents an introduction and overview of the design of the study. Then, research questions and null hypotheses are provided. Next, each of the AT CUT PRICES variables are operationalized. Descriptive and frequency statistics, bivariate correlations and multivariate results are then presented. The analysis found significant relationships existed between all five measurable AT CUT PRICES components and theft rate. All coefficients between the independent variables and dependent variable were highly significant predictors in the bivariate and multivariate analyses. The model explained roughly 13.5% of the theft variation ($R^2 = .135$). It is apparent by the results that smaller products are stolen at higher rates than larger products. Of the measured variables, the size and how concealable a product is was the strongest predictor of theft.

Chapter five is very similar to chapter four, however it tests the CRAVED model of theft preferences. This is useful to determine if AT CUT PRICES advances CRAVED in the explanation of FMCG theft variation. Chapter five presents the results that measured the effects of AT CUT PRICES attributes on product theft rate. In this chapter, results were presented from the study that measured the effects of the CRAVED model's four measurable attributes – Concealable, Available, Valuable and Enjoyable on product theft rate. All of the CRAVED independent variables were significant predictors of theft rate. More concealable, higher valued and more enjoyable products are stolen more often. Available was the strongest predictor of theft in this model. Compared to the AT CUT PRICES model, the CRAVED model explained more variation in theft ($R^2 = .196$)

Chapter six is an exploratory analysis, assessing the theft risks of products based on whether they have a function or role in the illicit use of drugs. First, a short review of the literature provides the different ways in which products serve roles in drug abuse are presented. Then, the research questions and hypotheses are presented. Next, the operationalization of the independent variables is displayed. The descriptive statistics are presented in a table that cross lists products' theft rates with their respective roles in drug abuse. Bivariate correlations are presented as well. The results suggest that products with drug abuse value have a higher risk of being shoplifted. Less than ten percent of all sampled products (N = 635) had roles in illicit drug abuse, but their mean theft rate (.051) was higher than the overall mean theft rate of the remaining products (N = 7,887) in the sample (.032). This study indicates that products with these roles are stolen at higher rates, which may suggest their being targeted by thieves because of this.

Chapter seven presents a summary of results, a discussion of findings, and conclusions drawn from the study. The findings are compared to the research questions and null hypotheses. A section on the strengths and limitations of the study is located in this chapter. The techniques of situational crime prevention are considered to lower theft and those techniques that could potentially lower theft are presented when applicable. The implications for theory and practice and directions for further research are then presented. The policy implications are targeted at manufacturers of hot products, and the designers of their packaging. Also, the manner in which these products are displayed in stores is considered. More research is needed – especially qualitative research – to better understand the theft attributes of FMCG. The exploratory study of products with drug roles also demands further research to determine if people are stealing those products because of their drug use properties.

CHAPTER 1. UNDERSTANDING SHOPLIFTING

What is Shoplifting?

Shoplifting is the theft of goods from retail establishments. More specifically, it is perpetrated by non-employees during business hours of the establishment. It is also commonly known as "shop theft" in the U.K., "shrinkage" within the retail industry and "boosting" to street criminals. Unlike other forms of theft, shoplifting typically will go unnoticed for a while, or may not be detected for weeks, or never – especially in the larger, big-box retail chain stores. Most shoplifting offenders are opportunistic amateurs who conceal goods in their pockets, carried bags, or otherwise on their person. However, there are other people and groups who make their living from shoplifting, who are much more skilled at theft. The different types of offenders are discussed, in detail, in the "Types of Shoplifters" section.

Methods of Shoplifting

There is a typical sequence of events of which shoplifters follow. Their decisions are based on the environment and situation they are met with. Gill (2010) organized shoplifter decision-making into six conceptual phases:

1. Choosing the store: Shoplifters will make their choice depending on products targeted, proximity of store, and chance of being recognized by staff, visible security, and staff awareness.
2. Entering the store: One of the most important points to remember is that shoplifters have to feel as if they are not being noticed. If they are approached by store staff or feel that it is too quiet or too busy, they may become less likely to steal. The

shoplifter then will make a choice about whether the security is enough to deter the theft.

3. Locating the product: Depending on the suspect, they may already know where the product is, or have to locate it.
4. Concealing the product: This step is when professional and amateur shoplifters are more easily identifiable. Professionals typically subscribe to the belief that the more time they spend in a store, the more likely they will be caught — they tend to conceal a product quickly and secretly. On the other hand, amateurs typically will walk around with the product in their hand looking for a good spot to conceal, or perhaps be thinking (or worrying) about what will happen to them when they are caught. Their methods of concealment are usually not as 'smooth' as professionals and sometimes appear nervous and out of place.
5. Leaving the store: Professional shoplifters will leave the store as quickly as possible and try their hardest to look like they are any other citizen walking out. Amateurs often get nervous and double-back at the exits, making themselves look even more out of place.
6. Disposing of the products: Many professionals sell or 'fence' the products they shoplift and depend on others to pay for their services. Most amateurs shoplift products from themselves and keep the product to use for themselves or friends and family members.

(Adapted from Gill, 2010)

The Negative Effects Caused by Shoplifting

Our society's views of domestic crime have shifted to include international terrorism after 9/11. However, both before and after 9/11, the most costly crimes[1] in the U.S. were employee theft and shoplifting (Langton and Hollinger, 2005). Although shoplifting is generally regarded as a minor crime, it consistently ranks as a very costly property crime. In 2011, shoplifting accounted for an estimated $51 billion in retail loss. (Bamfield, 2012). It is also a very common crime, with approximately one in 11 people regularly stealing merchandise from retailers (Blanco et al., 2008). It is also relatively easy to commit shoplifting without being caught, in comparison to other crimes. Roughly one in 150 shoplifting incidents leads to an arrest and police action (Farrington, 1999).

There are several ways in which shoplifting can cause problems. First, shoplifting costs stores, manufacturers and consumers. Second, the criminal justice system must budget for prosecuting shoplifters from arrest to court and through to corrections. Third, shoplifting creates a host of other tangible and intangible costs to society. For example, shoplifting is often considered a "gateway crime" for which juveniles commit and graduate to more serious crimes. Prolific burglars often refer to it as a "fallback crime" when burglary is impractical, but needing to steal to carry on (Schneider 2005; Sutton, 2010). Finally, there is a link between shoplifting and drug abuse – it is widely recognized that drug addicts shoplift to obtain merchandise – to sell or trade – to further their drug habits.

[1] These crimes are measured in terms of US Dollars lost per year.

Shoplifting is a costly crime to consumers – stores must raise prices of products that are stolen to offset their losses. Shoplifting is also costly to the criminal justice system since it is largely a non-violent crime and is one of the most common petty crimes. The losses suffered by retailers are the most visible problem caused by shoplifting. Clarke (2003) states, "[Shoplifting] can seriously erode profits and result in store closures. This can depress employment prospects and further erode the amenities in such neighborhoods" (3). In addition to the enormous negative financial impacts of shoplifting on both employees and consumers, there are tangible and intangible costs. These costs include reduced staff morale, loss of work because of physical and psychological damage, and even loss of life (Geason and Wilson, 1992).

Types of Shoplifters

Clarke and Petrossian (In Press) identify three main offender groups responsible for shoplifting: These include: 1) opportunistic or petty thieves (i.e., amateurs); 2) more determined thieves (i.e., professionals); and 3) organized groups (ORC groups)

These three distinct offender groups are presented in Table 1 below.

Table 1. The Main Groups of Shoplifting Offenders

Petty Thieves	These shoplifters differ little different from a store's regular clientele. Many of them seem to believe that shoplifting harms no one except an anonymous business. Stores that attract juveniles, males in particular, are more likely to experience shoplifting and some behavioral cues have been found to be characteristic of shoplifters, such as entering the store but making no purchase and tampering with packaging. Some research has claimed to identify psychological reasons for theft, but this work has little relevance for policing strategies.
More Determined Thieves	Shoplifters who steal regularly to support a drug habit or to provide income show more evidence of planning, such as adapting clothing to facilitate thefts. They often work with lower-level fences, who dispose of the goods by selling them to higher-level fences or out of their own homes, in flea markets or taverns, on the Internet, or through gas

	stations, bodegas, and pawnshops that they operate.
Organized Groups	Organized shoplifter groups frequently comprise immigrants (legal or not) from the Middle East, South America, or Asia, perhaps because they can sell the goods to fellow immigrants who run small businesses. They concentrate their activities in particular states including, Florida, Texas, Georgia, California, and New York. Their arrival in a city might be signaled by a spike in reports of goods being shoplifted in large quantities. Each group consists of members with distinct roles: "boosters" steal the goods; "handlers" sell the goods to fences; and others take care of transport and logistics. Boosters act either alone or in groups. They are often provided with a "fence sheet" of the items to be stolen and the quantities requested. They carry tools to remove security tags, they use foil-lined bags to defeat electronic tags, and they may use cell phones to communicate with other group members while shoplifting. They may change bar codes so merchandise registers at much lower price at checkout ("ticket switching"). They may use stolen credit cards and use the receipts to return stolen goods to the store for cash. In some cases, they may brazenly wheel carts full of merchandise out the doors to a waiting getaway van. The stolen goods may be held in rented storage units before being taken to the group's home base. The goods are often sold to fences who clean and repackage them to look like new and who then sell them to wholesale diverters, who might mix them with legitimate goods for sale to retailers.

Source: (Clarke and Petrossian, In Press)

Organized Retail Crime Groups

Organized retail crime (ORC) groups can not only wreak havoc on a company's entire operating system but may also cause serious harm to store employees and shoppers if the gangs become violent. Thieves often travel in groups that shoplift and travel together for a living. Boosters will typically 'hit' a store (or several stores if the stores are located in a mall) and remove thousands of dollars' worth of merchandise in one visit, sometimes within the span of less than 30 seconds. For example, department clothing stores will

start displaying their leather jackets in autumn. Shoplifting teams will scout different stores looking for these products. As an example, a team may notice 40 leather coats on a rack with attached security cables and consider them to be a suitable target. The shoplifters have been known to pull a large van or truck up to the curb outside of the store, at which point other members of the team quickly roll the entire rack of coats out of the store and into the van. The entire act can be complete in less than 30 seconds, and the loss of 40 top-end leather coats could cost thousands of dollars.

Professional shoplifters (i.e., boosters) are less concerned with concealment relative to amateurs. These brazen shoplifters have been known to enter a store with nothing and walk out with large, expensive stolen products without being noticed or questioned. For example, hardware stores (e.g., Home Depot and Lowes) routinely report stolen lawn mowers and tractors that may have been pushed or driven out of their stores into pickup trucks and subsequently driven away. If stopped or questioned by store staff, professional shoplifters may produce old or counterfeit receipts to thwart apprehension.

Groups, gangs and sometimes individuals are engaged in illegally obtaining substantial quantities of retail merchandise through both theft and fraud as part of a criminal enterprise. These crime rings generally consist of 'boosters,' who methodically steal merchandise from retail stores, and fence operators, who convert the products into cash or drugs as part of the criminal enterprise. Sophisticated criminals have discovered how to switch the UPC bar codes on merchandise such that these products ring up differently at checkout. This technique is commonly called 'ticket switching.' Others use stolen or

cloned credit cards to obtain merchandise, tamper with retail equipment (e.g., pin-pads) or produce fictitious receipts to return unpaid products back to retail stores.

The members of organized professional shoplifting gangs have designated roles, such as driver, lookout, picker, packer and supervisor. They use hand signals, cell phones, GPS devices and comprehensive product lists. Tools of the trade include foil-lined shopping bags, purses, boxes and signal jammers to defeat inventory control tags. Some criminals will use computers to replicate fake receipts that allow them to make cash returns, whereas others will use fake credit cards or checks to purchase gift cards and other expensive products. Stores are targeted for gift cards using fraudulent tender or return. In some cases, employees are recruited to ignore criminal activities or provide details about camera or security systems. Figure 2 below displays a flow chart of how ORC shoplifters dispose (i.e., sell) goods they have stolen and received illegally.

Figure 2. Stolen Product Disposal by Professional Shoplifters

(Source: National Retail Federation, 2011)

Retail Responses to Shoplifting

Despite sustained investments in retail security (e.g., uniformed guards, closed circuit television [CCTV] cameras, plain clothes store detectives, employee training and other loss prevention tactics), retail theft remains a substantial problem to most retailers (Carmel-Gilfilen, 2011). Even seasoned loss prevention officers are not always able to easily identify professional shoplifters at work. Professionals quickly move in and out of the store and blend in well. It is much harder to catch a professional shoplifter than an amateur shoplifter. The easiest shoplifters to detect and apprehend are amateurs who show signs of indecision, guilt, and concern (Zalewski, 2007).

Loss prevention officers experience considerable stress while 'making a stop' (i.e., apprehending a suspect). Loss prevention officers (who are typically only armed with an identification card and handcuffs) use cameras, walk around undercover, and perform other duties to apprehend shoplifters. In many instances, some of the officers are in the camera room, and others are on the sales floor. The officers in the camera room can direct the officers on the floor with radios. The officers typically will detect and apprehend shoplifters by employing a simple system consisting of the following steps listed below:

1) Apprehend the suspect.
2) Identify the suspect,
3) Interview the suspect,
4) Perform paperwork
5) Report the incident to the local police and have the suspect arrested, on occasion.

For the most part, these apprehensions take place without incident and without customers even noticing. Occasionally, shoplifters try to run or fight the officers when confronted. An assault can present a problem. It not only puts the officer, the suspect, the people in the vicinity, and the store itself at risk, it is also an undesirable outcome that can tarnish a merchant's commercial image (Budden, 2009). An assault on a store employee, while attempting to make a lawful arrest for shoplifting, usually incurs a robbery charge for the suspect as well.

It is important to note that, in most U.S. states, security officers working for merchants have the authority to apprehend shoplifting suspects, although this authority is quite limited and vague. Typically, the various state laws give merchants the right to apprehend shoplifters, recover the stolen merchandise, process the suspect (i.e., fill out paperwork and note their identification), and release or summon the police for an arrest. Most merchants are able to serve them with a civil restitution demand (in New Jersey this usually is in the form of $150 payable to the store), and then turn the suspect over to the local police department. All of these steps must be followed in a professional and reasonable manner, or the officers and the store could be exposed to civil lawsuits.

The decision to prosecute apprehended shoplifters varies by the store. Hollinger and Davis (2002) conducted a national survey showing that retailers prosecute approximately 24% of all of the shoplifters that they apprehend. In many of these stores, the in-store detectives must conform to certain benchmarks when making the decision to prosecute or release a shoplifter. For example, a store may instruct its store detectives to prosecute only if a suspect shoplifts $50 or more. However, most stores will notify the police if the suspect does not have proper identification, refused to cooperate or fought with the store's security personnel during the apprehension process. The decision to notify the police can seem somewhat arbitrary, especially if a senior store employee is involved in the apprehension.

If suspects who do not carry stolen merchandise are stopped and if there is no physical or video evidence implicating the suspect in criminal behavior, the merchants will face their

biggest and perhaps most costly problem. Once security personnel stop the person, he or she is essentially held in a 'citizen's arrest' situation. Most states allow citizens who are acting in good faith to apprehend other citizens and hold them for the police. A problem arises if these civilian loss prevention employees have no police immunities and apprehend someone who has not shoplifted. Essentially, these employees can now be charged with civil and criminal charges. The innocent person will eventually be released after the mistake is known. Most merchants have an emergency strategy for this situation. The manager of the store will generally extend an apology and frequently give the person free store credit for their troubles. Loss prevention and operational store managers believe that doing so can quickly calm the person down such that they do not file criminal and/or civil charges against the store and the involved employees.

When a victimized customer files charges of wrongful arrest, his or her actions can have serious effects on the merchant and employees involved in the incident. The victim can report the incident to the local police, who can then charge the LP employees with various crimes, such as criminal restraint, kidnapping, assault, and harassment (Elliot, 2002). Furthermore, the attorneys of these victims have been known to recover millions of dollars in civil court decisions or settlements. This little-known fact regarding the loss prevention business causes retailers to hesitate occasionally when considering stopping a suspected shoplifter. As a result, shoplifters can operate more easily.

Some companies have excellent loss prevention officers and routinely recover hundreds of thousands of dollars in stolen property every year. However, only one 'bad stop' (i.e.,

wrongful apprehension) can negate the positive work performed by these officers. Some companies that have had to address these problems with a heightened frequency have changed their apprehension policies accordingly. Some companies stop apprehending shoplifters and focus on observing, detecting, and deterring shoplifters. This questionable tactic requires the shoplifter to drop the merchandise based only on the fact that the shoplifter knows that he or she is being watched but not approached.

Other merchants have changed their apprehension policies to ensure that apprehended suspects are, in fact, guilty of shoplifting. Simple methods and checklists are used by store employees to ensure as much as possible that an apprehension will result in the discovery of stolen merchandise on the suspect. Most large-business merchants require their loss prevention employees to use a tool termed the five steps[2]. These steps are listed below. Employees will, almost without exception, have to meet all of these steps before they are permitted to apprehend a suspect:

1) See the suspect enter the store.
2) Observe the suspect select merchandise from the sales rack, floor or showroom.
3) Observe the suspect conceal the product.
4) Maintain unbroken surveillance on the suspect.
5) Observe the suspect pass all points of sale and exit the store without making payment for the product.

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[2] Source: Anonymous retail corporation policies and procedures, 2011

Law Enforcement Responses and Official Sanctions

Both the laws and penalties related to shoplifting vary. First-time shoplifters may receive sanctions, such as jail time, community service, or a fine. Some local jurisdictions have ordinances in place to downgrade shoplifting to a non-criminal petty offense. This fact has led some researchers to suggest that policymakers and police departments should elevate the importance of the crime of shoplifting (Schneider, 2005). However, similar to police executives, policymakers sometimes believe that retailers are responsible for being vigilant of crimes in their own place of business. When responding to complaints from concerned retailers, some police departments have indicated that retailers have not sufficiently involved the police (Schneider, 2005). In fact, because corporate retailers have performed little to engage law enforcement, the police seem to be content with letting businesses deal with their own crime problems (Gill & Clarke, 2012).

It is important to understand whether official sanctions deter shoplifters from recidivating. In Cameron's article (1964), she concluded from her research that few of the nonprofessional shoplifters (i.e., 2% of the females, 6% of the males) continued to shoplift following an apprehension. She reasoned that because this group is not integrated into supportive criminal subcultures and do not think of themselves as thieves prior to their apprehension, the shock and shame of the experience of being caught in such an act is frequently sufficient to deter future shoplifting behavior.

Cohen and Stark (1973) reached the same conclusion when they found only 3 repeat offenders among 371 apprehended shoplifters in the files of a major private security

company. A host of other investigators in the field have supported this view (Arboleda-Florez et al., 1977; Kallis and Dinoo, 1985; Kraut, 1976). In contrast, based on self-report data from 1,189 youth, Klemke (1978) found that 40% of those apprehended by store personnel and 54% of those apprehended by parents continued to shoplift. Among those youth who experienced police intervention, 48% continued to shoplift. Klemke reported that this much higher rate of continued shoplifting is due to the use of the self-report method.

Gold (1969) reported similar findings after using this method of investigation. In fact, both studies revealed that the rates of subsequent delinquency for apprehended youth were higher than those of a matching sample of non-apprehended delinquents. Klemke (1978, 1992) also notes that apprehended youth were more likely to identify with the delinquent persona. However, this tendency may reflect a pre-existing identity that supports rather than results from the apprehension and continued criminal involvement. Moreover, these self-report studies revealed that simply getting caught (and not necessarily arrested) was an effective means of stopping roughly half of the teenage shoplifters from repeating this activity (Gold, 1969; Klemke, 1978).

A large proportion of apprehended shoplifters are never formally charged (Lundman, 1978; Murphy, 1986). Adams and Cutshall (1984) specifically examined how shoplifters were dealt with following their arrest. Their analysis of 745 cases from the District of Columbia revealed that arrested shoplifters were most likely to have their cases dismissed when they had no or only one prior arrest. The somewhat less predictive factors were

gender and race: females and Caucasians were more likely to have their cases dismissed. Davis, Lundman, and Martinez (1991) found differences in the manner in which a large mall store handled apprehended shoplifters. The analysis revealed that shoplifters were more likely to be arrested when they had stolen expensive products, resisted apprehension, had no local addresses, or lived in less affluent neighborhoods. The more affluent shoplifters were sent through the civil recovery process because they were likely to pay the civil penalty, whereas the less affluent were sent into the criminal justice system.

Sherman and Gartin (1986) cooperated with the Detroit police department and nine branches of a department store to examine the recidivism rates of apprehended shoplifters who were either arrested or released. The researchers found that 5.7% of the arrested shoplifters were rearrested for shoplifting and that 5.9% of the released shoplifters were rearrested in the 6-month period after their apprehension. These researchers concluded that being arrested did not provide a significant deterrent effect to the apprehension experience.

Overall, the existing research has shown that within a generally short time frame (i.e., 6 months to 1 year), 1 to 6% of apprehended shoplifters will be apprehended for this crime again, regardless of whether they were arrested for this crime. The shoplifting rate for those who were not apprehended and continue to engage in this behavior is considered to be much higher. It appears likely that there is much variability between stores and judicial districts with regard to who is apprehended, arrested, and convicted for

shoplifting. Legalistic factors, such as prior arrests and the seriousness of the offense, are considered to have the greatest weight in this arena (Adams & Cutshall, 1984; Cohen & Stark, 1974; Klemke, 1992). The stores and judicial districts also vary with respect to the treatment of the convicted shoplifter.

Measuring Shoplifting

The sources that provide the official U.S. crime statistics are generally inadequate measures of the total number of shoplifting incidents. The National Crime Victimization Survey (NCVS) only records larceny-thefts against persons. Because larceny-thefts from organizations are excluded from the survey, it ignores shoplifting. The FBI's Uniform Crime Reports (UCR) are based on police measures of crime. Shoplifting is grouped under larceny-theft as a Part II crime, but it can be analyzed separately. However, Part II crimes are recorded only if the arrestee has been formally charged with a crime because individual states may have varying definitions of these crimes (Maxfield & Babbie, 2001). Another source of error is created by the hierarchy rule used by police agencies. This rule counts only the most serious crimes (out of the crimes committed in one incident) in the UCR.

Apprehension data from store security can be even more problematic because only a small fraction of shoplifters are turned over to the police, and even smaller percentages are formally charged (Klemke, 1992). The detection and apprehension of suspected shoplifters is the responsibility of the retail store's security personnel because police officers generally do not have the jurisdiction to patrol private property. If retail store

requests police services, officers are dispatched to that location to either arrest or issue a summons to the suspect. Such crimes are not considered to be as serious as those against private citizens; however, processing of a shoplifter still requires a substantial amount of paperwork if an arrest is made. Subsequently, "officers often choose to issue a warning or downgrade the formal charge when possible" (Dabney et al., 2004). Therefore, many calls for service in shoplifting incidents may never materialize into a recorded incident or a criminal prosecution.

Shoplifting losses tend to be bundled with other types of losses when stores calculate their 'shrinkage' rates. Most people in the loss prevention field broadly define shrinkage as unexplained losses of physical inventory (Masuda, 1992). More precisely, shrinkage is the financial cost of the merchandise lost because of a combination of deviant events (principally employee theft, shoplifting, administrative error and vendor fraud), which are reported as a percentage of gross sales (Langton and Hollinger, 2005). Because the calculation of shrinkage requires one to physically count every piece of merchandise in a store, many retailers opt to perform full inventories only once or twice per year.

It is difficult to disaggregate the true amount of shoplifting from the overall shrinkage. Beck (2004) reported that approximately two-thirds of shrinkage occurs at the end of the retail supply chain (i.e., in-store). Beck proposed that the majority of shrinkage occurs in stores because customers and thieves can handle merchandise first-hand in stores. Surveys of retail executives reveal that they are unable to accurately determine the proportion of missing inventory that is directly attributed to shoplifting; the best estimate

is that it accounts for approximately 40% of the total shrinkage (Dabney et al., 2004; Hollinger and Davis, 2002).

Counting items in the inventory is one of the oldest and most useful shoplifting measurement techniques (Farrington et al., 1993, 1999). However, physically counting items by hand is time-consuming and costly. Recently, technology has permitted a more valid and reliable estimation of store theft. Many stores perform inventory 'spot' checks. The store providing the data for this research employs workers to systematically count and perform repeat counts of specific products. These checks, which are performed by employees using handheld scanners, can provide more valid shoplifting estimates[3] than traditional inventories. These data are available to store staff on a regular basis (e.g., several times per day) for the number of products sold, damaged, or stolen.

Policymakers address shoplifting in unique ways in that the laws and rules regarding shoplifting are determined by each individual state and by local jurisdictions. Furthermore, store employees may detect, apprehend, process, interview and demand civil restitution from the shoplifter before a police officer arrives on the scene[4]. Police officers respond to the call and then arrest and process the suspect before completing a

[3] It is a common belief in retail loss prevention that these checks provide better estimates of shoplifting frequency than estimates based on shrinkage (i.e., all of the losses incurred by the store).

[4] This fact is generally true. However, some stores may employ off-duty police officers as additional security. These officers have the authority to make arrests at their own discretion.

great deal of paperwork[5]. Police officers generally regard shoplifting arrests as mundane and time-consuming. Line police officers are generally more concerned with their performance indicators, which are mostly composed of self-initiated activities and arrests (e.g., foiling a burglary and arresting a suspect).[6] Another problem is the amount of time that is required for an officer to fill out reports on shoplifting arrests and investigations. The paperwork to be completed by a police officer in a shoplifting case often consumes more time than is required for many 'more serious' crimes (e.g., felony drug possession, domestic violence, and grand theft auto).[7]

Shoplifting of Fast-Moving Consumer Goods

FMCG were selected as the unit of analysis because of their high level of theft for resale purposes. FMCGs (i.e., consumer packaged products) are products that are sold quickly and at a relatively low cost. Although the absolute profits made on FMCG products are relatively small, these products generally sell in large quantities such that the cumulative profits made on these products can be large (Majumdar, 2004). Examples of FMCGs include non-durable products, such as food and drinks, as well as durable products, such as batteries and toiletries. These products are commonly found at grocery and drug stores. This research will omit perishable FMCGs (i.e., non-durable products) from the sample

[5] If the police respond to a store that has a shoplifter in custody, the police will almost always make an arrest. Depending on the jurisdiction, the suspect can be released with a citation or transported to the police headquarters for processing.

[6] This information is based on the candidate's training and experience as a former patrol officer in New Jersey.

[7] This information is based on personal conversations (February, 2011) with unnamed state and local police executives.

because of their relatively low theft rates and the apparent absence of illicit markets dealing in perishable food products[8].

Of all the different types of products that can be shoplifted, products known as fast moving consumer goods (FMCG) have received little attention. These products are generally lower-priced and are consumed in large quantities frequently by most people. Although these products are relatively inexpensive, they are more purchased and shoplifted than any other products because of their nature – consumers must purchase and replenish these products on a regular basis (e.g. daily, weekly, etc.). Examples of FMCG include: toothpaste, razors, vitamins, deodorants, cosmetics and food. Their total dollar values of sales and theft easily surpass other, less-frequently purchased products (i.e., very likely all other possible categories of products).

Although a significant number of studies have examined shoplifting, little has been written on the subject of FMCG theft (Gill and Clarke, 2012). This finding is surprising considering that the annual global losses related to FMCG theft have been estimated to be more than (U.S.) $56 billion[9] (Gill and Clarke, 2012). Although some research has investigated illicit markets that carry FMCGs (e.g., Stevenson and Forsythe, 1998; Sutton et al., 1998), scholars have only recently proposed the need to understand shoplifters' preferences for FMCGs. This is especially of interest when disposal of products is their ultimate goal (Gill and Clarke, 2012).

[8] Based on the information obtained from conversations between the candidate and several law enforcement and loss prevention executives from major retailers.

[9] These data are based on figures from 2003.

Shoplifting and Drug Abuse

Drug abusers commit a significant amount of theft. Almost a third of thieves arrested in the U.K. are heroin or cocaine users (Bennett et al., 2001; Sutton, 2010). Often, thieves are driven to steal to further their drug habits. They may commit robbery, burglary or shoplifting to obtain items or cash to feed their drug habits. What is stolen depends on characteristics of the target, type of theft, motive and resources of the thief (Clarke, 1999). Property crimes like burglary and shoplifting are often crimes of choice for the drug abuser. Thus, shoplifting can be said to fuel the drug trade, as it provides the income some addicts need to trade or buy illegal drugs.

Shoplifting is often preferred by drug users and addicts since it has relatively less risk of detection and sanctions, as well as often being overlooked as a minor theft, compared to burglary or robbery. Further, shoplifting is sometimes considered the next best option to other "more serious" crimes like burglary or robbery. Prolific burglars often refer to it as a "fallback crime" when needing to steal to further their drug habits (Schneider 2005; Sutton, 2010). Individuals will steal products and sell or exchange them to obtain drugs. But many of products themselves can be abused directly for drug purposes, serving some function in drug abuse and can even provide the 'high' which drug users seek.

The Special Problem of Shoplifted Products with Roles in Illicit Drug Use

The abuse of harmful legal products, including inhaling or ingesting everyday household products and over-the-counter (OTC) drugs, constitutes a growing health problem for American society (Crouch et al., 2005; Johnston et al., 2010). The abuse of OTC drugs,

in particular, is also recognized as a growing international problem (Lessenger and Feinberg, 2008; Conca and Worthen, 2011). Research also indicates a decrease in illicit drug use while rates of legal drug abuse have risen (Johnston et al., 2010). Some people, seeking cheap "highs," have discovered that by purposely overdosing certain OTC drugs they can achieve cheap highs. Further, harmful legal household products are often the first category of substances to be abused by adolescents and thus can constitute a gateway drug (Anderson and Loomis, 2003). The recreational abuse of OTC medications and other products is a serious, growing global health problem that causes significant morbidity and mortality, especially in younger individuals (Conca and Worthen, 2012).

This dissertation is believed to be the first study that considers differential theft rates of commonly abused products. This study also finds some evidence of higher theft rates of products having roles or functions in drug abuse (Smith, 2013).

Chapter Summary

By several accounts, shoplifting is a costly crime to the United States, as well as other countries. And, almost without exception, most of these governments continue to view shoplifting as a minor crime or even a rite of passage through adolescence. Yet, there are many companies taking the problem on themselves with or without government assistance. Many of these approaches deal with deterring thieves from shoplifting by altering the environment. Perhaps most importantly, stores and manufacturers have been designing products with crime in mind. Focusing on target-hardening of these products is addressed in the following chapter, which provides the theoretical framework for

analyzing shoplifting data. This chapter also summarizes the results of an analysis to understand what relationship, if any, exists between products with illicit drug roles and theft variation. Based on the premise that many forms of theft are driven by drug use and abuse, the study seeks understand if some products are stolen for their own abuse properties.

CHAPTER 2. THEORETICAL FRAMEWORK

This chapter establishes the theoretical background for understanding why certain products are preferred targets of theft. The chapter begins with an overview of environmental criminology and then describes Rational Choice Theory (Clarke and Cornish, 1985; Cornish and Clarke, 1986) and Routine Activity Theory (Cohen and Felson, 1979; Felson, 1995). Both theories offer explanations of the criminal event itself and, to a lesser extent, the criminality of the perpetrator. CRAVED (Clarke, 1999), a mnemonic designed to analyze theft choices, is then described. Finally, AT CUT PRICES (Gill and Clarke, 2012), an acronym that is a CRAVED-derived approach to understanding theft choices based strictly on disposability, is illustrated.

Environmental and Situational Explanations of Theft

Although traditional theories of crime and criminality tend to focus on why people commit crimes, environmental criminology focuses on the criminal environment and situation at the time of the incident. Thus, theories falling under environmental criminology (e.g., Routine Activity Theory, Rational Choice Theory) analyze the crime event itself and place less emphasis on the criminal. However, the proponents of these perspectives do not discount the value of determining the drivers of criminal behavior. Rather, pragmatic approaches to prevent the opportunities to perform specific types of crimes are developed. It is also important to note that environmental criminology theories assume that people can be motivated to commit crimes based on opportunities and other environmental factors at a specific moment in time.

Shoplifting is a crime that is perhaps best understood through the lens of environmental criminology, but few studies have described how the environment can alter potential shoplifters' decision-making processes. Even fewer studies have addressed the target-hardening of specific products in stores to prevent shoplifting (e.g., Brookson et al., 2007; Burrows, 1988; Clarke, 1999, 2003; DiLonardo, 1997; DiLonardo and Clarke, 1996; Ekblom, 1986, 2005; Farrington, 1999; Handford, 1994; Hayes, 1993, 2005; Hayes et al., 2006; Hayes et al., 2011; Lindblom et al., 2011; Walsh, 1978; Wyld et al., 2009). Because shoplifters tend to select certain products to steal, it seems logical to identify these types of products and to design measures that defend these specific products from theft.

The environmental approach to crime is not a new idea. Although traditional or deterministic theories have dominated criminology for the last century, classical theory did so before the last century. Deterrence theory reflects the ideas of classical theory: people are rational and choose to engage in crime if they believe doing so is to their advantage. In the 1980s and 1990s, scholars once again became interested in thinking about crime in these terms (mainly after Rational Choice Theory and Routine Activity Theory were introduced). These theories quickly gained popularity, in part because of their simplicity and ability to effectively diagnose crime-related problems. At present, the following theories are considered to fall under environmental criminology: Rational Choice Theory, Routine Activity Theory, Crime Pattern Theory and Lifestyle theory. Rational Choice Theory and Routine Activity Theory are further discussed to illustrate the conceptualization of this research.

Routine Activity Theory

Cohen and Felson's (1979) Routine Activity Theory addresses the factors that influence the range of choices available to potential offenders. Because Routine Activity Theory views crime as a single event in time, offenders choose from the choices available to them at that time. Felson (1986) states that, "people make choices, but they cannot choose the choices available to them" (119).

According to Routine Activity Theory, three elements must come together at a moment in time for a crime to occur. These elements are a motivated offender, a suitable target and the absence of a capable guardian. Similar to Rational Choice Theory, Routine Activity Theory assumes that there are always motivated offenders willing to engage in criminal behavior if the right opportunity arises. Therefore, variations in crime are explained by variations in opportunities (i.e., the supply of suitable targets and absence of capable guardians). According to Cohen and Felson (1979), the supply of suitable targets and the presence of capable guardians naturally occur as part of everyday routine activities. Thus, variations in time and space can influence crime rates. According to Wiles and Costello (2000), many studies have confirmed that potential offenders often indirectly survey potential targets and guardians as part of their everyday routines.

This theory was originally applied to direct-contact predatory offenses but has since been extended to a broad range of crimes (Felson, 1998, 2001). This approach to crime has benefited practical crime prevention applications by altering situations to render crime

less attractive to potential offenders. To do so, practitioners must identify and alter the availability of suitable targets and enhance the guardianship of potential criminals. Routine Activity Theory is beneficial for those attempting to understand and prevent shoplifting. Cohen and Felson (1979) argue that increases in the production and availability of lightweight durable products (e.g., FMCGs) have accounted for the rise in crimes such as shoplifting over the past fifty years. In addition, Cohen and Felson (1979) contend that the trend of people spending more time away from their homes has created a "modern society [that] invites high crime rates by offering a multitude of illegal opportunities" (911). This argument has been supported by researchers who have found that potential offenders are attracted to products that are expensive, transportable, disposable and difficult to identify (Kock et al., 1997; Van Hofer and Tham, 2000). As a result, researchers have stressed that manufacturers of top-selling products, such as FMCGs, should identify which products are most at risk of being stolen and alter their designs to reduce their desirability (Clarke, 1999, 2000; Clarke et al., 2001).

Rational Choice Theory

Building on classical and deterrence theories, Clarke and Cornish (1985, 1986) developed Rational Choice Theory in the mid-1980s. Since then, it has come to have a major impact on efforts to understand and control crime. Taking care to not assume that people are perfectly rational, the theory assumes that offenders seek to benefit themselves by engaging in criminal behavior if the right circumstances exist (Cullen and Agnew, 2003). Cornish and Clarke write, "This involves the making of decisions and of choices, however rudimentary on occasion these processes might be; and that these processes

exhibit a measure of rationality, albeit constrained by limits of time and ability and the availability of relevant information" (Cornish and Clarke, 1986: 1).

Whereas classical and deterrence theories assume that the costs of crime are largely a function of formal sanctions, Clarke and Cornish state that a variety of individual and social factors influence the individual's estimate of the benefits and costs of crime. Subsequently, the costs of crime include both formal and informal sanctions and moral costs (e.g., the guilt that one may experience from breaking the law). Therefore, Rational Choice Theory appears to be much broader than classical and deterrence theories (Cullen and Agnew, 2003).

According to Rational Choice Theory, two components comprise the decision-making process of potential offenders. First, a potential offender decides to commit a particular offense. The potential offender makes this decision based on a number of factors, but the short-term and long-term benefits and consequences are central to the rational choice perspective. Second, potential offenders make event decisions based on specific situational factors. These decisions are the 'choice structuring properties' of different crimes (Cornish and Clarke, 1987). Thus, choice structuring properties affect decision-making based on properties such as rewards, risks, personal enjoyment, and possible obstructions.

A number of factors impact an offender's ability to make critical decisions. Thought processes may vary from highly rational and careful to little more than opportunistic

thinking. Any criminal act can lead to a number of possible rewards and risks that an offender may fail to consider. As stated earlier, not all offenders will be perfectly rational when making decisions. Simon's (1955, 1979, 1982) concept of 'bounded rationality' may explain this idea best. Offenders often make decisions that are designed to meet their own specific needs while expending the least amount of effort.

Although some critics have argued that Rational Choice Theory does not adequately address the causes of crime and criminality, proponents of the theory disagree. For example, Clarke and Harris (1992) argue that, "a much more serious effort must be made to extend criminological [theorizing] beyond the roots of criminality to encompass the choices made by offenders and the situational and environmental contexts that influence their decisions" (40). Subsequently, since Rational Choice Theory was introduced twenty-five years ago, countless researchers and policymakers alike have used the perspective to more clearly identify and understand the nature of crime. One could deduce the success of the theory in crime analysis simply by observing that Clarke has become one of the most commonly cited authors in modern criminological journals (Cohn and Farrington, 1999).

Rational Choice Theory seems to be a very pragmatic way at looking at why shoplifters choose to commit the offense. The chances of getting caught are quite low, and the risks of severe punishment are very small, that most researchers believe shoplifters pay little attention to the possible costs of their offenses (Bamfield, 1997; Burrows, 1988; Clarke, 2003)

"Hot Products" and the CRAVED Model

At the introduction of Routine Activity Theory, Cohen and Felson created an approach for studying suitable targets (1979). To determine a target's vulnerability, the researchers created the acronym VIVA. VIVA refers to the target's attributes: value, inertia, visibility and accessibility. Value depends on the specific offender who assesses the target and does not depend on the actual economic worth of the target. Inertia refers to the size of the target and the offender's ability to remove that target. Visibility refers to the offender's awareness of the target. Accessibility refers to the offender's ability to access the target and retreat or escape after stealing the target.

Although VIVA is useful, it makes no distinction in terms of the target, which could be an object or a person. VIVA did not include the motivational factors and the target characteristics related to the concealment or disposability of the target products. However, Felson has stated that VIVA was initially formulated as a brief concept and was not intended to be the final authority on crime explanation[10]. This definition left room for a more detailed formulation of the attributes of suitable theft targets.

Clarke's (1999) study of "hot products" reformulated and refined VIVA. Studies on hot products analyze the variation in theft to understand why some products are stolen at much higher frequencies than other products. For example, FMCGs such as alcohol, cigarettes, beauty products, and contraceptives are shoplifted from stores in much higher quantities than other products (Clarke, 1999). Knowing why these products are

[10] This information is based on personal conversation between the candidate and Felson.

specifically targeted by thieves can provide preventive solutions to help reduce their theft. Similar to other hot products, FMCGs are stolen and sold at a high rate and demonstrate the variation in theft mentioned above. Clarke's (1999) study resulted in the formulation of CRAVED, which incorporates and advances the characteristics of VIVA.

The CRAVED model advances the 'suitable target' concept (Cohen and Felson, 1979) by helping to explain the variation in the theft of 'hot products' (Clarke, 1999). Therefore, the products that are most at risk for theft will also be concealable, removable, available, valuable, enjoyable and disposable. Table 2.1 displays the six attributes of CRAVED and their respective definition

Table 3. CRAVED Definitions

Concealable	Products that can be concealed easily will be more likely to be stolen. For instance, research shows cars stolen for export to Mexico will be more likely to be models that are legitimately sold there and will therefore not be conspicuous.
Removable	Products that are lighter will be stolen more often, though this is also contingent on the context. Commercial burglars will often steal the same products as shoplifters, but in much greater quantities because they are doing it after-hours.
Available	When attractive novel products, such as mobile phones and laptops, become widely available, this can promote an illicit market for these products. Availability also includes accessibility, the notion that if products are easier to get to (e.g. old cars parked on the street), they will also be more likely to be stolen.
Valuable	What is valued by the thief and the value of the product can dictate which products become 'hot'. For instance, joyriders will choose fast cars to steal whereas a thief looking for car parts will choose an older car where the parts cost more than the car itself.
Enjoyable	What is often enjoyed by thieves will more likely be stolen. This can explain why cigarettes, alcoholic drinks, condoms and music cd's are commonly stolen.
Disposable	This may be the most important component of the CRAVED model, because what can be disposed of easily on a fencing market will be targeted more for theft. Evidence from a police sting operation revealed that car theft increased in the local area after the police set up a fencing market.

Source: (Clarke, 1999)

CRAVED has proven to be an extremely useful tool for identifying targets that are at high risk of being stolen. The model allows guardians to identify high-risk products and implement opportunity-reducing techniques, which are commonly referred to as 'target-hardening,' to prevent the theft of these products[11]. Whereas Clarke (1999) applied CRAVED to explain thieves' preferences for common forms of theft, such as shoplifting and burglary, other scholars have subsequently used CRAVED as a dependable model to

[11] This component is one of the four components of Situational Crime Prevention (Clarke, 1997).

explain other forms of crime. The CRAVED model has been used as a tool to help explain variations in timber theft in the Appalachian Mountains (Baker, 2003), stolen products in pawn shops (Fass and Francis, 2004), bag theft in licensed premises (Smith et al., 2006; Sidebottom and Bowers 2010), cell phone theft (Whitehead et al., 2008), domestic violence (Wellsmith and Burrell, 2005), and wildlife crimes, such as poaching (Pires and Clarke, 2011).

Table 4. AT CUT PRICES Definitions

Attribute	Definition
Affordable	Products sell best in illicit markets if the offer price is within the ready means of the likely buyers. Typically, these products are sold at a discount. Products are most affordable if their costs are low. The shoplifter who steals for resale purposes knows that all people shopping at illegal markets and flea markets must pay with cash. Therefore, the cost of the stolen product must be equal to or less than the amount of cash that a buyer has at that moment for a sale to occur. These markets typically discount a product by one-quarter or even one-half of the original retail prices. Grocery store products that are likely to be sold on the black market are most likely to be FMCGs, which generally have low values. If the product is to be traded for another, the same principle typically applies.
Transportable	Products are more disposable if they allow the sellers to always have the products at hand when a potential buyer appears. More portable products are easier to move and sell in different locations. Products stolen by professional shoplifters or organized retail crime groups are typically collected and sold on the black market. These products then have to be transported to a market. Common sense tells us that the more products that can be brought to a market, the greater the profit that can be earned. Therefore, the size and weight of the products is a tangible consideration when transporting products to markets. For FMCGs, most products tend to be smaller in size. Therefore, weight but not space is usually the primary logistical concern for transporters of stolen products.
Concealable	Products that are less bulky and that can be hidden easily are more attractive to thieves, potentially because there is less risk in stealing them. Shoplifters are more likely to steal products that can be easily concealed in their clothing, purses, or shopping bags. Smaller products are much easier to shoplift. Sometimes smaller products can be heavy, making them harder to conceal.
Untraceable	Buyers of products that do not have unique serial numbers are easier to find. With the exception of a few products, FMCGs do not have

	individual identifying serial numbers. Manufacturers usually do not assign individual serial numbers to low-valued products because of their low value. Nevertheless, some products (even those of low value) have unique serial numbers printed or branded on the products.
Tradeable	Disposability is enhanced if the products are tradeable (i.e., if they can be exchanged for other products, such as drugs, rather than for cash). Shoplifters who steal to support their drug habits comprise a significant portion of the shoplifters who trade their stolen products. Most organized retail crime groups and professional shoplifters steal strictly for resale purposes. Therefore, we must also consider which products are most at risk of theft by drug-addicted shoplifters. The 'hot product' literature indicates that these shoplifters opt to steal the more expensive, most in-demand hot products.
Profitable	Products must be valued and sold at certain prices such that shoplifters, handlers and sellers can all make ample profits. The products that are most profitable to licit markets are similarly profitable at illicit markets. The most profitable products are determined by their gross margins (i.e., mark up from the base price).
Reputable	The products that are well-known and associated with reputable brands are most recognizable to buyers, who may then purchase them with confidence. Because those buying illicit products are sometimes concerned about buying counterfeit products, the value of these products can be greater if they are easily evaluable. Some products will be well-known brands and easily evaluable, whereas others will be generic and less well-known.
Imperishable	If products can be kept for a long time without expiring, buyers will take advantage of the low prices and buy large stocks, even if the amount bought represents many years' worth of supply. Almost all of the products in a grocery market, including most FMCGs, have shelf lives or expiration dates. Products with longer shelf lives are more imperishable.
Consumable	Products that are used up and need to be replenished or replaced by buyers are more disposable. Many of these products are used by people daily and may require constant replenishment.
Evaluable	After their theft, if products are being traded or sold to buyers, the ability of the second-hand buyer to evaluate the product. It is if a product can be handled and verified as the valid product or otherwise examined to make sure they are buying the real thing.
Shiftable	Products that are sold regularly and that are easily shifted from market to market appeal to thieves because these products help provide ongoing incomes. The more popular and in demand a product is, the easier it is for illicit sellers to shift these products to other markets and sell them elsewhere. Products are most 'shiftable' if they can be sold at different markets and continue to be in high demand. These products are fast-moving and purchased frequently.

Adapted from Gill and Clarke (2012)

Retail loss prevention personnel and FMCG manufacturers routinely label certain products as high risk based on attributes synonymous with CRAVED to prevent shoplifting. In grocery supermarkets, high-risk FMCGs are more difficult to steal because these products have additional security features (e.g., they are kept in locked cases, sold in plastic cases that are larger and bulkier than the product itself, and use electronic article surveillance tags). As noted in the literature review, these tactics are known to deter some offenders from shoplifting.

Although the CRAVED model explains crime in terms of multiple attributes, the disposability of a product may be the most important aspect of the model. Each element of CRAVED is important, but the frequency of theft seems to be most highly dependent on the disposability element because thieves who make a living by selling the products that they steal must be able to dispose of them quickly and regularly (Clarke, 1999). This dissertation will test the measurable attributes of CRAVED. Also, to the knowledge of the author, the unintended roles or functions that some FMCG (namely, OTC drugs) play in illicit drug abuse will be part of the Enjoyability attribute. This will be explored and analyzed in a separate chapter.

Coupled with the need to understand which FMCGs are in demand and which need to be stolen to fuel the thriving illicit markets, this belief led to the development of a disposability-only model: an offshoot of CRAVED known as AT CUT PRICES.

FMCG, Disposability, and the AT CUT PRICES Model

Gill and colleagues examined illicit markets for stolen FMCGs in 2004. Although the research team mainly studied illicit FMCG markets, the team also considered the characteristics of 'hot' FMCGs. Through this research and another study (Gill and Clarke, 2012), the 'D' (disposability) of the CRAVED model was extrapolated upon which generated another acronym: AT CUT PRICES. The validity of the AT CUT PRICES model has not been established. To remedy this, Gill and Clarke (2012) proposed two research methods to test the validity of AT CUT PRICES. One method involves interviewing shoplifters to understand their decision-making when they shoplift products for resale purposes. The second method, which developed into a section of this research, involves analyzing store product data to determine the theft risks of FMCGs. Because this research is the first study conducted to test the model's validity, each of the eleven attributes (i.e., independent variables) required specific definitions. Furthermore, these definitions were essential to creating coding schemes for each variable. These disposability attributes were briefly described in two articles (Gill et al., 2004; Gill and Clarke, 2012) and are compiled below in Table 2.2. Table 2.3 provides examples that illustrate how AT CUT PRICES can be applied to FMCGs.

Table 5 AT CUT PRICES: Features, and Examples of FMCG

The feature	Examples of what feature would include	Examples of what would not be included
Affordable	Batteries	Computers
Transportable	Cigarettes	Canned food
Concealable	Cosmetics	VCRs
Untraceable	Most FMCG	Burgled household products
Tradeable	CDs	Few FMCG fail this test
Profitable	Branded products	Unbranded products
Reputable	Viagra	Generic Viagra
Imperishable	Razor blade cartridges	Fresh meat
Consumable	Pain relievers	CDs and DVDs
Evaluable	Perfumes with store stickers	Opaque packages
Shiftable	Bottles of spirits	Foodstuffs

Source: Gill and Clarke (2012).

There is a good deal of medical and public health literature, along with substantial anecdotal reports, which identify the common household products that serve drug abuse functions. The current study seeks to identify those products targeted for drug abuse, while determining how often they are shoplifted. By examining shoplifting data of

supermarket products, an opportunity arises to test the relationship between the products' drug roles or functions and their theft.

Chapter Summary

This chapter covered the theories most often used to explain theft variance in shoplifting incidents. These included environmental criminology approaches, namely rational choice and routine activity theories. Clarke's study of "hot products" (1999), resulting in CRAVED – is a well-established starting point for understanding the general theft preferences of thieves – was described in detail. Further, AT CUT PRICES – a disposability-based offshoot of CRAVED is described in detail. Both of the mnemonics are operationalized and tested in subsequent chapters.

CHAPTER 3. OVERVIEW OF RESEARCH DESIGN AND METHODOLOGY

This study builds upon previous theft preference research – which is described in detail in the previous chapter. Initially, this study set out only to test the new and hypothetical AT CUT PRICES model of theft disposability preferences. However, the CRAVED model of theft preferences – of which AT CUT PRICES is derived – was also tested for a comparison between the two models. In addition to these two analyses, an exploratory analysis was conducted, which assessed theft variation of products having roles in illicit drug abuse. These three analyses are detailed in the three chapters following the current one. This chapter provides an overview of the research design which includes description of the data source and description, the dependent variable, and the design and analytic strategies of the three analyses.

Data Source and Description

The data analyzed in this study were provided by 204 supermarkets, owned and operated by a Fortune 500 supermarket chain in the U.S. The supermarkets are located in 4 states, encompassing a major metropolitan market. Each of the stores are connected to a national computer which keeps track of products sold and products lost, among other descriptive information about the products.

Each store is equipped with standard loss prevention measures like closed-circuit television cameras (CCTV), locked cases holding expensive items, and other security measures. Loss prevention officers work at different stores, sometimes rotating in and out

of stores to be random and hopefully detect and apprehend shoplifters. The stores all had the same products for sale and at the same price. The registers and physical layout of the stores were very similar.

The aforementioned retail corporation maintains detailed records of "known thefts." This the data received provides for the total number of "known thefts" per product line per year. The list was zero-truncated – there were no zero counts of products for a few reasons: 1) theft data only included products which had been stolen once or more, 2) the stores' inventories are always changing, making it difficult to know how many products stores possessed at any single time, and 3) every product sampled had one or more thefts per year – including the larger population the current sample was drawn from.

The data received was one-year worth of data. There was a category of "known theft" within the data received. To determine how many products are considered stolen (i.e., known theft), the company uses several methods to measure this. First, the company differentiates losses from internal store reasons and external theft (i.e., shoplifting). These data are compiled into a database that generates theft reports (i.e., products unaccounted for equal known thefts) for all of the products on sale. This database provides more validity for measurements of shoplifting than traditional reports derived from inventories, which are often performed only once or twice a year in smaller retail stores. The number of thefts per product per year was is not a good measure for how often a product is stolen. Rather, a rate of theft – in this case being number of products stolen divided by the number of products sold – is a much better proxy measure of theft.

Sample

There were upwards of 20,000 products sold in the stores during the study period of 2010-2011. Non-food fast-moving consumer goods were drawn from this population. This meant that perishable food products (i.e., meat, milk) were not included in the sample. Further, some products were not food and not FMCG (i.e., lawn chairs, televisions) and were not sampled. The remaining sample of FMCG were non-food goods and made up the final sample of 8,522 products. 474 products were missing one or more data points (for inches – dimensions) and were deleted listwise. Below, Table 6 summarizes how the sample was formed through various reductions from the population.

Table 6. Method for Gathering FMCG Sample

All Products		21,264
Food products removed	(-)11,922	9,272
Non-FMCG removed	(-)276	8,996
Products missing size data	(-) 474	8,522
Research Sample		**8,522**

The units of analysis are for the study are individual products that match the present research definition of FMCGs. Products may be similar in nature and seem to be the same, especially to those differentiating among similar products that belong to the same product line. The Gillette Mach 3 razor is a good example of this problem. The Mach 3 is one 'line' of Gillette products, and there are several products offered for sale from this

line. Figure 6 illustrates these differences in product terminology. For example, the same replacement cartridges are offered for sale in five or ten packs. These packs are composed of the same merchandise (i.e., the cartridges) but are labeled and sold separately. Therefore, every product in the database is mutually exclusive and has its own unique UPC code, which provides a detailed product description).

Figure 7. Product Terminology Flow Chart

Figure 8. Count of FMCG Stolen for 2010-11 Study Period (N=8,522)

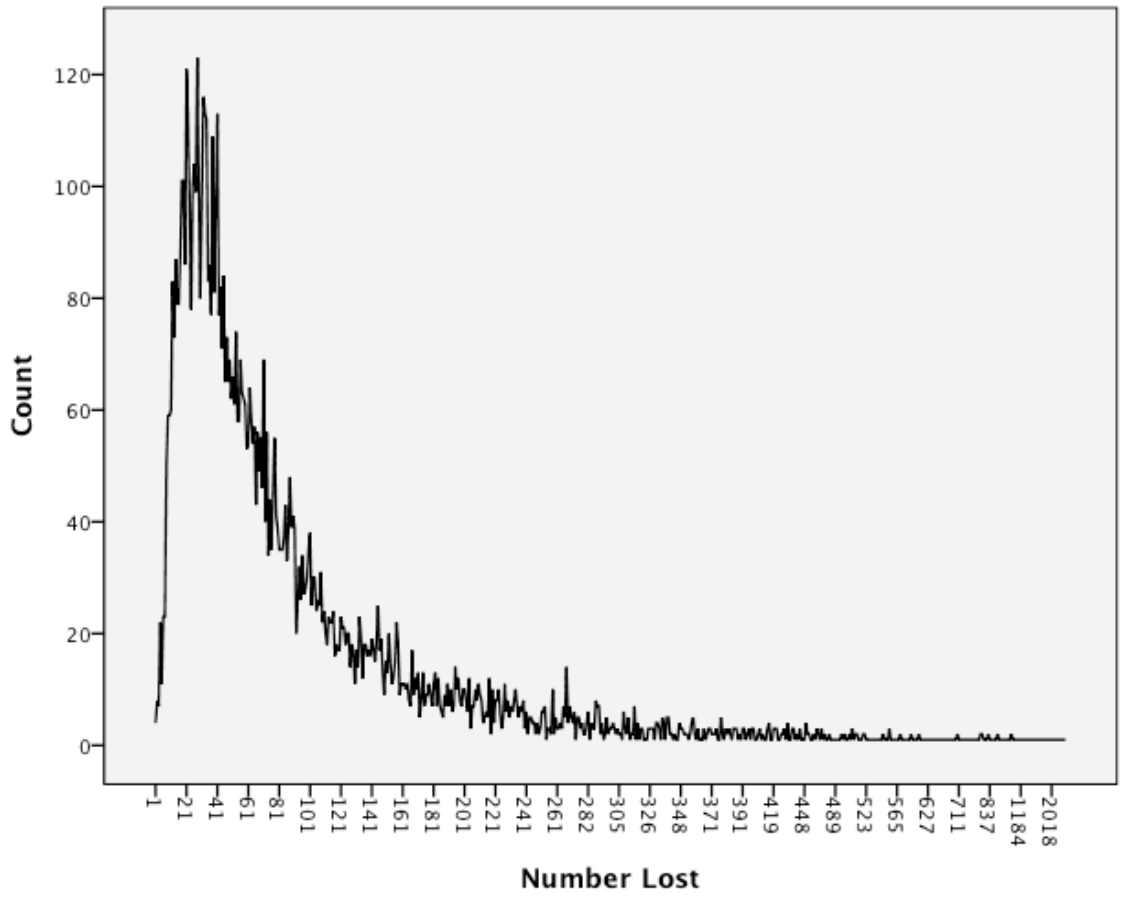
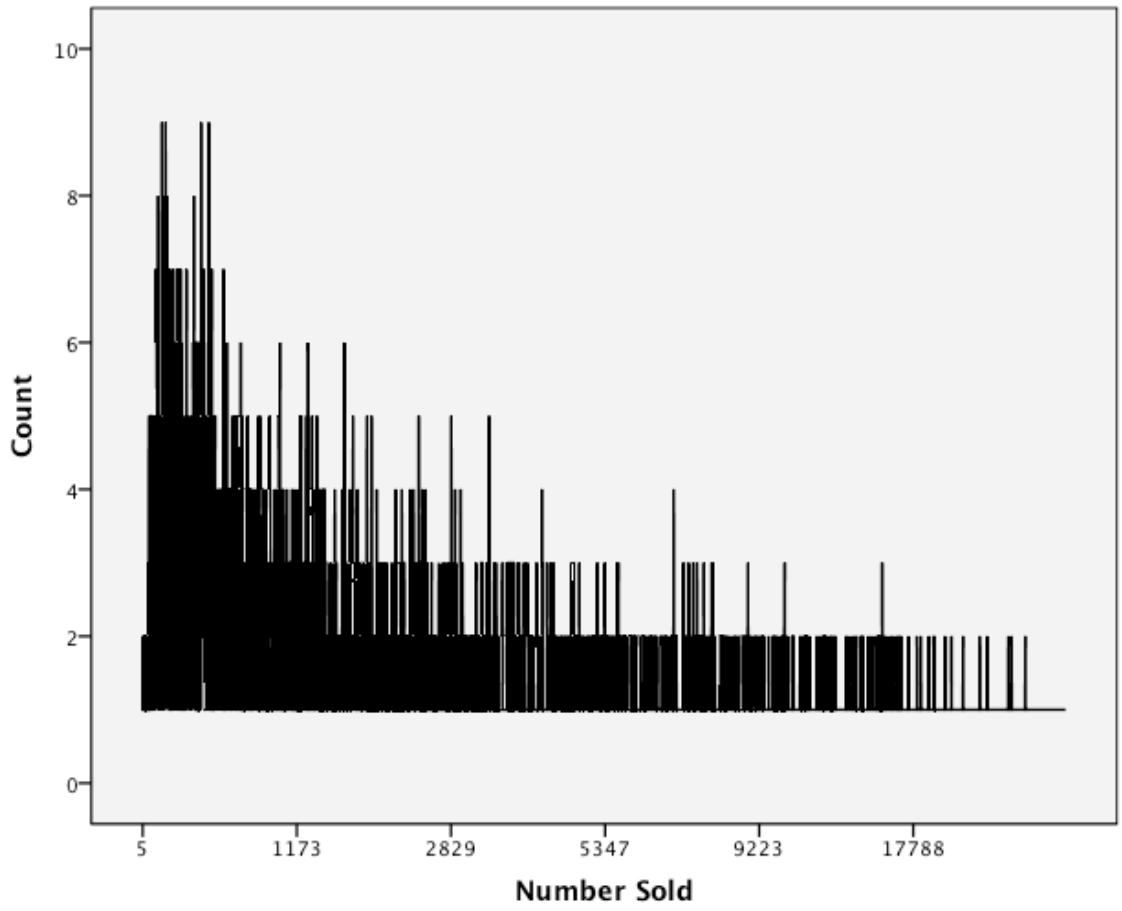


Figure 9. Count of FMCG Sold for 2010-11 Study Period (N=8,522)



The distributions of "Number Lost" and "Number Sold" were both positively-skewed, non-zero counts. Thus, there was some presence of multicollinearity and covariance between these two variables. This was likely because the demand for goods, whether obtained legally or illegally, were both similar. This makes sense for more consumable goods, in that products like razor blades are purchased often and used often, are purchased often and stolen often. Other goods may only be purchased once in a while. To

better understand why these two measures covary, it may be beneficial to perform further analysis.

It is necessary to mention here, that the dependent variable first was considered to be only the counts of "Number Lost," but certain data limitations and concerns (see Chapter 3) led the candidate to consider a rate as the best alternative. "Number Sold" was the only variable that could have been used as a denominator for this rate – based on the data made available. Further, data analysts from the company supplying these data commented to the candidate that they routinely use the same rate (Number Stolen / Number Sold) as a rate to better understand and make inferences concerning theft of products.

Dependent Variable – Theft Rate

Theft rate is a proxy measure of theft and serves as the dependent variable. The rate is calculated by dividing the total number of stolen products by the total number of sold products. If it was known how many goods are on the shelf at all times, a perfect theft rate could have been established. Some displays hold hundreds of one product, while some displays may only contain five or ten of the same product. Since the total inventory all the stores is not known, the best proxy measure for theft – which can be compared across other products – is the number stolen divided by number sold. Table 3.1 below displays the theft rate as the dependent variable for all analyses.

Table 10. Definition and Coding of Theft Rate – Dependent Variable

Dependent Variable	Definition and Coding
Theft Rate	Equals the sum of product thefts per year divided by sum of product sales per year (Continuous)

Table 11. Descriptive Statistics of Dependent Variable – Theft Rate (N = 8,522)

Variable	Measure	% / Mean (sd)
	N. Stolen	104.79 (268.27)
	N. Sold	8,521.34 (18,674.19)
Theft Rate (y)	$y = \left(\frac{N.Stolen}{N.Sold}\right)$	.032(.38)

Descriptive Statistics of Theft Rate

The descriptive statistics for the dependent variable are shown in Table 4. Theft rate is a proxy measure of theft and serves as the dependent variable. The rate is calculated by dividing the total number of stolen products by the total number of sold products. On average, products were stolen 104.79 times (sd = 268.27). Products were sold an average of 8,521.34 times (sd = 18,674.19). The average theft rate for products was .032 (sd = .38). Therefore, on average, products are stolen about 3 times for every 100 sold.

Chapter Summary

This chapter described the source and nature of the data. A description of the data population and the sample drawn from it for this study is outlined. Also, a dependent variable was formulated to measure shoplifting of products. The dependent variable – theft rate – will bed utilized as the dependent variables in three analyses of the study. The

descriptive statistics are presented in this chapter. The next three chapters incorporate the main study of three analyses which are 1) Testing the AT CUT PRICES model; 2) Testing the CRAVED model; and 3) Exploring the relationship between unintended product roles in drug abuse and their theft variation.

CHAPTER 4. TESTING THE AT CUT PRICES MODEL

Overview of the Study Design

This chapter summarizes the results of the AT CUT PRICES study. The validity of the AT CUT PRICES model has not been established before the study. To remedy this, Gill and Clarke (2012) proposed two research methods to test the validity of AT CUT PRICES. One method involves interviewing shoplifters to understand their decision-making when they shoplift products for resale purposes. The second method, which developed into this chapter and section of the study, involves analyzing store product data to determine the theft risks of FMCGs.

Analytic Strategy

Because this research is the first study conducted to test the model's validity, each of the eleven attributes (i.e., independent variables) required specific definitions. Furthermore, these definitions were essential to creating coding schemes for each variable. Below, each of the operationalized independent variables are defined. The five measureable AT CUT PRICES attributes of products are: Affordable, Concealable, Profitable, Reputable and Consumable. Table 1 describes how the measures of these attributes are defined and

coded for further analysis. The dependent variable used in this analysis is Theft Rate, which is described in more detail in Chapter 3. Below, the research questions and null hypotheses for this analysis are detailed. Descriptives for the independent variables were calculated first. Second a bivariate correlation matrix was constructed. Finally, a multiple regression analysis was performed at the product-level for the study or shoplifted FMCG in the target locations during 2010-2011. The data provided the number stolen and number sold, forming a theft rate proxy measure. Theft rates of individual FMCG were used as the unit of analysis, as a continuous dependent variable. A series of predictor variables including were developed to test whether certain attributes of FMCG varied affect their theft: Concealable, Profitable, Reputable and Consumable.

Research Questions and Null Hypotheses

Primary Research Question

1) What is the relationship between products with AT CUT PRICES attributes and their rates of theft? The null hypothesis is there is no significant difference between products with AT CUT PRICES attributes and their rate of theft.

Secondary Research Questions

2) Are products, which are more easily Concealable, stolen at higher rates? The null hypothesis is there is no significant difference in theft rates of products that are more Concealable than other products.

3) Are Profitable products (i.e., to the thief at resale) more likely to be stolen than less profitable products? The null hypothesis is there is no significant difference in theft rates of products that are more Profitable than other products.

4) Are well-known brands and Reputable products stolen at higher rates than lesser known brands? The null hypothesis is there is no significant difference in theft rates of products that are more Reputable than other products.

5) Are products that are more Consumable stolen at higher rates than products less frequently purchased and used? The null hypothesis is there is no significant difference in theft rates of products that are more Consumable than other products.

Definition and Measurement of the AT CUT PRICES Attributes

AT CUT PRICES Independent Variables

Table 9 displays the independent variables for the AT CUT PRICES study. Six of the 11 attributes were not measured: Transportable, Untraceable, Tradeable, Imperishable, Evaluable, and Shiftable. With the exception of Untraceable and Imperishable, the other four attributes could only be measured by thieves (after-the-fact of the theft), fences, or perhaps black market buyers (i.e. evaluable). Untraceable was not measured since all but 2 products in the entire sample did not have any extra coding besides a UPC code. Likewise, imperishable was not measured since this dissertation focused on using non-food products.

AT CUT PRICES Attributes – Measured Independent Variables

Of the 11 AT CUT PRICES attributes, all but 4 can be measured using the after-the-fact theft data. The remaining seven attributes can only be measured using qualitative information from the shoplifters, and, in many cases the black market seller. More

Concealable

This measure is directed towards the initial shoplifting from stores. Essentially the more concealable (usually smaller in size) an item is, the easier it is to shoplift. Concealable is measured here in terms of size. The dimensions of each product (length x width x height) serves as a very good measure for this continuous independent variable.

Profitable

Profitable has to do with the amount of money black market sellers can make on products. It can be argued that the most expensive products would be the most profitable. However, the first attribute of the AT CUT PRICES indicates that products should be affordable. Therefore, profitable will be measured in the same manner in which any store would measure it. The gross margin of products will be calculated to form a continuous variable – profitable. Thus, if a store paid $5.00 for a product from the manufacturer and then sells the products to consumers at a markup of $3.00, the total cost to the consumer is $8.00 The gross margin is the difference between the final sales price and it's "base price" (dollar amount paid to manufacturer).

Reputable

Buyers of questionable products prefer to purchase brand-name or well-known brands of products. Thus, this attribute is operationalized as a dichotomous variable. Brand-name products = 1, while store-brand products = 0.

Consumable

This attribute deals identifies the highest grossing products to measure products that needed to be replaced or replenished at high rates. This measure is formulated by the total sales of a product for the year (in dollars).

AT CUT PRICES Attributes – Not Measured

Affordable

Affordable, in this respect, refers to how affordable it a product is to buyers at illegal (i.e., black) markets dealing in stolen merchandise. Other research, on the prices dealers or "fences" ell stolen products is needed to fill this gap. Because of the inability to measure this attribute, it was excluded from the analyses.

Transportable

Transportability deals with the weight of products. Of the dataset, few weights for products were available. The operators of the stores where the dataset came from informed the candidate that they were more concerned with dimensions; specifically, assessing how many products would fit on shelves or pallets. In sum, for this store and dataset, the size would matter most because less than three products weighed less than one pound (U.S.) rendering this variable not quite

Untraceable

None of the products was traceable. Each product had a unique UPC code, but none of the products were tagged again with more unique identifying features. Since FMCG are generally lower-priced, this perhaps would be more suiting to stores dealing in more

expensive products willing to spend more on high-tech identifying features like RFID tagging (electronic article surveillance unique tags for expensive products.

Tradeable

This, attribute, is something that can only be known by the thief, their fence and the illicit buyer. They would be negotiating for a something else, perhaps drugs or money. Some anecdotal evidence exists that drug dealers were taking certain things in trade, but it might be only one dealer in one city not acting like other dealers in other geographic areas.

Imperishable

Perishable products are typically not stolen for resale, although certain high-quality meats and cheeses always top the list of stolen items each year. Those foods are probably for the the shoplifter themselves to eat and enjoy. After those one or two highly perishable items, most products on the top stolen lists each year are non-food durable consumer goods, like electronics, razors, batteries, non-prescription drugs.

Evaluable

Of all the AT CUT PRICES attributes, this would be the most difficult to measure. The definition of evaluable is if a product is stolen from a store, the black market seller their customers view, look at, perhaps hold to assure it is the “real thing.” Therefore being able to evaluate a product is very important to customers, but for this analysis, it cannot be measured.

Shiftable

Shiftable products are those which the fence or black market seller can move around to different jurisdictions and people will buy the shoplifted products at all of them. In other words, the attribute is measuring the black market demand for the products in different localities.

Table 12. AT CUT PRICES Measures and Coding Scheme

AT CUT PRICES Attribute	Independent Variable	Definition and Coding
Affordable	--	--
Transportable	--	--
Concealable	Dimensions	Sum of product height, width and length in inches (Continuous)
Untraceable	--	--
Tradeable	--	--
Profitable	Gross Margin	Difference between base and sales price of product in dollars (Continuous)
Reputable	Brand Name	Product is brand name or store-brand (0 = Store-brand, 1 = Brand-name)
Imperishable	--	--
Consumable	Gross Revenue	Total sales of product for year in dollars (Continuous)
Evaluable	--	--
Shiftable	--	--

Descriptive Statistics of AT CUT PRICES Variables

A total of 8,522 products were analyzed. Table 3 displays the descriptives and frequencies for the 4 AT CUT PRICES independent variables which were operationalized and tested. The average dimensions of products were 11.29 inches (sd = 6.57 in). The gross margin statistic reveals that stores, on average, sold products for $2.21 (sd = 2.07) more than they paid for them from the manufacturers. Most products stolen (91.5%) were brand-name products as opposed to store-brand (8.5%). The total yearly revenue for products (i.e., sum of sales in dollars) averaged $33,035.41 (sd = 71,441.18) for the year. For the subsequent bivariate and multivariate regressions, the aforementioned Dependent Variable, "Theft Rate" is used (see Table 3.1).

Table 13. Descriptive Statistics of Independent Variables – AT CUT PRICES

Variable	Measure	% / Mean (sd)
Affordable	--	--
Tradeable	--	--
Concealable	Dimensions (inches)	11.29 (6.57)
Untraceable	--	--
Tradeable	--	--
Profitable	Gross Margin (dollars)	2.21 (2.07)
Reputable	Brand Name	91.5
Imperishable	--	--
Consumable	Gross Revenue (dollars)	33,035.41 (71,441.18)
Evaluable	--	--
Shiftable	--	--

Bivariate Coefficients for AT CUT PRICES & Theft Rate

Table 11 presents a bivariate correlation matrix for the variables in this analysis. All but one of the coefficients were significant at the $p < .001$ level. This is likely due to the relatively large number of cases in the sample (N = 8,522). Most of the correlations between the independent variables and theft rate (DV) were consistent with the directions of the hypothesized causal relationships. Concealable had the strongest relationship with theft rate. The negative relationship ($r = -.236$, $p < .001$) was expected, as smaller products are stolen more often than larger ones. Profitable had a positive relationship to theft rate ($r = .179$, $p < .001$). Therefore, products that are priced higher by stores (after purchasing them for less from manufacturers) have higher theft rates than products with lower gross margins. Consumable was also positively correlated with theft rate ($r = .178$, $p < .001$). The measure for consumable is the total yearly revenue brought in by a product. Thus, the most popular, and perhaps most consumable, are stolen more often than products bringing in less revenue. Affordable (sales price) was positively related to theft rate ($r = .151$, $p < .001$). Thus, theft of expensive products is more likely than that of cheaper products. Finally, reputable had the weakest relationship with theft rate. The positive correlation ($r = .136$, $p < .001$) indicates that brand name products are more likely to be stolen at higher rates than store-brand products.

Table 14. Pearson's r Coefficients for AT CUT PRICES Variables (N = 8,522)

		(1)	(2)	(3)	(4)	(5)
Theft Rate	(1)	1				
Concealable	(2)	-.236**	1			
Profitable	(3)	.179**	.143**	1		
Reputable	(4)	.136**	-.051**	-.011	1	
Consumable	(5)	.178**	.144**	-.036**	-.109**	1

Multivariate Results

Before any of the multivariate analysis was conducted, tests for the presence of multicollinearity were performed. Multicollinearity diagnostics were performed to test whether the independent variables are related to each other, rather than the outcome variable. Multicollinearity was tested using tolerance and variance inflation factor (VIF) statistical analysis. Generally, tolerance scores of .01 or less indicate multicollinearity problems (Meyers et al., 2006). In this study, the tolerance scores ranged from .663 to .949, which exceed the .01 threshold for multicollinearity issues. The VIF statistics ranged from 1.035 to 1.509, which do not approach the conventional level of 10 where multicollinearity issues arise (Stevens, 1992).

The AT CUT PRICES independent variables were assessed for their influence on product theft rate through the use a multivariate linear regression model. The results are shown in 11, which displays the standardized and unstandardized coefficients, standard errors and significance levels of the independent variables. All variables were statistically significant at the $p < .001$ level. The direction of the predictors' relationships remained consistent from the bivariate level. Further, the predictors held their relationship when other variables were entered in the same model. As in the bivariate results, Concealable was the strongest predictor of theft rate ($\beta = -.247$, $p < .001$). As expected, and products which are smaller in size are stolen more often than larger products. Again, like the bivariate results, Profitable was the second strongest predictor ($\beta = .152$, $p < .001$). Therefore, products with larger gross margins (i.e., marked up more by the store after purchase from the manufacturer) are stolen at higher rates. Consumable was the next strongest predictor ($\beta = .130$, $p < .001$), also mirroring the bivariate results. Reputable ($\beta = .104$, $p < .001$) become a stronger predictor and Affordable ($\beta = .082$, $p < .001$) became a weaker predictor, in comparison to the bivariate results. The adjusted R^2 statistic indicates that the predictors in the model, when taken together, account for approximately 13.5% of the variation in the dependent variable (theft rate).

Table 15. Multivariate Regression of AT CUT PRICES and Theft Rate (N = 8,522)

	B (SE)	Beta	t	Sig.
Concealable	-.003 (.000)	-.247	-24.073	.000
Profitable	.006 (.001)	.152	10.674	.000
Reputable	.032 (.003)	.104	10.246	.000
Consumable	1.548 (.000)	.130	12.716	.000
Constant	.042 (.003)		11.983	.000
Adjusted R^2 = .135				
F = 270.699, p < .001 (df = 5, 8517)				

Chapter Summary

This study measured the effects of AT CUT PRICES attributes on product theft rate. The method found significant relationships existed between all five measurable AT CUT PRICES components and theft rate. All coefficients between the independent variables and dependent variable were highly significant ($p < .001$) in the bivariate and multivariate analyses. It is clear by the results that smaller products are stolen at higher rates than larger products. Of the measured variables, the concealability of a product seems to be the strongest predictor of its rate of theft. After stores purchase products from manufacturers, they sell those products at higher prices. The difference between the stores selling price and what they paid for the product is known as gross margin. It is clear that products having larger gross margins (i.e., high mark-ups) have higher rates of

theft. Reputable products are stolen more often than store-brand products. Also, products are stolen more as their price increases. This is contradictory to the hypothesis that more affordable products are stolen than more expensive ones.

CHAPTER 5. TESTING THE CRAVED MODEL

Overview of the Study Design

This chapter summarizes the results of the analysis testing several CRAVED attributes for predictive value of FMCG theft. Among the six CRAVED attributes, all but two were measured. It was decided that all of the products in the sample were removable. Disposable was not measured because it was not possible to be able to determine what buyers would prefer after the product was stolen and up for sale in the black market. Table 13 summarizes how the four measurable CRAVED attributes are defined and coded as independent variables. A rate was calculated to measure for theft, which was used as the dependent variable (see Table 2).

Analytic Strategy

This analysis is very similar to the AT CUT PRICES study. Using the same proxy measure for theft (theft rate) as dependent variable, each of the following statistical results were found: descriptive statistics, bivariate correlations and a multiple regression. Again, theft rates were used as the proxy for theft and as the unit of analysis, as a continuous outcome variable. The series of predictor variables to test were: Concealable, Available, Valuable and Enjoyable.

Research Questions and Null Hypotheses

Primary Research Question

6) What is the relationship between products with CRAVED attributes and their theft rates? The null hypothesis is there is no significant difference in theft rates for products with or without CRAVED attributes.

Secondary Research Questions

7) To what extent do products with Concealable attributes correlate with theft rate? The null hypothesis is there are no significant correlations between Concealable and increased theft rate.

8) To what extent do products with Available attributes significantly influence their rate of theft? The null hypothesis is there is no significant difference between Available products and increased theft rates.

9) Are more Valuable products stolen at higher rates than products that are worth less? The null hypothesis is there is no significant difference in theft rates of products that are more valuable than other products.

10) Are products that are Enjoyable to own, possess, or use are stolen more often than other products? The null hypothesis is there is no significant difference in theft rates of products with Enjoyable attributes and those without them.

11) *Compared to the AT CUT PRICES model, does the CRAVED model of theft preferences less, the same, or more theft variation?* The null hypothesis is there is no significant difference between the AT CUT PRICES model and the CRAVED model in terms of explanation of theft variance.

CRAVED Attributes – Measured Independent Variables

Concealable

This is the same measure as in the AT CUT PRICES. Concealable is measured here in terms of size. The dimensions of each product (length x width x height) serves as a very good measure for this continuous independent variable.

Available

At first glance into a supermarket, walking down aisles with thousands of products on the shelf, one might think availability of products do not matter. However, certain products only offer a small selection (e.g., less than five lines) while others offer perhaps over 100 lines. For example, men's contraceptives may only offer 2 or 3 lines. On the other hand, men's razors may offer 35 lines of blades. To account for this, availability is measured by dividing the number of product lines by product type, which is a continuous variable.

Valuable

Very simply, this is the sales price of products. In other words valuable is defined as the price of the product sold by store (after mark-up) by stores in dollars.

Enjoyable

There is some evidence that shoplifters prefer to steal products that are generally enjoyable things to own or consume. Alcoholic drinks, tobacco, electronics and perhaps condoms are enjoyable products sought by thieves (Walsh, 1974). Clarke (1999) states that the theft of these products "may reflect the pleasure-loving lifestyle of many thieves and the people who buy from them. Walsh referred to the aforementioned goods as luxuries. Products were coded for their Enjoyability based on their luxuriousness and if they were "unnecessary" products. This variable is dichotomous – (0 = no, 1 = yes). Each product was approached with the question of "Is this product necessary for normal life or is it an unnecessary luxury?" Enjoyable offers the most validity and reliability issues of all the independent variables tested, in that some people may find one thing enjoyable

while others do not at all. For example, some men buy the newest razors and shaving creams and claim to enjoy owning the product as well as using it. Other men view shaving as any other chore and will purchase the less expensive disposable kind. Thus, the expensive newest razors are not required or necessary for the customers; the disposable cheapest kinds were not considered to be enjoyable.

CRAVED Attributes – Not Measured

Removable

All of the products in the sample were removable from the store. The products which were in locked cases or behind counters, requiring store staff to get the products were removed from the database.

Disposable

Disposability is not measured since AT CUT PRICES specifically addresses the lack in addressing disposability in CRAVED.

13 displays the independent variables for the CRAVED study. Two of the six attributes were not measured since the model: Removable and Disposable. Removable was not measured since only those products that could be removed from the store were included. Disposable was not measured since AT CUT PRICES is a whole model trying to measure disposability.

Table 16. CRAVED Measures and Coding Scheme

CRAVED Independent Variable	Definition and Coding
Concealable	Dimensions: Sum of product height, width and length in inches (Continuous)
Removable	--
Available	Quantity of product type: N. of product lines per product type (Continuous)
Valuable	Sales price: Price of product sold by store in dollars (Continuous)
Enjoyable	Enjoyable rating: Product is enjoyable to use or own. (0 = no, 1 = yes)
Disposable	--

Descriptive Statistics

A total of 8,522 products were analyzed. Table 14 displays the descriptives and frequencies for the 3 CRAVED independent variables tested. The average dimensions of products were 11.29 inches (sd = 6.57). The mean number of products per product category was 11.53. The sales price of products averaged a sales price of $7.05 (SD = 7.01). About a third (36.91%) of the products were coded as being enjoyable.

Table 17. Descriptive Statistics of Independent Variables – CRAVED (N=8,522)

Variable	Measure	% / Mean (sd)
Concealable	Dimensions (inches)	11.29 (6.57)
Removable	--	--
Available	N. products / category	11.53 (7.85)
Valuable	Sales price (dollars)	7.05 (7.01)
Enjoyable	Enjoyable (1 = yes)	36.91
Disposable	--	--

Bivariate Results

The correlations for the CRAVED variables and theft rate are shown below in Table 15. All of the Pearson's *r* coefficients were significant at the $p < .001$ level. The availability of products had the highest correlation with theft rate ($r = .315$, $p < .001$). Therefore, the number of products available for sale per type or category of product appears to be a key variable in theft rate. Enjoyable had the next strongest relationship with theft rate ($r = .298$). Enjoyable products are more likely to have higher rates of theft. This finding may support the rational choice notion that pleasure-seeking thieves target and steal products that are enjoyable to own or use. Like the AT CUT PRICES results, more concealable (i.e., smaller in size) products are more likely to have higher theft rates ($r = -.236$, $p < .001$) than larger, more difficult to conceal products. Further, more valuable products (i.e., higher sales price) are more likely to have higher theft rates ($r = .151$, $p < .001$)

Table 18. Pearson's *r* Correlation Coefficients for the CRAVED Model (N = 8,522)

		(1)	(2)	(3)	(4)	
Theft Rate	(1)	1				
Concealable	(2)	-.236**	1			
Available	(3)	.315**	-.040**	1		
Valuable	(4)	.151**	.159**	.035**	1	
Enjoyable	(5)	.298**	-.205**	.360**	.155**	1

** $p < .001$

Multivariate Results

A multiple regression model was constructed in order to determine the relative predictive impact of the CRAVED variables on product theft rate. The results are useful in comparing the CRAVED and AT CUT PRICES models of predicting product theft. The results of the regression are shown in Table 16, which displays the standardized and unstandardized coefficients, standard errors and significance levels of the independent variables. All variables were statistically significant at the $p < .001$ level. The direction of the predictors' relationships remained consistent from the bivariate level. Further, the predictors held their relationship when other variables were entered in the same model. Available again was the strongest predictor of theft ($\beta = .251$, $p < .001$). Concealable was the next strongest predictor of theft ($\beta = -.222$, $p < .001$). Next was Enjoyable ($\beta = .157$, $p < .001$), and finally, Valuable was the weakest predictor of the theft ($\beta = .149$, $p < .001$). Compared to the results of the AT CUT PRICES model, the CRAVED variables proved

to explain more of the variation in theft rate (CRAVED Adjusted R^2 = .196; AT CUT PRICES Adjusted R^2 = .135).

Table 19. Multivariate Regression of CRAVED and Theft Rate (N = 8,522)

	B (SE)	Beta	t	Sig.
Concealable	-.003 (.000)	-.222	-22.122	.000
Available	.001 (.000)	.251	24.265	.000
Valuable	.024(.002)	.138	12.824	.000
Enjoyable	.002 (.000)	.157	15.740	.000
Constant	.048 (.002)		20.736	.000
Adjusted R^2 = .196				
F = 528.638, p < .001 (df = 4, 8518)				

Chapter Summary

This study measured the effects of the CRAVED model's four measurable attributes – Concealable, Available, Valuable and Enjoyable on product theft rate. All of the CRAVED independent variables were significant predictors of theft rate. More concealable, higher valued and more enjoyable products are stolen more often. Available was the strongest predictor of theft in this model.

CHAPTER 6. ANALYZING THEFT RATES OF PRODUCTS WITH ROLES IN ILLICIT DRUG USE

Overview of the Study Design

Some FMCGs, namely over-the-counter (OTC) drugs, are intentionally misused by drug users, abusers or even manufacturers of illegal drugs. This chapter seeks to understand what relationship, if any, exists between products with functions in drug use and abuse and their subsequent rates of theft. At the time of this study, a review of the literature indicated that no other studies have attempted to understand what proportion of consumer products are being stolen, or purchased for that matter, and being misused for drug abuse purposes.

Research Questions and Null Hypotheses

Primary Research Question

12) Do the illicit, unintended drug functions of products have any effect on their rate of theft compared to other products without such roles or functions? The null hypothesis is there is no significant difference in theft rates of products that have illicit roles in drug use than other products.

Secondary Research Questions

13) Are the ingredients to manufacture methamphetamine shoplifted at higher than average rates? The null hypothesis is that ingredients used to manufacture methamphetamine will not be stolen at higher rates than other products.

Identifying Frequently Misused and Abused Products

The drug abuse and medical literature, as well as significant government reports and anecdotal evidence, provided the basis for identifying products with drug roles. Most misused products were intended for human consumption as OTC drugs. However, seemingly innocuous household products were also identified as having roles in drug abuse. By identifying products and how they are abused, it was possible to classify products into five distinct categories of drug abuse roles. Products were rated for these roles using the coding scheme shown in Appendix 1. The 1) directly produces a "high"; 2) enhances the effects of a drug; 3) reduce the ill-effects of drug use; 4) ingredient to manufacture an illegal drug; 5) paraphernalia used in the consumption of a drug. Each of these categories and their descriptions are further developed upon below.

The 5 Roles of Products with Drug Abuse Functions

1. Directly Produces a "High"

Many products misused on their own will produce a "high," or otherwise dissociative effects desired by drug users and abusers. We identified the following products that, when misused, produce a high: antihistamines, certain cold and cough drugs, and products containing caffeine, diet pills and permanent markers.

Approximately 3.1 million persons aged 12-25 in the U.S. have misused OTC cold and cough medicines at least once in their lifetime. Many cough and cold medicines (over 140 brands) contain the semisynthetic narcotic Dextromethorphan (DXM). While highly effective when used as directed, DXM has been abused since it was first introduced to

consumers in the 1960s (Conca and Worthen, 2012). DXM is abused by taking excessive dosages. When abused in excess doses, it acts as a dissociative hallucinogen, causing changes in sensations, perception and thought. Many users describe the experience as similar to effects of taking illicit drugs like PCP (phencyclidine) and Ecstasy (MDMA). This 'high' is sought after by many types of individuals motivated to obtain these dissociative effects, but adolescents tend to abuse it most (Walker and Yatham, 1993; Boyer, 2004; Miller, 2005; Banken and Foster, 2008). DXM abuse occurs in varying demographic areas and is growing in frequency (Boyer, 2004).

Antihistamine abuse is widespread; it is not only a problem of occasional or recreational use (Conca and Worthen, 2012). Antihistamine abusers have been classified according to *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) criteria as exhibiting features of substance dependence on a number of occasions. Antihistamines are ingredients in motion sickness relievers, sleep aids, and cold or cough relievers. The active ingredients Dimenhydrinate (e.g., Dramamine) and Diphenhydramine (e.g., Benadryl) are the most commonly abused (Conca and Worthen, 2012). When purposely overdosed the effects include euphoria, detachment, and hallucinations (Malcolm and Miller, 1972; Thomas et al., 2009).

There are several OTC drugs that act as central nervous system (CNS) stimulants when abused on their own. These include caffeine, ephedrine, pseudoephedrine and epinephrine. An addictive, psychoactive substance, caffeine is consumed daily by approximately 80% of the world's population and is generally regarded as the most

commonly ingested psychoactive substance (Conca and Worthen, 2012). Traditional OTC products, as well as tablets, gum, beverages have been marketed and employed as substitutes for other legal and illegal drugs such as cocaine, and have been intentionally abused by overdose or by alternative routes of administration, such as snorting ground tablets (Siegel, 1980; Conca and Worthen, 2012).

Decongestants containing ephedrine and pseudoephedrine, as well as bronchial inhalers containing epinephrine are frequently abused. These substances are similar in structure with the amphetamines and, in addition to their decongestant properties, act as CNS stimulants, appetite suppressants and concentration aids.

Permanent markers are abused through the intentional inhalation of their vapors to achieve intoxication. (Howard et al., 2011). These permanent markers contain toluene, which are among the solvent most commonly abused by young people. Studies have indicated that roughly one-third of juvenile delinquents abuse inhalants (Howard and Jenson, 1999; Howard et al., 2008)

2. Enhances the Desired Effects of an Illicit Drug

The following products were identified as being utilized to enhance the effects of illegal drugs: certain cold and cough medicines, products containing caffeine, antacids, antihistamines, laxatives and weight loss products. The cold and cough medicines identified were those having DXM or ephedrine as active ingredients. DXM has been shown to be mixed with MDMA for increased effects (Cole et al., 2010). Ephedrine and

pseudoephedrine products, as well as products with caffeine, are often taken with stronger CNS stimulants like amphetamine to potentiate the stronger drugs stimulant effects. OTC caffeine tablets are frequently combined with heroin to vaporize it at a lower temperature when smoked, which slightly increases its efficiency (Cole et al., 2010). Antihistamines are known to potentiate the effects of opiate drugs (Malcolm and Miller, 1972; Romanelli and Smith, 2009). Abusers of opioid pain medications (e.g., methadone) are reported to take antacids and laxatives in attempts to enhance the opiates' effects.

3. Reduces the Negative, Ill-Effects of Drug Use and Abuse

Ill-effects were defined as negative side effects or withdrawal symptoms from taking illegal drugs. Certain cold and cough medicines, mouth care products, products containing caffeine, analgesics (pain relievers), antihistamines, antacids, eye drops, laxatives, and baby formula were identified as products used for these purposes.

Many drugs produce unwanted side effects. Analgesics like Tylenol are marketed as general pain relievers and many people take or abuse them after taking illicit drugs. Smokers of drugs, most frequently marijuana, use eye drops to relieve redness and mask drug use (DEA, drug fact sheet). Abusers of opiates often abuse antihistamines to reduce the common side effects of itching and rhinitis (Conca and Worthen, 2012). People addicted to amphetamines often turn to caffeine and ephedrine products in excess to get through periods without amphetamines or to reduce the "crash" of discontinuing the drug. Also, opioid abusers frequently suffer from digestive issues and frequently take laxatives and antacids to reduce that side effect of drug abuse. Certain baby formulas are used to

replace lost fluids and minerals after heavy alcohol or drug binges (World Health Organization, 2012).

4. Ingredients for Manufacturing Illegal Drugs

Recipes to make methamphetamine are easily obtained on the Internet and most individuals are capable of producing it on their own. The ingredients necessary to manufacture the drug are common household goods. Most of the ingredients are available at supermarkets. Depending on the recipe, around 10 products (all legally available) are used as ingredients to manufacture methamphetamine. 4 of these products were among the "most-shoplifted" sample of products. These included: OTC pseudoephedrine tablets, lithium batteries, iodine, and petrol/gasoline additives. By combining these ingredients with others, the result chemical reactions produce methamphetamine. Several other products were identified which have been known used as adulterants or bulking agents for drugs like heroin. These included: baby formula, laxative powders, caffeine pills, and several forms of pain relief tablets. Adulterants, also known as cutting or bulking agents, are routinely found in illicit drugs. The evidence suggests that illicit drugs are more commonly adulterated with benign substances—certainly household goods—to increase the amount of product for more profit. However, a large number of adulterants are substances that will facilitate the administration of the illicit drug (e.g., caffeine in heroin).

Tablets containing caffeine are used as adulterants for heroin, cocaine, amphetamines and ecstasy (Cole et al., 2010). Baby formula powders are used as bulking agents for drugs in powder forms (Cole et al., 2010). General pain relievers (e.g., acetaminophen) are mixed

with heroin for its analgesic effects and bitter taste, which may disguise poor quality heroin (Cole et al., 2010). It may also be used because it has a similar melting point to heroin. DXM-based medicines can cause an individual to feel a similar "high" as ecstasy. DXM is legal and cheaper to obtain than MDMA and is why it may be used as an adulterant in ecstasy (Cole et al., 2010). Decongestant pills containing ephedrine have been used as adulterants of amphetamine (Cole et al., 2010).

5. Illegal Drug Paraphernalia

Paraphernalia products were defined as items commonly used in the consumption or delivery of a drug into the body. The following products in our data were identified as common drug paraphernalia items: cigarette lighters, utility knife blades, plastic drink straws, cigars and tweezers. Lighters are used by drug abusers to ingest their drug of choice by smoking. Drugs like marijuana, crack cocaine, and methamphetamine are all smoked. In addition to their use in smoking, lighters are also used in the process of injecting drugs. For example, heroin users typically mix the drug with liquid on a spoon; then the lighter's flame is held underneath the spoon, "cooking" the drug solution. The user subsequently injects this solution intravenously. Blades intended for use in utility knives or box-cutters are frequently used to crush pills to powder form to ingest through insufflation (i.e., snorting). The blades are also used by cocaine or other powder drug users (e.g., cocaine, meth, heroin) to break any lumps or large pieces (i.e., cake) and formed into 'lines' for snorting through the nose. Powder drugs are often abused through 'snorting'—sniffing the powder into the nasal passages. Typically, a straw of some sort (e.g., plastic drink straw) is used for snorting. Commonly insufflated substances include:

cocaine, heroin, amphetamines and some OTC drugs. Cigars are used to make 'blunts' – hollowed-out cigars used to smoke marijuana and other drugs. Users will remove the inner tobacco (i.e., 'the guts') and retain the cigar wrapper. The drug is spread inside the open wrapper and 'rolled' up produce the blunt, which resembles a cigar. Marijuana smokers, to hold the end of a joint to avoid burns or resin stains on their fingers, "roach clips", are used. These are sold legally at specialty stores, but people frequently use cheaper products like tweezers instead because of their availability.

Analytic Strategy

Once again, the proxy measure for shoplifting – theft rate is used as dependent variable. However, only one variable (dichotomous: product with drug role = 1) was operationalized as an independent variable. First, each of the products in the sample of 8,522 products were coded for having or not having a known role in illicit drug use or abuse (See the aforementioned paragraph on Identifying Frequently Misused and Abused Products). Descriptive statistics were calculated and also a Pearson's *r* coefficient was calculated for bivariate results.

Below, products were coded for their roles, properties, or otherwise "hidden" functions in elicit drug use. It is then attempted to ascertain if illicit drug functions or roles of some products can cause higher rates of those products' thefts, in comparison to other products.

Each of the products in the sample (N = 8,522) needed to be coded for having one or more of the five possible roles in drug abuse. These roles were: 1) Directly produces a "high," 2) Enhances illegal drug "high," 3) Reduces ill-effects of drug use or abuse, 4) Illegal drug ingredient, and 5) Illegal drug paraphernalia. To accomplish this with a degree of reliability, the technique used to code the products was validated through inter-rater agreement. Besides this author, an expert on drug abuse[12] was consulted and agreed to rate all the products using a coding scheme (see Appendix 1). The outside coder understood and agreed with the validity of coding scheme's content. The resulting inter-rater reliability analysis indicated that less than 1% of the products coded were not agreed upon between coders. However, this author and the coder were able to communicate and understand why these discrepancies existed. With the level of agreement amongst the coders of nearly 100%, it was agreed upon that the coding and coding scheme appeared to be a reasonable measure of products' potential roles in illicit drug abuse. Below, Table 17 shows the coding scheme utilized by the author and second coder to categorize the products by role in illicit drug use – if they in fact did have any role at all.

To summarize, if any of the products in the sample were coded as "1" in one or more of the categories listed above in Table 17, they were also coded as 1 in the below model. Table 17 displays how the independent variable (drug role) of products is operationalized.

[12] Drug Enforcement Administration (DEA) Special Agent from the Newark, New Jersey Field Office who is an expert on prescription, non-prescription drug and illegal drug abuse, in addition to clandestine methamphetamine labs and their manufacture. As a condition of performing the coding for this research, the Special Agent requested to have his/her name not mentioned here, citing national security interests.

Table 20. Illicit Drug Role Measures and Coding Scheme

Independent Variable	Definition and Coding
Products with Drug Role	0 = No 1 = Yes, product has one or more function: a) Directly produces a high on its own b) Enhances the effects of illegal drug c) Reduces the ill-effects of illegal drug d) Ingredient of illegal drug e) Illegal drug paraphernalia

There is only one independent variable for this analysis. It is dichotomous (1 = has role in illicit drug use; 0 = no role). Using an original coding scheme (located in Appendix 1) the candidate and another coder (for reliability) coded each of the 8,522 products for having 1 or more of 5 roles or functions in drug abuse. Below, is a review of the literature explaining the basis for coding such products

Descriptives of Stolen Products with Illicit Drug Functions (Independent Variable)

On page 88, Table 18 displays the descriptive statistics for all products in the sample that were identified as having one or more illicit drug abuse functions. The products were grouped into product lines[13]; the lines were listed from highest to lowest by theft rate (top to bottom). Horizontally across the table, product lines were listed, then the number of

[13] A line is a group of products of the same category and type. For example, the "lithium batteries" line had 15 products – some were Duracell®, Energizer® and Store-brand. In addition, some were different voltages and sizes.

products within the line, theft rate, number stolen, mean sales price, and check boxes for each of the five possible illicit drug functions. Of the sample's 8,522 products, 635 products belonging to 32 lines were identified has having one or more illicit drug abuse function. 13 lines of products produce a high on their own.18 lines of products enhance another drug's high when taken in conjunction. 23 of the product lines can be used to reduce negative side effects of other drugs. 16 product lines serve as ingredients or additives in the production of illegal drugs. 5 lines were identified as illegal drug paraphernalia, meaning that they are associated with assisting the persons consume illegal drugs. The mean theft rate for all of the drug-related products was .051 while all products in the full sample had a mean theft rate of .032.

Table 21. Descriptive Statistics of Shoplifted Products with Roles in Illicit Drug Use; 204 Supermarkets, 2010-11.

Product Line	N. Prod-ucts	Theft Rate	N. Stolen	Directly Produces a High	Enhances Drug Effects	Reduces Ill-Effects of a Drug	Illegal Drug Ingre-dient	Para-phernalia
Sexual enhancement	4	.367	2,232		✓	✓		
Utility knife blades	5	.301	4,150					✓
Hand sanitizer liquids	5	.192	1,158	✓				
Iodine solutions	2	.134	2,409				✓	
Lithium batteries	15	.125	4,016				✓	
Mouth sore treatment	14	.084	6,283			✓		
Tweezers	10	.078	2,436					✓
Weight loss	21	.071	2,604	✓	✓	✓		
Eye redness drops	18	.056	9,281			✓		
Caffeine energy drink	8	.048	10,929	✓	✓	✓		
Sleeping pills	12	.046	5,250	✓	✓	✓	✓	
Permanent markers	11	.045	3,441	✓				
Baby formula powder	30	.044	7,183				✓	
Decongestant inhalers	17	.038	6,033	✓	✓	✓		
Antacid tablets	28	.036	11,521		✓	✓		
Ibuprofen/sleep	11	.035	2,645	✓	✓	✓	✓	
Motion sickness	6	.032	1,277	✓	✓	✓		
Lighters	18	.029	14,131					✓
Acetaminophen/sleep	12	.029	2,003	✓	✓	✓	✓	
Caffeine pills	3	.029	820	✓	✓	✓	✓	
Dextromethorphan	37	.028	16,051	✓	✓	✓		
Naproxen	17	.027	4,291		✓	✓	✓	
Migraine relievers	22	.027	15,427	✓	✓	✓	✓	
Auto fuel treatment	5	.026	1,066				✓	
Laxative pills	49	.020	6,561		✓	✓		
Acetaminophen	42	.017	6,643		✓	✓	✓	
Cigars	36	.017	3,865					✓
Ibuprofen pills	48	.016	9,252		✓	✓	✓	
Antacid liquids	64	.011	6,047			✓		
Matches	3	.010	693				✓	✓
Pseudoephedrine	12	.010	1,023	✓	✓	✓	✓	
Aspirin	29	.009	3,168		✓	✓	✓	
Laxatives powders	21	.006	921		✓	✓	✓	
All with drug function	635	.051	175,963					
No drug function	7,887	.032	1,113,669					

Bivariate Results

Table 19, below, displays the bivariate correlation between the independent and dependent variables. According the Pearson's *r* coefficient, there is a statistically significant, albeit weak positive relationship between drug roles of products and theft rate ($r = .072$, $p < .001$). However, the coefficient of .072 is relatively weak. Nevertheless, the results indicate that products with illicit drug functions are more likely to have high theft rates.

Table 22. Pearson's *r* Coefficient for Drug Function

		(1)	(2)
Theft Rate	(1)	1	
Drug Role	(2)	.072**	1

**p < .001

Chapter Summary

This chapter provided a literature review of legally misused products and other products that serve roles in drug (legal or illegal drug abuse). Five different categories of how these products are misused were identified as well. This study revealed that many of the shoplifted products with roles or functions in illicit drug use had high theft rates. The results suggest that products with drug abuse value have a higher risk of being shoplifted. Less than ten percent of all sampled products (N = 635) had roles in illicit drug abuse, but their mean theft rate (.051) was higher than the overall mean theft rate of the remaining products (N = 7,887) in the sample (.032). This is an exploratory study, which if researched further, can prove important for stores protecting these products. Further, possible governmental intervention in recognizing shoplifting of frequently abused OTC drugs may prove helpful.

CHAPTER 7. CONCLUSIONS

This chapter provides a summary of the findings for the previous 3 chapters. Then, the implications for theory and policy are discussed. Situational Crime Prevention is discussed, along with specific responses to curb shoplifting. The chapter is ends with a discussion on data limitations, then a final section on implications for the drug role study.

All four of the measurable AT CUT PRICES independent variables (concealable, profitable, reputable, consumable) were significant predictors of shoplifting. Of these measured AT CUT PRICES variables, Concealable was the strongest predictor of theft. Thus, shoplifters considered how the size and shape of products as the most important attribute prior attempting theft. This suggests that manufacturers, designing large product packaging for smaller items, are a good strategy to preventing theft. How Profitable a product was is the second strongest predictor of theft. Although many types of products had store-brand alternatives, branded products were stolen more often. This suggests that thieves want name-brand and easily recognizable products to sell at illicit markets

All four tested independent variables (Concealable, Available, Valuable, Enjoyable) were significant predictor of theft at the $p < .001$ level for the CRAVED model. Availability was the strongest predictor of theft in the model. Thus, the more types of product available to steal, the more theft there will be. In other words, the more product lines per product, the higher the theft rate of that line of product. Concealable is the second strongest predictor of theft in the CRAVED model. Products with higher sales prices were stolen at statistically significant rates than products or lesser cost. Enjoyable products were stolen at statistically significant rates than products that were less

enjoyable and luxurious. The CRAVED model explains more of the variance in theft (R^2 = .196) versus (R^2 = .135) for AT CUT PRICES. The products coded for having illicit drug abuse roles were stolen at almost twice the rate as the other products in the sample. The ingredients to manufacture methamphetamine are shoplifted at higher rates than the mean theft rate, all except ephedrine and pseudoephedrine tablets, which had lower than average theft rates. This was expected, as these products must be controlled according to federal law.

Theoretical Implications

This research intends to contribute to the theft preference literature by determining which FMCG are most at risk for theft based on their attributes. By doing so, this study may shed light on thieves' decision-making processes when they shoplift products strictly for the purpose of illicit resale or trade. Retailers can then choose from a multitude of available security features for these products that best match their risk of theft. With this information, retail loss prevention departments will be able to defend the products most at risk of theft.

Understanding the theft preferences of shoplifters in conjunction with the expected understanding of product selection for disposability will provide valuable information to product manufacturers and sellers. Upon the completion of this research, the most significant factors that affect products' risks of theft should be more apparent. For example, the results may indicate that one product attribute (e.g., untraceability) explains more variation in shoplifting than other attributes. If 'untraceability' (i.e., the presence or lack of unique identifying markers, such as serial numbers) is found to be the most

significant factor related to shoplifting, then changes in the design and manufacturing of products may most effectively reduce shoplifting for resale purposes. Consequently, if most products in grocery stores had unique serial numbers affixed to them, shoplifters would be less inclined to shoplift and resell such products.

Retailers can also utilize Crime Prevention through Environmental Design (CPTED) to identify safer locations for high-risk products. Perhaps by identifying the specific locations of products in stores that generate criminal opportunities, store planners will consider rearranging their products. Many stores currently place hot products near guardians (e.g., the "front-end" of the store and near the cashiers). Furthermore, products can be fitted with "benefit denial" devices, such as ink tags, to reduce the motivation to steal. Finally, products can be placed in anti-shoplifting devices, which are only unlocked by store staff at the point of a sale.

Researchers have found that potential offenders are attracted to products that are expensive, transportable, disposable and difficult to identify (e.g., Kock et al., 1997; Van Hofer and Tham, 2000). The results of this research will provide data indicating the degree to which these factors explain the variance in shoplifting. Furthermore, this research will likely confirm past researchers' suggestions that the manufacturers of hot products identify the products that are most at risk of being stolen and alter their designs to reduce their desirability (e.g., Clarke, 1999, 2000; Clarke et al., 2001).
Although this research concentrates on identifying the products at risk of theft and possible resale, the results will be applicable to a larger audience who wish to understand

thieves' decision making and the general factors that affect theft. Not every sampled product was shoplifted by professionals for resale purposes. Many products were shoplifted by opportunistic and amateur shoplifters. The conceptual framework of this study was designed to understand which products are vulnerable to theft (and potential resale). Because the conceptual framework of AT CUT PRICES is based on CRAVED and some of its attributes (e.g., concealable and enjoyable), the results of this research can be applied to theft preferences in general.

The knowledge obtained from this research should further develop its guiding theories (i.e., Rational Choice Theory and Routine Activity Theory). This research should serve as another example of Rational Choice Theory being used as a general theory of crime to identify hot products and theft preferences in different environments (i.e., from stolen products in grocery stores to poached parrots in jungles[14]). A routine activities approach will allow for the specific attractive properties of products to be identified. Doing so will permit the guardians of high-risk products to make informed decisions regarding methods by which to reduce opportunities for theft through target protection.

By utilizing Rational Choice Theory, the results of this research are expected to generate measures that reduce opportunities for theft. These measures may take the form of loss prevention personnel shifting the organization of product sales floors and changing current product security measures. These measures are one element of the data needed to adequately understand offenders' theft preferences. More research is required to understand offenders' decision making when they are choosing products to shoplift and

[14] Pires and Clarke (2011).

resell. One such study of burglars (Macintyre, 2004) could be replicated to understand the decision cues of shoplifters, some of which are similar to the decision cues of burglars.

Gilling (1997) argues that the intention of Rational Choice Theory "has always been to build a bridge between the situation (crime) and disposition (criminality), thereby bringing together what criminological politics has performed so much to keep apart" (60). The findings of this research will assist this 'bridge-building' process and point to the need to examine other dispositional attributes that influence shoplifter decision-making. Qualitative interviews of professional shoplifters who steal for resale purposes would be a useful complement to the present research. The subtle differences in the choices made by offenders should be recorded and analyzed. Rational Choice Theory does not assume that choices are completely reasonable. Rather, exploration is needed to differentiate between better decision makers (i.e., those who make better life choices and have more successful short- and long-term life outcomes) from those who are less skilled at making good choices (Paternoster & Pogarsky, 2009).

Policy Implications

This dissertation will have policy implications for manufacturers of hot products. This dissertation intends to identify such products that warrant extra protection from theft. Retailers can then choose security features for these products that match their risk of theft. There are also some theoretical implications based on this research. This dissertation should add to the already existing body of evidence on the abilities and limits

of CRAVED. Finally, there are two other possible implications resulting from an additional study of these data on the theft of over-the-counter (OTC) drugs: 1) Increased FDA scrutiny of abused OTC drugs and 2) Better loss prevention measures for by stores and manufacturers to reduce theft of identified and documented OTC drugs.

The product of this research will add to the shoplifting literature by reiterating the call for groups of retailers, policymakers and police executives to convene and identify problems at the local level. Using the principles of POP, the group could exchange information and design appropriate responses to the problems. By doing so, the field of crime prevention can take proactive steps and implement evidence-based strategies to address criminal behavior (Tilley & Laycock, 2002; Sherman et al., 2002). Security executives and personnel would benefit from crime prevention measures because of the ease of their implementation and their 'common sense' nature. Because the principal roles of security personnel consist of providing security and reducing opportunities to commit crimes, they would benefit from extensive methodological expertise needed to evaluate and strengthen their policies and practices (Gill, 2006). Thus, this research will provide retailers and property owners a starting point for reducing opportunities to commit theft.

Opportunity and target reduction is a necessary first step for retailers and police aiming to reduce shoplifting. However, Schneider (2005) warns,

> "[Such] crime prevention efforts will not be successful if stores mount them in isolation, nor will they be successful if retailers are excluded from appropriate response by the police. Government officials must work in co-operation with the business and retail sector to devise effective strategies that deter thieves from stealing specific types of property. Qualitative data analyses stemming from police databases, prison

> interviews and interviews with store victims can better inform retailers and the overall business sector on what property is at risk." A long-term solution is for police authorities to work in conjunction with industry for the purpose of designing theft out of product and out of the store" (56).

Although Schneider's proposal for police and retail collaboration is an ideal example of Problem-Oriented Policing (POP), such focus groups are rare. Whereas shoplifting in general has not captivated lawmakers' attention, organized retail crime has gained consideration. The U.S. Legislature recently responded by passing legislation for harsher official sanctions against those involved with organized retail crime groups.

This research intends to contribute to the theft preference literature by determining which FMCG are most at risk for theft based on their attributes. By doing so, this study may shed light on thieves' decision-making processes when they shoplift products strictly for the purpose of illicit resale or trade. Retailers can then choose from a multitude of available security features for these products that best match their risk of theft. With this information, retail loss prevention departments will be able to defend the products most at risk of theft.

Retailers need to avoid the "typical sequence" caused when new and desirable products are introduced. Pease (1997) and Ekblom (1997) have described the sequence as: 1) the new product is released for sale with little thought to its crime consequences; 2) the crime consequences become evident; and 3) the product is then modified, but after it may have yielded, what Clarke (1999) refers to as a "crime harvest" (27).

Clarke (1999) proposes that it is possible for stores to reduce shoplifting if they reduce theft of the most desirable, "hot products" because they would be less tempted to target those goods, thus making them less likely to target other, less risky products.

High rates of shoplifting by thieves targeting hot products may have a greater impact on store profits since thieves can steal other items and cause law-abiding shoppers to be less likelyt o shop when these most attractive hot products have been depleted by shoplifters (DiLonardo, 1997; Hayes, 1997; Clarke, 1999). The repeated counting (i.e., inventory) of hot products in warehouses in stores has also proven to be a useful endeavor in deterring potential thieves from stealing these high risk goods (Masuda, 1992).

Situational Crime Prevention

Since this study was approached from situational-based methodologies, it is appropriate to mention situational crime prevention (SCP) was an efficient method of reducing opportunities for crimes to occur, thereby indirectly reducing crime. Focusing on the situation (e.g., environment) instead of the offender, SCP has grown to included 25 techniques that have been proven to reduce many forms of crime, not only theft (Clarke and Eck, 2005). Table 19 summarizes these 25 techniques. There are several techniques that apply to shoplifting and these are detailed below.

Increase the Effort

<u>Target-harden</u>

a) Using tamper-proof packaging,

b) Large plastic cases for small items so concealment is more difficult

c) Locking hot products in cabinets, requiring customer to ask employee to unlock cabinet, bring product to register to purchas

Control access to facilities

a) Certain expensive or controlled products kept behind pharmacy or customer service counters

Screen exits

a) Electronic Article Surveillance (EAS) Tags – if not removed by store staff, cause an alarm at the exit to sound

b) Posting security guards at exits

c) Having employees at exit to crosscheck number of products sold on receipt with number leaving store

Increase the Risks

Extend guardianship

a) Place at-risk products near counter or registers where employees can view them

Utilize place managers

a) CCTV system which is visible to potential offenders

Strengthen formal surveillance

a) Having security guards or off-duty police as a visible deterrent

b) Having loss prevention plainclothes officers

Reduce the Rewards

Identify property

a) Using stickers or other property marking to let consumers know where the product was intended to be sold may deter sales at illicit markets

Deny benefits

a) Using ink tags – without store machinery to remove tag, when removed any other way will break tag and spill permanent ink on product. This tactic may only be effective for clothing items

Reduce Provocations

Neutralize peer pressure

a) Maintain close surveillance to groups of juveniles in store; let them know they are being watched.

Remove Excuses

Alert conscience

a) Signs noting that shoplifting is wrong, or "shoplifting is stealing"

Assist compliance

a) With newer self-checkout methods, employees should make their presence known to customers and assist them with their checkout and verify all goods are scanned and paid for.

Table 23l - *25 Techniques of Situational Crime Prevention*

Increase the Effort	Increase the Risks	Reduce the Rewards	Reduce Provocations	Remove Excuses
1. Target harden: • Steering column locks and immobilisers • Anti-robbery screens • Tamper-proof packaging	*6. Extend guardianship:* • Take routine precautions: go out in group at night, leave signs of occupancy, carry phone • "Cocoon" neighborhood watch	*11. Conceal targets:* • Off-street parking • Gender-neutral phone directories • Unmarked bullion trucks	*16. Reduce frustrations and stress:* • Efficient queues and polite service • Expanded seating • Soothing music /muted lights	*21. Set rules:* • Rental agreements • Harassment codes • Hotel registration
2. Control access to facilities: • Entry phones • Electronic card access • Baggage screening	*7. Assist natural surveillance:* • Improved street lighting • Defensible space design • Support whistleblowers	*12. Remove targets:* • Removable car radio • Women's refuges • Pre-paid cards for pay phones	*17. Avoid disputes:* • Separate enclosures for rival soccer fans • Reduce crowding in pubs • Fixed cab fares	*22. Post instructions:* • "No Parking" • "Private Property" • "Extinguish camp fires"
3. Screen exits: • Ticket needed for exit • Export documents • Electronic merchandise tags	*8. Reduce anonymity:* • Taxi driver IDs • "How's my driving?" decals • School uniforms	*13. Identify property:* • Property marking • Vehicle licensing and parts marking • Cattle branding	*18. Reduce emotional arousal:* • Controls on violent pornography • Enforce good behavior on soccer field • Prohibit racial slurs	*23. Alert conscience:* • Roadside speed display boards • Signatures for customs declarations • "Shoplifting is stealing"
4. Deflect offenders: • Street closures • Separate bathrooms for women • Disperse pubs	*9. Utilize place managers:* • CCTV for double-deck buses • Two clerks for convenience stores • Reward vigilance	*14. Disrupt markets:* • Monitor pawn shops • Controls on classified ads • License street vendors	*19. Neutralize peer pressure:* • "Idiots drink and drive" • "It's OK to say No" • Disperse troublemakers at school	*24. Assist compliance:* • Easy library checkout • Public lavatories • Litter bins
5. Control tools/ weapons: • "Smart" guns • Disabling stolen cell phones • Restrict spray paint sales to juveniles	*10. Strengthen formal surveillance:* • Red light cameras • Burglar alarms • Security guards	*15. Deny benefits:* • Ink merchandise tags • Graffiti cleaning • Speed humps	*20. Discourage imitation:* • Rapid repair of vandalism • V-chips in TVs • Censor details of modus operandi	*25. Control drugs and alcohol:* • Breathalyzers in pubs • Server intervention • Alcohol-free events

Source: Cornish and Clarke (2003).

Data Limitations

Unfortunately, because of data limitations, 6 of the 11 AT CUT PRICES model attributes were not operationalized for this study. 4 of these (Transportable, Tradeable, Evaluable and Shiftable) cannot be used in this study because of the lack of data. These are all attributes which are not can only be answered by the black market buyer or shoplifter, after the fact. More research in illicit markets is required to measure these concepts. Further, only qualitative interviews with shoplifters, stealing for the purpose of resale, would provide any sort of data for these four attributes. In addition to the four other attributes, another 2 were not operationalized since both dichotomous variables (Untraceable and Imperishable) were both found to contain more than 99% of the cases in the sample. Unfortunately, with the data available, only 5 of the 11 AT CUT PRICES attributes were operationalized.

The main limitation to these data is that they are not the exact number of thefts and still must be considered estimates. Retail supermarkets sell billions of products each year – the exact number of thefts is impossible to calculate since thefts are not always detected. The theft counts from this source are probably the best estimate of shoplifting data achieved to this date for “big box” stores. Rather than relying solely on traditional shoplifting measures like shrinkage (i.e., total store loss), the database only includes products believed to have been lost due to theft. This offers considerable more internal validity to the theft count measure. In terms of the theft rate, another limitation is that the variation in that rate could be caused by the denominator – Number of Sales.

Implications for Products with Illicit Drug Functions Study

There are three two possible implications which may result from the results of this study: 1) Increased FDA scrutiny of abused OTC drugs, and 2) Better loss prevention measures for by stores and manufacturers to reduce theft of abused products. Certain drugs, namely medicines containing DXM, are widely abused and have led to a number of deaths in younger persons. Increased regulation of medicines with DXM by government agencies like the Food and Drug Administration (FDA) may prove helpful to lower youth mortality and drug abuse of DXM. This would not be the first time an OTC drug was more strictly regulated. In 2005, the U.S. Congress passed the *Combat Methamphetamine Act*. This law increased regulation of OTC decongestants containing ephedrine and pseudoephedrine – the chemicals used to produce methamphetamine. The law made the drug harder to obtain by: 1) restricting number of sales, 2) securing the drugs behind pharmacy counters, and 3) only allowing sales to persons 18 and older with valid identification. It seems likely that youthful drug abusers would find it more difficult to obtain this substance. Perhaps similar legislation regulating DXM would be a step in the right direction. The FDA states the following about OTC drugs: "their benefits outweigh their risks, the potential for misuse and abuse is low, consumers can use them for self-diagnosed conditions, they can be adequately labeled and health practitioners are not needed for safe and effective use of the product." It can be argued that many of these shoplifted products are being misused and some of the products have a high potential for abuse (e.g., DXM, antihistamines). Since the FDA regulates such products, it may be helpful for them to be aware of their theft, which may indicate misuse and perhaps reevaluate their potential for misuse and abuse.

Since many of the products at risk of being abused are also shoplifted most, stores may already provide more security for those products. However, they would benefit knowing which products are at risk of abuse. But some evidence exists that they may already know. In a recent survey of retailers, Courser et al. (2009) found that retailers seemed reasonably aware of how their products are able to be abused. Further, retailers were also aware that it was relatively easy for individuals to purchase or shoplift legal products used to get high (Courser et al., 2009). Manufacturers could help prevent theft of abused products through better anti-theft designs of products' packaging. For example, electronic article surveillance (EAS) tags, making larger and more difficult to open packaging, as well as unique product tracking numbers for products could all prove to reduce theft. However, manufacturers have resisted changing risky products when they are not directly harmed by the crime (Clarke and Newman, 2005). But manufacturers should consider that they might be contributing to drug addiction by failing to protect their goods from theft (Clarke, 2000). It seems plausible that both stores and manufacturers may be enabling product misuse and abuse, albeit indirectly. If government intervened in this growing problem of product abuse, perhaps stores and manufacturers would use more resources to protect these products from theft and subsequent abuse.

There are two main limitations of this study that need to be addressed. First, the products identified as being used for illicit drug use purposes may be shoplifted for their intended uses, rather than their known misuses. It seems logical that many of these products are stolen and abused, but certainly not all of them. Another limitation is that products with

drug abuse functions may or may not be shoplifted for the purpose of misuse. Clearly, many of these products have value for their intended uses and are stolen strictly for that value. For example, baby formula is a relatively expensive product and is a commodity that is required by many families. Thus, baby formula may be stolen at high rates for its intended rather than unintended uses. The second limitation is that the products in this study, which are fast-moving consumer goods, are relatively inexpensive and can be legally purchased and abused without considerable cost. It seems likely that many people may simply purchase products legally for the purpose of abusing or otherwise using them for an illicit drug function. Only qualitative interviews with persons who abuse products for drug purposes would shed some light on the above limitations. Further inquiry into this research should involve qualitative research. Interviews of thieves (as well as legal purchasers) of persons illicitly using these products should provide possible understanding of the two major limitations of the study listed above.

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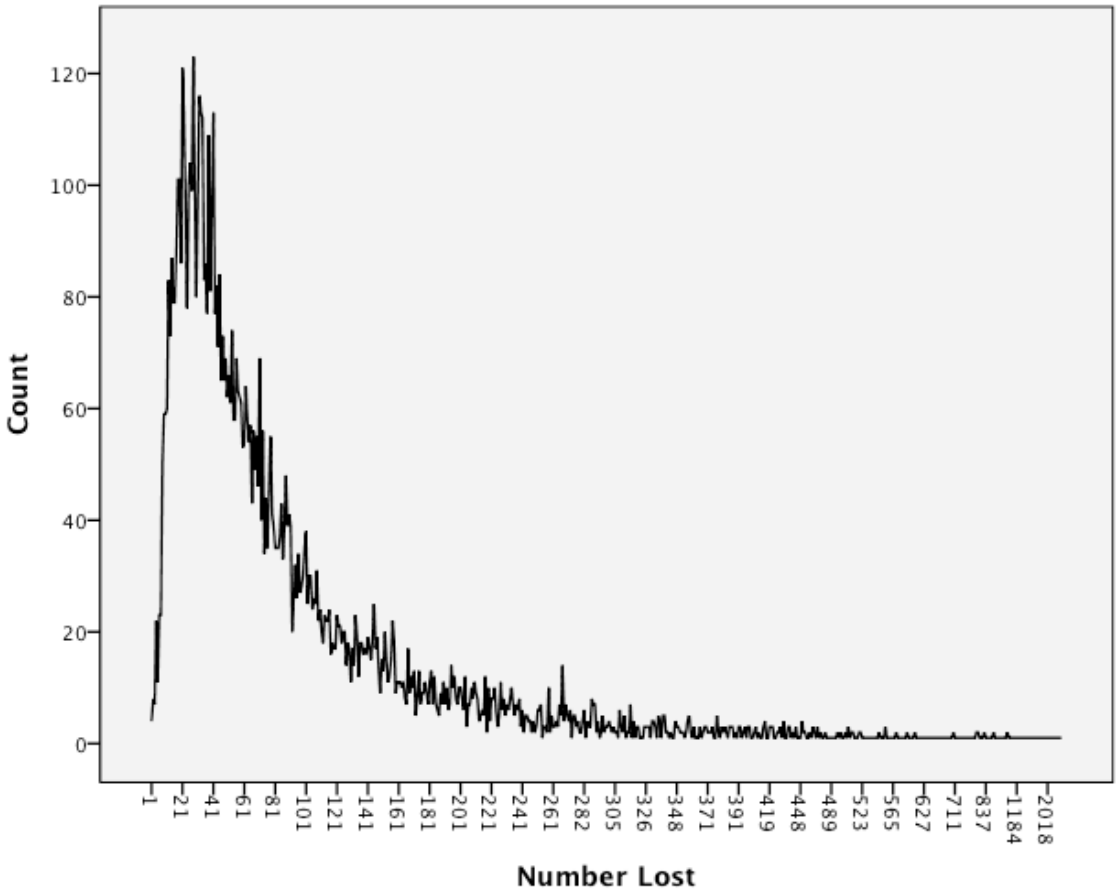
APPENDICES

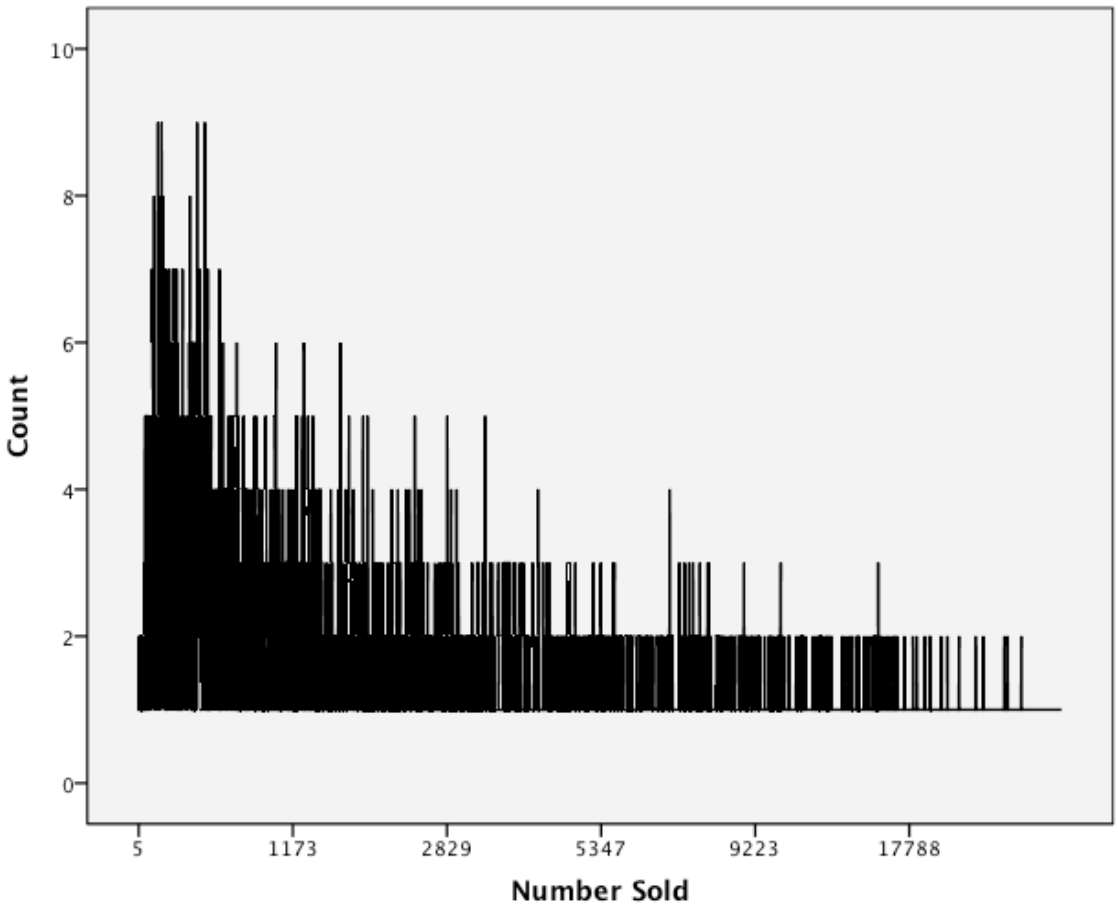
Appendix 1. Method for Gathering FMCG Sample

All Products		21,264
Food products removed	(-)11,922	9,272
Non-FMCG removed	(-)276	8,996
Products missing size data	(-) 474	8,522
Research Sample		**8,522**

Appendix 2. Count of FMCG Lost/Stolen for 2010-11 Study Period (N=8,522)



Appendix 3. Count of FMCG Stolen for 2010-11 Study Period (N=8,522)



Appendix 4. Coding Scheme – Identifying Products Roles in Illicit Drug Use

Directly Produces a High

0 = No

1 = Yes – When product is taken at high dosages, or otherwise misused, produces a high

- Caffeine Supplements
    - Energy drinks (5-hour Energy, Red Bull)
    - Alertness aid tablets (No Doz)
- Migraine Relievers
    - Containing Aspirin, Caffeine and Acetaminophen
        - Tablets (e.g., Excedrin)
        - Headache powders (e.g., Goody's headache powders)
- Cough and Cold RelieversTablets containing Ephedrine or Pseudoephedrine (e.g., Sudafed)
    - Bronchial inhalers containing Epinephrine (e.g., Primatene Mist)
    - Tablets, cough syrups, or powders containing Dextromethorphan (e.g., Claritin-D, NyQuil, Theraflu)
    - Tablets containing Diphenhydramine (e.g., Benadryl)
    - Nasal sprays (e.g., Afrin, Neo-Synephrine)
- Motion sickness relievers
    - Containing Dimenhydrinate (e.g., Dramamine, Vomex)
- Sleep Aids
    - Containing Diphenhydramine (e.g., Unisom, Tylenol PM)

- Mouthwash
    - Containing Ethyl Alcohol (e.g., Listerine, Scope)
- Permanent markers (e.g., Sharpie)

Enhances Illegal Drug High

0 = No

1 = Yes – Product is taken to enhance or prolong desired effects of other drug

- Caffeine Supplements
    - Energy drinks (5-hour Energy, Red Bull)
    - Alertness aid tablets (No Doz, Stay Awake)
- Antacids (e.g., Tums, Prevacid)
- Migraine Relievers
    - Tablets (e.g., Excedrin)
    - Headache powders (e.g., Goody's headache powders)
- Cough and Cold Relievers
    - Tablets containing Ephedrine or Pseudoephedrine (e.g., Sudafed)
    - Bronchial inhalers containing Epinephrine (e.g., Primatene Mist)
    - Tablets, cough syrups, or powders containing Dextromethorphan (e.g., Claritin-D, NyQuil, Theraflu)
    - Tablets containing Diphenhydramine (e.g., Benadryl)
    - Nasal sprays (e.g., Afrin, Neo-Synephrine)
- Motion sickness relievers
    - Containing Dimenhydrinate (e.g., Dramamine, Vomex)

- Sleep Aids
    - Containing Diphenhydramine (e.g., Unisom, Tylenol PM)
- Laxatives
    - Any type of laxative in any form (e.g., Dulcolax, Metamucil)
- Weight loss pills
    - Containing lipase inhibitors, such as Orlistat (e.g., Alli)

Reduces Ill-Effects of Drug Use

0 = No

1 = Yes – Product used to reduce drug side effects and/or withdrawal symptoms

- Oral care
    - Cold and mouth sore remedies (e.g., Abreva, Orajel)
    - Temporary tooth filling cement (e.g., Orafil, Dentemp)
    - Mouthwash (e.g., Listerine, Scope)
- Pain relievers
    - All general pain relievers (e.g., Tylenol, Advil, Bayer)
- Eye drops
    - Redness relief drops (e.g., Visine, Clear Eyes)
- Caffeine Supplements
    - Energy drinks (5-hour Energy, Red Bull)
    - Alertness aid tablets (No Doz, Stay Awake)
- Antacids (e.g., Tums, Prevacid)
- Migraine Relievers

- Tablets (e.g., Excedrin)
- Headache powders (e.g., Goody's headache powders)

- Cough and Cold Relievers
  - Tablets containing Ephedrine or Pseudoephedrine (e.g., Sudafed)
  - Bronchial inhalers containing Epinephrine (e.g., Primatene Mist)
  - Tablets or cough syrups containing Dextromethorphan (e.g., Claritin-D, NyQuil)
  - Tablets containing Diphenhydramine (e.g., Benadryl)
  - Nasal sprays (e.g., Afrin, Neo-Synephrine)
- Motion sickness relievers
  - Containing Dimenhydrinate (e.g., Dramamine, Vomex)
- Sleep Aids
  - Containing Diphenhydramine (e.g., Unisom, Tylenol PM)
- Laxatives
  - Tablets or powders (e.g., Dulcolax, Metamucil)

Illegal Drug Ingredient

0 = No

1 = Yes – Product is used as an ingredient or additive to manufacture an illegal drug

- Baby formula
  - In powder form
- Petrol/Gas products
  - Fuel additives

- Camping fuel

- Laxatives
  - In powder form and contain a sugar-based chemical (e.g., Miralax)
- Iodine
- Lithium batteries
- Migraine relievers
  - In powder form (i.e., headache powders)
- Cough and cold medicines
  - Tablets containing Ephedrine or Pseudoephedrine (e.g., Sudafed)
  - In powder form (e.g., Alka Seltzer, Theraflu)
- Antacids
  - In powder form (e.g., Alka Seltzer)
- Pain relievers
  - Tablets containing acetaminophen (e.g., Tylenol, Advil)
- Caffeine tablets (e.g., No Doz)

Illegal Drug Paraphernalia

0 = No

1 = Yes – Product used in the consumption of illegal drugs:

- Cigarette lighters (e.g., Bic)
- Utility knife blades (e.g., Black and Decker)
- Cigars (e.g., Phillies, Black and Mild)
- Tweezers (e.g., store-brand)

- Plastic drink straws (e.g., store brand)

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