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Exploring the Social Trend of Household Computer Ownership in Affecting
the United States 1990's Crime Drop

A thesis

presented to

the faculty of the Department of Criminal Justice and Criminology

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Master of Arts in Criminal Justice and Criminology

by

Alison Bogar

May 2017

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Keywords: Crime Drop, Technology, Computers, Routine Activities Theory, 1990's

ABSTRACT

Exploring the Social Trend of Household Computer Ownership in Affecting
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by

Alison Bogar

During the 1990's the world witnessed a crime drop throughout all categories of crime. Many researchers have sought to seek an explanation for this drop; however, there has been a lack of concrete findings to fully explain this phenomenon. The purpose of this study is to explore a further reasoning as to why this drop occurred, specifically throughout the United States. An unexplored factor to explain this phenomenon is the increase of household computer ownership during the 1990's. During this decade, household computers and the internet became prevalent throughout the nation. This study utilized secondary data from the Uniform Crime Report and the United States Current Population survey, with support from routines activities theory, to answer the research question to find if there was a correlation between household computer use and the crime drop. The results for this study found that there was a positive correlation between household computer ownership, household internet ownership, and all realms of crime. With this, it is important to note that the social trend of household computer ownership is not the only reasoning for this phenomenon.

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CHAPTER 1

INTRODUCTION

In the 1990's, there was a drastic global decline in all categories of crime, also known as the 'unfathomable' crime drop of the decade (Blumstein & Wallman, 2006; Levitt, 2004; Sutton, 2010; Walker, 2014). The crime drop was at first dismissed as criminologists assumed that the crime rates were fluctuating and would return to normal trends (Levitt, 2004; Walker, 2014). Prior to the 1990's, crime rates in the United States witnessed a slight rise, leading experts to believe that there was going to be a spike in crime during the latter portion of the decade (Blumstein & Wallman, 2006; Levitt, 2004). However, and somewhat shocking to researchers, there was sudden decline in crime throughout 1990's. Researchers deemed this drop as the "greatest sustained decline in violent crime since the second world war" (LaFree, 1998).

The crime drop was found to be genuine as it affected all geographic and demographic areas throughout the United States (Levitt, 2004; Walker, 2014). From 1991 to 2001, the Uniform Crime Report (UCR) stated that all categories of crime dropped between 24 and 46 percent with homicide rates reaching their lowest in 35 years, decreasing 43 percent from 1991 until 2001 (Levitt, 2004; Mishra, 2007; Walker, 2014). Additionally, the National Crime Victimization Survey (NCVS) supported these findings by indicating that victimization decreased 45 to 58 percent overall (Mishra, 2007; Walker, 2014). The Northeast region of the United States witnessed the greatest decline in overall crime while the Midwest showed only a slight decline (Levitt, 2004; Mishra, 2007). Furthermore, urban areas witnessed a greater decline in overall crime compared to rural areas (Levitt, 2004).

Researchers found the phenomenon of the crime drop to be both shocking and unexpected (Levitt, 2004; Pope & Pope, 2012); therefore, they further explored the factors

explaining this immediate decline in crime. In order to understand the crime drop, it is important to understand the factors that researchers believe to have led to this decline. Researchers found that the drastic decrease in crime rates included critical factors such as: the shifts in public policy, the legalization of abortion, and the booming economy (Blumstein & Wallman, 2006; Levitt, 2004; Mishra, 2007). Although each factor has an explanation, no one factor can completely explain this multivariate phenomenon.

In terms of public policy, it is posited that an increase in police officers is vital to explaining the decrease of crime rates in the 1990's (Mishra, 2007). During this time period, there was an innovation of police practice with the implementation of new reforms (Blumstein & Wallman, 2006). Police officers changed their strategies for controlling crime and correspondingly focused on repeat offenders, victims, and the potential for places to influence the prevalence and location of offending (Eck & Maguire, 2000). The increase in police officers led to the establishment of community policing in the 1980's (MacDonald, 2002). Community policing saw a push in 1994 through the passage of the Violent Crime Act; however, through empirical testing, the effects of community policing have been found to have mixed results (MacDonald, 2002).

According to Blumstein and Wallman (2006), the relationship between the number of police officers and the number of crimes is yet to be determined. The explanation that policing had a major effect on the crime drop is acknowledged loosely as some policing changes occurred prior to the crime drop and not all American cities experienced an increase in police officers (Ouimet, 2002). Dallas, for example, experienced the crime drop alongside the rest of the nation; however, during this time, Dallas had decreased the number of police officers (Levitt, 2004; Mishra, 2007).

Furthermore, and also in relation to the shift in public policy, many researchers argued that the rising prison population was a factor in the 1990's crime drop due to the removal of criminals from society and through the deterrent impacts associated with it (Levitt, 2004). The United States rates of incarceration were stable from 1920 until 1970 and then experienced a drastic increase (Blumstein & Wallman, 2006). This increase resulted in incarceration rates quadrupling by the year 2000 with an estimated two million individuals incarcerated, most of which occurred during the 1990's (Blumstein & Wallman, 2006; Levitt, 2004).

The increase of incarceration is not necessarily argued to be positive. Blumstein and Wallman (2006) suggest that as imprisonment grows the crime-reduction benefit of each additional prison bed declines. As the incarceration rates increase, the average offending rate of those being sentenced decreases (Blumstein & Wallman, 2006). However, the trends of incarceration rates are not necessarily correlated with a state's crime rates (Ouimet, 2002). Spelman (2000) estimates that for every one percent increase in incarceration, there will be a 0.4 percent decrease in crime, calculating that incarceration explains about 25 percent of the crime drop (Ouimet, 2002). Both increasing police officers and the increase of incarceration are said to attribute to the decline of crime in the 1990's; however, the shift in public policy cannot solely explain the sudden drop (Exk & Maguire, 2000; Levitt, 2004).

Notably, the legalization of abortion has been utilized in explaining the crime drop of the 1990's. For example, researchers found that United States Supreme Courts case, *Roe v. Wade 1973*, dramatically decreased the crime rates (Donohue & Levitt, 2001; Levitt, 2004; Walker, 2014). Prior to the legalization of abortions, women were obligated to give birth if pregnant; resulting in keeping and resenting their unwanted child or seeking abortions through others means (Dagg, 1991). Researchers believed that the legalization of abortion decreased the number

of unwanted children (Donohue & Levitt, 2000). Unwanted children are often at greater risk of crime due to factors such as: lower IQ, low school performance, holding troubled relationships, and behaving inconsistently (David, Dytrych, Matejcek & Schuller, 1988). Thus, the reduction in the number of unwanted births created a reduction in the delinquent cohort size, ultimately reducing the likelihood of crime (Donohue & Levitt, 2001; Levitt, 2004).

Previous studies have suggested that the states that allowed abortion prior to *Roe v. Wade* 1973 experienced a crime drop before the rest of the nation (Donohue & Levitt, 2000; Levitt, 2004). Additionally, the states that were considered high-abortion states, experienced a great decrease in crime compared to the low-abortion states (Levitt, 2004). Joyce (2004) further stated that a “50 percent increase in the mean abortion ratio is associated with an 11 percent decrease in violent crime, an 8 percent decrease in property crime, and a 12 percent decrease in murder” (p. 1). However, as abortion was legal across the United States by 1973, the role played in the 1990s was fairly limited. Donohue and Levitt (2001) calculated that the legalization of abortion accounted for an estimated 25 to 30 percent of the explanation as to why the crime rates decreased in the 1990’s.

Many studies have found the United States witnessed an economic growth in the early 1990’s just as the crimes rates began to decline (Levitt, 2004; Rosenfeld & Fornango, 2007; Rosenfeld & Messner, 2009). The unemployment rate decreased two percent from 6.8 percent in 1991 down to 4.8 percent in 2001 (Levitt, 2004). Researchers predicted that as the legitimate labor market opportunities improve, such as labor opportunity and increased wages, crime is seen as less appealing (Becker, 1968; Mishra, 2007). When the economy expands, conformity becomes more important and rewarding, as the costs of crime are not worth the risks of imprisonment (Rosenfeld & Messner, 2009). When crime is seen as less attractive and necessary,

people will commit fewer criminal acts (Rosenfeld & Messner, 2009). Levitt (2004) argues that although the growth in the economy had an effect on the declining crime rates during the 1990's, it did not have a major impact. He states this is due to the economy affecting crimes that involve direct financial motivation, and would not affect all categories of crime (Levitt, 2004). He further states that an increase in the economy can be associated to an increase levels of both offending and victimization. This is due to the fact that an increase in the economy is correlated with an increase in activities such as: alcohol consumption, frequent nightclubbing, and the rate of society owning a car; thus, there is an ambiguous correlation between economic activity and crime (Levitt, 2004).

Walker (2014) included other factors that improved in the quality of life during this time period. For example, alongside economic growth, there was a decrease in both teen pregnancy and infant mortality (Walker, 2014). It is argued that these subtle but important changes in individuals' behaviors, could too have changed individual criminogenic behavior (Walker, 2014). With an increase in quality of life aides to a decrease in risky behavior; thus, with the 1990's creating an increase in quality of life from previous decades, there was a decrease in risk behavior ultimately aiding to the decrease in crime during this time period (Mishra & Lalumiere, 2009).

Researcher Franklin Zimring (2006) compared and contrasted the great American crime drop to the crime drop of Canada. As Canada shares the same language and similar culture, while holding similar economic relations, this was the most reliable comparative country (Walker, 2014). As the two countries differ in populations, the United States crime rate proved to be much greater than Canadas; however, Zimring (2006) ensured to emphasize this disparity within his research. Zimring (2006) further addressed that a broad view of the social trend should be

addressed. Although Zimring (2006) did not find concrete findings in regards to the crime drop, he concluded that it is integral to utilize comparative data from other countries alongside crime trends with other social indicators to fully understand the drop (Zimring, 2006; Walker, 2014).

In summation, we have yet to fully explain the crime drop, and thus attention to other factors may be useful. Alongside the factors previously mentioned in aiding in the crime drop, Walker (2014) further suggests that factors such as increase incarceration, community policing, and the decline in the use of crack-cocaine could further be in causation to the crime drop. With that being said, the purpose of this research is to evaluate a further explanation to the crime drop by evaluating the use of household computers and internet ownership in influencing the crime drop. Studies in regards to technology and the crime drop have been conducted throughout European countries; however, the topic has yet to be investigated within the United States. This research explains the crime drop of the 1990's and is aimed to further investigate and support justifications as to why this phenomenon occurred during this specific time period; thus, the purpose of this thesis is to investigate the social role of technology in regards to the crime drop of the 1990's throughout the United States.

The crime drop of the 1990's is important to investigate as it was an unexpected global phenomenon. Researchers have explored factors to explain the crime drop; however, researchers and theorists have been unable to fully explain why this phenomenon occurred not only in the United States, but globally. Researchers argue that public policy, the legalization of abortion, and economy could partially explain the crime drop; however, these theories hold little external validity. The researchers inadequately explored these hypotheses as they did not compare their results to other industrialized countries (Farrell, Tilley, Tseloni, & Mailley, 2010). As previously mentioned, without testing results to industrialized countries, the researchers cannot concretely

state that these are the entirety of the reasoning's for the crime drop throughout the world (Zimring, 2006). As there is little external validity, an explanation to fully explain the sudden decrease of crime has yet to be revealed.

Before advancing to the next chapter it is vital to address the research question as well as the hypotheses that were tested within this study. The purpose of this thesis was to understand if the increase in ownership of household computers and internet had an effect on the decrease in crime during the 1990's. This research question was tested through three separate hypothesis (noted in Table 1) that will be further explained in chapter three of this thesis.

Table 1. *Hypotheses*

Hypotheses	Description
Hypothesis One:	the increase in ownership of household computers caused a decrease in crime rates
Hypothesis Two:	the increase in amount of households that have the internet is in causation to a decrease in crime rates.
Hypothesis Three:	Those who have a higher income own more computer devices within their household

The next chapter of this thesis will address prior literature available in regards to the crime drop, the use of household technology, and address a theoretical perspective that is tested to help support the research question. Chapter three will further explain in detail the hypotheses tested, the variables, research design, data, data collection, analysis, limitations, and future research. Moreover, chapter four addresses the results that were found from each hypothesis

tested within this study. Last, chapter five includes a discussion of future research that can be conducted from this thesis with an overall conclusion of this study.

CHAPTER 2

REVIEW OF THE LITERATURE

To date, the dramatic decrease in crime throughout the 1990's has been explained through factors such as shifts in public policy, the legalization of abortion, and the booming economy; however, the crime drop has yet to be explained concretely as these factors cannot completely account for the crime drop. An unstudied phenomenon is the idea of the growth of technology exploding during the same time as the crime drop. The usage of communications media drastically increased, particularly with the commercial use of the *World Wide Web* in 1991 (Computer Science Museum, 2006; Hayward, 2013).

In the 1990's, researchers suggested that the increase in technology would create an increase in acquisitive offences (crimes committed for material gain such as theft and robbery); however, these types of crimes have been found to decrease as the household ownership of electronic goods increased (Cashmore, 2012; Field, 1999). Cashmore (2012) argued that there are multiple possible factors that explain how the increase in technology reduced the crime rates in the 1990's. For example, as the daily routines of society began advancing, the progression of technology advanced and became an important factor of individual's daily lives. Uggen and McElrath (2013) further stated that the location where individuals spend their time has an effect on crime. Individuals became more stagnant as computers became common within households; thus, individuals utilized their free time from their households to enjoy these technological advances (Hayward, 2013). The growing use of technology allowed people to connect online from all over the world, a changing way of communication from the past (Uggen & McElrath, 2013). This alteration in communication further alters economic life, social life, and the risks and rewards of criminal behavior (Kraut et al., 1998; Uggen and McElrath, 2013). From the comfort

of one's home, technology allowed individuals to decrease their boredom levels, obtain quick and easy availability to the media, have online communities, and work from home. How people spend their time influences the risk of both victimization and offending. The physical and social environment that one surrounds themselves with either creates or limits criminal opportunity (Felson, 2007). It is further important to address the development in the use of technology as computers and internet had a social role in the crime drop.

Computer Development

To effectively evaluate the effects of technology on the crime drop, the growth of computers within United States resident's households must be addressed. The first idea of a computer was developed in 1937 at Harvard University by Howard Aiken (Cohen, 2000). This computer was similar to a mechanical calculator called the MARK I which held a number of switches, mechanical relays and cards. Although this was not a typical computer, Aikens machine was pivotal as it inaugurated the computer age (Cohen, 2000).

The introduction of modern computers began in 1945 starting of the first of five generations of computers with the fifth generation being within the future. During this generation, the first large scale computer was built at the University of Pennsylvania by Dr. Eckert and Dr. Mauchly (Mixdorf & Goldsworthy, 1996; Rosen, 1969). This model was called the Electronic Numerical Integrator and Calculator (ENIAC) and was not purposed to be a stored program computer (Mixdorf & Goldsworthy, 1996). For this device, programs were "installed and changed by engineers who changed the wiring among its various components" (Rosen, 1969, p. 8). These types of computers utilized vacuum tubes and did not hold any software (Denning, 1971). In 1945, a draft of a report proposed a new computer called the Electronic Discrete Variable Computer (EDVAC) which was purposed to be the first stored program computer.

The second generation of computers began in 1956 and ended in 1963 and was characterized by the transistorized computers (Rosen, 1969). This period transitioned out of vacuum tubes and moved towards transistors (Rosen, 1969). During this time in 1952, a product that was years ahead of other computer developers, called Remington Rand, was launched into the computer field (Cotrada, 2000; Rosen, 1969). The computers became smaller and were significantly faster than once before. IBM 650 was further launched during this generation and created a trend for business. These computer types were business oriented, expensive, and ran at a medium speed (Rosen, 1969). During this time, computer languages was further developed such as the algorithmic language (ALGOL), which defined a set of valid instructions for the computer to be able to think for itself.

Furthermore, the third generation of computers started in 1963 and finished in 1971. The transition from second generation computers to third generation computers was not as drastic as the transition from first generation computers to second generation computers (Rosen, 1969). The distinction from second to third generation computers comes from the manufacturers and eliminations of utilized transistors, while the third generation utilized integrated circuits (Denning, 1971). The computer machine had higher level languages creating a greater independence of the machine. Computers were slowly becoming quicker, smaller, and less expensive; however, during this point in time, computers were still limited to science, engineering, and businesses (Denning, 1971).

The fourth generation of computers began in 1971 and continues to date, holding the greatest amount of changes thus far. Computer developers were able to find a solution to allow millions of transistors to be on a single chip resulting in a fast random access to the memory

(Bell, 2008). This generation was deemed the breaking point of computer technology as the *MOS* and *CMOS IC's* eliminated the earlier, slower moving technologies (Bell, 2008).

The thriving economy of the 1990's gave society the opportunity to improve their lifestyles including generating the ability to afford fourth generation computers. As previously stated, prior to the 1990's, computers were limited to science, engineering and business; however, with the thriving economy at the time, the growth of social communications within the home, such as the internet, also began to thrive (Jorgenson, 2001; Kraut et al., 1998; Pastor-Satorras & Vespignani, 2007). During this time period, computers started becoming a household social norm. Compared to the first ENIAC, computers were now 36,000 times faster, 0.00003333 percent of the size, had a memory capacity that was 1000 to 5000 times larger and cost about 0.00003333 percent of the price (Berndt & Rappaport, 2001). The cost of a household computer in the beginning of the 1990's held to be about \$1,500. As computers moved through generations, the cost decreased while the performance of the product continued to increase (Bell, 2008); however, the more economically stable a household, the greater likelihood that household will have personal home computers and internet access (File, 2013; Newburger, 2001). Nevertheless, there has been an increasing affordability for some of these goods. The increase in communication technology alongside the booming economy and the internet, created an increase of the availability for society to purchase technological devices. The combination of these factors ensured that the prevalence of technological use within homes would steadily increase.

In 1990, the internet was commercially opened to households worldwide through *The World* and in 1991, the popular *World Wide Web* was released (Zakon, 1997). In 1994, communities began to be directly hooked up to the internet allowing the internet to be prevalent in households (Zakon, 1997). During this time, there was a shift in society as products were now

available for order through the household computer. Everyday life saw change with the growth of technology. Without having to leave their personal location, products such as clothing and food services could be delivered to the household and individuals could access chat rooms where they could talk to others from all over the world (Zakon, 1997). This need for the internet caused millions of people to obtain electronic devices in order to allow them connect to other hosts worldwide (Jorgenson, 2001; Kraut et al., 1998; Pastor-Satorras & Vespignani, 2007).

Qualman (2009) stated that it took the radio 38 years, television 12 years, and the internet four years to reach an audience size of 50 million people. In 1989, the internet had 130,000 hosts and 3,900 domains with only 15 percent of households having a personal computer with no access to home internet (File, 2013; File & Ryan, 2014; Newburger, 2001; Zakon, 1997). By 1997, the internet held 19,540,000 hosts and 1,301,000 domains with 36 percent of United States citizens owning a personal computer and 18 percent of those having internet access (File, 2013; File & Ryan, 2014; Newburger, 2001; Zakon, 1997). In 1991, 31 countries used the *World Wide Web* and six years later, in 1997, 171 countries were in use of the *World Wide Web* (Zakon, 1997). The purpose of this chapter is to provide a general understanding of the empirical studies that are relevant to this thesis.

Previous Studies

Prior to the crime drop, a study conducted within the United States researched the volume of leisure activities within the household and the relations with crime and compared those relations to leisure activities away from the household and the association with crime (Messner & Blau, 1987). Messner and Blau (1987) based this research off the premise of “a symbiotic relationship between legal and illegal activities, namely, that the nature and volume of criminal activity will reflect the structure of the normal, routine activities in which people are engaged”

(p. 1035). Although this study was conducted before the household normality of computer and internet devices, the study focuses on routines such as television watching within the household and crime rates. The research hypothesized that “activities such as television viewing should reduce the risk of criminal victimization, whereas participation in activities outside of the household – notably in prevalent cultural activities, including attendance at sports events and cinemas – should increase the risk of victimization” (Messner & Bleu, 1987, p. 1037). There is a correlation between crime rates and victimization rates. When criminal victimization increases, crime rates increase and while criminal victimization decreases, crime rates decrease as well (Lauritsen & Rezey, 2013). This study concluded that leisure activities that are conducted around or within the household reduced levels of crime where leisure activities that were away from the household was conducive to higher rates of criminal victimization (Messner & Bleu, 1987).

The idea of media entertainment reducing crime in the 1990’s was first developed by Jordan Cashmore (2013) in the United Kingdom. One year later, a consecutive study investigated the same subject through a theory called ‘edgework’ (Hayward, 2013). These researchers attempted to understand if the advancement in media became a “substitute and a distraction from committing real life crime” (Hayward, 2013, p. 1) and well as to “bring criminology a small step closer to fully examining the possibility of positive, crime-preventing effects of home-based entertainment and communication technologies (Cashmore, 2012, p. 3). The researchers both utilized statistics from the British Crime Survey as well as independent research to understand the ownership and use of leisure communications technology.

Cashmore (2012) utilized routines activities theory to hypothesize the answer to the crime drop. He suggested that the answer could be found through new activities that alter societies routines that were occurring at this point in time, such as inventions and technologies. Hayward

(2013) agreed in that the growth in technology has given society a distraction from committing crime through new human activity and/or invention. As previously stated, the alteration in communication through household media usage alters economic life, social life, and risks and rewards of criminal behavior (Kraut et al., 1998; Uggen & McElrath, 2013). Cashmore (2012) stated that the popularity that computer and internet use brought to the 1990's met the routine altering requirements that routine activities theory entails.

On the contrary, Hayward (2013) explored this phenomenon through what he called 'edgework'. Edgework is explained as "the negotiation of two extreme and opposing boundaries" (Hayward, 2013, p. 5). In other words, perusing voluntary and substantial personal risk in order to achieve ones needs for an ordered existence through excitement and thrills, such as technology (Hayward, 2013). From his studies, Hayward (2013) concluded that:

crime drops, such as the fifteen-year crime drop, happens when crime substituting activities, such as entertainment and communication media, advance. In such situations, people are given alternate, legal and affordable ways in to which fulfill their natural 'edgework' needs. This serves both a substitute and distraction from taking part in criminal 'edgework'.

Hayward (2013) concluded that entertainment and technology provided the same exhilarating 'edgework' experience as crime. Although the advancement of technology does not provide a concrete cause in the crime drop during this time period, it brings forth another plausible explanation on why this crime drop occurred within the United Kingdom.

A Theoretical Perspective

The use of criminological theories can further assist in explaining why crime rates decreased dramatically through the 1990's. Cohen and Felson's (1979) routine activities theory

supports the idea that the home use of technology aided in the decrease of crime during the 1990's. With this, it is important to address that this thesis is not a test of routine activities theory; this thesis aims to utilize routine activities theory to support the research question.

Routine activities theory is categorized as an opportunity theory and is one of the more popular theories known within criminal justice (Lilly, Cullen, & Ball, 2014). Opportunity theories suggest that crime is committed due to an opportunity being present within the physical environment of the offender (Wilcox, Land, & Hunt, 2003). Opportunities assist in shaping what choices offenders make, such as where and when to commit a crime (Lilly, Cullen, & Ball, 2014). When the opportunity and choice to commit crime is taken away from an individual, they will not commit the crime (Lilly, Cullen, & Ball, 2014). For example, Messner and Blau (1987) state that indoor activities, such as television watching, should reduce the risk of criminal victimization as this activity transpires within a household. Opportunity theorists stress that crime emerges from the routines that individuals follow within their daily lives (Lilly, Cullen & Ball, 2014). When these routines are altered in a way that minimizes opportunity, crime will not be committed.

Cohen and Felson (1979) argue that the chemistry for crime requires three necessary ingredients. These three ingredients include a suitable target, a motivated offender, and the absence of a capable guardian. With routine activities, Felson (1998) further states that the three ingredients stated must all converge in time and space. Lily, Cullen, and Ball (2015) state that the major determinant of this convergence was the routine activities of individuals in society. It is suggested that crime is influenced by the opportunities presented by the routine activities of daily life (Osgood, Wilson, O'Malley, Bachman, & Johnston, 1996); thus, structural changes in society will affect these three factors (Cohen & Felson, 1979). Felson and Boba (2010) explained

routines activities theory as “a theory of how crime changes in response to larger shifts in society. The key to such change is the technology of everyday life. This organizes where we are, what we do, and what happens to us. That technology governs how crime carves its niche into everyday life” (p. 518). As technology advances and becomes more prevalent, individuals daily routines will change; thus, causing an effect on crime through the structuring of offenders, targets and guardianship (Hayward, 2013).

The introduction and explosion of technology in households during the 1990’s created a shift in routine activities. Technology became prominent in society, taking up significant portions of individuals time (Hayward, 2013). Research has found that there is a statistically significant relationship with household activity and crime rates; household activities, including technological related activities, entail lower risk of criminal victimization compared to non-household activities (Cohen & Felson, 1979; Messner & Blau, 1987).

Suitable Targets

The first ingredient of routine activities theory includes the suitable target. Technology becoming prevalent within United States households created a decrease in the availability of potential suitable targets (Cashmore, 2012). Technology shifted individual daily routine activities through the change of location for personal targets in visible and accessible places at particular times. This created a causation for the extraction of victimization from the routines activity equation (Cohen & Felson, 1979). Victimization has been found to be lower for those who are less active and leave the home less often. As mentioned previously, victimization is also lower with those who take part in household activities (Cohen & Felson, 1979).

Household and family activities create a lower risk of criminal victimization, as spending more time within a household creates less probability of victimization in the outside world

(Cohen & Felson, 1979). As individuals are spending more time indoors, their chance of becoming a target of all categories of crime lessens (Cohen & Felson, 1979). The advancements in technologies have allowed mundane work to be done from anywhere (Miller, 2010).

Individuals became exposed to being able to work from home, shop from home, and easily communicate with others around the world from home; the likelihood of leaving the house decreased. Victimization rates are found to be lower of those who stay around the house more, and with the increase in individuals working from home, the crime rates would inevitably drop.

Moreover, with the growth of the internet the media was given the opportunity to further manipulate and fuel public fears in regards to crime (Cashmore, 2012; Eschholz, Chiricos, & Gertz, 2003; Jewkes, 2015). Media, through online advertisements, often exaggerate the risk of victimization and lack realism, causing an unnecessary fear of crime for viewers (Cashmore, 2012; Eschholz, Chiricos, & Gertz, 2003). Fear of crime instilled in individuals caused by the media results in a 'fear of crime cycle' (Cashmore, 2012). Individuals first tune into the media, they are then exposed to the exaggeration of crime prevalence amplifying fear, and last they remain indoors to avoid victimization that they believe will happen due to not only watching the media but reading the media through technological devices as well (Cashmore, 2012). When individuals alter their routine activity to avoid victimization by staying indoors more, they return to exposing themselves to an increased amount of media, restarting the cycle (Cashmore, 2012; Goodstein & Shotland, 1982). The 'fear of crime' cycle caused individuals to displace themselves from the public, more so than they did prior to technology, to reduce their risk of being a suitable target (Cashmore 2012; Jewkes, 2015). With the reduction of "on-street convergence", potential victims isolate themselves from motivated offenders, ultimately reducing crime (Cashmore, 2012).

Motivated Offender

A further argument to explain the crime drop through routine activities theory addresses the changes in regards to the offender. Cohen and Felson (1979) state that in order for crime to occur, a person must have the inclination to offend. Technology, specifically as it related to computers, became available to many homeowners by the 1990's; thus, technology became prominent in society and began taking up significant portions of our time (Hayward, 2012). The time that could be spend on the street offending, began being captured by technology (Hayward, 2012; Sutton, 2010). With this, there became a limited opportunity to break the law. With limited opportunity to break the law, there was a decrease in the likelihood of offenders taking advantage of the opportunity of crime (Cloward, 1959; Cullen, 1984).

Furthermore, researchers state that individuals often turn to crime due to boredom (Farnworth, 1998; Ferrell, 2004; Patterson and Pegg, 1999). With the lack of excitement in daily activities, people turn to crime to fulfill their time (Ferrell, 2004). With the entertainment that technology produces, people fill their spare time with the entertainments the technology of the 1990's created, instead of out in society committing crimes (Hayward, 2012). Technology increases daily excitement for all ages through internet, television, and computer gaming (Cashmore, 2012); therefore, the lack of excitement in daily life was minimized. This further reduced the likelihood that delinquents would commit crimes out of boredom (Freeman, 1996; Hayward, 2013). The delinquents who feel the need to commit crime can now experience the thrill of crime through computer and internet games that mimic crime in real life (Hayward, 2012). These individuals who feel the need to commit crime for the thrill were exposed to the thrill and exhilaration of criminal activity in the virtual world, without actually committing a crime, from the comfort of their own household (Cashmore, 2012; Hayward, 2012). With

individuals turning to technology instead of crime, crime rates decreased due to entertainment (Sutton, Griffiths, & Wall, 2012).

Capable Guardian

Additionally, the increase in household computer use improved guardianship as individuals devoted their time to their technology. Cohen and Felson (1979) expect “routine activities performed within or near the home and among family or other primary groups to entail lower risk of criminal victimization because they enhance guardianship capabilities” (p. 594). Researchers argue that the increase in technology may increase the amount of property crime committed as there are now an increased number valuables to be stolen; however, robbery decreased by 22 percent throughout the 1990’s while burglary decreased by 38 percent (Ouimet, 2002). Notably, those who use the internet more frequently are found to spend more time in face-to-face interactions with their family (Kraut et al., 1998). When individuals spend more time at home, they are adding a guardian to not only themselves, but their house and property, decreasing the likelihood that their property will become the target of a motivated offender.

Furthermore, when youths increased their time spent on entertainment devices at home, they decreased their time engaging in unstructured socialized settings with peers without a capable guardian. Thus, the greater amount of time spent engaging in unstructured socializes setting with their peers, created a higher likelihood of deviance as there was no capable guardian to deter criminal activity (Osgood, Wilson, Bachman, O’Malley, & Johnston, 1996). For youths, spending time with peers may increase the potential for deviance, as the opportunity for deviance is presented more often (Osgood et al., 1996). With youths spending decreased time in presence of a capable guardian such as their parents, house alarms, or technology, their likelihood of

engaging in criminal activity or being the victim of criminal activity drastically decreases (Osgood et al., 1996).

The shift in the structure of routine activities, due to technology, decreased the probability that motivated offenders will converge with suitable targets in the absence of capable guardians, contributing to the significant crime drop in the 1990's. The progression of technology modifies crime involvement by altering the daily routines of individuals, affecting who does what, when, where, and how (Cashmore, 2012; Felson & Boba, 2013). As Cohen and Felson (1979) found, routine activities is highly important, as opportunity must be present for illegal activities to occur. The leisure that technology has brought to the household created reasoning for individuals to spend increased time indoors. With the lack of even one of these critical elements for crime, the completion of successful crimes will decrease, highlighting the importance of technological advances on changing daily routines. The increase in a capable guardian from the time spent at home due to technological advances resulted in the decrease of suitable targets and motivated offenders; therefore, linking the use of technology with the decline in victimization and crime (Cohen & Felson, 1979).

Macro Level Routine Activity

As this thesis uses routine activities as support for the research question, it is important to explain the relations of routine activities theory at a macro-level standpoint. Multiple studies haven given validity to utilizing routine activities at the macro-level (Bennett, 1991; Copes, 1999; Messner & Blau, 1987). Researchers Messner and Blau (1987) applied routine activities in studying the relationship between the macro-level indicators of leisure activity to the rates of crime. They hypothesized that the “volume of household leisure activities is predicted to be *negatively* related to the rates of crime” (Messner & Blau, 1987, p. 1037). For this study, these

researchers measured metropolitan areas as the unit of analysis. National data stating television audience size was utilized from the A. C. Nielsen Company, nonhousehold leisure activities was sampled from the 1977 Census for Selected Services, and crime rates per 100,000 population was taken from the Uniform Crime Report (Messner & Blau, 1987). This study concluded that routine activities theory implies “certain propositions about the relations between the locus of activities, including leisure activities, and risks of criminal victimization” (Messner & Blau, 1987, p. 1037) and that the routine activities perspectives on leisure “can indeed be profitably applied to the explanation of aggregate rates of crime” (Messner & Blau, 1987, p. 1047).

Bennet (1991) further conducted a macro-level study testing routine activities theory to understand the efficacy of the theory in regards to explaining the risk of crime. The study investigates four main concepts including investigating a model that is rarely researched where “the effect of structural change on crime rates is investigated while assuming the mediating or intervening effect on routines activities” (Bennett, 1991, p. 148) and investigated “the relative and simultaneous effects of the routine activity approach’s central concepts” (Bennett, 1991, p. 148). The research was conducted across a sample of 52 countries over a 25 year time period. The researcher the Correlates of Crime (COC) archive to utilize offense data, which included personal and property crime. The variable personal crime rate was measured by the amount of murders or the number of purposeful taking of another humans life. Property crime was measured by “the number of acts involving the intentional and unlawful removal of property belonging to another person with dangerous aggravating circumstances” (Bennet, 1991, p. 151). This study suggests that for an explanatory tool in the micro-level realm, routine activity theory is most appropriate when particular characteristics are defined, such as: target attractiveness, target accessibility, motivation, proximity, and guardianship (Bennet, 1991).

Overall, Cohen and Felsons (1979) routines activities theory assists in explaining why crime decreased during the 1990's. Instead of addressing why individuals commit crime, these theorists evaluate why crime was not committed. The opportunity for crime to be committed was minimized through the daily routine activities of individuals within society. When the three components are present at the same time, the likelihood for crime is enhanced (Messner & Blau, 1987); thus, with society spending a greater amount of their time indoors on their household technological devices, there were less motivated offenders, less suitable targets, and a constant capable guardian.

The Present Study

This thesis aims to fill the gap in current literature as to why the crime drop occurred throughout the 1990's. This study utilized previous literature to find a further reasoning as to why this drop transpired. The research question for this particular study is as followed:

Research Question: Did the increase in ownership of household computers and the internet had an effect of the decrease of crime during the 1990's?

To date, there have not been any previous studies conducted within the United States that have assessed the influence of household computers on the crime drop. The results of this study may attribute answers as to why this phenomenon occurred and how it changed society immensely.

Conclusion

The literature review served to provide a background on the research that has been conducted on the current topic. This chapter discussed how technology developed and where it stands throughout the decade of the 1990's. In addition to this, the existing literature describing the use of media technology and crime rates throughout the United Kingdom was discussed.

Finally, this chapter discussed routines activities theory in support to the research question that is asked throughout the theses including the breakdown of the theory and an application to a macro level viewpoint. To conclude the literature review as well as the present study was briefly discussed.

The following chapter of this thesis addressed the methodology of how the study was conducted. Included within the methodology holds: the hypotheses in question, the variables that will be utilized, the research design, the data, data collection and analysis. Chapter three further included the limitations that this thesis withheld as well as the future research that would be important to conduct after the findings of this thesis. Chapter four discussed the findings to each hypotheses under the research questions. The final chapter provided possibilities for future research that could be associated with the study and gave an overall conclusion of the thesis.

CHAPTER 3

METHODOLOGY

The purpose of the current research is to explore whether the use of household computers and the internet had an effect on the crime drop during the 1990's. Few studies have taken this approach; thus, it is important to investigate. The initial section will provide an overview of the study hypotheses, which will be followed by a discussion of the various measured employed in the analysis.

Hypotheses

As previously stated, the research question that this thesis is aiming to explore is if the increased ownership of household computers alongside the internet was in causation to the crime drop during the decade of the 1990's. To fully evaluate the research question, multiple

hypotheses were tested. The hypotheses in question are as followed:

Hypothesis One: the increase in ownership of household computers caused a decrease in crime rates

Hypothesis one is important to evaluate as it broadly assesses the primary emphasis of the research. Testing if the ownership of technology had an effect on crime rate will give a brief understanding of the research questions addressing if the social role of technology had an effect on the United States crime drop.

Hypothesis Two: the increase in amount of households that have the internet is in causation to a decrease in crime rates.

Alike hypothesis one, hypothesis two supports the primary emphasis of the research. As household computers became prevalent, the use of the internet at home became common as well. Thus, it is integral to test if households had internet alongside if they owned a computer. Testing

if internet had an effect on the crime rate would further give support to the overall research question.

Hypothesis Three: Those who have a higher income own more computer devices within their household

This hypothesis helped understand if income had an effect on who owns a computer within their house. This hypothesis gave the researcher a greater understanding of the possible status of those who own technology and how this may further affect crime rates. It is suggested that those of lower socioeconomic status commit more crime than those of a higher socioeconomic status (Patterson, 1991); thus, this hypothesis tests if a lower income group is likely to commit more crime than their wealthier counterpart due less computer availability.

Data and Data Collection

For this thesis, secondary data from two agencies were utilized to address the research questions under analysis. The sources for this research included data from the Uniform Crime Report (UCR) and the National Telecommunications and Information Administration (NTIA). The subsequent section describes each dataset in detail. To answer the research question, the information from the datasets were computed and transferred into a newly created dataset. The national average of crime was taken from the Uniform Crime Report while the variables needed for the study were taken from the National Telecommunication and Information Administrations Current Population Survey. This new dataset was created so that the variables needed could be computed and easily found.

Uniform Crime Report

The first dataset utilized was the Federal Bureau of Investigations (FBI) Uniform Crime Report (UCR). The UCR is a national based report that utilizes crime data that participating law

enforcement agencies collect through their specific UCR programs. The UCR was created in the 1920's by the International Association of Chiefs of Police (IACP) and was purposed to be the most comprehensive analysis of both violent crime and property crime (Federal Bureau of Investigations, 2006). With a grant received in 1927, an advisory group, including Bureau Director J. Edgar Hoover, for the UCR was formed (Federal Bureau of Investigations, 2006). Their purpose was to work out the details of an essential crime statistics program. On June 11th, 1930, Congress authorized the Bureau to officially collect, compile, and distribute crime records. The first report was published in September of that same year, utilizing the statistics from the month of August (Federal Bureau of Investigations, 2006).

The objective of the UCR is to generate a reliable set of criminal statistics and it has become one of the country's leading social indicators for crime (Federal Bureau of Investigations, 2001). The UCR holds a series of statistical crime reports and investigations from the years 1985 until the current year (Federal Bureau of Investigations, 1996). The statistical report collects arrest data monthly from participating state and local law enforcement agencies (Snyder, 2011). The monthly reports include citations and summons for criminal acts that fall within several different offence categories (Snyder, 2011). The Bureau of Justice Statistics (BJS) has further established an online data access tool. This tool enables the public to generate graphs and tables of United States national criminal trends from the years 1960 until present (Snyder, 2011).

The UCR divides offenses into part one and part two crimes. Part one crimes are offenses cleared by arrest or exceptional means while part two offenses only include arrest data (Federal Bureau of Investigation, 2017). Part one offenses includes: criminal homicide, forcible rape, robbery, aggravated assault, burglary, larceny, motor vehicle theft, and arson. On the contrary,

part two offenses include: other assaults (simple), forgery and counterfeiting, fraud, embezzlement, stolen property, vandalism, weapons, prostitution, sex offenses, drug abuse violations, gambling, offenses against family and children, driving under the influence, liquor laws, drunkenness, disorderly conduct, vagrancy, suspicion, curfew and loitering laws, runaways, and all other offenses (Federal Bureau of Investigation, 2017).

For this study, UCR *Crime in the United States* data from 1990 to 2000 was used. The *Crime in the United States* is an annual publication registry that includes rate of both violent crime and property crime. The crime index in offenses reported is utilized during this research. The crime index allows the researcher to gauge fluctuations in the overall volume and rate of reported crime from 1990 through the year 2000 (Federal Bureau of Investigations, 2001). The datasets utilized from the *Crime in the United States* was the ‘Uniform Crime Reporting Program Data [United States]: Arrests by Age, Sex, and Race, Summarized Yearly’ for the years: 1994, 1997, 1998, and 2000.

The unit of analysis in this dataset is arrests. The data was collected through law enforcement agencies submitting data on a monthly base. The data was then compiled into annual files, published in annual reports, and posted publically. The sample included the United States population in the year 1990 which included a total of 249,464,396 individuals. A total of 14,475,613 offenders were further utilized as this sample includes the total violent crime and the total property crime. The sample utilized in the year 2000 included 281,421,906 individuals. Of this total sample, 11,608,070 offenders were further used as this sample includes the total number of violent crimes and property crimes committed during the year 2000. This data provides crime rates throughout the years so we can discover if household technology devices had an effect on the crime rate.

National Telecommunications and Information Administration

The National Telecommunications and Information Administration (NTIA) falls under the United States Department of Commerce. The NTIA datasets are public datasets based on the United States Census Bureau's Current Population Survey. The dataset includes survey data for 57,000 households that contain 134,000 persons. The datasets provide statistically reliable information in regards to information technologies.

The Current Population Survey (CPS), in which the NTIA collects the information for the datasets, falls under the United States Census Bureau. The CPS indicates computer and internet usage from 1990 through until 2000. In order to be eligible to participate in the CPS, individuals must be at least fifteen years in age and not in the Armed Forces or in institutions, such as correctional institutions or nursing homes (United States Census Bureau, 2006). The CPS includes regular labor force questions such as income, employment, and veteran status as well as diverse topics such as computer use and voting patterns (United States Census Bureau, 2006). The United States Census Bureau began collecting data on computers and Internet use since 1984; however, questions in regards to Internet access were asked for the first time in 1997.

The CPS is administered by the Census Bureau using a probability selected sample of about 60,000 occupied households from all fifty states and the District of Columbia (United States Census Bureau, 2006). The sampling method follows what the United States Census Bureau (2006) labels a 4-8-4 scheme. The sampled households are in the sample for a period of four months, out of the sample for a period of eight months, and return into the survey for a further four months (United States Census Bureau, 2006). This sampling method allows constant replenishment of the sample without excessive burden to respondents (United States Census Bureau, 2006).

The fieldwork of the interviews and questionnaires are conducted during the calendar week that includes the date of the 19th during the month; therefore, the questionnaire administered refers to activities during the week of the 12th of the month (United States Census Bureau, 2006). The CPS questionnaire is a computerized document administered by the United States Census Bureau (2006) field representatives through personal and telephone interviews (United States Census Bureau, 2006). Within two weeks of the interviews completion, the Bureau of Labor Statistics released the results.

In 1994, the CPS was redesigned in hopes for enhanced accuracy (United States Census Bureau, 2006). The questions became shorter and clearer. They were designed for a computer-assisted interview (United States Census Bureau, 2006). A computer-assisted personal interviewing (CAPI) was used for 18 percent of sample households (United States Census Bureau, 2006). The CAPI allowed the interviewers to ask the survey questions as they appeared directly on the computer screen, and they would type the respondent's answers directly into the computer system reducing the probability that incorrect answers would be given (United States Census Bureau, 2006). Computer and Internet use were asked from the months of: November 1994; October 1997; December 1998; August 2000; and September 2001. From the NTIA's CPS, the data from the months of: November 1994, October 1997, December 1998, and August 2000 will be utilized.

Variables

Dependent

The current study investigated how crime rates were affected through computer use during the 1990's within the United States. This study was conducted using two main dependent variables. Dependent variables are assumed to have a relationship with the independent variable

under analysis. The dependent variables utilized in this study were crime rates and number of computers owned. The operationalization of the variables can be located on Table 2.

The first dependent variable assessed crime rate. As the Uniform Crime Report focuses on violent crime rate and property crime rate, these variables were utilized. This variable was measured numerically and for this thesis, the national total count for these crimes were computed and utilized. For this thesis, crime rates were broken down into three crime-related variables: total crime rates, violent crime rates, and property crime rates. The UCR (2000) defines violent crime as “involving force or threat of force” and includes murder, forcible rape, robbery rate, and aggravated assault rate. Under property crime the UCR includes: burglary, larceny-theft, and motor vehicle theft. A definition of these variables and attributes may be found in Table 3. Definitions are important to discuss as the researcher is focusing on the years 1990 to 2003. These definitions have developed over time and it is important to fully understand what is being investigated during these particular years.

Due to the nature of this study, the number of computer devices were also utilized. The number of computer devices were pulled from the National Telecommunication and Administration Information’s Current Population Survey. This variable asked ‘How many computers are there in this household’. This variable is interval level and was measured by: one computer, two computers, or three or more computers per household. Recoding was required for this variable. For this variable, coding for 0 was not an option as this question only includes those who have confirmed to owning a computer prior in the questionnaire; thus, zero is an inadequate answer. This variable was recoded with the value of (1) representing one computer, (2) representing two computers, and (3) representing three or more computers within the household.

Table 2. *Dependant Variable Operationalization*

Variable	Description
Total Crime	All recorded crime including: property crime and violent crime
Property Crime	Includes the offenses of burglary, larceny-theft, motor vehicle theft, and arson. The object of the theft-type offenses is the taking of money or property, but there is no force or threat of force against the victims. Arson is included since it involves the destruction of property; its victims may be subjected to force.
Violent Crime	crime involving force or threat of force
Number of Computers	The total number of computer devices that are in the household

Table 3. *UCR Crime Index Definitions*

Crime	UCR Definition
Violent	includes: murder, forcible rape, robbery, and aggravated assault
Murder	“the willful (nonnegligent) killing of one human being by another”
Forcible Rape	“the carnal knowledge of a female forcibly and against her will. Assaults or attempts to commit rape by force or threat of force are also included; however, statutory rape (without force) and other sex offenses are excluded”
Robbery	“the taking or attempting to take anything of value from the care, custody, or control of a person or persons by force or threat of force or violence and/or by putting the victim in fear.”
Aggravated Assault	“an unlawful attack by one person upon another for the purpose of inflicting severe or aggravated bodily injury. This type of assault is usually accompanied by the use of a weapon or by means likely to produce death or great bodily harm. Attempts are included since it is not necessary that an injury result when a gun, knife, or other weapon is used which could and probably would result in serious personal injury if the crime were successfully completed”.
Property Crime	includes: burglary, larceny-theft, and motor vehicle theft
Burglary	“the unlawful entry of a structure to commit a felony or theft. The use of force to gain entry is not required to classify an offense as burglary”
Larceny-Theft	“the unlawful taking, carrying, leading, or riding away of property from the possession or constructive possession of another. It includes crimes such as shoplifting, pocket-picking, purse-snatching, thefts from motor vehicles, thefts of motor vehicle parts and accessories, bicycle thefts, etc., in which no use of force, violence, or fraud occurs”
Motor Vehicle Theft	the theft or attempted theft of a motor vehicle, this offense category includes the stealing of automobiles, trucks, buses, motorcycles, motor scooters, snowmobiles, etc.

Retrieved from: <https://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2000/00sec2.pdf>

Independent Variable

With the concentration of the research, three independent variables were utilized. Literature has stated that there was a drastic crime drop throughout the decade of the nineties, during the same time that both computers and the internet began to become prevalent within household. Due to the gap in research in further explanations of the crime drop, technology ownership, as well as annual household income were chosen as the main independent variables for this thesis.

The first independent variable assessed was the overall technology ownership. The variable used to understand the ownership of technology is household computer ownership. This question was asked as 'Is there a computer in this household'. This variable is answered with a yes or no response. In the dataset, the variable was recoded as (0) representing no, and (1) representing yes. The variable was further recoded to account for missing data. Without accounting for the missing data, the data, once ran, would have been skewed. Therefore, it was important to account for the missing data in order to create the strength of the validity for this research.

Further, the independent variable utilized for hypothesis two was household internet ownership. Beginning in the year 1997, the question of having internet in the household was asked within the Current Population Survey and was stated as 'does anyone in this household use the internet from home'? This variable is dichotomous as well as it requires a yes or no response; thus, the variable household internet ownership was coded as (0) representing no, and (1) representing yes. Alike the data for the variable technology ownership, this variable was recoded to account for the missing data for increased validity.

Due to the nature of the research, the final independent variable utilized was annual

income. The data for this hypothesis was pulled from the National Telecommunication and Administration Information Current Population Survey. For this variable, the years utilized were 1997 and 1998. Annual income is measured via intervals and accounts for total household income. Income is measured via the following categories: (1) > \$5,000, (2) \$5,000 to \$7,499, (3) \$7,500 to \$9,999, (4) \$10,000 to \$12,499, (5) \$12,500 to \$14,999, (6) \$15,000 to \$19,999, (7) \$20,000 to \$24,999, (8) \$25,000 to \$29,999, (9) \$30,000 to \$34,999, (10) \$35,000 to \$39,999, (11) \$40,000 to \$49,999, (12) \$50,000 to \$59,999, (13) \$60,000 to \$74,999, (14) and \$75,000 and above. The respondent is required to choose the answer that best represents their total household income in dollars. This variable was recoded to eliminate the missing data.

Table 4. *Independent Variable Operationalization*

Variable	Description
Ownership of Household Computers	Whether or not the household owns a computer during the time of the survey
Ownership of Household Internet	Whether or not the household had internet during the time of the survey
Income	Combined income of all family members during the last 12 months. Includes money from jobs, net income from business, farm or rent, pensions, dividends, interest, social security payments and any other money income received by family members who are 15 years in age or older

Research Design

The purpose of this research is to introduce and explain a further factor in causation for the crime drop of the 1990's. The research explains the crime drop of the 1990's and the purpose is to further answer why the decrease occurred. The study is a macro-level investigation into the

problem focusing on crime rates and individual household technology ownership and usage. This study is a longitudinal study that examines changes within a population over time. This research, in particular, was conducted with multiple follow up times that were measured in years (Babbie, 2015). These changes within the population being studied include crime rates, computer ownership, and internet ownership. Longitudinal studies yield multiple measurements on each variable which is done by year for this study (Diggle, 2002). This model was best utilized as a single outcome was measured for each individual or in regards to this thesis, crime rate during a particular year (Diggle, 2002).

This study falls under a quasi-experimental design as the data lacks a control group, pretest, and posttest. The time series design involves measurements taken over time (Babbie, 2015). The study looked at crime rates beginning from 1990 and ending in 2003. The independent variable of computer use was implemented in 1994, as that was the year computers were prevalent in the household and the variable of internet ownership was implemented in 1997 as that is when the Current Population Survey began asking residents about internet use. The study examines crime rates prior to internet usage within the home and continues to examine crime rates after internet was introduced.

Analysis

Univariate Statistics

The data in this research was examined using Statistical Package for the Social Sciences, version 23 (SPSS, 2016). Population was the single variable that is controlled for within this research. As this thesis utilizes multiple datasets, it is important to control for population to ensure validity. Understanding the breakdown of the sample helped generalize the results to the rest of the United States population.

Bivariate Statistics

It is further important to address the bivariate statistics utilized within this thesis. Hypothesis three states that those who have a higher income own more computer devices within their household. To test this hypothesis, a simple correlation test was utilized to test the significance between the independent variable (income) and the dependent variable (number of computer devices). This type of test is preferred when testing for the correlation between two variables. A test for Pearson Correlation Coefficient was utilized as this test is appropriate to test two variables within larger sample sizes (Killias, 1993). The years 1997 and 1998 were utilized as these were the years that were available through the datasets.

Multivariate Statistics

Moreover, this thesis utilized multiple multivariate statistics. Hypothesis one states that the ownership of household computers is related to crime rates. For this hypothesis, a simple linear regression was computed. This type of analysis was run in order to test the correlations alongside the R value in order to gain a more concise interpretation of the results. The years 1993, 1997, 2000, 2001, and 2003 were utilized. For this hypothesis, each year was each treated as a personal case giving a sample size of five. To gain this data, the variables were pulled from multiple datasets. For the dependent variable, crime rates, the national data from the Uniform Crime Report was aggregated. Crime rates were broken down into three separate variables that consist of: total crime rates, violent crime rates, and property crime rates. This variable is measured numerically. The independent variable, ownership of household computers, was also used. This variable, after the aggregation, is continuous ratio-level data.

Hypothesis two further states that internet household ownership had a relationship with the decrease in crime rates. Alike hypothesis one, a simple linear regression was computed for

the variable pulled for multiple datasets. This type of analysis was utilized to understand the correlations of the variables, include the R value for a further understanding of the results. For this hypothesis, ownership by year was aggregated to give an estimate of population computer ownership. This was conducted for the years 1993, 1997, 1998, 2000, 2001, and 2003. This variable was tested with the dependent variable of crime rates. Alike hypothesis one, crime rates were pulled from the UCR and aggregated. Crime rate was computed through testing total crime rates, violent crime rates, and property crime rates. The independent variable for this hypothesis, after the aggregation, was ratio, addressing the participant about the household internet ownership.

Limitations

Although this research shows strength and could prove to be integral for further explaining the crime drop of the 1990's, this study holds limitations. The use of secondary data contains many limitations on its own, particularly with utilizing multiple datasets. The quality of the research conducted is truly unknown to the researcher as it was not conducted first hand. As secondary data was utilized, the threats to internal validity were minimized. The main concern for this study would be the problem with who is in the study. With secondary data, selection bias may be an issue. Although there are no comparison groups, the issue of randomization may still occur. As this data was not collected by the researcher, there is the possibility that whomever collected the data for the dataset could have had selection bias.

The utilization and comparison of multiple datasets could be a further limitation. The issue holds that all datasets were collected differently by separate researchers. The dataset for the Uniform Crime Report consists of macro level data while the dataset from the National Telecommunication and Administration Information is micro level data. The comparison was

converted into percentages aiding in the causation for lack of validity. Furthermore, data collection from separate researchers insinuates that the data was collected inconsistently. With that, Internet data collection was not fully conducted until the year 1997; thus, the introduction of data collection for the internet is introduced over halfway into the study. This factor minimized the studies validity as internet cannot be fully tested in aiding to the drop throughout this decade.

With this study, the most important limitation is that it is difficult to control for other outside factors that can contribute to the crime drop. While testing the hypotheses for this thesis, outside factors that were previously stated, such as the shifting in public policy, the legalization of abortion, and the thriving economy, were unable to be controlled for. This is a major limitation as the results could be disproportionate due to lack of outside controls. Despite these limitations, this study contributes to literature by filling in the gaps as to why the crime drop phenomenon occurred throughout the 1990's.

Conclusion

The current study was carried out to understand if the social trend of household computers had an effect on the decrease of crime during the 1990's. This chapter examined the hypotheses that were tested within this thesis. The variables were addressed alongside the research design. This research controlled population to fully comprehend this research question. Secondary data, through the Uniform Crime Report and the National Telecommunication and Administrations Current Population Survey, was utilized to measure crime rates as well as computer and internet use within the United States from the years 1990-2000. This chapter described the analyses conducted to test the hypotheses. Although there are limitations, this research can be utilized to further understand that impact that the social role of computers had on the crime rate. Additionally, future research could look forward to understand how computer

technology may affect the crime rates in the future after the famous United States crime drop. The next chapter of this thesis presents the results that were discovered from the hypotheses testing while the final chapter addressed future research and included an overall conclusion from this research.

CHAPTER 4

RESULTS

The purpose of this study was to examine if the increase in household computer ownership had an effect on the crime drop during the 1990's. The discussion for this chapter provides a breakdown of the results for this thesis. To examine this research question, several analytical techniques were utilized to determine the relationship between the independent variables and the dependent variables. This chapter will explain the results from the linear regression utilized for hypothesis one and hypothesis two, and further state the results from the correlations discovered for hypothesis three.

Descriptive Statistics

The descriptive statistics for the variable crime are detailed in table 5. The sample size states to be five as total crime, violent crime, and property crime were aggregated for the years 1993, 1997, 2000, 2001, and 2003. A majority of the total crime fell under property crime with a mean of 10,973,977.4 arrests compared to violent crimes which held an average of 1,562,151.0 arrests.

Table 5. *Uniform Crime Report Descriptive Statistics*

Variable	N	Mean	SD
Total Crime	5	12,536,128.4	1,102,435.469
Violent Crime	5	1,562,151.0	225,524.473
Property Crime	5	10,973,977.4	883,694.265

The descriptive statistics for the variables from the National Telecommunication and Information Administration are detailed on Table 6. In 1997, the household average number of computers was 1.27 computers per household. In 1998, that average number of computers increased to 1.32 computers per household. Income stayed fairly consistent from an average of \$30,000 per household in 1997 and increased to an average of \$32,499 in the year 1998. In the year 1993, 22.9 percent of the United States population had at least one computer device at home. By the end of the decade in the year 2003, computer ownership increased 38.9 percent with 61.8 percent of the United States population owning at least one household computer device. When the NTIA's Current Population Survey began asking about household internet in 1997, 18 percent of the United States population had a household computer. By the end of the decade in 2003, the United States witnessed a 36.7 percent increase in household internet ownership from 1997, with a total of 54.7 percent of the population have internet within their household.

Table 6. *National Telecommunication and Information Administration Descriptive Statistics*

Variable	percent	N	Mean
Number Computer (1997)	100	53,304	1.27
One	78	41,591	
Two	16.7	8,914	
Three or more	5.3	2,799	
Income (1997)	100	112,197	\$30,000-\$34,999
> \$5,000	4.4	4,915	(9.09)
\$5,000-\$7,499	3.6	3,994	
\$7,500-\$9,999	3.5	3,882	
\$10,000-\$12,499	4.3	4,782	
\$12,500-\$14,999	4.0	4,495	
\$15,000-\$19,999	6.3	7,053	
\$20,000-\$24,999	8.0	8,933	
\$25,000-\$29,999	7.5	8,445	
\$30,000-\$34,999	7.4	8,313	
\$35,000-\$39,999	6.9	7,739	
\$40,000-\$49,999	10.4	11,629	
\$50,000-\$59,999	9.4	10,554	
\$60,000-\$74,999	8.9	9,991	
\$75,000+	15.6	17,472	
Number Computer (1998)	100	60,683	1.32
One	75	45,518	
Two	18.1	10,978	
Three or more	6.9	4,187	
Income (1998)	100	109,703	\$30,000-\$34,999
> \$5,000	3.3	3,575	(9.47)
\$5,000-\$7,499	2.9	3,187	
\$7,500-\$9,999	2.9	3,217	
\$10,000-\$12,499	4.0	4,351	
\$12,500-\$14,999	3.7	4,030	
\$15,000-\$19,999	6.1	6,708	
\$20,000-\$24,999	7.5	8,222	
\$25,000-\$29,999	7.4	8,114	
\$30,000-\$34,999	7.2	7,883	
\$35,000-\$39,999	6.7	7,319	
\$40,000-\$49,999	10.9	11,963	
\$50,000-\$59,999	9.9	10,885	
\$60,000-\$74,999	9.5	10,376	
\$75,000+	18.1	19,873	

Table. 6 (continued)

Own Computer		5	45.72
1993	22.9		
1997	36.6		
2000	51.0		
2001	56.3		
2003	61.8		
House with Internet		4	41.15
1997	18.0		
2000	41.5		
2001	50.4		
2003	54.7		

Hypothesis One

Hypotheses one theorizes that the increase in ownership of household computers is related to a decrease in crime rates. To test this hypothesis, a basic regression model was utilized. The linear regression for the present study indicated that multicollinearity may be an issue, meaning that the relationships found between the dependent variable and independent measures should not be biased (Alin, 2010); however, since this hypothesis is testing two independent variables amongst one another, multicollinearity does not pose a threat to validity. Within the linear regression, a correlation test was used to see if there was a relationship between variables. Table 7 demonstrates that there was a high correlation between the independent and dependent variables; however, these correlations prove to be extremely high as outside variables were unable to be controlled for. The variables tested were violent crime, property crime, total crime, and computer ownership.

Table 7. *Pearson Correlation Matrix*

Measure	1	2	3	4	5
1. Violent Crime	--				
2. Property Crime	.962**	--			
3. Total Crime	.976**	.998**	--		
4. Owns a Computer	-.971**	-.937*	-.949*	--	
5. Has Internet	-.961*	-.863	-.884	.944**	--

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Hypothesis one tested three linear regression models to fully address the hypothesis and the research question. Model one tested the relationship between computer ownership and total crime. Model two examined the relationship between computer ownership and violent crime. Model three further tested the association of computer ownership and property crime.

The results for this analysis was in accordance with the hypotheses utilized for the research question of understanding if the increase in ownership of household computers and the internet had an effect of the decrease of crime during the 1990's?; however, it is important to note that although these the models state that a high proportion in the variation in crime can be explained by computer ownership, it must be understood that there are other factors that cannot be accounted for that effected the crime drop. Thus, the high proportions stated in the R Square value must be addressed as not being the only reasoning for this occurrence. The results for each of these models are presented in table 8.

Model One – Total Crime and Computer Ownership

A linear regression was calculated to predict the total crime rate based on computer ownership. In relation to total crime rate, computer ownership proved to be a significant predictor for the decreasing crime rates. A significant regression equation was found ($F(1,3) = 27.442, p < .001$), with an R square of .901. Thus, 90.1 percent of the variation in total crime can be explained by computer ownership. This model predicted that total crime is equal to $1,555,927.99 + (-66,123.176)$ (computer ownership) total offenses when computer ownership is measured by ratio (due to the aggregation). For the decade of the 1990's, crime rates decreased 66,123.176 for each unit of computer ownership increased.

Model Two – Violent Crime and Computer Ownership

In order to predict the total violent crime rate based on computer ownership, a linear regression was calculated. Through testing the linear regression, a significant regression equation was found ($F(1,3) = 49.657, p < .001$), with an R square of .943. Thus, 94.3 percent of the variation in violent crime can be explained by computer ownership. Model two therefore predicted that total crime is equal to $2,194,696.219 + (-13,834.197)$ (computer ownership) violent offenses when computer ownership is measured by ratio (due to the aggregation). For the time period of the crime drop, crime rates decreased 13,834.197 for each unit of increase in computer ownership.

Model Three – Property Crime and Computer Ownership

For model three, a linear regression was calculated to predict the total property crime rate based on computer ownership. A significant regression equation was found ($F(1,3) = 21.447, p < .001$), with an R square of .877. Therefore, 87.7 percent of the variation in overall property crime can be explained by computer ownership. It is predicted that crime is equal to

13,364,583.77 + (-52,287.978) (computer ownership) property offenses when computer ownership is measured via ratio (due to the aggregation). For this decade, property crime rates decreased 52,287.978 for each increase of unit for computer ownership.

Table 8: *Model Results (1-3)*

Model	R	R Square	F	<i>p</i>
1	.949	.901	27.442	.014
2	.971	.943	49.657	.006
3	.937	.877	21.447	.019

Hypothesis Two

Hypothesis two tested the relationship between household internet ownership and crime rates. For this hypothesis, a correlation test was used to see if there was a relationship between variables of crime and internet ownership. Crime was broken down into three separate variables: violent crime, property crime, total crime, and were all tested to see the causation of household internet usage. The results for this correlation can also be found within Table 7.

To fully address the hypothesis and the research question, hypotheses two tested three linear regression models. Model four measures the relationship between household internet and total crime. Model five measures the relationship between household internet and violent crime. The final model measures the relationship between household internet and property crime.

The results for this analysis was in accordance with the hypotheses utilized for the research question of Did the increase in household internet ownership and the internet have an effect of the decrease of crime during the 1990's?. Alike hypothesis one, it is important to note that all of these models state that the high proportion in the variation in crime can be explained by household internet use. With these results, it is important to address that there are other factors that contributed to the decrease in crime rates and these outside factors must be

contributed while looking at the R Square value. The results for each of these models are presented in table 9.

Model Four – Total Crime and Internet Ownership

A linear regression further was calculated to predict the total crime rate based on houses that have internet. A significant regression equation was found ($F(1,2) = 7.118$, $p < .001$), with an R square of .781. Accordingly, 78.1 percent of the variation in total crime can be explained by the increased number of houses that have the internet. It is predicted that crime is equal to $13,768,147.42 + (-39,712.890)$ (households with internet) total offenses when internet ownership is measured via ratio (due to the aggregation). For this decade, total crime rates decreased 39,712.890 for each unit that increases.

Model Five – Violent Crime and Internet Ownership

Continued, a linear regression was calculated to predict the violent crime rate based on household internet ownership. A significant regression equation was found ($F(1,2) = 24.22$, $p < .001$), with an R square of .924. Thus, 92.4 percent of the variation in overall violent crime can be explained by household internet ownership. Model five predicted that the violent crime rates are equal to $1,742,688.465 + (-6,597.909)$ (households with internet) violent offenses when internet ownership is measured through ratio (due to the aggregation). During the crime drop in the 1990's, violent crime rates decreased 6.597.909 for each unit of household internet ownership.

Model Six – Property Crime and Internet Ownership

Last, in order to predict the relationship between property crime and households that have internet, a linear regression was calculated. A significant regression equation was found ($F(1,2) = 5.814$, $p < .001$), with an R square of .744. Therefore, 74.4 percent of the variation in property

crime can be explained by houses that have internet. This model states that property crime is equal to $12,025,458.95 + (-33,114.981)$ (households with internet) property offenses when internet ownership is measured via ratio (due to the aggregation). During the crime drop in the 1990's, violent crime rates decreased 33.114.981 for unit that increases.

Table 9: *Model Results (4-6)*

Model	R	R Square	F	<i>p</i>
4	.884	.781	7.118	.116
5	.961	.924	24.222	.039
6	.863	.744	5.814	.137

Hypothesis Three

Hypothesis three states that households with a higher income own more computer devices than those with lower incomes (on average). To answer this hypothesis, correlations were used to examine the relationship between total household income and the average number of computers that are in a household. For this hypothesis, crime is measured as total crime per the year in question. The variable total crime was further broken down to violent crime and property crime. Income was broken down into 14 separate brackets that are measured through intervals (revisit table 6).

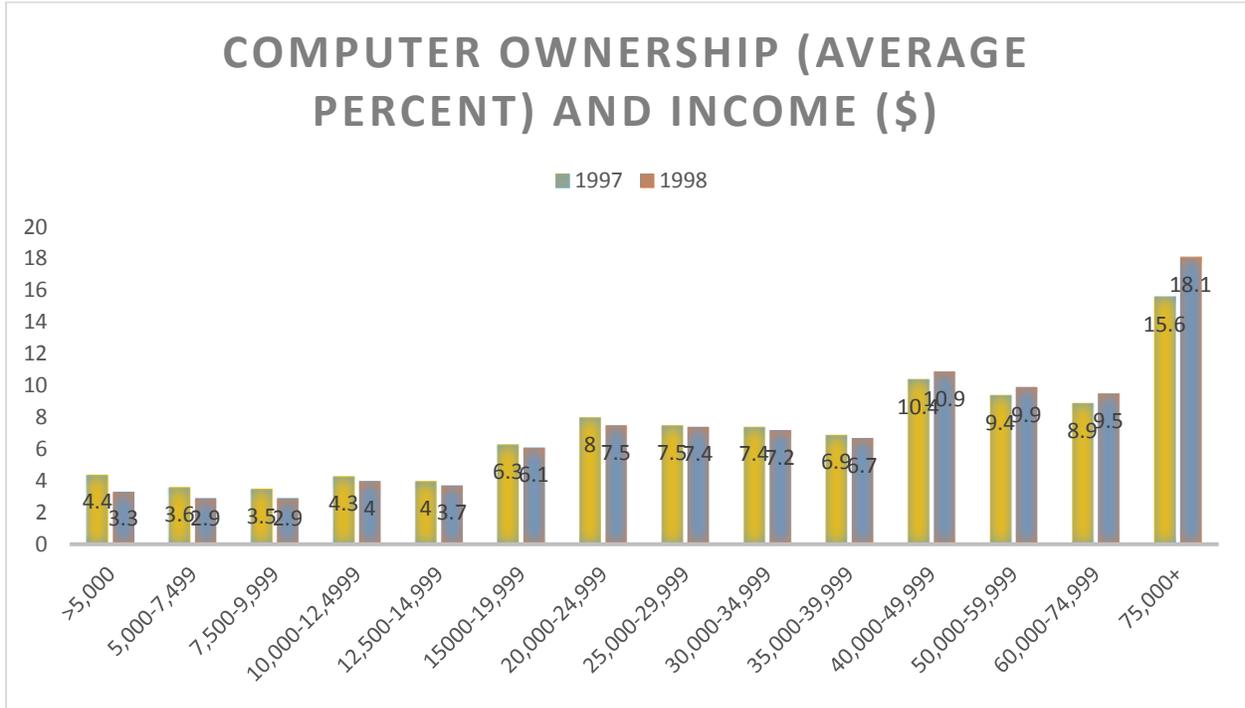
A Pearson correlation coefficient was calculated for the relationship between participant's income (N=112,197) during the year 1997 and the number of computers (N=53,304) that were owned per household. A weak positive correlation was found ($r(3) = .151$, $p < .001$). This result indicates that there is a linear relationship between the two variables whereas those who have a higher income own, on average, more computer devices within their household compared to those who have a lower household income (Cronk, 2016). During this

year 17.9 percent of the sample owned one computer per household, 3.8 percent owned two computers per household, and 1.2 percent owned three or more computers per household.

A Pearson correlation coefficient was further calculated to test the relationship between participant's income (N=109,703) during the year 1998 and the number of computers (N=60,683) that were owned per household. A weak positive correlation was found ($r(3) = .185$, $p < .001$). This correlation indicates that there is a significant linear relationship between the two variables whereas those who have a higher income, on average, own more computer devices within their household compared to those who have a lower total household income (Cronk, 2016). During this year 19.6 percent of the sample owned one computer per household (a 1.7 percent increase from the previous year), 4.7 percent owned two computers per household (a 0.9 percent increase from the previous year), and 1.8 percent owned three or more computers per household (a 0.6 percent increase from the year 1997).

This hypothesis suggests that the households whom own more computers also have a higher income than those who own less computers per household (see Table 10). This holds true to both the years 1997 and 1998.

Table 10: *Comparing Computer Ownership and Income (1997/1998)*



Conclusion

Chapter four of this thesis addressed the results obtained from the linear regression model and correlations. These models were utilized to test hypothesis one and hypothesis two in aiding of answering the research question stating: Did the increase in ownership of computers and the internet have an effect of the decrease of crime during the 1990's? The results indicated that computer ownership and computer use did have an effect on the crime drop during this time period. However, it is important to state that multiple other factors were not able to be controlled for; thus, computer and internet use and ownerships are not the only variables that can account for this phenomenon. The next chapter of this thesis will focus on an overall discussion in regards to this thesis and the results. The subsequent chapter will further conclude the entirety of the thesis.

CHAPTER 5

DISCUSSION

The purpose of this chapter is to discuss of the findings from the three hypotheses under the research question. As previously mentioned, there is limited previous research conducted for the relationship between computer and internet ownership and the effects on the crime drop during the decade of the 1990's. This discussion includes conclusions from the results, limitations from the study, and future research that should be addressed.

The purpose of this study was to explore if the household ownership of computer and internet in the 1990's had an effect on the crime drop phenomenon. Although this study has not been conducted previously, a review of existing literature suggests that household leisure activities has an effect on crime rates (Cashmore, 2012, Hayward, 2013; Messner & Blau, 1987). The results for each hypothesis proved to be statistically significant meaning that there was a relationship between household computer and internet ownership with the decrease in crime rates throughout this decade. With this being said, it is important to state that computer and internet ownership are not the only variables that were in causation for this crime decrease as outside factors were unable to be contributed for.

This thesis was an attempt to further understand factors that were in causation for the crime drop that occurred throughout the decade of the 1990's. First, the relationship between household computer ownership and crime rates were examined. This question gave insight on whether the social trend of household computer ownership could be in causation of the 1990's crime drop. Second, the relationship between household internet ownership and crime rates were examined. In the year 1997, the Current Population Survey began asking United States residents on their internet ownership and usage; thus, data on household internet ownership became

available to the public during this year. As this data became available, it was important to incorporate as internet ownership started becoming a popular trend at this point in time. Looking at computer ownership would be incomplete without pairing the idea of internet ownership as well. Third, the relationship between income and number of computers owned were compared. This was an important hypothesis to include as income affects what type of population owns and utilizes computer devices and the internet. It is assumed that the more economically stable a household is, the greater likelihood of computer and internet ownership; however, throughout the 1990's is when computer prices began to decline which allowed those within lower income brackets to have an increase in affordability for household computer devices (United States Department of Labor, 1999). As those of a lower income had a greater affordability in household computer devices, they were spending less time committing crime; thus, those of lower household income aided in the decline of crime rates during this period in time due to increased affordability of household computer devices.

Cohen and Felson's (1979) routine activities theory overall lends support to the study at hand. Routine activities theory states that crime rates are influenced by structural changes in routine activity patterns. This theory requires three elements in order to prevent crime including: (1) motivated offenders, (2) suitable targets, and (3) the absence of capable guardians (Cohen & Felson, 1979). As previously mentioned, the social trend of household computer and internet ownership held the potential to decrease the amount of motivated offenders, decrease suitable targets, and increase the amount of time spent under a capable guardian. According to this theoretical framework, the routine activities of individuals were altered due to the increase use of computer and internet ownership within the home; thus, crime rates decreased. With this being

said, is assumed that an increase of computer and internet ownership aided in an increased of amount of time spent within the household.

To answer the research question, data from the Uniform Crime Report (UCR) alongside the National Telecommunication and Information Administration (NTIA) Current Population Survey (CPS) were pulled and projected into a new dataset. From the UCR, crime rates were broken down into total crime, property crime, and violent crime. The crime rates from each of these categories were aggregated to have a national total. Variables were pulled from the NTIA CPS and recoded to fit the hypotheses in question.

Results from the models within the hypotheses show support for the research question and hypotheses. A significant relationship was found between *household computer ownership* and *crime rates*. Moreover, a significant relationship was further found between *household internet ownership* and *crime rates*. Finally, a positive correlation was found between *income* and *computer ownership*.

Models 1 through 3 illustrate that there is a statistically significant negative relationship found for hypothesis one between the variable of increase in *household computer ownership* and *crime rates*. Crime was measured as: total crime, property crime, and violent crime. Each one of these variables decreased drastically per percentage of households that owned a household computer device during the time of the questionnaire. *Violent crime rates* witnessed the biggest variation as 94.3 percent ($R^2=.943$) of the variation in *violent crime* was explained by *computer ownership*. This variation states that a large proportion of violent crime can be explained by computer ownership; however, it is important to note that this percent of proportion would be decreased if other outside factors affecting the crime drop could be controlled for.

Cohen and Felsons (1979) routine activities theory shows support for this thesis as the opportunity to commit crime, due to household computer ownership, was decreased. The results from this hypothesis suggests that as individuals began owning more computer devices, the amount of time spent indoors increased; thus, there was an increase of a capable guardian and a decreased likelihood of committing a crime or being a victim of a crime. Alongside Cohen and Felson (1979), Messner and Blau (1987) further supported routine activities and this hypothesis by suggesting that activities that are participated within the household, such as television viewing or in this instance, spending time on the computer, reduce the risk of criminal victimization.

It was further hypothesized that internet ownership was in relation to crime rates. From this hypothesis and as seen in Models 3 through 6, a statistically significant negative relationship was found for the variables *internet ownership* and *crime rates*. The variable crime rate was measured as: total crime, violent crime, and property crime. Although total crime, violent crime, and property crime all correlated with household internet ownership, the greatest variation between crime rate and internet ownership can be found between *violent crime* and household internet ownership with a 92.4 percent ($R^2=.924$) variation. The variation between internet ownership states that a large majority of violent crime can be explained by internet ownership. This statement must be addressed with the fact that other factors were unable to be controlled for; thus, the variation must further take into account outside factors that could further aid in the crime drop.

In addition to hypothesis one, Cohen and Felsons (1979) routine activities theory shows support for this hypothesis. Alike Messner and Blau (1987) study, the findings from this thesis may suggest that individuals began spending an increased amount of time indoors due to leisure, or in this particular study to the household internet ownership. The increased amount of time

spent indoors created an increase of capable guardian as a household acts as a capable guardian. Furthermore, those who felt the need to commit crime, specifically violent crime as it witnessed the greatest affect, were now able to refrain from committing crime in reality as the thrill of crime was able to now be experienced from the comfort of one's household (Hayward, 2012); thus, the entertainment of the internet provided a decrease in crime rates (Sutton, Griffiths, & Wall, 2012). The internet not only provided the thrill of crime through the virtual world, but individuals were now able to connect with other individuals from around the world from their household. This ability to chat with others from within a household likely gave individuals a lesser need to leave the household as social interactions could be made via chatrooms. As an increased amount of individuals remained within their households for greater amounts of time due to the internet use, the likelihood of victimization was highly decreased.

This thesis found that there was a positive correlation between income and computer ownership whereas the households who earn, on average, a higher income, own more computer devices within their household. The results from this hypothesis strongly correlates with crime rates within the real world. It has been found that those of lower socioeconomic status commit an increased amount of crime compared to those of a higher socioeconomic status (Patterson, 1991). This hypothesis found that those who make less than \$14,999 own the least amount of computers, while those who earn \$15,000 to \$39,999 own moderate amount of computers, while those who make \$40,000 and above own the greatest number of computers. As those who make more money are suggested to have more computers within a household, there is a higher likelihood that the members within that household will spend more time on the computer because there is more availability; thus, this group would commit less crime. On the contrary, those who own fewer computers would not spend as much time on the computer compared to the wealthier

counterpart, as there would be less availability to the computer due to having only one per household. Although this group commits less crime than they would if they did not have a computer, it is possible that this lower income group may be more likely to commit more crime than their wealthier counterpart due to less availability of the household computer device.

This study aids in filling the gap in research by examining this researched topic. The results from this exploratory study expanded on previous knowledge as to why the crime drop of the 1900's occurred. Alongside factors such as the shifts in public policy, *Roe v. Wade (1973)*, and the booming economy during this time, the social trend of household computer and internet ownership may now play a role in being in causation for this phenomenon (Blumstein & Wallman, 2006; Levitt, 2004; Mishra, 2007).

Future Research

Future research should be conducted to investigate further factors of technology that could have affected the crime drop. As the National Telecommunication and Information Administrations Current Population Survey progresses, the questions asked for computer and internet use will become more in depth and consistent. With this, a control group could be utilized in comparing those who own and use technology compared to those who did not with the crime rates.

Hypothesis three suggested that lower income groups are still more likely to commit more crime than their wealthier counterpart due to less availability of household computer devices. Future research should focus directly on household income, computer technology, and crime rates to fully understand what correlation income has within this equation. By incorporating income, research can be expanded vastly to understand the correlations between the three variables.

Furthermore, as technology progressed throughout the 1990's and into the 21st century, a new type of crime evolved. Household computer and internet ownership once aided in reducing crime; however, as technology continually advances, the ability to commit crime advanced as well. The creation of new types of crime such as internet fraud should be looked into during the 21st century as technology continues to advance. With technology advancing, the crime opportunity within the *World Wide Web* increases as well. With this being said, this study could be further stretched into the 21st century to look at how technology and crime adjust together and how they further affect one another.

Conclusion

The current study aimed to add to the explanation the reasoning for the crime drop that occurred within the United States during the decade of the 1990's. Household computer and internet rates were drastically increasing throughout this decade. In 1989, 15 percent of the United States population owned a household computer device. By 1997 that number increased to 36.6 percent, with 42.1 percent in 1998, 51.0 percent in 2000, and 61.8 percent in 2003 (Day, Janus & Davis, 2005; Newburger, 2001); thus, indicating that household computer ownership increased by 46.8 percent over 14 years. On the contrary, in 1997, 18.0 percent of the United States population had household internet access, 26.2 percent in 1998, 41.5 percent in 2000, and 54.7 percent in 2003 (Day, Janus, & Davis, 2005; Newburger, 2001). Meaning, that household internet ownership increased 36.7 percent over a 6 year time span across the United States.

The research was a success as the study suggested that there were positive correlations between household computer and internet usage and the decrease in crime rates. The conclusions from the hypotheses in question found that there is a relationship between household computer ownership and the decrease in all crime rates, there is a relationship between household internet

ownership and the reduction in crime rates, as well as there is a relationship between household income and the number of computers that are owned per household.

Although the research question was found to be statistically significant, it is important to note that the social trend of internet and computer ownership can only explain a portion of the crime drop and not explain the drop in entirety. Other variables that may be considered in affecting the 1990's crime drop include: shift in public policy, the legalization of abortion, and the booming economy. Prior to this research, there were no studies applying the social trend in household computer and internet ownership that aided in the explanation regarding the crime drop phenomenon of the 1990's. Although this study holds many strengths, it also has some limitations including: using secondary data, utilizing multiple datasets, and being unable to control outside variables; thus, giving the study stronger correlations than reality. In conclusion, this thesis successfully confirmed the hypotheses while contributing to previous criminological research on reasoning's to the crime drop throughout the 1990's.

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