6-2016

Examining Victimization in South Korea 1993-2010: A Comparative Application of Ecological Theories of Crime

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A Comparative Application of Ecological Theories of Crime

by

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A dissertation submitted to the Graduate Faculty in Criminal Justice in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

2016

This manuscript has been read and accepted for the
Graduate Faculty in Criminal Justice in satisfaction of the
dissertation requirement for the degree of Doctor of Philosophy.

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ABSTRACT

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Theoretical approaches aimed at the understanding of population level criminal offending and victimization generally revolve around two major criminological theories: Social disorganization and routine activities/lifestyle theories. These theoretical frameworks were developed and have been examined extensively in a Western context (primarily in the U.S.) and provide evidence of both individual and aggregate indicators for the explanation of variations in crime. More recently, these approaches have been extended to the Eastern context as increasing numbers of studies have been conducted outside of the U.S. This application is relatively recent and the literature has yet to find conclusive supporting evidence for these ecological theories on crime due to the inconclusive and inconsistent results, which tend to vary by country. This dissertation contributes to this line of research by testing the applicability of these theoretical approaches to South Korea using 7 sets of data from the Korean Criminal Victimization Survey (KCVS) from 1993 to 2010.

The results provide evidence of the utility of these approaches in the context of South Korea with variation by level of analysis and year that can be explained by understanding the recent social/political history of South Korea. For instance, higher collective efficacy at the macro level was associated with lower victimization over all years in the study with the

exception of the year after the national financial crisis in 1997. Also, high personal target suitability levels at the individual level were related to a high likelihood of personal victimization while the household guardianship indicator reduced household victimization. Additionally, sensitivity analysis helped to identify the proper time-lag associated with the effect of ecological variables on victimization. In sum, this dissertation found valuable evidence for ecological theories on crime and victimization associated with the cultural context of South Korea within a recent temporal perspective.

ACKNOWLEDGMENTS

When I started to study criminal justice as my field of study, I was looking for answers. During the course of this experience, I believe that I discovered most of the answers and found the direction of myself. I could have not done any of these without supports and helpsfrom people around me. Here I would like to deliver my greatest gratitude to those.

First and far most, I thank my parents for supporting me in every way possible. I deeply appreciate that you let me explore with my life. Secondly, I thank my advisor Dr. Jeremy Porter, who discovered my potential to finish any work and encouraged me when I was stuck with an academic breakdown. Also, I appreciate all the hard work and valuable inputs from Dr. Amy Adamczyk and Dr. Joshua Freilich on my dissertation. To Dr. Freda Adler, who encouraged and supported me to study in a doctoral program when I was studying for Master's at UPenn, I thank you for your kindness and consideration. I also thank Dr. Marcie Goodman, who I met at the University of Utah for exchange program taking her courses, for always being supportive. To Dr. Kihong Lee from my undergraduate university, I thank you deeply for supporting me from the beginning of this journey till now.

I also have to thank friends and colleagues whom I met here while I was in the program. They made the life here more valuable and unforgettable time. To my friends and family from South Korea, thank you for always being friends and family even though I missed many meaningful moments of your lives.

Lastly, I would like to deliver my thanks to the school, the Doctoral Program at John Jay and Graduate Center, CUNY. Thank you for having me as one of your people, I sincerely appreciate this opportunity that I could improve myself in many ways.

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CHAPTER 1

INTRODUCTION

Background

In Western contexts, criminological theories were generally developed through scholarship. However, in Eastern contexts, crime and criminal justice studies have been considered a government responsibility. Recently, as criminal justice studies in Eastern contexts has grown, Western criminological theories have been applied. Applying theoretical frames can be an effective way to not only provide supporting evidence to the theory but to understand crime and criminal behaviors in another context. Such application can teach a different aspect of the theory and presents a possibility for theoretical development. Furthermore, it is important for theories to be applied in different time periods. Most of the time, theorists attempt to generalize theories not only to different locations, but also to different times. Scholars may try to understand the longitudinal aspect of theories, such as causal relationships among the elements in the theories. Here, a series analysis may help to understand a phenomenon's changes over time and the causal relationships that exist. While some scholars have attempted to capture the longitudinal aspects of studies (Thornberry et al., 1994; Pratt & Cullen, 2000; Simons et al., 2003), others have tested theory using cross-sectional methods due to a lack of convenient data.

Research on South Korea's criminal justice system is limited. While a number of different criminological theories have been applied to the South Korean context, ecological theories of crime have been applied most, typically over a single-year period, to develop prevention strategies (Roh et al., 2011). South Korea is a country where regional characteristics

are distinctive (Byeon, 2011). However, these studies' results have often failed to support their original theories, leading researcher to try and find other explanations/variables. Recently, some ecological studies on crime have utilized geographical analysis, as ecological theory is based on spatial units. With the development of the Geographic Information System (GIS), ecological theories have taken advantage of the technique and expanded their applicability (Chainey & Ratcliffe, 2013; Levine, 2004; 2006; La Vigne & Wartell, 1998).

Objectives and Justification of the Study

The primarygoal of the study was to determine if the major models of ecological theory on crime developed in the Western context are relevant in South Korea. Following the current trend in the literature, this study used both conventional and exploratory approaches to understanding criminal victimization in South Korea by applying elements from ecological theories on crime. Many researchers not only apply original models of theories but also synthesize the elements from different ecological theories to take advantage of the various theories (Akers et al., 2004; Farrington & Sampson, 1993; Messner et al., 1989). Therefore, this study examined victimization using different approaches to two spatially-focused theories: social disorganization theory and routine activities/lifestyle theory.

According to some literature, a self-report survey has almost a 20% higher confidence level in terms of representation of actual crime and victimization than an official report (Hagan, 1997; Thornberry & Krohn, 2000; Hill & Paynich, 2013). Thus, the current study used one self-reporting survey to collect data, the Korean Crime Victimization Survey (KCVS). Using publically available, national-level survey data from the KCVS from 1993 to 2010, the study

analyzed spatial units of six cities and nine provinces that span the country. The geographical scope of this dissertation is presented below.

This study aimed to understand victimization in South Korea by examining statistical data. The methods of the analysis included a description of spatial units in relation to the ecological characteristics and victimization, a conventional method of statistical analysis, and exploratory analysis using time-lagged methods. More specifically, the descriptive analysis also took into account different cultural aspects, providing extensive explanations of the regions and their characteristics. Next, following the theoretical framework, cross-sectional results of the statistical analysis of social disorganization, routine activities/lifestyle, and multilevel models was performed to examine the patterns and relationships between individual/aggregate characteristics and victimization. Lastly, to further examine the ecological approach and causal relationships among the variables, a time-lagged analysis was conducted.

The current study holds important implications for both ecological theory and the development of practical prevention strategies. First, this study extends the theoretical framework to an Eastern context. Utilizing an integrative approach to ecological theory, this study examined the similarities and differences to Western studies in order to understand the whether the theories could be generalized to the Eastern context. Second, for the body of literature focusing on criminal behaviors, this study adds an explanation of criminal victimization in South Korea. Third, by examining causal relationships between characteristics and victimization, this study confirms the directions of relationships in the theories. Lastly, the descriptive geographical presentation maps South Korea's criminal justice studies. In sum, the current study applied and tested theoretical models of spatially-focused theories in South Korea, in order to understand the relationship between ecological characteristics and victimization

across the nation between 1993 and 2010, while introducing geographical description to the current body of literature.

Chapter 2 introduces the literature regarding the current topic including ecological theories of crime and previous studies on crime and victimization in South Korea. Chapter 3 summarizes the detailed methods of data processing and analysis utilized. Chapter 4 provides the results of the descriptive statistics, showing the basic information about the datasets including mean differences of variables between the spatial units. Chapter 5 provides an explanatory analysis of the research question in relation to ecological theories of crime. This chapter also provides detailed results for each region while considering possible relationships between the regional characteristics and victimization. Following the conventional model of analysis used in Chapter 5, Chapter 6 examines the exploratory models of ecological elements utilizing the theories. Lastly, Chapter 7 summarizes and discusses the results, implications, and limitations of the study.

CHAPTER 2

LITERATURE REVIEW

Organization of the Literature Review

This chapter reviews the literature regarding crime and victimization in South Korea, ecological theory and its development, and the study's theoretical framework and hypotheses. More specifically, the first section of the chapter provides a summary of crime and victimization trends in South Korea and the rationale for applying ecological theory to the South Korean context. This section also discusses ecological characteristics of South Korea. It is important to learn regional differences and similarities among spatial units to apply ecological theories of crime properly. Thus, this section includes detailed rationales for applying ecological theories of crime in South Korea. The second section reviews the literatureon ecological theory, providing a historical overview. This section also discusses two major ecological theories: social disorganization theory and routine activities/lifestyle theory, which forms the basis of the study's theoretical framework. This section further provides an overview of recent trends in ecological theories of crime focusing on an integrative approach. An integrative approach is also discussed in detail to understand effectiveness of contextual approach. The third section details the theoretical framework further, particularly social disorganization theory and routine activities/lifestyle theory, using a contextual approach. This section also includes a discussion of the utility of theoretical frameworks chosen in this dissertation. The chapter concludes with the research questions and hypotheses of the study.

Crime and Victimization in South Korea

Overview

Crime and victimization rates in South Korea are allegedly lower than other countries with similar economic status (Peerenboom, 2013). However, the number of crimes increased approximately three times between 1978 and 2007 with a few short-term fluctuations (Joo, 2010). According to more recent statistics published by the Korean National Police Agency, both violent and property crimes decreased from 2012 to 2013, despite the general incline from the early the 2000s. Compared to the United States, the violent crime rate was 376.9 and the property crime rate was 2,730.7 per 100,000 people in 2013 (FBI, 2014). In the same year, the violent crime rate was 639.5 and the property crime rate was 574.2 in South Korea (Korean National Police Agency, 2014). Figure 1 provides a graphic representation of crime rates in South Korea from 1993 to 2013 retrieved from Statistics Korea.

The Korean National Police Agency annually reports official crime rates, and Statistics Korea provides an archive of statistics on crime and the criminal justice system in South Korea. Even though both sets of statistics are officially produced by the government, there are slight inconsistencies between the datasets from the Korean National Police Agency and Statistics Korea. This may be due to different categorizations of crime or different estimations of the population. Here, the figures use statistics from Statistics Korea, as it provides for a longer time than the Korean National Police Agency. Statistics Korea uses the categories of *propertycrime* and *violent crime,* similar to the U.S. categorization. Property crimes include theft, dealing stolen goods, fraud, embezzlement, malpractice, and damage to property. Violent crimes consist of murder, robbery, arson, rape, assault, bodily harm, threats, blackmail, kidnapping, and illegal arrest and/or detention. Since 2002, two more items were added to violent crime category:

violent behaviors related to organizational activities, which are mainly gang or organized crime activities; and violations of the law regarding punishment due to violent behaviors. The latter item reported a high volume of incidents, averaging 43.2% of all property crimes over the 12 years from 2002 to 2013 (Statistics Korea, 2015). The law consists of 10 items to punish those who commit violent behaviors frequently or at night as well as those who aim to commit violent behaviors as a group. Because the least two items of property crime were not included as property crime before 2002, Figure 1 excludes these items.

According to Figure 1, property crime rates in South Korea have increased, while violent crime rates were stable except for an incline of approximately 300 per 100,000 from 2005–2007. A probable reason for this incline is the revision of laws regarding protest in 2007 in response to previous demonstrations that turned violent, such as the protest seeking justice for two girls who were run over by an American Army tank in 2002. Another probable reason was theemergence of a particular law on prostitution in 2004. Even though prostitution is illegal in South Korea, approximately 260,000 women (4%) of young Korean women were possibly related to prostitution in 2003 (KIC). The law was enacted in 2004 leading to the arrest of individuals involved in the sex industry. The incline of violent crime could also be due to a genuine increase in violent crime in South Korea. However, no specific studies have been conducted regarding this issue.

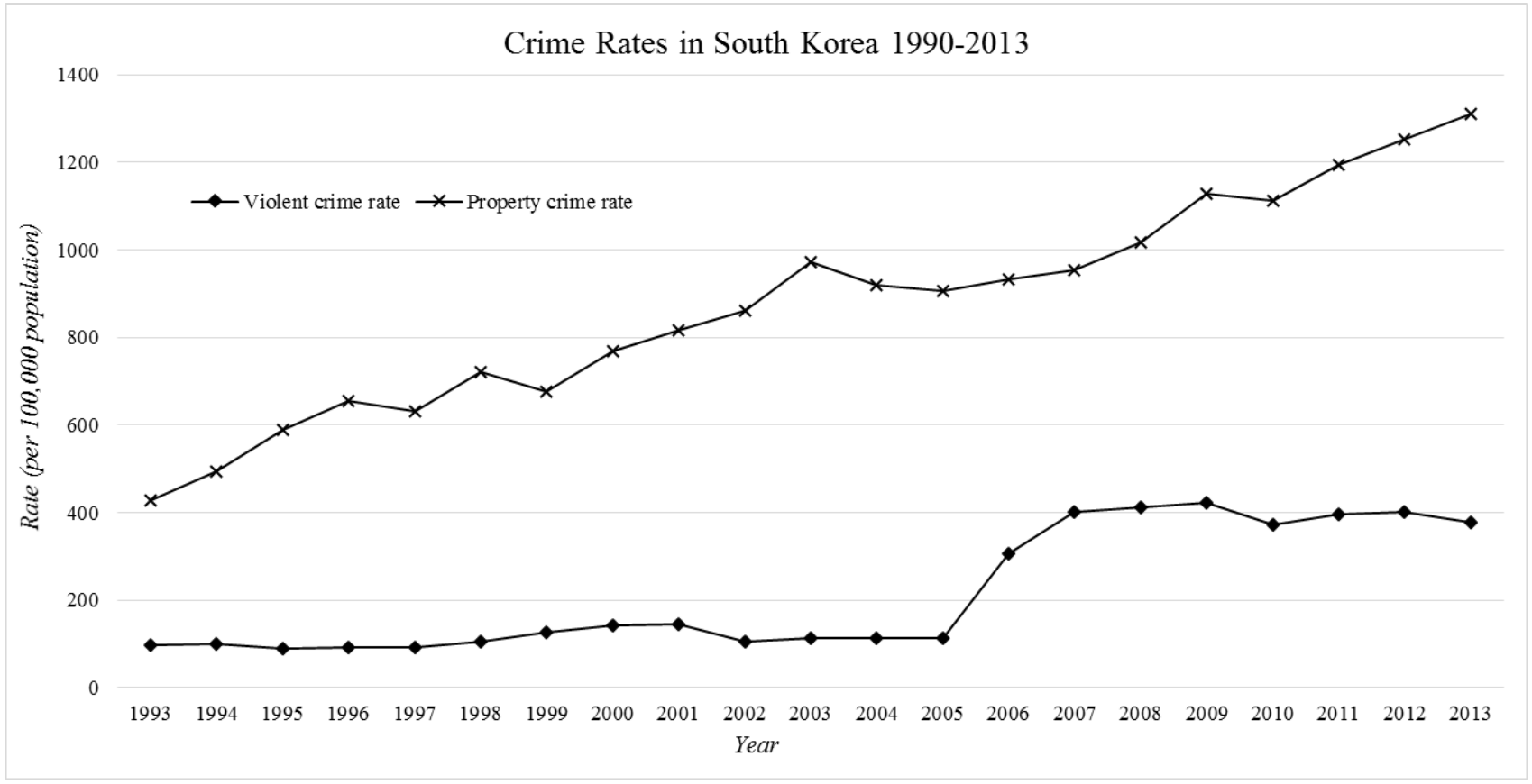
Few studies have examined changes in crime rates in South Korea. There was a significant incline in crime (about 15%) after the Asian financial crisis in 1997 (Mishkin, 2009). Another trend noted was the decline of crime by 21% during the first 10 days of the 2002 FIFA World Cup (2013). Hwang (2010) argued that despite an increase in crime in official statistics, actual crime rates have decreased continuously, according to victimization rates determined by

the victimization survey and other similar reports. Hwang (2010) also emphasized that the reorganization of crime allowed citizens to report more incidents to the authorities than before.

Historically, after 1953 when the Korean War ended, the country experienced intense social and economic changes. Organized crime associations (i.e., gangs) emerged, and began working with politicians to protect them from political demonstrations in exchange for the ability to maintain the organizations' status. After this era, gangs survived as area-based organizations particularly in Seoul, the capital city of South Korea. Even though the gangs in South Korea are smaller than criminal organizations in other Asian countries (e.g., Japan), these gangs have been involved in a large portion of crime, particularly money laundering, human trafficking, and drug smuggling. In the 1990s, the South Korean government attempted to shut down gang business and was largely successful, however many crimes are still related to gang activities in South Korea. Traditionally, South Korean gangs do not use weapons except for a knife (Lee, 2006).

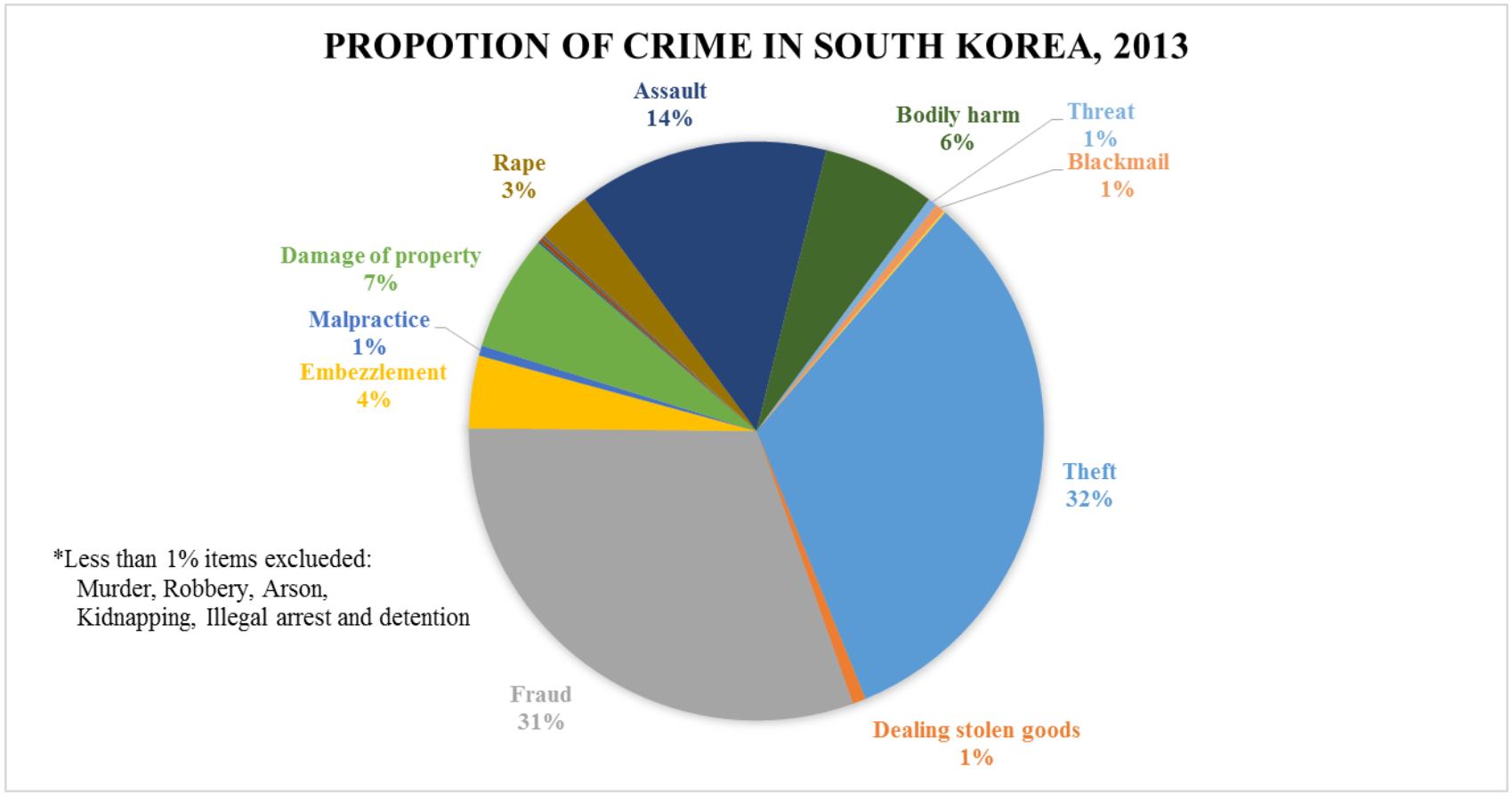
In general, recent crime rates in South Korea are considered stable compared to the 1980s, when increased industrialization led people to gather in cities (Hwang, 2010). During that period, society dramatically changed again, which caused instability in the community leading to criminal behavior. However, over the years, democracy has settled, and less criminal activities have occurred. Currently, crime rates in South Korea are much lower than many other countries. Figure 2 presents the composition of crime in South Korea in 2013 as retrieved from Statistics Korea. The three major crimes in South Korea in 2013 were theft (32%), fraud (31%), and assault (14%). Murder, robbery, arson, kidnapping, and illegal arrest and detention presented as lower than 1% each.

Figure 1. Crime Rates in South Korea, 1990-2013



Source: Statistics Korea

Figure 2. Composition of Crime in South Korea, 2013



Rationalization of Applying Ecological Models in South Korea

Ecological theories of crime share their roots with socioecological models on urban studies by the Chicago school. The aim of the socioecological models is to understand dynamic associations between various individual and contextual factors. The core goal of ecological models of crime is to link neighborhood crime rates with ecological characteristics. Along with this contextual approach, an individual-oriented level of analysis was developed in the criminal justice field. The individual-oriented approach emphasizes that ecological factors around an individual have an effect on vulnerability. Since the adoption of ecological theories in criminal justice studies in the 1980s, a number of studies have applied the approach in different locations and eras. However, the majority of these studies were in Western contexts, particularly the United States. Only a few studies have been conducted in Asian contexts using the ecological approach on both contextual and individual levels, with mixed results (Roh et al., 2010).

English-language studies on crime and victimization in South Korea have applied the ecological approach, arguing it suits the modern South Korean setting due to the urbanization that happened from the 1960s to 1980s (as contrasted to U.S. urbanization in the early 1900s). Such social change and modernization was part of the South Korean government's economic development plan, and led to the movement of people toward Seoul and other cities in pursuit of better financial resources. However, unlike in U.S. cities, South Korean cities did not experience social disorganization. Though many migrated to the cities, the cities could provide enough financial resources (i.e., jobs) for the migrants. This differs from the pattern in Chicago and other U.S. cities. Some studies explain that this may be due to the homogeneous cultural and ethnic backgrounds of South Koreans (Roh et al., 2010). More similarities exist between early 1900s

Chicago and late 1990s South Korea. In 1997, South Korea experienced a national financial crisis, which caused instability in society, leading South Koreans to experience a high unemployment rate and decreases in income. This economic change undermined previous mechanisms of social control. Parents lost their jobs, disrupting the family system, further interrupting community order. As a result, South Koreans experienced an abrupt increase in crime rates in the late 1990s and early 2000s (Roh et al., 2010).

Based on the similarities between the United States and South Korea, an application of ecological theories to South Korea would be beneficial for the current body of literature for a number of reasons. First, due to the similarities between the two societies, the application of ecological models to South Korea yielded similar results. Second, this study analyzed the time period from 1993 to 2010, which includes the period of financial crisis in 1997. Therefore, the current study determined if the longitudinal trend of crime rates was similar to the trend of victimization rates before and after the crisis. Third, the study examined the dynamics between contextual characteristics and victimization over time. This result ultimately determined whether ecological theories of crime would be replicable to the South Korean context before and after 1997. Lastly, by analyzing the years up to 2010 when the crisis became nationwide, this study also provides information on how ecological theories may explain the relationship between contextual characteristics and victimization.

Ecological Theories of Crime and Victimization

Traditional Ecological Theories of Crime

Ecological studies using both macro- and microlevel analysis have resulted in the development of significant empirical evidence concerning the explanation of crime and

victimization. In particular, two major ecological theories are well represented at each level of analysis in the criminal justice field: social disorganization theory (i.e., macrolevel) and routine activities/lifestyle theories (i.e., microlevel). Although the theories attempt to explain crime and victimization at two different analytic levels, the stated theories are often considered compatible for synthesis.

Social disorganization theory has been a leading criminological theory since Shaw and McKay's work in the 1940s. The theory looks at the community-level, with the primary idea that urbanization breaks the social control of the community, leading to crime-vulnerable environments. Shaw and McKay argued that three community-level indicators caused by rapid urbanization—poverty, residential turnover, and ethnic heterogeneity—weaken a community. The theory was spotlighted among criminologists when Bursik (1988) clarified and restructured the theory to make it more testable. Bursik's (1988) systematic model was examined directly by Sampson and Groves (1989), who provided substantial empirical support for the theory. More recently, Sampson and his colleagues (1997) developed the concept of *collective efficacy*, whichrefers to a community's social bond and interaction in the effort to prevent crime. Subsequently, various scholars have duplicated testing of these theories with diverse data from different locations (e.g., Boggess & Hipp, 2010; Smith et al., 2000; Steenbeek & Hipp, 2011; Veysey & Messner, 1999; Witherspoon et al., 2011; Wong, 2012).

Routine activities/lifestyle theory has a comparatively short history in criminal justice studies when compared to social disorganization theory. This theory argues that based on opportunity and human agency, the opportunity for crime is higher when there are a suitable target, the absence of guardianship, and motivated offenders (Cohen & Felson, 1979). This theory has been reinterpreted by focusing on the lifestyle of victim: a higher risk of victimization

is associated with the attractiveness of the target, a low level of protection, and potential victims' level of exposure to potential offenders (Miethe & McDowall, 1993). Such theory was significantly developed by supporting scientific evidence in the 1990s, and models have been mostly tested at individual levels in varying locations and time periods (Cohen et al., 2000; Osgood et al., 1996; Robinson, 1999; Roncek et al., 1991; Sherman et al., 1989).

Recently routine activities/lifestyle theories attempt to focus on two important concepts within their theoretical construction; handlers and place manager (Felson, 1987; Cohen & Felson, 1979; Eck, 1994; Eck, 1998; Eck, 2003; Tillyer & Eck, 2011; Sampson et al., 1995). Handlers are individuals who control possible offenders while place managers are those who supervise potential locations of crime and victimization. Even though these concepts were originated by Felson (1986), they were not sufficiently studied as the 'guardian' concept by researchers applying routine activities/lifestyle theories. Eck pointed out this issue in his study in 2003 suggested that each necessary element of crime and victimization in routine activities/lifestyle theories requires each prevention strategies and concept; developed the crime triangle with a handler on offenders, place manager on a place, and guardian on target/victim (Eck, 2003). This new focus on routine activities/lifestyle theories also should be considered in this study; however, the current data does not include possible variables considered as the concepts of handlers and place manager. This problem must be redirected from the survey construction to improve better understanding of the theories in the future.

For over two decades, these two theoretical frameworks have been two of the most empirically-sound theories in the field of criminology. Although each theory has successfully developed their framework independently at the macro- and microlevels, both theories can benefit from the other's perspective (Miethe & Meier, 1994). Furthermore, an integrative

approach to these two theories may explain criminological phenomena more effectively than when utilized alone (Rice & Csmith, 2002).

Integrative Approach to Ecological Theory

Despite that studies on the cause of crime and victimization majorly utilized individual-level theoretical frames, there were some attempts to integrate different theories for better understand the phenomenon. These attempts are because scholars argued that this single-level studies not capture real complexity of criminal behavior (Elliott, 1985; Wellford, 1989; Muftic, 2009). In social science, a term 'integration' is more widely used to refer to different concepts than natural science (Liska et al., 1989). In criminal justice field, Welford (1989) has argued that because of the obscurity of human behavior is multi-level causal multi-level integration of theories is ideal to progress criminology. For last a few decades, growing attention was given to theory integration (Akers, 1998; Barak, 1998; Bernard &Snipes, 1996; Wikstrom, 2005; Muftic, 2009). However, not many studies have been conducted regarding the multi-level theory integration.

The general definition of theory integration is "the act of combining two or more sets of logically interrelated propositions into one larger set of interrelated propositions, in order to provide a more comprehensive explanation of a particular phenomenon" (Thornberry, 1989, p. 75). According to Muftic (2009), there are three goals in theory integration: theory reduction, increase explained variance, and "theory development through the clarification and expansion of existing propositions and theoretical concepts" (Muftic, 2009, p. 37). Often, researchers aimed one and more goals when integrating theories.

Opponents of theory integration pointed out a danger of integrating multiple theories with different underlying assumption. Therefore, these opponent theorists argued that competition and

elaboration be the only way to develop criminological theories (Kornhauser, 1978; Bernard, 1989; Hirschi, 1979, 1989, Thornberry, 1989). Proponents of theory integration, however, theory integration provides a large part of variance unexplained by individual theories (Wellford, 1989; Bernard & Snipes,1996; Elliott, 1985; Pearson & Weiner, 1985).

Different forms of integration exist when two and more theories are integrated. First, propositional integration is generally considered as a formal process of theory integration (Liska et al., 1989). Propositionally integrated method maintains original components of each theory whereas conceptual integration method captivates different concepts into integrated points (Bernard &Snipes, 1996).

Following this recent trend, ecological theorists also recognized positive potential of integration of two spatially based theories, social disorganized and routine activities/lifestyle theories (Miethe and McDowall, 1993; Miethe and Meier, 1990, 1994; Miethe et al., 1987; Rountree et al., 1994; Sampson and Wooldredge, 1987). Social disorganization theory has already found its benefits when includes micro-level causal variables as increased its explanatory variance (Browning, 2002; Rountree, Land & Miethe, 1994; Sampson et al., 1997). These studies did not necessarily consider routine activities/lifestyle elements as micro-level components. However, Miethe and Meier (1994) developed a concept 'interaction effects' among the variables as an important way to integrate the two theories. Successful integration of two theories "can be built on an empirical basis of interaction effects between individual risk factors (as specified by routine activity theory) and type of neighborhood (as specified in social disorganization theory)" (Smith et al., 2000: 491).

When independently examined, social disorganization theory is a macrolevel criminological theory that explains aggregate-level correlations among contextual variables.

Even though an individual's behavior and lifestyle can have an effect on victimization, microlevel (i.e., individual-level) variables have been primarily ignored in social disorganization theory due to an emphasis on structural effects. Scholars have statistically proven that aggregate-level independent variables such as poverty, residential stability, and ethnic heterogeneity significantly relate to delinquency and crime (Raudenbush & Bryk, 2002; Sampson & Lauritsen, 1994). Additionally, studies on routine activities/lifestyle theory, which examine microlevel variables, have shown that an individual's behavior is highly correlated with victimization (Fisher et al., 1998; Vazsonyi et al., 2002). As delinquency, crime, and victimization have been interchangeably used, most of the community-level studies have considered individual characteristics as control variables in their models, while individual-level studies have considered contextual ecological characteristics as control variables in their models.

Scholars have realized the necessity of a multilevel approach when developing research models (Rountree et al., 1994; Yang & Hoffmann, 1998; Zhang et al., 2007). However, not many studies have focused on using an integrative approach to the analysis of victimization due to difficulties with obtaining testable data (Zhang et al., 2007). Miethe and McDowall's (1993) integrative study on victimization in Seattle found mixed evidence for both routine activities/lifestyle theory and social disorganization theory. First, regardless of an individual's lifestyle, living in an economically-disadvantaged area determined a high risk of victimization, but no other contextual effects were found to increase risk. Second, an individual's residential situation (i.e., living alone) had a positive association with burglary victimization. Third, some of the significant individual-level effects on victimization disappeared when contextual-level variables were introduced to the model. However, the study utilized logistic regression within categorized areas (poor condition, busy places, and higher ethnic heterogeneity), which may

have violated interaction effects from multicollinearities or distribution of errors among variables, and may have lacked real variation due to binary outcomes. Also, the introduction of contextual variables did not help contribute to the explanation of any directional effects among variables.

In the following year, using hierarchical linear modeling (HLM), Rountree and her colleagues (1994) replicated Miethe and McDowall's (1993) multilevel analysis with the same data. The result suggested that only the individual's report of being outside was a significant indicator on violent victimization; the other individual routine/lifestyle variables (i.e., living alone, family income, and safety percussion) had no impact. However, these routine activities/lifestyle indicators were highly related to burglary victimization. Regarding the social disorganization variables, ethnic heterogeneity significantly determined the risk of burglary victimization. Busy places and high densities of the population were also strong indicators of high risks of violent victimization only. The study proved that depending on crime type, the utility of each theory differed while all variables were independently evaluated controlling for individual and structural conditions. However, the major limitation of this study was alack of attention to the potential mediating variables of the social disorganization theoretical framework (i.e., community bond and collective efficacy).

Smith et al. (2000) also attempted to integrate those two theories under an overarching ecological theme. By examining *face blocks* as the unit of analysis instead of cities or tracts, the authors found several interactions between theories of social disorganization and routine activities. Both theories worked particularly well in estimating street robbery. However, while the study provided a promising framework for theory integration, the research team only found statistical evidence from each theoretical model and interactions of each theoretical model's

variables. The study hypothesized the multilevel approach but did not statistically analyze the multilevel model itself.

Silver (2000) also used this integrative approach to research violence among individuals with mental illness in the community. In contrast to previous studies on people with mental illness, Sliver (2000) expanded the level of analysis from individual to multilevel, considering both individuals and the communities where the individuals lived. The findings suggested that individuals with mental illness who lived in socially-disorganized neighborhoods are at higher risk of violence. This study provided strong evidence that using a multilevel approach can deliver more holistic explanations of the phenomenon of criminal offending.

Also, building upon Sampson et al.'s (1997) multilevel study on collective efficacy, a growing number of studies have focused multilevel analysis with various crime types and in different locations. Studying home burglary in Chinese cities, Zhang et al. (2007) replicated the collective efficacy concept using multilevel linear modeling. However, instead of including general individual-level variables (e.g., gender, age, income, and occupation), the study added microlevel variables taken from the routine activities/lifestyle theory (e.g., target attractiveness and guardianship) to their analytic model.While different characteristics among communities were related to different levels of burglary risk and routine activities/lifestyle concepts, the research concluded opposite effects from social disorganization theory (i.e., a higher level of stability was associated with higher burglary risk). Even though the results were inconsistent with Western studies, this study is a good example of the integrative approach.

Osgood and Anderson (2004) conducted multilevel research on unstructured socializing (i.e., hanging out with peers without supervision) and delinquency by adding an aggregate-level perspective to a previous study by Osgood and Rowe (1994). The 1994 study conducted

individual-level analyses, which found an association between unstructured socializing and delinquency. The 2004 study was conducted at the individual level (i.e., adolescents) and the aggregated level (i.e., schools). Although they found contextual effects along with microlevel associations, the concept of disorganization in this study differed from general social disorganization indicators. The authors also suggested the addition of original social disorganization variables such as ethnic heterogeneity, residential stability, and collective efficacy to their model. Adopting the unstructured socializing concept, Maimon and Browning (2010) conducted a joint research project examining individual- and community-levels of analysis. This study connected unstructured socializing among youth, the community's collective efficacy, and the outcome of violence. The researchersconcluded that unstructured socializing was positively associated with violence, while collective efficacy lowered violence levels. By using a multilevel linear model, the study successfully incorporated individual perspectives into the community level of analysis.

Even though studies have synthesized the two theories by utilizing integrative approaches, integrated models have not been conclusive. Most of the previous studies on these two theories have been one-sided, focusing on either social disorganization theory (with or without collective efficacy) with routine activities/lifestyle indicators, or routine activities/lifestyle theory with social disorganization variables. Such unbalanced attempts not only devalue the alternate theory, but fail to structure the integrated model in a way that appropriately integrates the theoretical foundations of both social disorganization and routine activities theory. This notion suggests that the previous studies using both ecological theories with an integrative approach ignored compatible nature of the two theories.

Theoretical Framework

Traditional Models

Social disorganization and routine activities/lifestyle theories have been evaluated and by scholars over time. The traditional model of social disorganization theory by Shaw and McKay (1942, 1969) is a community-level model. The authors argued abrupt changes in society related to the observed crime rate. First, rapid urbanization of cities in the United States led to an imbalance of communities with higher levels of poverty, residential mobility, and ethnic heterogeneity. Secondly, these three indicators accounted for communities' social disorganization. Finally, the level of disrupted social organization in different communities accounted for different levels of crime and delinquency. However, for over two decades after the classic work, this model was tested directly (Sampson & Groves, 1989).

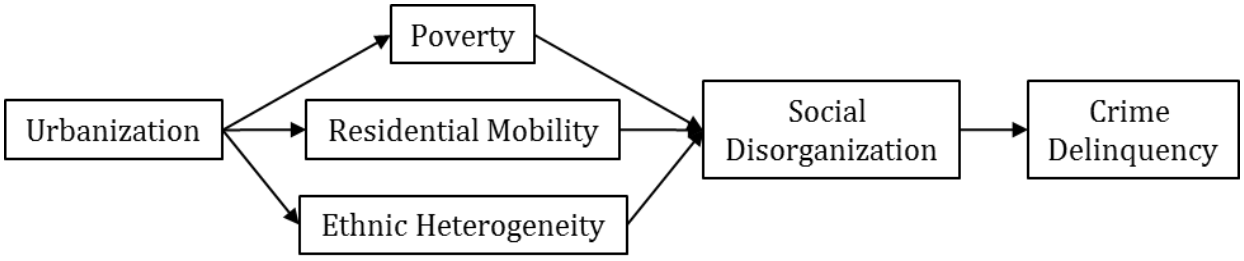


Figure 3. Shaw and McKay's original model of social disorganization theory.

Many scholars inspired by the original concept of social disorganization theory have tested the theory with three structural indicators (poverty, residential mobility, and ethnic heterogeneity) as independent variables and crime or victimization rates as dependent variables while disregarding intervening variables. Kornhauser (1978) emphasized the importance of

intervening variables, and Sampson and Groves (1989) evaluated the theory directly using self-reported data from Great Britain. The latter study operationalized the latent intervening variable (social disorganization) from the original model with actual variables. Shaw and McKay's work indicated that potentially appropriate intervening variables were: (a) the ability to supervise juvenile delinquents, (b) community bond, and (c) neighborhood participation in community matters (later defined as collective efficacy). Sampson and Groves (1989) took these intervening variables into consideration in building their model of analysis. Therefore, along with the three structural indicators (i.e., independent variables—socioeconomic status (SES), residential stability, and ethnic heterogeneity), Sampson and Groves (1989) added another dimension to the model: family disruption, which was based on a previous study that argued the marital status of the household may connect to social control at the neighborhood level. Furthermore, urbanization was also added to thetheoretical frame of the original work.

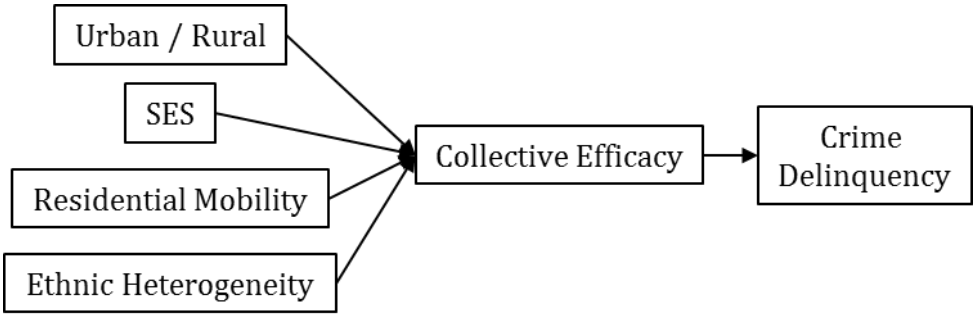


Figure 4. Sampson and Groves' extended version model of social disorganization theory.

Even though Sampson and Groves' refined model of social disorganization has been validated in replicated studies (e.g., Browning, 2002; Browning et al., 2004; Bruinsma et al., 2013; Duncan et al., 2003; Morenoff et al., 2001; Simons et al., 2005; Wells et al., 2006), two

issues have arisen: (a) mismatched variables and (b) unintended results. Many studies testing social disorganization theory have defined the dependent variable based on accessibility of data from various sources. The dependent variables have changed mostly due to the convenience of available data on crime, delinquency, and victimization. For instance, in Sampson and Groves' study, dependent variables related to victimization and offending rates, while one of the intervening variables was "community's ability to control teenage groups," which would have been more logical if the dependent variable had been juvenile delinquency.Even though the study elaborated why this variable might have been related to the adult crime rate (e.g., gangs), variables related to the community's ability to control general discordance are adequate. Furthermore, one of the independent variables was family disruption, which seemed to account more for juvenile delinquency. This inconsistency was adopted from the original frame of Shaw and McKay's work. Formerly, Shaw and McKay attempted to find variables accounting for juvenile delinquency. In the attempt to apply their original work to general victimization and offending, mismatches within the model occurred. Alternatively, this inconsistency may have been caused by collecting data from different sources. Researchers often obtain datasets from various sources (e.g., censuses, police departments, surveys). This may cause a discrepancy within analytical models. Additionally, although Sampson and Groves' study emphasized the intervening effects, direct relationships between structural characteristics and crime were not determined. The study concluded some of these direct relationships were mediated by intervening variables, yet more research is needed to clarify better the overall structure.

Unlike the incremental development of social disorganization theory, routine activities theory, as a model, has been consistent with three conditional variables: likely offenders, suitable targets, and the absence of guardians (Cohen &Felson, 1979), which largely account for

variances in victimization and crime rates. Various scholars have tested this theoretical structure at different times and places (e.g., Osgood et al., 1996; Robinson, 1999; Roncek et al., 1991; Sherman et al., 1989; Spano & Freilich, 2009). The first variable, *likely offenders*, is uncontrollable and unmeasurable. The other two independent variables have been extended to include subvariables over time. First, *suitable targets* has broadened to include an individual's lifestyle. Studies have found individuals who expose themselves to dangerous situations (e.g., spending time with gangs) are more likely to be victimized. Also, individuals who spend significant time outside and empty houses are more vulnerable to offenders; in other words, those individuals or households become suitable targets. Moreover, people and houses with valuable items are considered "attractive" to offenders (Henson et al., 2010; Jensen & Brownfield, 1986; Kuo et al., 2009; Messner et al., 2007; Stein, 2009; Tseloni et al., 2004). Second, *capable guardians* includes not only police supervision and community watch but also individuals' protective and avoidance behaviors. For instance, avoiding secluded areas may lead individuals to be exposed to more guardianship, such as street police, more lights, and CCTV cameras. Another example is that environmental guardianship is gained by locking doors or closing windows at night. These extensions—increasing or decreasing exposure to likely offenders and capable guardians— considers lifestyle dimensions that add to the theory (Schreck et al., 2002; Spano & Frelich, 2009).

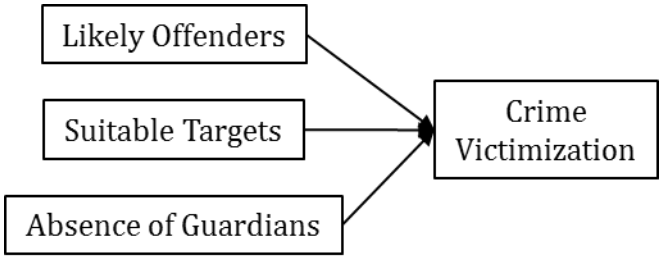


Figure 5. Cohen and Felson's original model of routine activities/lifestyle theories.

Integrative Model of Ecological Theory

Aiming to connect social disorganization and routine activities/lifestyle theories in one ecological model, researchers found two analytical models appropriate. The first model is an individual-level model that includes contextual variables. In this model, all individual and contextual variables are coded at an individual level. For example, some individuals within the same spatial unit have the same values as contextual-level variables (Miethe & McDowall, 1993; Sampson & Wooldredge, 1987). The other model is HLM, which allows fixed and random effects at the aggregate level. Most integrative studies using multilevel models have been tested with HLM (Roh et al., 2010; Sampson et al., 1997; Zhang et al., 2007). These models have become some of the most advanced statistical tools in criminal justice research. However, this dissertation proposes to implement a contextual model to link the micro- and macrolevel ecological theories of crime due to the limitation of data.

In terms of studying victimization, some studies have argued that it is more useful to consider the individual level of vulnerability than to predict contextual effects from aggregate-level variables (Miethe & McDowall, 1993; Sampson & Wooldredge, 1987). On the other hand, others have emphasized that with its advanced analytical ability, HLM can capture more sophisticated associations among variables (Roh et al., 2010; Sampson et al., 1997; Zhang et al., 2007). By using a contextual approach, this study offers a holistic explanation of an integrated social disorganization/routine activities theoretical framework.

While integrative ecological studies on crime and victimization have caught criminologists' attention in Western countries, little is known about Eastern contexts. Recently, Messner (2014) highlighted that comparative studies between social institutions (e.g., Eastern

and Western) would benefit from understanding not only the similarities between the phenomena but also institutional influences. As Messner (2014) emphasized, "Given that criminological theory has been constructed and nurtured primarily within a Western context, research on crime and criminal justice in Asian societies can, and undoubtedly will, play a leading role in advancing theory development in the years ahead" (p. 60). Wthin the little literature available, most English-language studies relate to control and/or strain theory in relation to youth (e.g., Hwang & Akers, 2003; Yun & Walsh, 2011). Furthermore, studies using social disorganization theory and/or routine activities/lifestyle theory in South Korea—espeically integrative studies—are severly lacking. Therefore, this study aims to add insight on the issue by studying South Korea with this novel and creative methodology within this contextually-flexible theoretical approach.

Roh et al. (2010) conducted the study most closely related to the integration of social disorganization and routine activities/lifestyle theories in Korea, using a single year's Korean Crime Victimization Survey (2003) with a limited sample in the Seoul area. According to this multilevel study using HLM, both contextual effects and individual-level effects were only partially related to crime victimization. Some findings contradicted previous findings in Western contexts, particularly the weak association between an individuals' behaviors, community cohesion, and victimization. Only residential stability had a steadyassociation with victimization. Rho et al. (2010) reasoned that these results were related to a substantially lower level of fear of crime in Korea and a small number of victimization cases. While this study provides a good structure for theory integration, the methodology, technique, and scope could be expanded to the national level. Moreover, a longitudinal approach may enhance the results and further explain changes among different variables.

Other comparative studies of social disorganization and routine activities/lifestyle theories in Asian countries have been conducted in China (e.g., Jaing et al., 2013; Zhang et al., 2007) and Taiwan (e.g., Yang & Hoffman, 1998).While some results from a study of delinquent youth in Taiwan in the late 1990s referred to Western studies, the study included individual-level variables from different theories (e.g., individual involvement in conventional activities—an indicator from control theory) rather randomly without providing theoretical background. Alternatively, Zhang et al. (2007) conducted a multilevel studyofhousehold burglary in Tianjin, China (2007). Using hierarchical logistic regression, the study presented differences among communities in Western cities and routine activities/lifestyle variables that were proven to be generalizable to Chinese cities. Social disorganization indicators (i.e., residential mobility and poverty) were not related to victimization positively or negatively. Another multilevel study (Jiang et al., 2013) in urban China attempted to find associations between collective efficacy in neighborhoods and individual perception of neighborhood crime. The findings showed opposite results to conventional Western studies on social disorganization: poverty was not related to lower community cohesion, lower residential stability was not linked to weak collective efficacy, and perceptions of crime in the community did not have any impact on these relationships.

A significant difference between Western and Eastern studies on crime and victimization concerns levels of racial heterogeneity. In particular, South Korea has been termed "the single race society," with a population that is 99% of Korean ethnicity (Central Intelligence Agency, The World Fact Book, Korea, South). Therefore, for the current analysis, ethnic heterogeneity was not included in the model. Other variables included will be discussed in depth in the results sections of the dissertation to understand better the limitations created when examining crime and victimization in Korea within the framework of Western criminological theory.

Geographical and Longitudinal Approaches

As community- or city-level analyses can be presented on maps, geographical analysis is often used in studies using ecological theory and macrolevel studies in general. Along with the added dimensionality of the geographical approach, many theorists argue for the necessity of longitudinal analysis, which is often overlooked when testing theory. Additionally, the lack of available data has been a consistent issue when attempting an integrative study in criminology.

Responding these demands, the relatively new method of spatio-temporal analysis has been highlighted in recent years. Spatio-temporal analysis efficiently determines the results of dynamic processes over different areas and times. The general term *spatio-temporal* refers to both space and time. Unlike analytic strategies of spatial and/or temporal analysesthat deal with space and time separately, spatio-temporal analysis considers both place and time patterns simultaneously and, most importantly, independent of time and space uniquely. Currently, without an officially established definition of spatio-temporal research, any studies considering both spatial and temporal aspects are regarded as a spatio-temporal study. Research using spatio-temporal data has grown since the 1990s, particularly in environmental research (e.g., for tracking birds' migrations, evaluating acid distribution in a body of water, or predicting weather). In the last 15 years, there has been an increasing number of spatio-temporal studies conducted on crime and in crimse statistics reports (Law et al., 2014). Police and government agencies in different cities, states, and countries have displayed the distribution of crimes geographically and sometimes over different time periods.

Hot spot analysis is another example of a spatio-temporal technique. Ratcliffe's (2004) study was one of the first to introduce spatio-temporal analysis to the field. The author created a matrix of three types of spatial hotspots (i.e., dispersed, clustered, and hotpoint) and three types

of temporal hotpots (i.e., diffused, focused, and acute) based on crime patterns. The study aimed to be practically useful to make decisions on law enforcement distribution/representation in the city. Ratcliffe (2004) suggested that the police force ought to locate surveillance strategically according to the area's characteristics. The matrix has not been systematically evaluated.

More recently, researchers have found more operational success using various spatial analytical packages such as ArcGIS and R. Studies have focused on offending patterns, police operations, and the interactions (e.g., Grubesic & Mack, 2008; Frazier, 2013; Law et al., 2014; Porter, 2010, 2011; Ratcliffe, 2004; Wyant et al., 2012). For example, Groff (2007) utilized a geographic information system and agent-based modeling to measure how individual activity and the street network affected robbery on the street. The study found that robbery patterns were distributed over 94% of the street nodes, however on more densely populated streets, a higher crime risk was anticipated.

While most of the spatio-temporal studies on crime have been beneficial to criminal justice agencies such as the police department, spatio-temporal studies focusing on ecological theories of crime have been limited. Steenbeek and Hipp (2011) tested social disorganization theory longitudinally from 1995 to 2006 in 74 Dutch neighborhoods with cross-lagged model analysis; the results showed that neighborhood-level disorder was accountable for social control and residential turnover, which led to more disorder in the neighborhood. This study showcased a longitudinal aspect of the theory successfully, yet less directly focused on the spatial aspect of the analysis. Moreover, no studies have combined integrated ecological theory with spatio-temporal methods thus far, though there are multiple examples of why it is important to integrate both space and time into any ecological analysis of crime. In an aim to overcome the current

limitation, this dissertation introduces geographical presentations of analysis with a temporal aspect.

Research Hypotheses

The current study proposed the following research hypotheses, divided into four phases to achieve the research goal.

Phase 1: Testing Social Disorganization Theory(Aggregate Level)

1.1 The spatial units with a lower socioeconomic status will have higher victimization rates than other spatial units.

1.2 The spatial units with a lower level of residential stability will have higher victimization rates than other spatial units.

1.3 The spatial units with a lower level of collective efficacy will have higher victimization rates than other spatial units.

1.4 The explanatory variances of the analysis will change over years.

Phase 2: Testing Routine Activities/Lifestyle Theory (Individual Level)

2.1 An individual with ahigherlevel of target suitability will be more likely to be victimizedthan an individual with alower level.

2.2 An individual with a lowerlevel of guardianship will be more likely to be victimizedthan an individual with ahigherlevel.

2.3 The explanatory variances of the analysis will change over years.

Phase 3: Testing Contextual Model of Ecological Theories

3.1 Both elements of independent variables at the aggregate and individual level from each theory will explain the victimization better in multilevel analysis than in separate model analysis.

3.2 The explanatory variances of the analysis will change over years.

Phase 4: Time-Lagged Models of Ecological Theories

4.1 A spatial unit with a lower socioeconomic status in the previous year will be more likely to be related to more victimization in the following year.

4.2 A spatial unit with a lower level of residential stability in the previous year will be more likely to be related to more victimization in the following year.

4.3 A spatial unit with a higher level of aggregate target suitability in the previous year will have more likelihood of victimization rate.

4.4 A spatial unit with a lower level of aggregate guardianship in the previous year will have more likelihood of victimization rate.

CHAPTER 3

METHODOLOGY

Sources of Data

The current study primarily analyzed seven sets of publically available data from the Korean Crime Victimization Survey (KCVS) from 1993 to 2010. For the spatial description, administrative divisions of South Korea were used. Spatial data was obtained for the years of the KCVS datasets (1993–2010) from the Statistical Geographic Information Service website operated by Statistics Korea. The data was analyzed with the theoretical framework using multiple statistical and descriptive spatial techniques to understand victimization in South Korea.

Korean Crime Victimization Survey

The Korean Crime Victimization Survey was the primary source of data for the current study. This national survey is conducted biannually jointly by two government agencies, the Korean Institute of Criminology and Statistics Korea. The primary goal of the survey is to (a) learn victimization rates, (b) report behaviors and characteristics of victimization, (c) assess the societal cost of victimization, (d) identify elements related to victimization at individual and household levels, and (e) identify public perceptions and fear of crime. The data is used to construct criminal justice policies and prevention strategies. The survey questionnaire includes a series of questions related to criminal victimization as well as socioeconomic status, neighborhood characteristics, individual behaviors and lifestyles, and the criminal justice system.

The target population of the survey is household members who live in South Korea at the time of the survey. The sampling method and survey zone follows the Population and Housing

Census by Statistics Korea. In the case of the 2010 data, 6.62% household victimization rates' relative standard error, the number of sampling households was decided at 7,550. The survey was conducted with 10 houses per the 755 survey zones between April and May for approximately 15 days by survey agents who had been educated before the survey started. The survey agents visited the households and conducted face-to-face interviews, asking for data on the previous year. For the 2010 data, a total of 7,550 households and 16,577 individuals were interviewed.

Even though, KCVS is meant to be a biannually collected survey, the years available are inconsistent with 2–4 year gaps (mean=2.8 years). The years of data collection were consequently 1993, 1996, 1998, 2002, 2005, 2008, 2010, and 2012, though the 2012 dataset was not publically available at the time of the study. Before 2008, the survey was solely conducted by the Korean Institute of Criminology with smaller sample sizes (approximately 2,000 samples per dataset) than the later datasets (more than 10,000 samples per dataset). From 2008, Statistics Korea joined the survey project, reformed the structure of the survey, and applied the sampling methods of Census Korea. Moreover, before the reform datasets had limited geographical information and a smaller number of areas covered. Later datasets (2008 and 2010) also included community-level spatial information in the survey. The survey is publically available for research purposes on Crime and Criminal Justice Statistics website operating by the Korean Institute of Criminology. The website requires signing up with a Korean resident registration number and login to download the datasets along with the questionnaire.

Furthermore, due to the survey was collected in person by the educated agents, level of missing data is close to none (98 to 99 percent response rate). Even though, there were a few

missing values among the variables, the responses were kept except missed 50 percent or more response.

Categorization of Geographical Identification

The current study uses the official administrative divisions of South Korea at city/province and community levels. The administrative divisions in South Korea consist of nine provinces (*do*), including one special autonomous province (*teukbyeoljachi do*), six metropolitan cities (*gwangyeok si*), and one special city (*teukbyeol si*). Within the province, areas are divided into cities (*si*) and counties (*gun*); while metropolitan and special cities have districts (*gu*) composed of neighborhoods (*dong*). Cities typically consist of neighborhoods, towns (*eup*), and townships (*myeon*); while counties consist of towns, townships, and villages (*ri*). These divisions are based on population along with geological characteristics. The details of these divisions are illustrated in Table 1 as follows.

Table 1. Administrative Divisions in South Korea

Divisions		
Upper division ---------- Lower division		
Province	City	Neighborhood
	County	Town Township Villages
Special & Metropolitan City	District	Neighborhood

The special city is the capital city of South Korea, Seoul, populated by more than 10,000,000 (10,117,909 at present, 2014). The population requirement of the metropolitan city is 1,000,000 citizens; thedistrict is 500,000. A regular city's minimum population requirement is 150,000, a town is 20,000, and a township is 6,000. In order to keep the consistency of spatial

levels over the years, this study used the city/province level (provinces and special/metropolitan cities) for all years.

Discussion on the best spatial unit for within and between group analyses is debatable as different kinds of literature use different levels of analysis. According to Land (1990), county-level analysis is adequate for social sciences studies including criminal justice. However, others (e.g., Messner et al., 1999) argued the metropolitan level of analysis is a better measure because it represents neighborhood characteristics well. However, most of the existing studies using spatial divisions have employed state-level analysis and found substantial outcomes regarding crime and criminal justice (Land, 1990; Messner et al., 1999). Therefore, the current study used city and province levels as spatial units of analysis to find the results.

Measurement and Operationalization

The variables included in the current study were based on the social disorganization and routine activities/lifestyles theories, which both originated in a Western context. The analysis followed the structural frameworks of the original theories to distinguish similarities and differences with Western studies. However, in order to apply these theories to an Eastern context, each variable was operationalized to consider the cultural context, in this case for South Korea. All variables were calculated from datasets to present empirical relationships accurately.

Dependent Variables

The dependent variables for the current study were computations of victimization data. Both individual- and aggregate-level dependent variables were constructed from the KCVS. The dependent variables at individual-level constructed binary and frequency format during the dependent variables at aggregate-level consist of victimization rate for each spatial unit. The victimization rate at the aggregate-level was computed by summing the frequency of all

victimizations per each spatial unit, dividing the number by the total number of respondents in the unit, and multiplying it by 100,000 following the previous literature. The study categorized three separate victimization variables: total, household, and personal victimization. This victimization categorization differs from the criminal typology in the Uniform Crime Report by U.S. Federal Bureau of Investigation, one of the conventional forms of data in the United States. Unlike the official U.S. crime rate, which uses the Federal Bureau of Investigation's index crimes (murder, rape, robbery, burglary, assault, motor vehicle theft, and larceny), victimization was categorized as either personal (assault, robbery, pickpocketing, sexual harassment, and sexual assault) or household (burglary and vandalism). Thus, the current study followed the previous victimization studies' categorizations/victimization index (Gottfredson, 1984). In particular, the KCVS collected the victimization data as follows: house burglary, house intrusion, house vandalism, robbery, threat, assault, sexual assault, harassment, stalking, and the scheme. Some of victimization, such as scheme, identity theft, and voice phishing—comparatively new types of victimization included only in the 2008 and 2010 surveys—were disregarded to maintain the consistency of the data and analysis for all years.

Table 2. Categorization of Types of Victimization

	1993	1996	1998	2002	2005	2008	2010
Household victimization	Household Burglary	Household Burglary	Household Burglary	Household Burglary	Household Burglary	Household Burglary	Household Burglary
	Household Vandalism	Household Vandalism	Household Vandalism	Household Vandalism	Household Vandalism	Household Vandalism	Household Vandalism
Personal Victimization	Robbery	Robbery	Robbery	Robbery	Robbery	Robbery	Robbery
	Pickpocketing	Pickpocketing	Pickpocketing	Pickpocketing	Pickpocketing	Threat / Assault	Threat / Assault
	Assault	Assault	Assault	Assault	Assault	Sexual Harassment / Assault	Sexual Assault

	Sexual Assault / Harassment Rape	Rape / Sexual Assault / Harassment	Rape / Sexual Assault / Harassment	Rape / Sexual Assault / Harassment	Rape / Sexual Assault / Harassment	Stalking	Harassment/ Stalking

Table 2 (cont.)

The analysis aimed to understand the aggregate-level and individual-level independent variables accounting for victimization patterns. Therefore, different dependent variables were used to see if any different patterns exist. Each year's dataset was handled separately from coding to analysis; however the variables were all standardized in order to be comparable with all years.

Data Processing for Dependent Variables

The details of constructing the dependent variables are as follow. Overall, the total number of datasets was seven, from 1993 to 2010 (1993, 1996, 1998, 2002, 2005, 2008, and 2010). For the purposes of the analysis, I relabeled the variable names to be uniform as each dataset originally had its own labels for the variables. After matching all variables' names, I computed individual-level victimization variables. I first constructed the frequency of personal victimization by summing the number of personal victimizations (i.e., robbery, assaults, and harassments) each person indicated. The same procedure was executed to compute the frequency of household victimization. The frequency of total victimization was calculated by combining the two numbers of frequencies from each type of victimization. Based on the three frequencies of victimization, I constructed binary variables of personal, household, and total victimization. The value of victimization for "No" (coded 0) where the frequency of victimization was 0, "the value of binary code for "Yes" (1 and more) was coded as 1. Because the data distribution of frequency was Poisson distribution, the values were logged using the natural log to convert the

distribution to normal. Secondly, aggregate-level dependent variables were constructed by victimization rates at the city/province level from 1993 to 2010. For each spatial unit, victimization rates were calculated bysumming the frequency and binary of victimization divided by the number of respondents, then multiplying by 100,000 in keeping with the literature.

Table 3. Individual-Level Dependent Variables

Victimization at Individual Level		
Variable Name	Label	Measure
personvic	Personal Victimization	Binary
housevic	Household Victimization	Binary
totalvic	Total Victimization	Binary
fpersonvic	Frequency of Personal Victimization	Scale
fhousevic	Frequency of Household Victimization	Scale
ftotalvic	Frequency of Total Victimization	Scale

Social Disorganization Variables

The social disorganization theory variables consistedof three phases of variables at the aggregate-level: disorganization of the neighborhood, social cohesion, and victimization. The disorganization of the neighborhood included variables following the previous research on social disorganization (Shaw & McKay, 1942; Sampson et al., 1997), socioeconomic status, residential stability, and ethnic heterogeneity. However, the ethnic composition of the Korean population is 99% Korean (CIA, 2015; Kang et al., 2010). Therefore, ethnic heterogeneity was automatically controlled in this case. Socioeconomic status and residential stability were latent variables constructed by specific variables. First, socioeconomic status was constructed with the variables of marital status, education level, household income, and occupation. Second, residential stability was comprised of years living in the current residence and ownership of the residence. The second phase, neighborhood cohesion, refers to collective efficacy (Sampson et al., 1997). As

discussed in the literature review, neighborhood cohesion was measured with three latent variables: community bond, neighborhood's environmental disorder, and police effectiveness in the neighborhood. Each latent variable consisted of a series of questions that could be constructed as an index-latent variable. The details of questions are illustrated in Table 4. Each year's dataset had variations in the number of questions and/or wording, yet the results of reliability tests confirmed that Cronbach's alpha for each latent variable was consistent across the datasets ($\alpha > 0.6$). These three latent dimensions were also reduced into one latent variable, collective efficacy, for parsimoniousness of analysis. The residential stability was calculated using the average scores of the years spent living in the same household (Coded 1 = lived 5 years and longer; 0 = other) and ownership of household (Coded 1 = own; 0 = other). Also, as control variables for the social disorganization model, the mean age, gender ratio, and urbanization status of each neighborhood were included. Lastly, all measurements were aggregated at the city/province level as mean values for aggregate-level analysis. The data from the KCVS 2010 survey is presented as an example in Table 4. Details of each year's original and recoded items are attached in the Appendix A.

Table 4. Details of Collective Efficacy of Social Disorganization Latent Variables

Neighborhood Cohesion of Social Disorganization			
Latent Variables	Variables	Label	Measure
Community Bond (combond)	combond1	My neighbors know each other well	1=Never 2=A little 3=Somewhat 4=Much 5=Very much
	combond2	My neighbors often talk about events in our neighborhood	
	combond3	My neighbors help each other when there is a difficult situation	
	combond4	My neighbors corporately participate neighborhood events	
	combond5	My neighbors will help in any way when a neighbor's child is being bullied by other children	
	combond6	My neighbors will call the police when crime occurs	
	combond7	My neighbors will participate neighborhood watch patrolling if needed	
Neighborhood Environmental Disorder (ndisorder)	ndisorder1	Garbage is everywhere and not organized in my neighborhood	
	ndisorder2	There are lots of secluded and dark areas in my neighborhood	
	ndisorder3	There are lots of abandoned cars or buildings in my neighborhood	
	ndisorder4	Many people violate public orders	
	ndisorder5	A lot of juvenile delinquents are loitering	
	ndisorder6	I can often see people fighting or making loud arguments	
Police Effectiveness (police)	police1	Police patrolling well	
	police2	Police will come immediately when crime is reported	
	police3	Police will catch the criminals when crime is reported	

Routine Activities/Lifestyle Variables

Routine activities and lifestyle models consider two latent independent variables, suitability of target and guardianship. The two index variables were composed of particular variables often used in routine activities and lifestyle theory. Unlike social disorganization independent variables, routine activities and lifestyle independent variables were required to consider the specific type of victimization (personal or household). This division was based on

the logic that a particular individual's behavior and lifestyle related to personal victimization, such as spending more time outside or wearing expensive clothes, must be separated from an individual's behavior and lifestyle related to household and household victimization. Therefore, each type of victimization model had different variables for suitability and guardianship regarding the type of victimization. Target suitability included variables associated with an individual or household's level of exposure and attractiveness to possible offenders. The guardianship index was measured with variables indicating any personal or household protective behaviors. The details of variables are illustrated in Table 5. Again, for these independent variables, each year's dataset had variations in the number of questions and/or wording, however the results of reliability tests confirmed that Cronbach's alpha for each latent variable was consistent across the datasets ($\alpha>0.6$). Lastly, age and gender were added to the routine activities and lifestyle model as control variables. The KCVS 2010 survey data is presented as an example in Table 5. Details of each year' original and recoded items are attached in the Appendix.

Table 5. Details of Target Suitability and Guardianship of Routine Activities/Lifestyle Latent Variables

Target Suitability and Guardianship of Routine Activities/Lifestyle				
Victimization Type	Latent Variables	Variables	Label	Measure
Personal Victimization	Target Suitability (ptarget)	ptrans	Use of public transportation	1=Never 2=Rarely 3=Sometimes 4=Often 5=Always
		clothes	Wear expensive clothes	
		jewelry	Wear fancy jewelry	
		fhomelate	Frequency of coming home late	
		fhomempty	Frequency of home empty	
	Guardianship (pguard)	spa1	Bringing self-defense tools	
		spa2	With someone at night	
		spa3	Avoid certain area	
		spa4	Avoid schedule at night	
		spa5	Not taking taxi alone at night	
Household Victimization	Target Suitability (htarget)	fhomelate	Frequency of coming home late	
		fhomempty	Frequency of home empty	
	Guardianship (hguard)	hpa1	Lock windows before going to bed	0=No 1=Yes
		hpa2	Ask a neighbor to look out when out	
		hpa3	Installed double locks	
		hpa4	Installed iron grating	
		hpa5	Installed video phone	
		hpa6	Use entrance card	
		hpa7	Have a security system	
		hpa8	Have a security guard	
		hpa9	CCTV around house	
		hpa10	Have outer lights around the house	

Data Processing for Independent Variables

Like the dependent variables, the procedure for processing independent variables began with unifying all variables' names and labels throughout the years. For social disorganization variables, I followed the computations from the majority of previous studies on social disorganization theory. First, like the socioeconomic status variable, the percentages of married and cohabitant, college educated, higher household income, and professional or managerial position were calculated. Each component of the variables wasinitially collected at the individual level based on several answer choices. I recoded the values into binary so that I could calculate the proportion of the variable for each spatial unit. Second, residential stability index was constructed with two variables, years living in the current residence and ownership of the current residence. I recoded the years living in the currentresidence into "living less than 5 years" (coded as 0) and "living 5 years and more" (coded as 1). The ownership of the current residence was coded into binary, with "own" coded as 1 and "other" coded as 0. These variables were also aggregated at the spatial-unit level, presenting the percentage of individuals living in the current residence for 5 years and more and percentage of owned residences. After all social disorganization aggregate-level variables were calculated as apercentage per spatial unit, each latent variable (i.e., socioeconomic status and residential stability) was calculated using factor regression to present the dimension parsimoniously. The eigenvalue of socioeconomic status was 4 and residential stability was 2 ($\alpha>0.6$). The details of each variable's raw measurement and recoded information are illustrated in Table 6.

Table 6. Details of Variable Construction of Neighborhood Social Disorganization

Variables Measurements of Neighborhood Social Disorganization				
Latent Variables	Variables	Label	Original* Measure	Recoded Measure
Socio-Economic Status (ses)	married	Marital Status	1: Single 2: Married w/ Spouse 3: Married w/o Spouse	1: Married w/ Spouse 0: Others
	hiedu	Highest Education	1: Elementary 2: Junior High 3: High School 4: Community College 5: University 6: Graduate School and more 7: Never went to school	1: College educated 0: Others
	incomh	Household Income	1: None 2: <1,000,000 KRW** 3: 1,000,000 to < 2,000,000 4: 2,000,000 to < 3,000,000 5: 3,000,000 to < 4,000,000 6: 4,000,000 to < 5,000,000 7: 5,000,000 to < 6,000,000 8: 6,000,000 to < 7,000,000 9: 7,000,000 to < 10,000,000 10: 10,000,000 ≤	1: High 28%*** 0: Low 72%
	job	Occupation	1: Professional / Managerial 2: Office Job 3: Service / Sales 4: Agricultural 5: Technician 6: Labor Job 7: Career Soldier 8: Housewife/husband 9: Student 10: Unemployed / Others	1: Professional / Managerial 0: Others
Residential Stability (rs)	liveyr	Year(s) lived in the current residence	Number of year(s)	1: 5 Years and more 0: Less than 5 years
	ownh	Ownership of the current residence	1: Own 2: Lease 3: Rent 4: Others	1: Own 0: Others

Notes. *KCVS 2010 survey data is presented as an example. Details of each year's original and recoded measurements are attached in the Appendix. ** South Korea Won (KRW) averaged 1120.60 per 1 dollar from 2005 to 2010. *** Each year's dataset has different baselines between high and low household incomes depending on the year's income distribution. The high-income item calculation was the best estimate of the top quarter of the total population per year (23–39%). The household incomes before 2008 data were collected as a scale and later changed to ordinal measure for 2008 and 2010.

Collective efficacy for this study was represented by community bond, neighborhood's environmental disorder (reverse coded), and police effectiveness, considering the context of analysis. Each dimension's responses were scaled using a 5-point Likert scale. After individuals' responses had been calculated using regression factor scores ($\alpha>0.6$), the scores were aggregated at the community-level as a mean. I combined the three scales into one latent variable, collective efficacy, after confirming that the three dimensions of collective efficacy had a close association at the aggregate-level, which suggested they shared the same aspects of one latent variable. Lastly, an average of age, gender (1 = Female; 0 = Male), and urbanization status (Urban = 1; Other = 0) of the spatial unit were included as control variables.

Latent variables of the routine activities and lifestyle model were constructed by reducing their dimensions from original survey data. Three latent variables, personal target suitability and guardianship variables and household target suitability were measured using a 5-item Likert-scale. I then conducted a factor analysis to create regression factor scores for each variable. The household guardianship variable was collected as binary (Yes = 1; No = 0). Here, the level of guardianship was considered as a number of action that individuals would take. Therefore, I aggregated the responses, then created the standardized scale. In order to create consistency of the scale throughout the model, I also standardized scales for the other three variables. Lastly, individuals' ages and genders (1 = Female, 0 = Male) joined the models as control variables. Following figures 6-8 present diagrams of data processing

Figure 6. Process of Variable Construction of Phase 1 in Social Disorganization Model

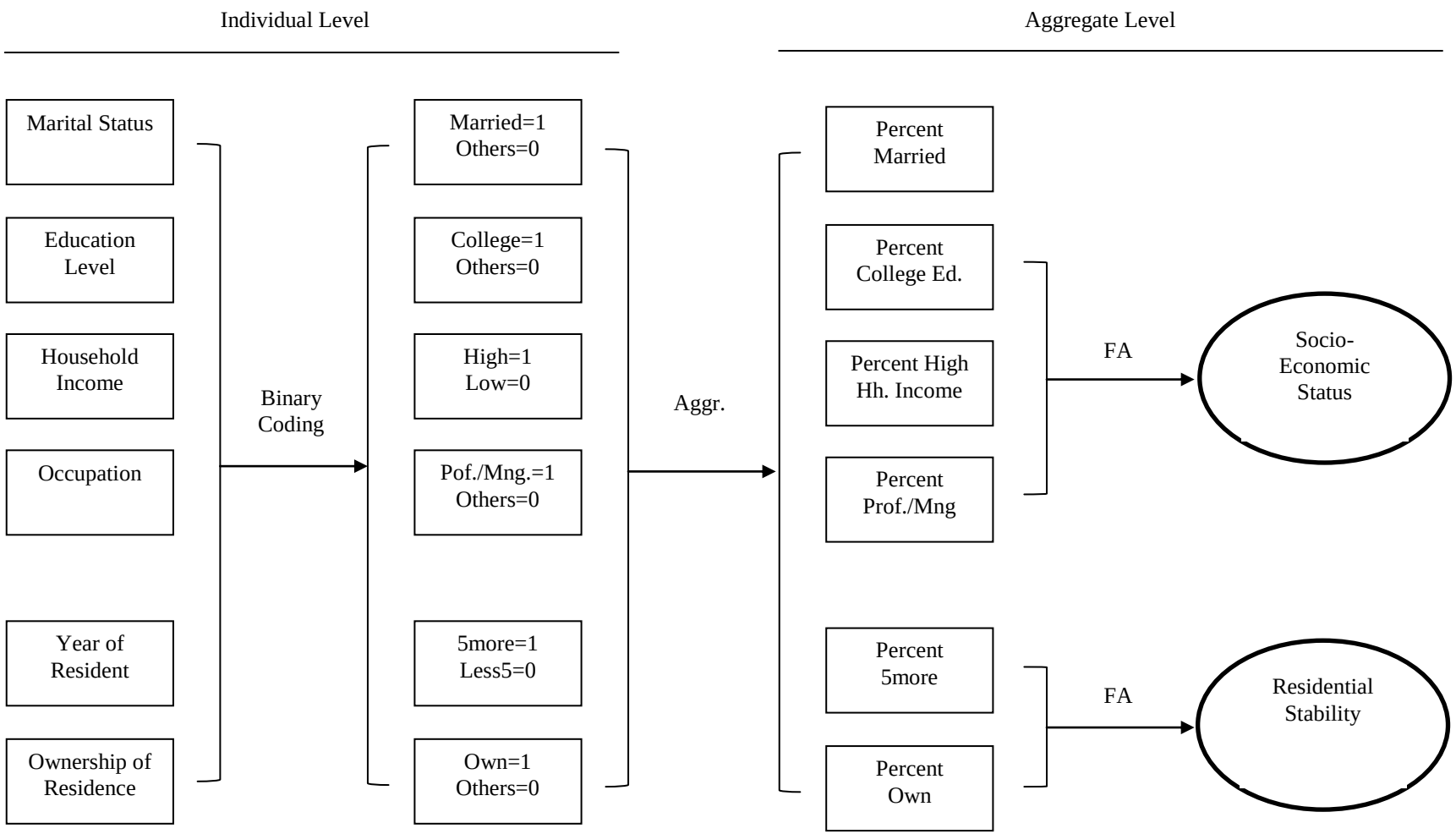


Figure 7. Process of Variable Construction of Phase 2 in Social Disorganization Model

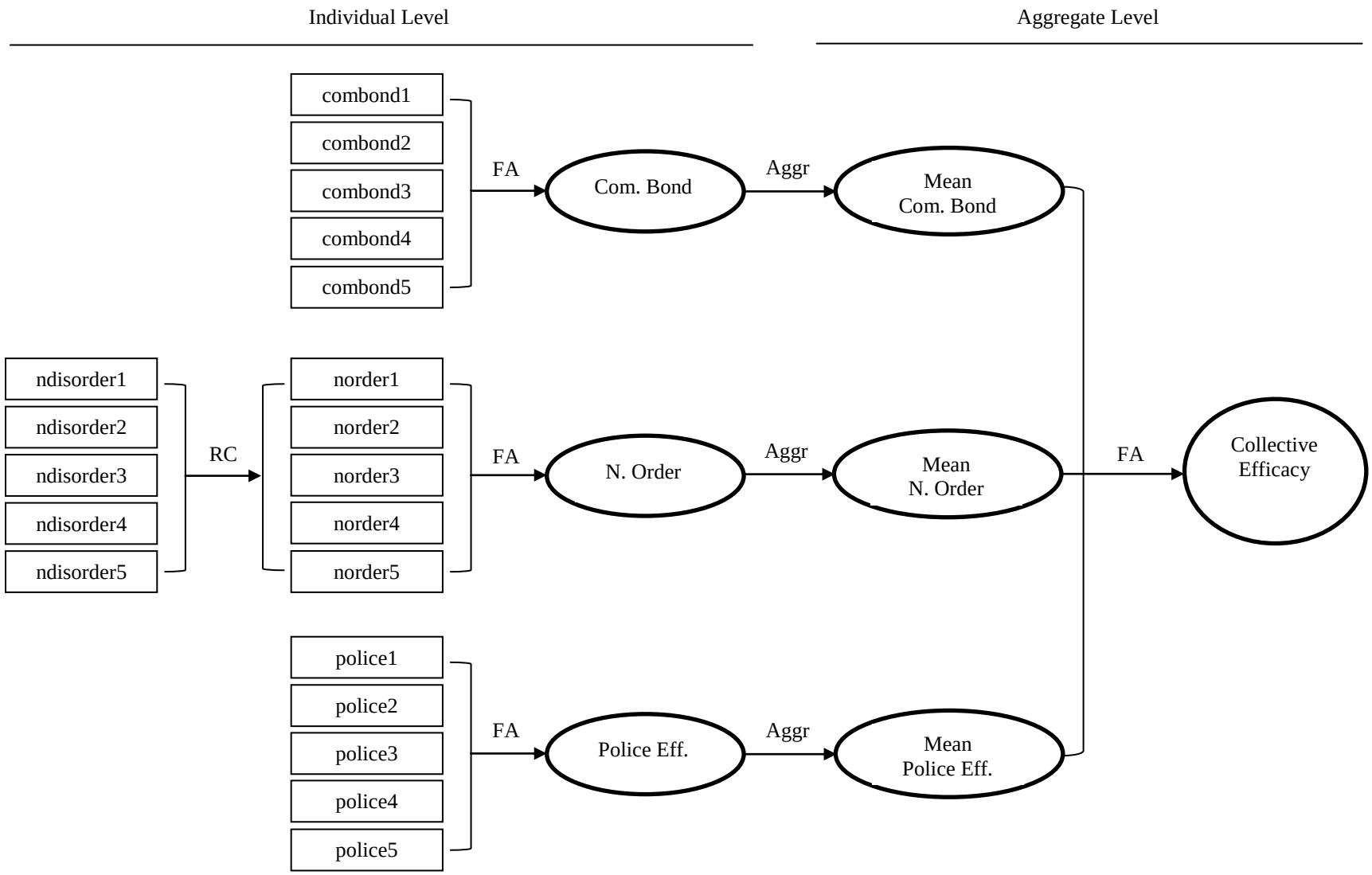
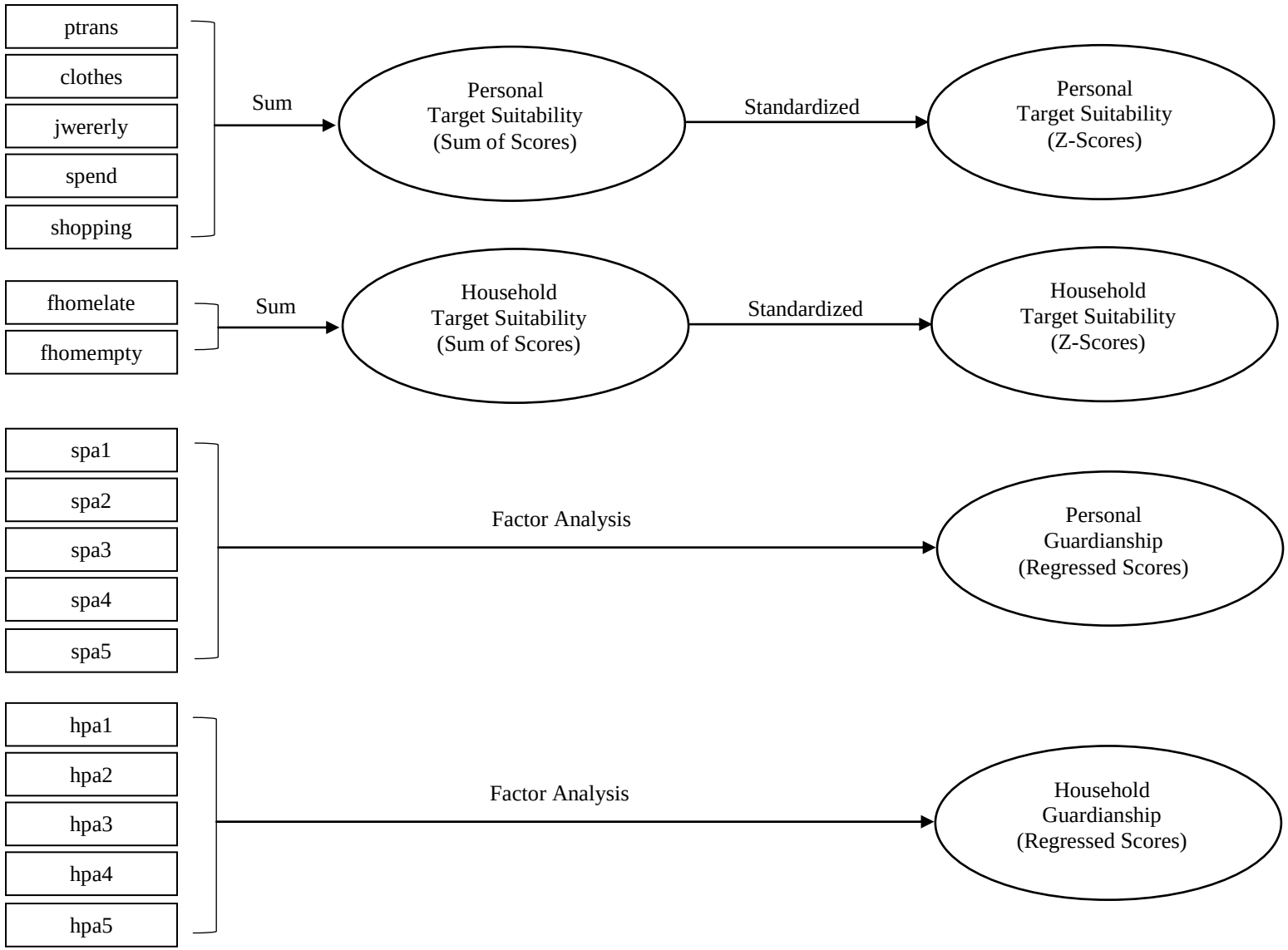


Figure 8. Process of Variable Construction of Routine Activities/Lifestyle Model



Analytic Techniques

The current study's analysis consisted of multiple phases of statistical examination, and descriptive, explanatory, and exploratory analyses. Using data from 1993 to 2010, the analytic plan for this study was a series of cross-sectional, longitudinal analyses. The first phase was descriptive and baseline analyses that identify the statistical patterns of the data at the individual and aggregate levels. In order to understand the individual and aggregate levels of statistical description, dependent (i.e., personal, household, and total victimization) and independent variables (i.e., social disorganization and routine activities/lifestyle variables) were individually analyzed by the individual and aggregate unit as well as each year.

The second phase was the explanatory models of analysis of ecological theories on crime. By applying existing theoretical frameworks to the current study's statistical modeling, the models adopt proper adjustments depending on the data distribution results from the previous chapter. This analysis began with the baselineanalysis using the Ordinary Least Squares approach on the social disorganization aggregate level and the routine activities/lifestyle individual-level for each year of the dataset. After this, a single-level analysis was conducted followed by two different techniques of contextual analysis. Contextual analysis at the aggregate level using variables of ecological theories was performed to distinguish differences and similarities from previous Western research. All analyses concerned each type of victimization (personal, household, and total victimization). The results show which and how much a theoretical model or variable can explain the victimization in the contextual model. This chapter deliberates the theoretical explanations along with cultural aspects.

Current study attempts to learn each of original theoretical application to South Korea as well as integrated model of the two theories in timely manner. Integrative theoretical application aims to preserve the original variables and combines essential forms of statistical approach. Unlike most of the previous studies, this project attempts to understand not only each of original theoretical model but the integrative models with least modifications of variables. Even though some scholars of each theory argued that one theory can include the other, this project tries to consider two theoretical models with even attention. This approach gives two main advantages: changes of variables can be observed clearly and easier to compare which theoretical model is more responsible than the other.

Because the data in this study is not panel data, it is difficult to use longitudinal analysis to understand yearly trends of theoretical applications at individual level. Moreover, the number of spatial division of data is 14 to 16, substantially small number to conduct highly sophisticated model analysis at aggregate level. With these limitations, the current study obtained utmost accessible statistic models to understand the application of the theories. A series of year-specific model analyses was chosen to present year differences among the model analysis both at individual and aggregate level. This approach provides easier explanations for the current research questions.[1]

The third phase was the time-lagged analysis conducted to explore any other possible explanation on victimization in South Korea using ecological theories and variables. The analysis used a panel data time-lagged approach at the city/province level from 1993 to 2010. Based on the results, transmissions of each theoretical model's adequacy show the longitudinal

[1] To obtain its confidence of model analysis year by year, analyses of the pooled data with a control for a year was run. According to the results, the contributions were neither above nor beyond what can be understood from the year-specific-models. Therefore, the current study kept the originally intended models.

aspect of the theoretical approach over the years. A further approach used was testing the aggregate level of the routine activities/lifestyle theory as another exploratory approach of ecological theories of crime. Additional details on each analytical step follow.

Descriptive Analysis

The descriptive analysis included several stages of simple statistical and spatial descriptive examinations. The first phase began with a basic descriptive analysis of all variables in the study to understand the distributive patterns and compare results across the spatial units. More specifically, the descriptive analysis first considered the individual-level distribution of variables and, subsequently, the aggregate-level distribution. All variables were analyzed taking into consideration their normality and fitness for structuring analysis models. Next, mean differences were calculated throughout the values within the variables, spatial units, and years of datasets. Three particular types of victimization (personal, household, and total victimization) were examined to learn differences between means of rates across spatial units according to city/province, urbanization status, and time of datasets. Moreover, this part of the analysis included multiple bivariate analyses between variables as well as individual correlation and regression tests to confirm any probable associations among variables at both individual and aggregate level. The last descriptive analysis stage was an exploration of the geographical distribution of independent and dependent variables to check spatial correlation of the variables (i.e., whether the data was clustered or dispersed). This step of the analysis showed the patterns via visual presentation, furthering the background analysis for descriptive spatial examination.

It is essential to note that the victimization rates in these datasets were significantly low, between .06 and .28, often considered statistically undesirable because the small level of variance dependency can be related to low significance levels in statistical models (Osgood,

2000). In addition, the significant change in sample size from datasets before 2008 (N = 2,000s) to 2008 and 2010 (N = 10,000s) was an issue. The large sample size made analysis statistically significant (Tabachnik & Fidel, 2006). Thus, later years' analyses present substantive significance throughout the analyses. However, these datasets represent the current phenomenon in South Korea. Therefore, significance was analyzed in great detail with *post hoc* tests and partial-eta-square tests, similar to regression statistics but within the variable classification (Ott & Longnecker, 2000).

Explanatory Analysis

Building upon these results, the second phase of analysis tested the hypotheses of the current study by adopting theoretical models. A series of regression-based analyses followed each hypothesis across the datasets. Because the majority of the analyses were based on the regression model, any violation of regression assumptions was checked before entering model tests. Depending on the violation test results, appropriate adjustments were made such as using different linear or nonlinear models and removing outliers. This step was necessary to confirm results before conducting the multilevel analysis in order to build statistical confidence. While modifying the particular types of regression within the analytic models, I fixed the same model per each theoretical frame over the years in order to see the differences in model variance throughout the years.

In this analysis, first a statistical approach to the social disorganization model used aggregate-level multiple regression analysis on the independent variables (i.e., neighborhood characteristics including collective efficacy) and dependent variable (i.e., victimization). Second, the individual-level routine activities/lifestyle model was employed using multiple regression analysis to explain the association between individuals' behaviors and victimization. Third, the

contextual model synthesizing social disorganization and routine activities/lifestyle approaches used multiple regression with both models at both level of analysis. Up until the third phase, the primary goal of the analysis was to test the theoretical models in an Eastern context in order to prove any differences or similarities with the previous studies in Western contexts. Three different dependent variables were built into each analysis model to understand how differently the models worked depending on the type of victimization (total, personal, and household). Since the analysis was a series of cross-sectional examinations of the years between 1993 and 2010, I was able to explore changes in variances on each theoretical model in the study over this time period (temporal analysis).

The spatial analysis of the current study used a descriptive analytic approach with a visual presentation. Similar to longitudinal panel analysis, the spatio-temporal panel model needs a sufficient number of samples to build statistical confidence as a statistical model (Porter, 2008). However, because of the limited data (i.e., less detailed geographical information available in some datasets), the analysis level was the city/province level, for which there was universal spatial information throughout the datasets. Therefore, the geographical analysis as limited to present graphical patterns, which was not enough to build a statistically sound model. Despite the fact that the spatio-temporal analysis in this study was fundamental in nature, the descriptive results furthered the investigation of spatial-temporal aspects of theoretical explanations. As substantive data is collected with geographical information in the years to come, this study will be a beneficial resource for future spatio-temporal analysis utilizing criminological theory.

Exploratory Analysis

The last phase was an exploratory analysis to find any other possible explanations on victimization in South Korea using elements from ecological theories on crime. The first attempt

was a panel time-lagged analysis model at the aggregate level of social disorganization. The goal of implementing time-lagged analysis was to explore possible causal relationships that cross-sectional research could not answer. The second attempt was to use elements of the routine activities/lifestyle model at the aggregate level and to conduct analysis with a time-lagged approach. It is possible that aggregated target suitability and guardianship within the certain physical areas have relationships with victimization pattern. Therefore, this examination used multiple regression at the aggregate level using routine activities/lifestyle variables as independent and aggregated level victimization as dependent. Lastly, the model included both variables at the aggregate level using time-lagged analysis to learn if any possible explanations existed.

Model Specifications

In this section, the study's analytical models are outlined detailing their equations and explanations. First, I present a statistical description of all variables at both the aggregate and individual levels. Second, I elaborate on the explanatory analysis of the social disorganization model at the aggregate level and the routine activities/lifestyle model at the individual level. Third, I detail a conventional multilevel model of the two theories. All analyses consider the temporal aspect with changes of variances in model analysis over the years. Lastly, I present details of the time-lagged analysis of social disorganization and aggregated routine activities/lifestyle model.

Descriptive Model Specifications

This part of the model specifications consisted of univariate simple statistical descriptions including calculations and bivariate correlations of all dependent and independent variables at the individual and aggregate level. Initial examination of data was a descriptive summary of

variables before the transformation of the variables into latent variables to understand the general background of the datasets. Later, univariate analysis of latent and transformed variables aimed to identify the patterns of each variable's distribution to verify which type of analysis was appropriate for each model. This process included verifying normality and other types of distribution patterns. A statistical technique for testing normality, skewness, kurtosis, and a Kolmogorov-Smirnov test (because the sample size was larger than 2,000) with normality plotswas employed.

The current study used binary (Yes = 1, No = 0) and frequency of victimization at the individual level and victimization rates at the aggregate level in three different categories: total, personal, and household victimization. While the victimization measures at the individual level were described with a basic statistic, victimization rates at the aggregate level were first calculated as commonly used crime and victimization rates in previous studies (Trumbull, 1989; Sampson & Groves, 1989). The computation of victimization rate ($E(V)$) at spatial unit (i) level were the total number of occurrences, which is the sum of frequency (f) of victimization per spatial unit divided by the number of total survey respondents (N) multiplied by 100,000 for each spatial unit. Equation 1 presents this calculation as follows:

Computation of Victimization Rate at Spatial Unit Level

$$E(V_i) = \frac{\sum f_i}{N_i} * 100{,}000 \qquad (1)$$

Following the aggregation process, distributions of dependent variables across the spatial units was examined. Most of the literature has found that crime and victimization rates are often not

normally distributed and are skewed such as in a Poisson distribution (Osgood, 2000). Based on the distribution results, appropriate regression analysis was employed to build analysis models.

The initial independent variables' descriptive analysis occurred at the individual level before and after categorical computations. For the variables at city/province level for all years' datasets, individual-level social disorganization variables were first computed in a binary manner (e.g., occupation: Professional or managerial = 1, Other = 0) to calculate the percentage of each socioeconomic characteristic per spatial unit as shown in Equation 2.

Computation of Variables at Spatial Unit Level

$$E(P_i) = \frac{n_i}{N_i} * 100 \qquad (2)$$

In this equation, $E(P_i)$ indicates the expected percentage of a variable of interest in each spatial unit (i) based on the number of value 1 of the spatial unit (n_i) divided by the number of total respondents of the spatial unit (N_i) multiplied by 100 in order to compute the ratio to percentage form.

After obtaining the variables at both individual and aggregate levels, I computed latent variables for model analysis. The data reduction technique used to build latent variables in this study was a factor analysis function in SPSS. Before the data reduction, a reliability test of variables within dimensions was conducted to verify the internal consistency of the latent variables. The results of this measurement used Cronbach's Alpha index, where the range of 0 to 1 where 0.6 and higher Alpha (α) indicates the acceptable internal consistency of within variables (George & Mallery, 2003). Next, following previous studies (e.g., Sampson et. al., 1997; ra reference), the dimensions of the social disorganization model (i.e.,

socioeconomicstatus and residential stability) at the aggregate level and routine activities/lifestyle model (i.e., target suitability and guardianship) at the individual level were deducted as factor regression scores with Oblique rotation allowing factor correlations, which was preferred due to its broad application (Russell, 2002). Following this process of data reduction, the distribution of the variables and normality of data were checked as detailed before. In addition, all processed variables were graphically displayed with maps.

The second part of the descriptive analysis was bivariate correlations among variables at individual and aggregate levels, and mean differences using organized variables. This bivariate analysis allowed preliminary understanding of relationships among variables before model examinations. Because the current study used most of the independent variables as latent variables for parsimoniousness of analytic models, I encountered few issues with multicollinearity among independent variables.

Statistics for the bivariate analysis were the correlation coefficient (Pearson's *r*), t-test, and one-way ANOVA test based on the measurement of variables. Along with bivariate results, a visual display (e.g., linear-line graphs and mean difference plots) was created. In multiple comparison cases of one-way ANOVA tests, Fisher's Least Significant Difference test was employed to test pairwise against all categories. This part of the descriptive analysis identified possible significant findings moving towards regression-based models in following analyses. This analysis concluded with an analysis of the interactions between social disorganization and routine activities/lifestyle variables were checked with correlations at all single levels and all variables at either individual or aggregate levels in order to learn associations between these two theoretical frameworks.

Single-Level Model Specifications

The next part of the statistical analyses consisted of an individual analysis of social disorganization and routine activities theories at each level over the years. As discussed, these two theories have been linked to place-based explanations of crime and victimization. For this reason, social disorganization and routine activities/lifestyle theoretical frameworks were compatible in the explanation of the collective and individual effects of crime and victimization. Before a multilevel approach synthesizing both theoretical frameworks was employed, each theoretical model was analyzed individually as a baseline for analysis.

Depending on the data distribution characteristics of dependent variables, proper regression technique was employed. First, logit regression technique was implemented for a binary dependent variable, one of the individual-level dependent variables. Second, Poisson regression was used for Poisson distribution, the frequency at the individual level and rates at the community level dependent variables. I decided to manipulate the Poisson distribution to be close to normal using natural log calculation. Even though manipulating the distribution of data due to Poisson distribution to be normally distributed is difficult (Reid, 1981; Aitchison & Ho, 1989), to use the analysis in a more parsimonious way, the natural log method was applied.

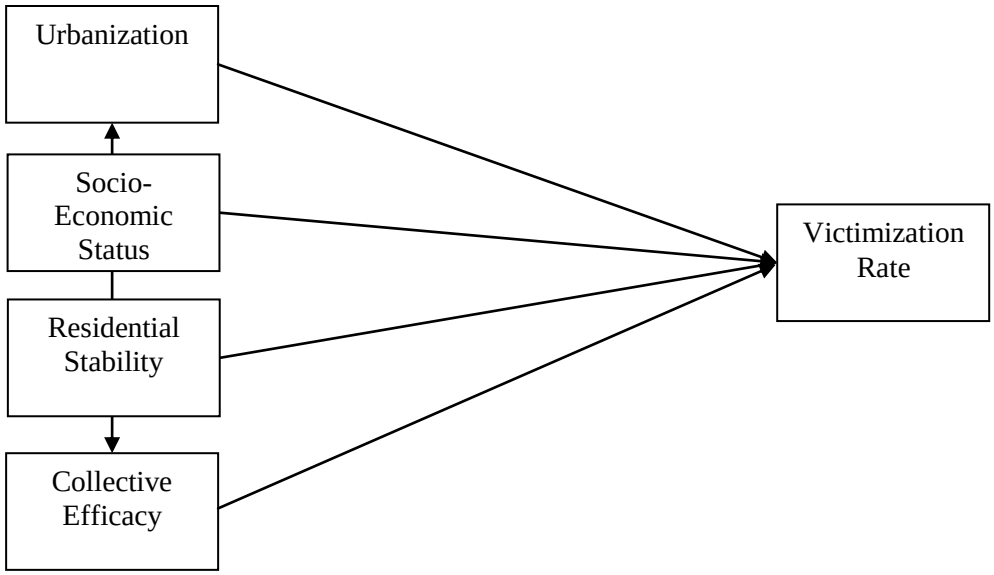
Using the variables of the social disorganization model as described above, the datasets used calculated the microlevel data into macrolevel data at the spatial-unit level. To execute the model frame multiple regression method will be employed. The model equation is as follow.

Social Disorganization Model Equation

$$\text{SD Model: } Type\ of\ Victimization_i = \beta_0 + \beta_1(Urbanization) + \beta_2(SocioEconomicStatus) + \beta_3(ResidentialStability) + \beta_4(CollectiveEfficacy) + e \quad (3)$$

Also, following is the diagram of this model:

Figure 9. Aggregate-Level Social Disorganization Model Diagram Summary



Similar to the social disorganization model, as discussed, the routine activities/lifestyle model considered three different types of victimization with binary and frequency forms of variables. The two different measures of dependent variables were to discover different statistical explanations. Either logit regression (binary dependent variable) or regression after log transformation (frequency of victimization: Poisson distribution) was indicated by multiple regression models appropriately.

Routine Activities/Lifestyle Model Equation

$$\text{RA Model: } Type\ of\ Victimization_j = \beta_0 + \beta_1(SutabilityofTarget) + \beta_2(Guardianship) + e \quad (4)$$

Contextual Model Specifications

Contextual analysis included two different approaches of analyses. The contextual model here was similar to the study of Miethe and McDowall (1993), however unlike that study, the current study synthesized the variables at individual and aggregate levels. Contextual and integrative approaches to studying the two ecological theories of crime have been conducted by multiple scholars (Maimon & Browning, 2010; Mieth & McDowall, 1993; Moriarty & Williams, 1996; Osgood & Anderson, 2004; Rice & Csmith, 2000; Rountree, 1994; Sampson & Wooldredge, 1987; Zhang et al., 2007). These studies combine variables from the two theores and many use a multilevel analytic strategy through the application of a contextual model and hierarchical linear model (HLM). Because HLM allows for the analysis of multilevel data both at the micro- and macrolevel simultaneously, multilevel studies on crime and victimization have utilized the technique to examine the integration of the two ecological theories on crime. The current study, however, adopted the contextual model due to a limitation in the number of spatial units, which made it difficult to calculate the variances of models.

Contextual Model Equation

Contexual Model: $Type\ of\ Victimization_{fr}$

$$= \beta_0 + \beta_1(SocioEconomicStatus) + \beta_2(ResidentialStability) + \beta_3(SuitabilityofTarget) + \beta_4(Guardianship) + e \quad (5)$$

Exploratory Model Specifications (Time-Lagged)

The last model explored any other possible explanations for victimization in South Korea using elements of ecological theories of crime. Three different attempts to find possible explanations were made: (a) time-lagged approach of social disorganization, (b) time-lagged approach of routine activities/lifestyle, and (c) time-lagged approach of a combined model. In statistic terms, *lag* means a certain period of time during which the independent variables affect the dependent variable. Social disorganization studies on crime have claimed that there are causal relationship between ecological characteristics of victimization. However, many studies mostly represent a covariate among the variables. Therefore, the time-lagged analysis of social disorganization variables at the aggregate level in this study aimed to find an explanation for an actual causal relationship.

The other attempt used the aggregate-level routine activities/lifestyle model to find if any contextual effects existed between aggregated independent (target suitability and guardianship) and dependent (victimization) variables. Even though the original variables considered individual-level effects from target suitability and guardianship towards victimization, it was also possible there was a relationship at the aggregate level. This new attempt aimed to find if the theoretical models could be modified and applied better in another way.The model equation is as follow (y=year):

Time Lagged Full Model Equation

$$\text{TimeLagged Model: } Type\ of\ Victimization_{iy} = \beta_0 + \beta_{1(y-1)}(SocioEconomicStatus) + \beta_{2(y-1)}(ResidentialStability) + \beta_{3(y-1)}(CollectiveEfficacy) + \beta_{4(y-1)}(SuitabilityofTarget) + \beta_{5(y-1)}(Guardianship) + e \quad (6)$$

Spatio-Temporal Approach Specifications

In this study, due to the use of aggregate-level spatial units and years of datasets, it was logical to recognize the spatio-temporal pattern of variables and variances of analysis. Despite the fact that spatio-temporal analysis can provide a statistically confident model with new statistical software and techniques (Porter, 2008), the current study's data had limited resources regarding different spatial units over the years in question. Therefore, the spatio-temporal analysis in this study focused on basic statistics and pattern findings from visually-presented maps. From the previous analysis, I summarized each theoretical model's variances and significance levels. I then constructed a series of maps per model over the years to explore how certain model explained victimization in a particular area and/or year. After this descriptive analysis using all years' datasets at the city/province level, spatial units were used to test the possibility of the spatio-temporal model. Because the test was for an elementary purpose to build a baseline for future study, evidence of the significance was checked. Next, I redelivered a summary of a one-way ANOVA test to examine mean differences across spatial units and years.

Following the methodology outlined in this chapter, the following three chapters will detail the results of these analyses. Chapter 4 will report the results of the statistical and spatial descriptive analyses on study variables. Chapter 5 will present the results of the single-level and contextual analyses that examined victimization. Lastly, the exploratory results of the time-lagged analyses will be presented in Chapter 6.

CHAPTER 4

DESCRIPTION OF STRUCTURAL/INDIVIDUAL CHARACTERISTICS AND VICTIMIZATION 1993–2010

Statistical Description

Before detailing the statistical models of analysis used in the project, basic statistical descriptions, normality examinations, and associations of all variables in the study is discussed. More specifically, a general statistical description of the raw datasets is provided to understand the general context of South Korea. The following section considers the variables from the social disorganization and routine activities/lifestyle theories, including the normality of variables as well as descriptive characteristics. Also, these sections discuss the transformation process of variables conducted to construct proper measures. Descriptions of all dependent variables is analyzed to show distributions. Lastly, bivariate analysis summarizes the association between the variables in the study. Following the literature and method described, the findings are compared to Western studies in order to discuss the differences and similarities in application to an Eastern context. In addition, as another important contribution of this study is its longitudinal approach, these results discuss the general trend of individual- and aggregate-level characteristics over the years in question.

General Statistical Description

The following presents details of the raw variables to understand better the process of analysis. Representativeness of the general population of South Korea is also considered.

Table 7. General Descriptive Information of Data 1993 – 2010

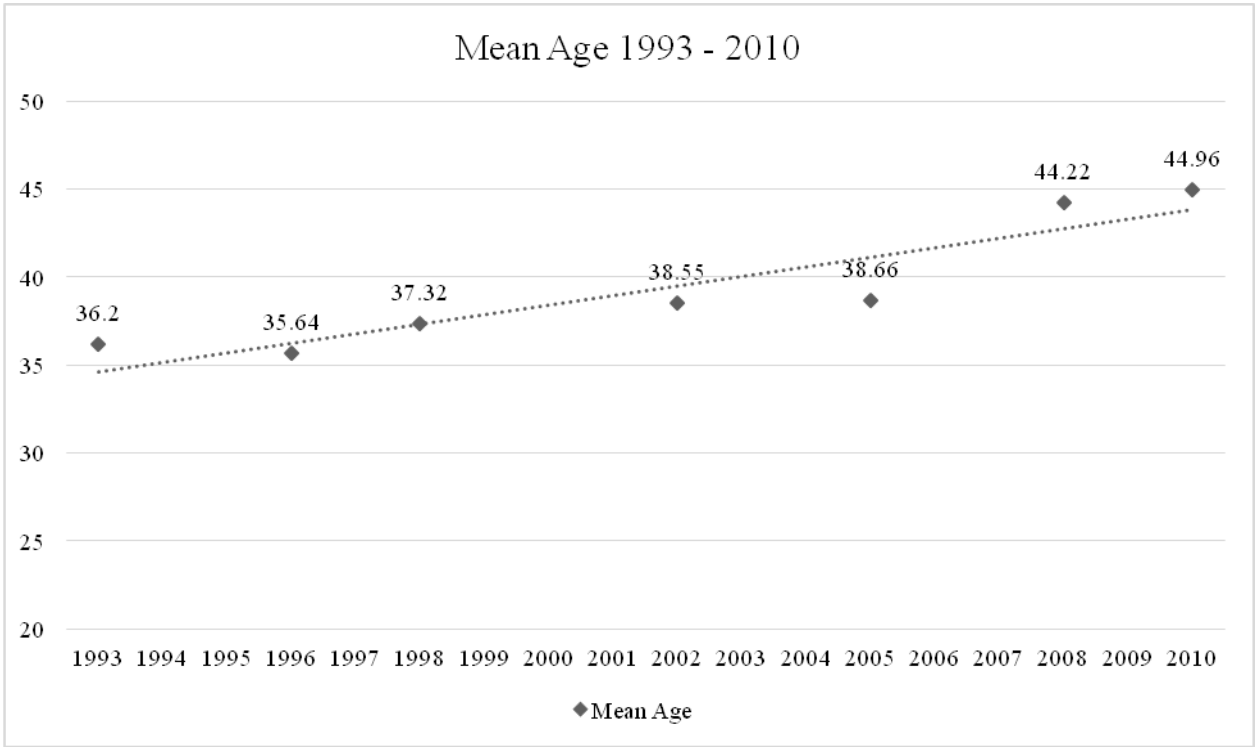
Variable	Value	1993		1996		1998		2002		2005		2008		2010	
		N	VP	N	VP	N	VP	N	VP	N	VP	N	VP	N	VP
	Total	2,029	-	2,040	-	2,100	-	2,048	-	2,056	-	10,835	-	16,703	-
Age	Mean (SD)	36.20 (15.02)		35.64 (14.11)		37.32 (15.24)		38.55 (14.69)		38.66 (13.49)		44.22 (17.80)		44.96 (17.92)	
	Total	2,029	-	2040	-	2,100	-	2,048	-	2,056	-	10,835	-	16,703	-
Gender	Male	1,015	50.0	1,026	50.3	1,048	49.9	1,027	50.1	1,026	49.9	5,195	47.9	7,988	47.8
	Female	1,014	50.0	1,014	49.7	1,052	50.1	1,021	49.9	1,030	50.1	5,640	52.1	8,715	52.2
	Total	2,029	100.0	2,040	100.0	2,100	100.0	2,048	100.0	2,056	100.0	10,835	100.0	16,703	100.0
Marital Status	Single	738	36.5	746	36.6	797	38.0	646	31.6	636	31.0	2,871	26.5	4,255	25.5
	Married	1,178	58.3	1,212	59.5	1,170	55.7	1,291	63.2	1,338	65.1	6,759	62.4	10,330	61.8
	Separated	22	1.1	10	.5	11	.5	17	.8	18	.9	277	2.6	2,118	12.7
	Divorced	5	.2	8	.4	13	.6	22	1.1	17	.8				
	Widowed	72	3.6	54	2.6	104	5.0	63	3.1	43	2.1	928	8.6		
	Others	7	.3	8	.4	4	.2	4	.2	2	.1	-	-	-	-
	Total	2,029	100.0	2,038	100.0	2,099	100.0	2,043	100.0	2,054	100.0	10,835	100.0	16,703	100.0
Education	None	69	3.4	36	1.8	61	2.9	51	2.5	24	1.2	477	4.4	738	4.4
	Elementary	222	11.0	130	6.4	179	8.5	142	7.0	94	4.6	1,337	12.3	1,958	11.7
	Junior High	285	14.1	242	11.9	234	11.2	252	12.4	184	9.0	1,488	13.7	2,014	12.1
	High	859	42.4	830	40.8	867	41.3	870	42.7	968	47.1	3,762	34.7	5,753	34.4
	College	144	7.1	238	11.7	234	11.2	230	11.3	212	10.3	3,472	32.0	2,146	12.8
	University	419	20.7	521	25.6	488	23.3	459	22.5	538	26.2			3,547	21.2
	Grad School	29	1.4	38	1.9	34	1.6	33	1.6	35	1.7	299	2.8	547	3.3
	Total	2,027	100.0	2,035	100.0	2,097	100.0	2,037	100.0	2,055	100.0	10,835	100.0	16,703	100.0
Household Income *per month*	Mean (SD)	2.32 (2.69)		2.04 (1.34)		2.00 (1.21)		2.71 (2.88)		3.17 (2.09)		2.97 (1.33)		3.60 (2.01)	
	None											0	168	1.6	0	228	1.4
	< 1											1	1,675	15.5	1	2,398	14.4
	1 to < 2											2	2,096	19.3	2	2,812	16.8
	2 to < 3											3	2,722	25.1	3	3,321	19.9
	3 to < 4											4	2,890	26.7	4	3,177	19.0

Variable	Value	1993		1996		1998		2002		2005		2008			2010		
		N	VP	N	VP	N	VP	N	VP	N	VP	N	VP		N		VP
	Total	2,029	-	2,040	-	2,100	-	2,048	-	2,056	-	10,835	-		16,703		-
1=1,000,000KRW ≒1,000USD	4 to < 5													5	2,067		12.4
	5 to < 6													6	1,098		6.6
	6 to < 7											5	1,142	10.5	7	685	4.1
	7 to < 10														8	582	3.5
	10 <											6	142	1.3	9	335	2.0
	Total	2,029	-	2,040	-	1,941	-	1,910	-	2,026	-	10,835	100.0		16,703		100.0
Occupation	Professional /Managerial	129	6.4	193	9.5	201	9.6	146	7.2	120	6.1	860	7.9		1,573		9.4
	Office	275	13.6	253	12.4	235	11.2	275	13.5	418	21.3	1,256	11.6		2,162		12.9
	Military											25	.2		59		.4
	Sales	277	13.7	297	14.6	292	14.0	345	16.9	394	20.1	1,677	15.5		2,493		14.9
	Service	152	7.5	239	11.7	231	11.0	226	11.1	195	9.9						
	Manufacture	170	8.4	80	3.9	96	4.6	120	5.9	70	3.6	753	6.9		1,180		7.1
	Simple Labor											615	5.7		911		5.5
	Agricultural /Fishery	142	7.0	141	6.9	124	5.9	134	6.6	120	6.1	854	7.9		1,104		6.6
	Housewife	853	42.0	837	41.0	898	42.9	781	38.3	642	32.7	1,938	17.9		3,049		18.3
	Student											1,560	14.4		2,129		12.7
	Unemployed											1,297	12.0		2,043		12.2
	Others	31	1.5	0	0	14	.7	11	.5	3	.2						
	Total	2,029	100.0	2,040	100.0	2,091	100.0	2,038	100.0	1,962	100.0	10,835	100.0		16,703		100.0

Table 7 (cont.)

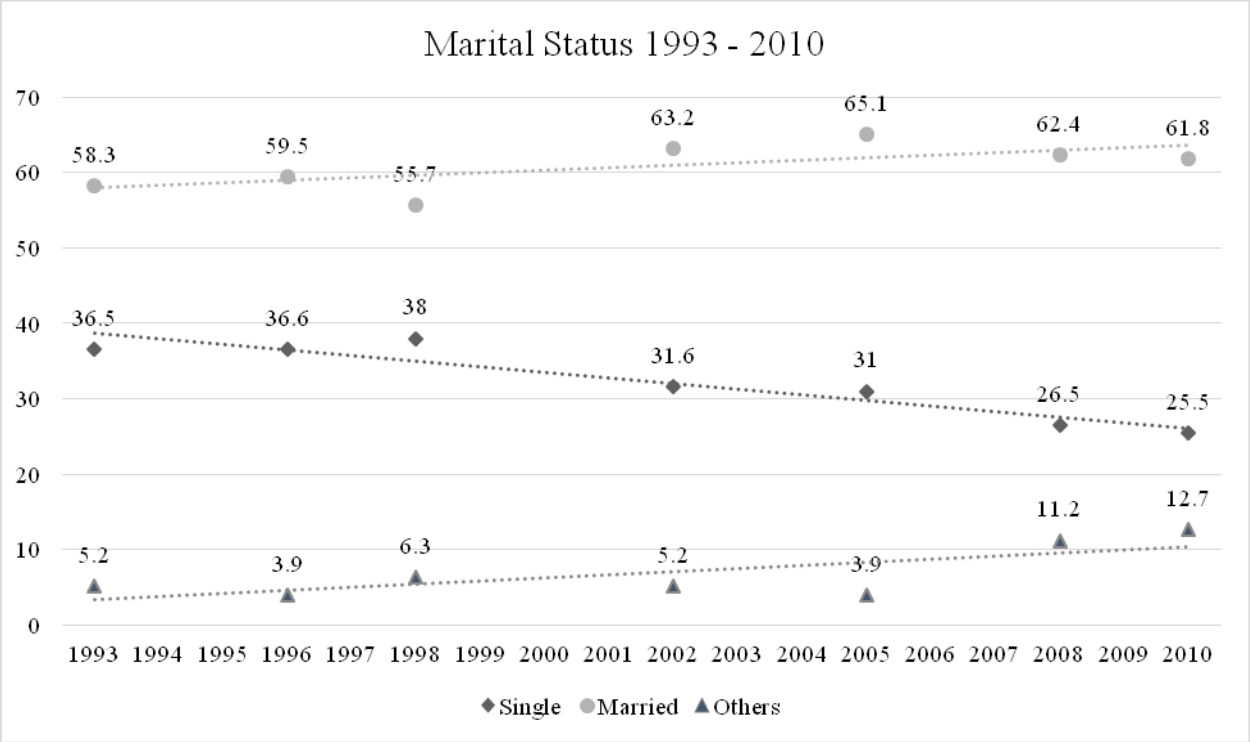
This general statistical analysis was conducted at the individual level, which includes socioeconomic status variables (i.e., age, gender, marital status, education, household income, and occupation) with raw categorizations. From these results, a number of interesting patterns and characteristics arise in the data. First, the mean age of the sample was 36.20 with standard deviation 15.02 in 1993, and 44.96 with standard deviation 17.92 in 2010. With the exception of 1996, mean ages of datasets increased over the years (see Figure 10). This is consistent with the population and age distribution in South Korea over the last few decades (Kim et al., 2015; Yun & Lachman, 2006). This is similar to many countries experiencing an aging population (Yun & Lachman, 2006; Song, 2009). The following table summarizes the results of the general statistical analysis.

Figure 10. Mean Age of Data in Current Study 1993-2010



Second, gender ratios throughout all datasets were approximately 1:1 male to female, with less than 3% variation. This followed the intention of the survey operators to keep the gender ratio consistent.

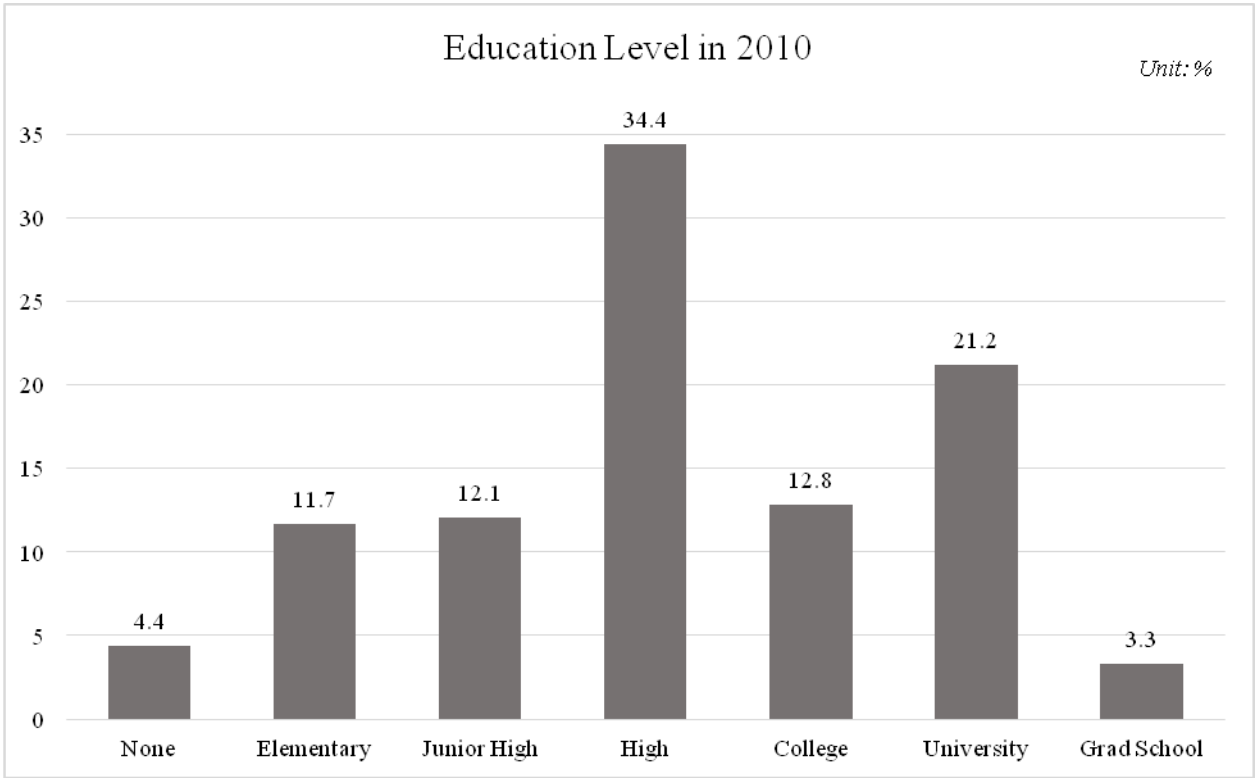
Figure 11. Distribution of Marital Status of Data in Current Study 1993-2010



Third, marital status figures changed over time. This was categorized into three items: Single, Married, and Other (Other includes separated, divorced, and widowed). According to the results, the married population slightly increased over the years, while the single population decreased. The married population was approximately 60% of the sample; the remaining 40% of the population was either single, separated, divorced, or widowed. This supports recent trends in South Korea, which is consistently ranked third internationally in marriage rate among Organization for Economic Cooperation and Development (OECD) countries (OECD, 2013). Despite the fact that the marriage rate moderately decreased between the 1970s and recent years,

the marriage rate has been steady, over 6 per 1,000 people, for the last few decades. The OECD calculates crude marriage rate as the number of marriages over total population multiplied by 1,000. The difference in the rates between OECD figures and the current data is due to differences in populations: OECD samples all ages where this data samples the population over Age 15. Figure 11 illustrates the distribution and changes in marital status for each dataset.

Figure 12. Distribution of Education Level in 2010

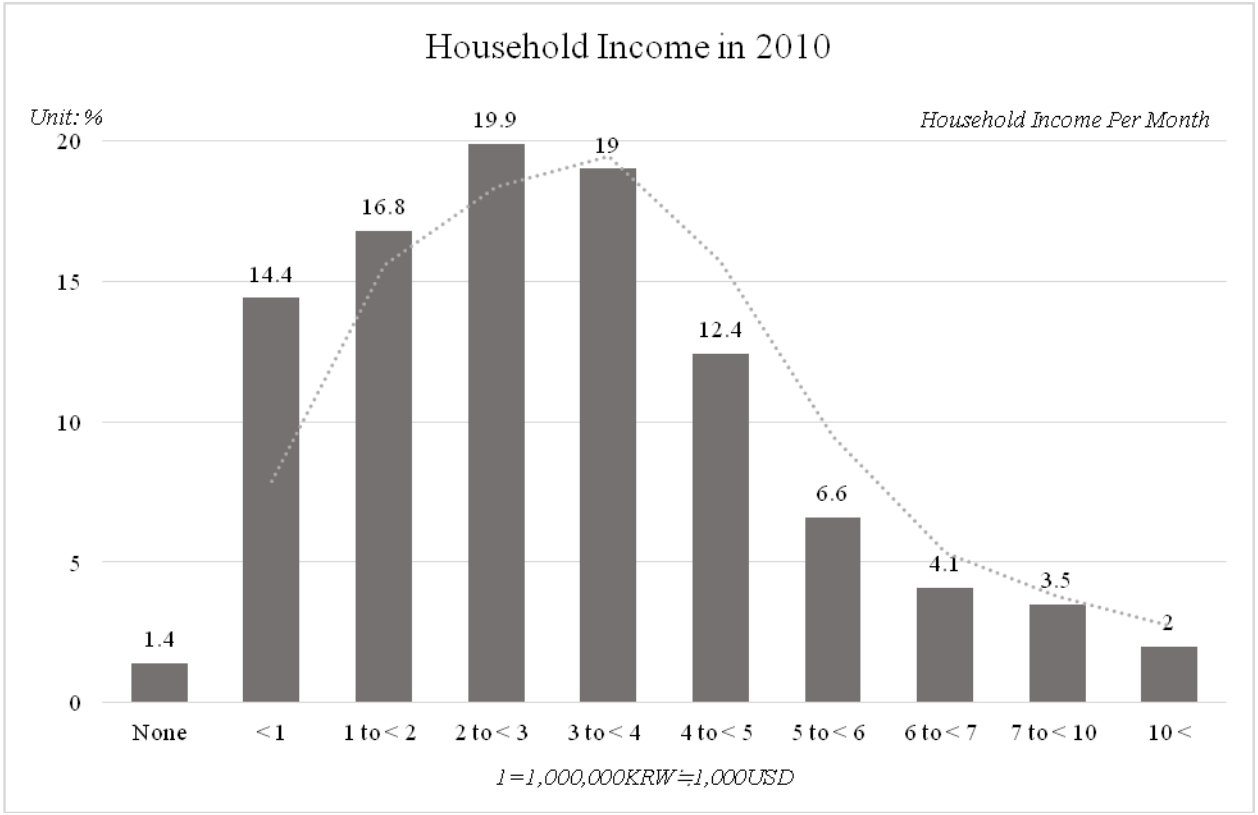


With the exception of moderate increases in the population of college-educated and overall household income, the distribution of education level, household income, and occupation are consistent over the years. The results show 37% of the sample was college educated in 2010, an increase from 29.2% in 1993. Since 1993, the percentage of college-educated people has been over 30%. This is possibly due to the aging population. According to OECD data, the majority of

South Korea's young population (aged 25–34) is high-school educated, with 65% attaining at least a Bachelor's degree (OECD, 2013). Significant attention paid to education in South Korea is another factor in the increase in education level (Seth, 2002; Lee & Brinton, 1996). To illustrate the data, the distribution of each variable in 2010 is presented above.

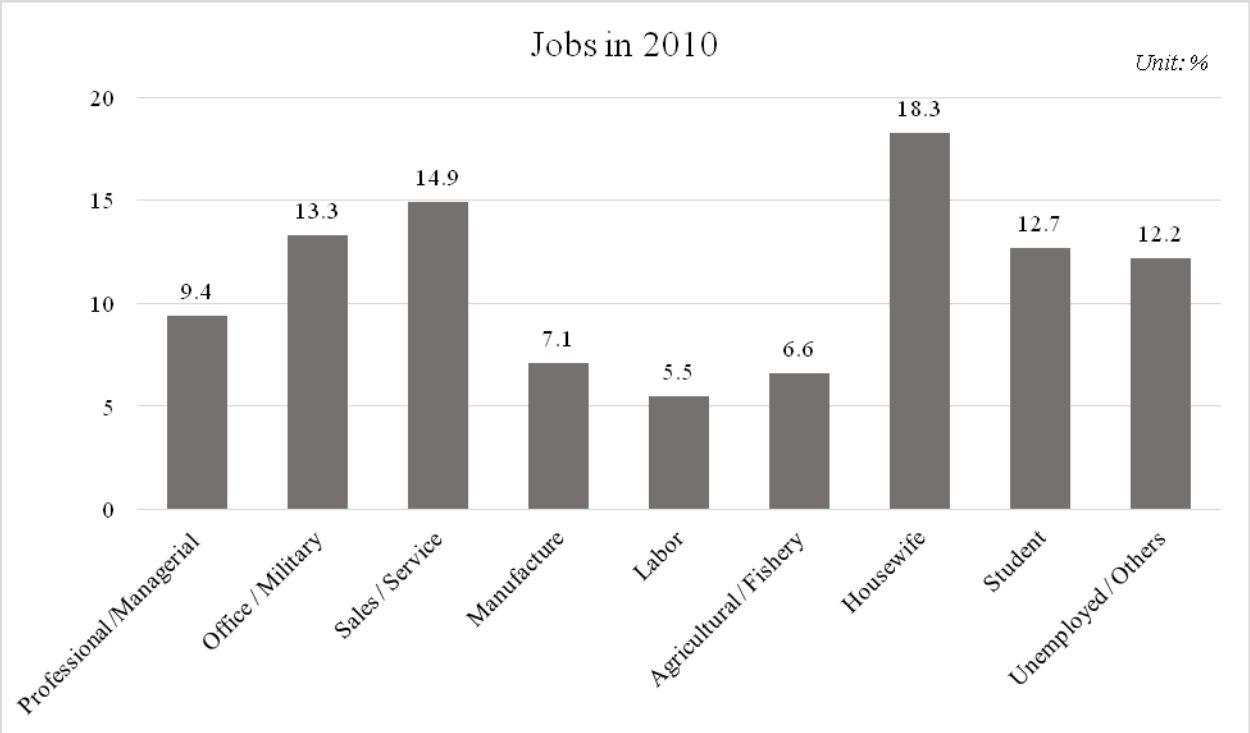
Monthly household income also increased over the years from 2.32 in 1993 to 3.60 in 2010 (1≒1,000 USD). The median income in 2010 was approximately 2–3 million Korean Won (KRW; 2,000–3,000 USD) per month (19.9%). The distribution of household income indicates that most of the sample population (70.1%) earns 1–5 million KRW. Like previous studies, household income represents social class.

Figure 13. Distribution of Household Income in 2010



Distribution of occupation was relatively consistent over the years. No major pattern or trend was noted. Another point of interest was the high population of housewives in the datasets. This may be due to accessibility of survey participants. In order to represent the population in South Korea and enable comparison with official records, the datasets were reanalyzed without housewives, students, unemployed, and other categories, as these groups are not considered employed in official statistics in South Korea (see Figure 14).

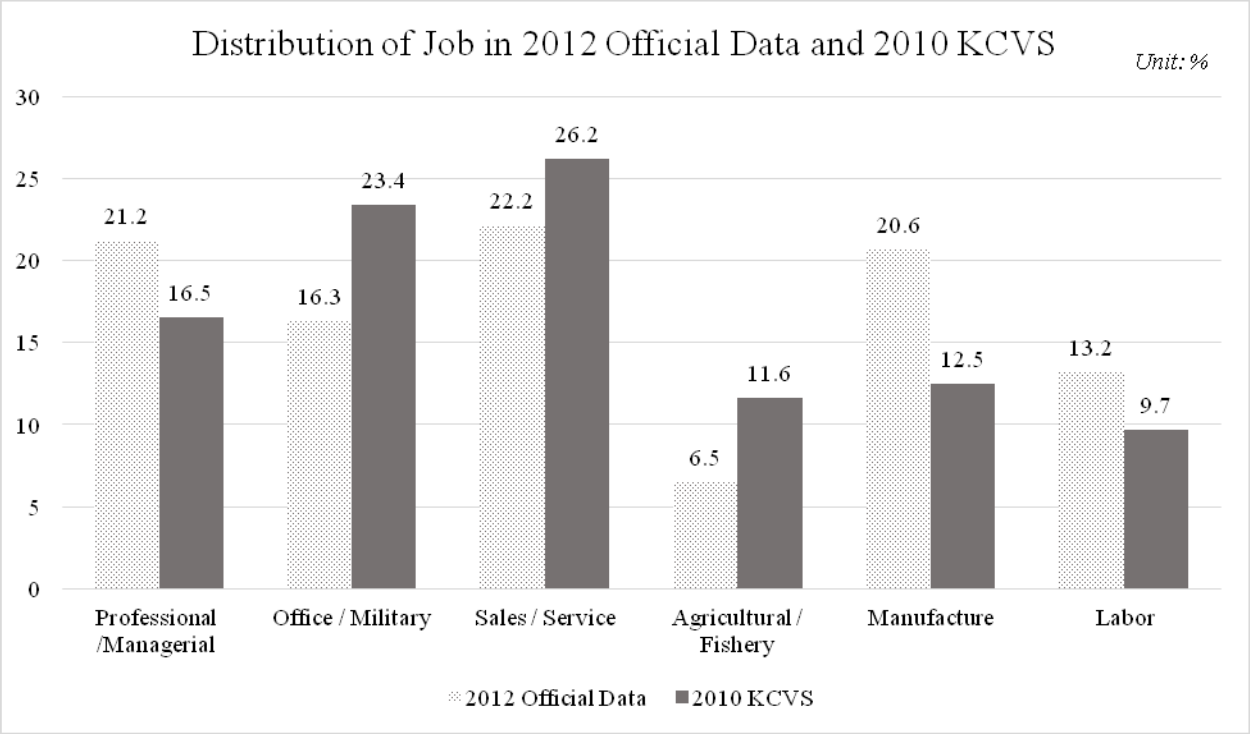
Figure 14. Distribution of Occupation in 2010



According to the result, there are variations in the ratios of job distribution between 2012 official data and 2010 KCVS. However, the percentage gaps between the two datasets are less than 10 percent, and the ratios of each year white (professional/managerial, office, and sales/service) to blue collar jobs (agricultural/fishery, manufacture, and labor) are also similar, 1.48 (59.7/40.3) and 1.95 (66.1/33.9) respectively. In sum, the data well represents South Korea. Since the social and economic growth experienced in the 1980s and early 1990s followed by the

financial crisis, South Korea has moderately recovered and grown in the 2000s (Radelet & Sachs, 1998; Koo & Kiser, 2001; Goldstein, 1998). Societal change in South Korea is comparable with other modern Western nations detailed in ecological studies on crime (Roh et al., 2010).

Figure 15. Comparison of Job Distribution between Official Data in 2012 and KCVS in 2010



Statistical Description of Structural Characteristics

Structural analysis related to social disorganization model variables consisted of: (a) general descriptive analysis on recoded variables to build latent variables, (b) descriptions of spatial unit structure at city/province and community levels, (c) one-way ANOVA tests, (d) correlation analysis, (e) constructing the aggregated variables in the social disorganization model by using factor analysis, and (7) normality tests. The aggregate-level categories of the social disorganization model were urbanization, socioeconomic status, and residential stability. Urbanization has no subcategory, and was binary coded 1 = Urban (special/metropolitan cities)

and 0 = Other (regular province and cities). The ratio of urban to other was almost 1:1, except for the 2010 dataset 40–60%. This equal representation is likely due to survey design.

Socioeconomic variables were recoded binary variables from raw items in the previous section (i.e., marital status, education, household income, and occupation). Marital status was recoded as 1 = Married and 0 = Other (includes separated, divorced, and widowed). Education level was divided into 1 = College educated and 0 = Other (includes no education, elementary, junior high, high school). High and low household income were coded as 1 = Upper 25% and 0 = Lower 75%, with the exception of 2008, which was restricted due to item categorization in the raw dataset. Lastly, occupation was recoded as 1 = Professional/Managerial and 0 = Other. The Cronbach's Alpha of socioeconomic variables of datasets wasover 0.6 which is considered good internal consistency.

Residential stability was composed of two variables, Years of Residence and Ownership of Residence. Initially, years and items of ownership (own, lease, rent, and other) were collected for each variable respectively. Following the previous study, years of residential status was recoded as 1 = 5 Years and More and 0 = Less than 5 years, and ownership of residence as recoded as 1 = Own and 0 = Other. Without an increase or decrease in results, 51.1–76.6% of the sample population had lived their residence for 5 years or more at the time of the survey. The sample population who owned their residence was 64.4–74.6%. In order to check the internal consistency of the two variables, a reliability test was conducted. The Alphas were over 0.6, showing good internal consistency. The following table summarizes the analysis of recoded variables before aggregating the variables at the spatial-unit level (Table 8).

Table 8. Phase 1 Variables Summary of Social Disorganization Model at Level-1 (binary) 1993 - 2010

Variable		Value	1993		1996		1998		2002		2005		2008		2010	
			N	VP	N	VP	N	VP	N	VP	N	VP	N	VP	N	VP
		Total	2,029	-	2,040	-	2,100	-	2,048	-	2,056	-	10,835	-	16,703	-
Urbanization		Rural	1,023	50.4	1,039	50.9	1,014	48.3	1,041	50.8	1,072	52.1	5,796	53.5	9,848	59.0
		Urban	1,006	49.6	1,001	49.1	1,086	51.7	1,007	49.2	984	47.9	5,039	46.5	6,855	41.0
		Total	1,023	50.4	2,040	100.0	2,100	100.0	2,048	100.0	2,056	100.0	10,835	100.0	16,703	100.0
Socio-economic Status	Marital Status	Others	844	41.7	826	40.5	929	44.3	752	36.8	716	34.9	4,076	37.6	6,373	38.2
		Married	1,178	58.3	1,212	59.5	1,170	55.7	1,291	63.2	1,338	65.1	6,759	62.4	10,330	61.8
		Total	2,022	100.0	2,038	100.0	2,099	100.0	2,043	100.0	2,054	100.0	10,835	100.0	16,703	100.0
	Education	Others	1,435	70.8	1,238	60.8	1,341	63.9	1,315	64.6	1,270	61.8	7,064	65.2	10,463	62.6
		College	592	29.2	797	39.2	756	36.1	722	35.4	785	38.2	3,771	34.8	6,240	37.4
		Total	2,027	100.0	2,035	100.0	2,097	100.0	2,037	100.0	2,055	100.0	10,835	100.0	16,703	100.0
	Household Income	Low (App. ¾)	1,562	77.0	1,512	74.1	1,387	71.5	1,473	77.1	1,455	71.8	6,661	61.5	11,935	71.5
		High (App. ¼)	467	23.0	528	25.9	554	28.5	437	22.9	571	28.2	4,174	38.5	4,767	28.5
		Total	2,029	100.0	2,040	100.0	1,941	100.0	1,910	100.0	2,026	100.0	10,835	100.0	16,702	100.0
	Occupation	Others	1,869	93.5	1,847	90.5	1,890	90.4	1,892	92.8	1,842	93.9	9,975	92.1	15,130	90.6
		Professional /Managerial	129	6.5	193	9.5	201	9.6	146	7.2	120	6.1	860	7.9	1,573	9.4
		Total	1,998	100.0	2,040	100.0	2,091	100.0	2,038	100.0	1,962	100.0	10,835	100.0	16,703	100.0
Residential Stability	Year of Resident	Less than 5 yrs.	992	48.9	726	35.6	654	31.2	602	29.6	480	23.4	3,831	35.4	5,651	33.8
		5 yrs. and more	1,036	51.1	1,314	64.4	1,441	68.8	1,429	70.4	1,569	76.6	7,004	64.6	11,051	66.2
		Total	2,028	100.0	2,040	100.0	2,095	100.0	2,031	100.0	2,049	100.0	10,835	100.0	16,702	100.0
	Ownership of Residence	Others	680	33.5	612	30.1	637	30.4	520	25.4	503	24.5	3,861	35.6	5,504	33.0
		Own	1,349	66.5	1,422	69.9	1,458	69.6	1,525	74.6	1,551	75.5	6,974	64.4	11,198	67.0
		Total	2,029	100.0	2,034	100.0	2,095	100.0	2,045	100.0	2,054	100.0	10,835	100.0	16,702	100.0

The construction process of the variables is important to understand to ensure reliability of the study. Unlike Sampson et al.'s study, which used census data on neighborhood characteristics such as socioeconomic status and residential stability, the current study constructed neighborhood characteristics from the sample population under the assumption that the current data well represents South Korea. After the recoding process, variables were aggregated to the city/province level.

Before analyzing the aggregate structure, the collective efficacy subvariables (i.e., community bond, neighborhood order, and police effectiveness) were constructed with relevant questions. The average Cronbach's Alpha was .79, indicating good internal consistency between variables. Because the variables were regressed to construct and standardize the scores, the mean of each variable was 0. Note: the dataset for 1993 only included one question for each category of collective efficacy. In order to keep the scale consistent over all years, I standardized the score of the original raw Likert-scale value for each variable. Table 9 shows the reliability test results for each latent variable.

Table 9. Collective Efficacy Variables Reliability Summary of Social Disorganization Model at Level-1 (regressed scores) 1993 - 2010.

Latent Variable			1993	1996	1998	2002	2005	2008	2010
		N	2,029	2,040	2,100	2,048	2,056	10,835	16,703
Collective Efficacy	Community Bond	Number of Qs.	1	5	5	4	4	10	7
		Cronbach's Alpha	-	.895	.889	.892	.894	.829	.853
		Total	2,023	2,029	2,089	2,044	2055	10,835	16,703
	Neighborhood Order	Number of Qs.	1	4	4	6	6	6	6
		Cronbach's Alpha	-	.575	.634	.788	.777	.849	.834
		Total	2,023	2,035	2,086	2,042	2,052	10,835	16,703
	Police Effectiveness	Number of Qs.	1	3	3	3	3	3	3
		Cronbach's Alpha	-	.727	.743	.744	.765	.807	.770

Latent Variable		1993	1996	1998	2002	2005	2008	2010
	N	2,029	2,040	2,100	2,048	2,056	10,835	16,703
	Total	2,023	2,022	2,091	2,048	2055	10,835	16,703

Table 9 (cont.)

It is important to understand the spatial-unit structure in the study. There are 16 spatial areas composed of seven special/metropolitan cities and nine provinces, summarized in Table #. While samples were collected from all cities and provinces, Ulsan was promoted to a metropolitan city in 1997. Thus, no data for Ulsan as a city was present in 1993 and 1996. Additionally, Special Self-Governing Province Jeju Island was excluded from data collection until 2005, due to limited accessibility and resources.

Table 10. Summary of Sample Size per City/Province Spatial Unit 1993-2010.

		City/ Province	year							Total
			1993	1996	1998	2002	2005	2008	2010	
area1	11:Seoul	S. City	514	498	498	452	430	2,326	2,196	6,914
	21:Busan	M. City	164	186	168	164	164	649	1,039	2,534
	22:Daegu		123	96	125	123	123	504	911	2,005
	23:Incheon		82	96	105	104	103	484	814	1,788
	24:Gwangju		41	62	63	62	61	367	640	1,296
	25:Daejeon		82	63	64	61	62	346	668	1,346
	26:Ulsan		0	0	63	41	41	363	587	1,095
	31:Gyeonggi-do	Province	287	342	342	387	451	1,159	1,982	4,950
	32:Gangwon-do		82	64	84	61	61	514	924	1,790
	33:Chungcheongbuk-do		41	64	63	62	62	616	974	1,882
	34:Chungcheongnam-do		123	93	84	82	82	568	1,040	2,072
	35:Jeollabuk-do		82	93	84	102	82	660	946	2,049
	36:Jeollanam-do		123	96	105	82	82	563	980	2,031
	37:Gyeongsangbuk-do		123	128	126	122	102	670	1,206	2,477
	38:Gyeongsangnam-do		162	159	126	143	150	722	1,283	2,745
	39:Jeju		0	0	0	0	0	324	513	837
	N		2,029	2,040	2,100	2,048	2,056	10,835	16,703	37,811

Before constructing final latent variables at the aggregate level, two statistical tests, one-way ANOVA and correlation, were necessary to confirm if: (a) there were differences in variable means among spatial units and (b) the variables were a covariate. First, ANOVA tests were conducted at the city/province level for all years. According to the results, there were differences in mean among city/province spatial units presenting substantially significant results with the exception of gender. Since the gender ratio was set to be equal in the survey design, there was insignificant variation in gender distribution. Additionally, in four datasets (1996, 1998, 2002, and 2005), means of the married population were not significantly different, which caused internal consistency with later socioeconomic latent variable construction. With the exception of job distribution in 1993 (p = .170), all other variables were statistically significant in the difference in means by city/province spatial units. A summary of one-way ANOVA results is presented in Table 11. Detailed results of post hoc and mean plots are presented in Appendix B. Different spatial units had different area characteristics, as shown in the literature.

The following analysis shows the correlation between all variables in the social disorganization model at the individual and city/province levels. The results display significant correlations (either positive or negative) between most variables. According to the analysis, most of the variables were positively correlated with the same upper-level categories (socioeconomic status, residential stability, and collective efficacy).

Table 11. Summary of one-way ANOVA results by City/Province Spatial Unit.

	1993		1996		1998		2002		2005		2008		2010	
	F	Sig.	F	Sig.	F	Sig.	F	Sig.	F	Sig.	F	Sig.	F	Sig.
Age	3.189	.000	.916	.536	2.083	.010	1.681	.053	1.415	.138	16.053	.000	18.895	.000
Gender	.116	1.000	.134	1.000	.415	.971	.095	1.000	.081	1.000	.702	.786	.643	.842
Married	2.440	.003	.653	.810	1.609	.069	1.550	.086	1.147	.311	3.165	.000	3.566	.000
Univ. educated	6.246	.000	6.671	.000	3.925	.000	5.701	.000	2.920	.000	20.024	.000	31.064	.000
Higher household income	9.432	.000	4.356	.000	4.385	.000	8.272	.000	4.653	.000	39.923	.000	27.450	.000
Employed	1.362	.170	2.146	.010	2.554	.001	2.000	.015	3.793	.000	6.222	.000	5.173	.000
Lived more than 5 yrs	9.907	.000	7.974	.000	4.790	.000	7.034	.000	5.180	.000	25.016	.000	18.238	.000
Own house	5.218	.000	2.205	.008	3.884	.000	10.099	.000	4.472	.000	22.898	.000	27.817	.000
Community bond	7.779	.000	27.007	.000	10.435	.000	11.168	.000	19.198	.000	47.689	.000	73.711	.000
Neighborhood order	16.230	.000	3.643	.000	3.103	.000	11.449	.000	14.631	.000	26.216	.000	34.141	.000
Police effectiveness	2.318	.005	2.978	.000	2.653	.001	7.734	.000	7.913	.000	18.661	.000	22.242	.000
	df		df		df		df		df		df		df	
Between Groups	13		13		14		14		14		15		15	
Within Groups	2,015		2,022		2,085		2,033		2,041		10,819		16,687	
N	2,028		2,035		2,099		2,047		2,055		10,834		16,702	

Four elements (marital status, education level, household income, and occupation) were included in socioeconomic status, following the previous literature and analysis (Sampson et al., 1997). Marital status often presented negative or with no significant correlative relationship with other socioeconomic status variables, causing inconsistency within the latent variable as predicted from the previous ANOVA test. The correlation results on variables within the other two future latent variables (residential stability and collective efficacy) presented significant positive relationships across the years and aggregate levels. These results indicate that there is less multicollinearity among the future latent variables in the model, while supporting the evidence for the construction of latent variables. The correlation results are summarized below in Appendix C.

The data was then aggregated at the spatial-unit level. I aggregated the data using the city/province level of spatial unit to build variables for the social disorganization model. Descriptive results of all social disorganization aggregated variables at the city/province level from 1993 to 2010 are summarized in Table 12, as well as illustrated in Figure 16 and Figure 17 below.

Results concerning the neighborhood characteristics variables were similar to previous results of socioeconomic status and residential stability; however collective efficacy presented differences in mean across the areas. First, community bond marginally decreased in general. Second, neighborhood order also marginally decreased over time, with a significant decrease in 2002. It is difficult to determine if any event related to this decline; however there were a number of large events in South Korea in 2002, such as the Korea-Japan World Cup and Candlelight Rallies (peaceful demonstrations against unfair treatment or government decisions).

Table 12. Variable Summary of Social Disorganization Model at City/Province Spatial Unit Level

		1993		1996		1998		2002		2005		2008		2010	
	N	14		14		15		15		15		16		16	
	Variable	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
	Age	36.86	2.25	35.77	1.43	37.69	2.06	38.89	2.00	38.80	1.67	44.68	2.69	45.04	2.47
	Percent Female	50.31	1.59	50.61	1.70	49.55	3.40	50.12	1.64	49.92	1.55	48.20	1.87	47.86	1.32
	Urbanization (Binary) N=Urban/Others	6 / 8		6 / 8		7 / 8		7 / 8		7 / 8		7 / 9		7 / 9	
Socio-economic Status	Percent Married	59.87	6.54	60.44	3.38	56.50	6.50	64.02	5.30	64.05	5.02	63.07	3.15	61.97	2.72
	Percent College Educated	27.42	9.43	35.23	8.51	34.50	8.74	33.14	11.84	38.00	8.24	33.19	7.56	36.30	7.51
	Percent High (¼) Household Income	19.49	9.80	23.46	6.92	26.34	8.64	18.43	9.33	25.31	9.01	35.65	10.49	27.98	7.31
	Percent Prof./Managerial Occupation	6.30	2.70	8.58	3.51	9.94	5.15	5.80	3.72	6.49	5.02	7.15	2.28	9.06	1.93
Residential Stability	Percent Lived 5 Yrs. and More	52.34	16.39	64.60	13.25	70.26	8.85	73.47	9.66	73.24	9.28	66.39	8.79	67.06	6.39
	Percent Residence Owned	67.55	9.91	70.78	6.37	72.13	8.02	78.02	11.92	74.35	8.97	66.72	7.74	68.19	6.88
Collective Efficacy	Community Bond	.033	.264	.146	.402	.062	.295	.073	.290	.037	.390	.046	.256	.025	.255
	Neighborhood Order	.084	.343	.019	.174	.010	.174	-.084	.308	-.023	.364	.011	.213	.004	.192
	Police Effectiveness	.013	.140	-.005	.168	.007	.150	.076	.276	.000	.298	-.004	.173	.005	.145

Figure 16. Neighborhood Characteristics Variables of Social Disorganization Model at City/Province Spatial Unit Level 1993-2010

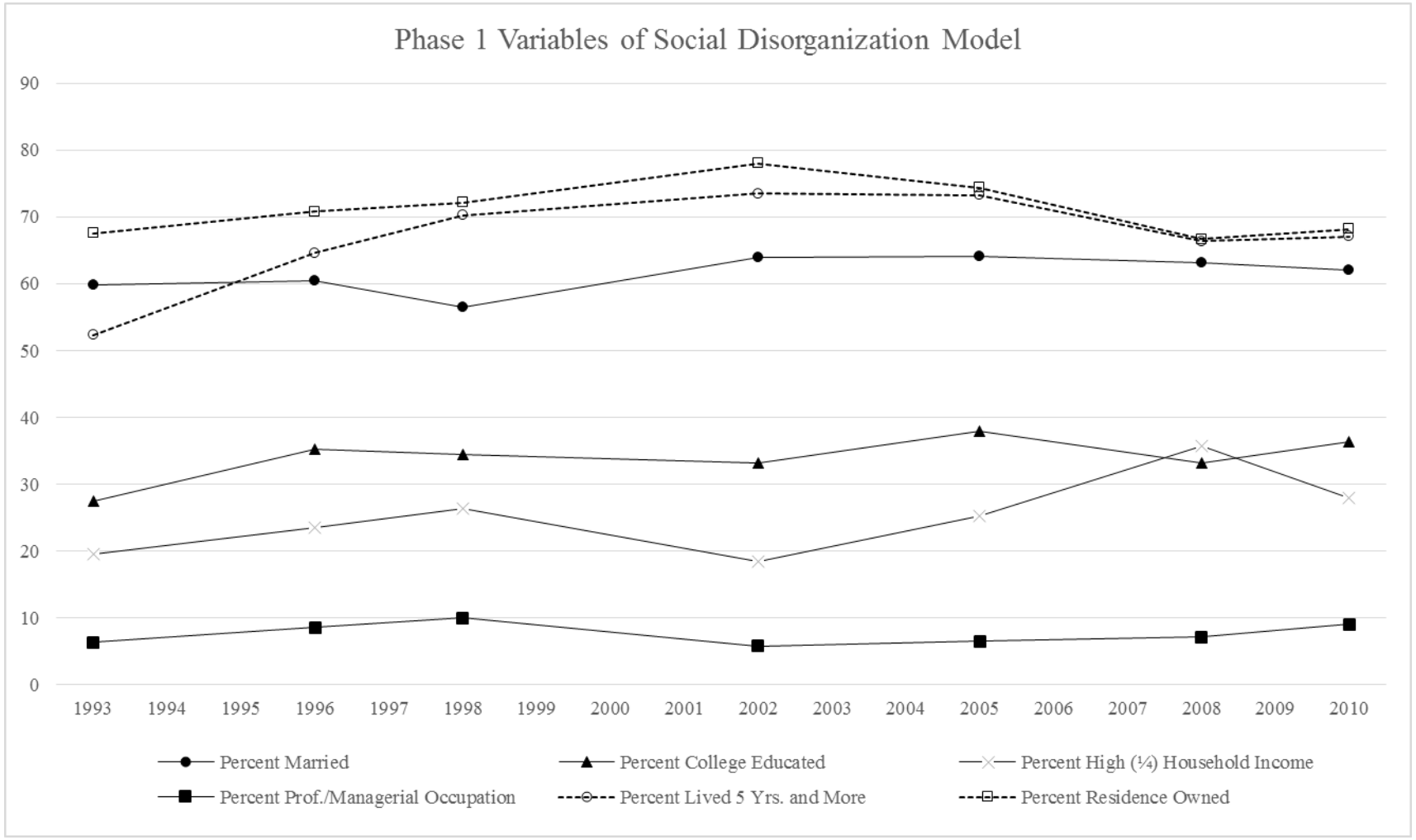
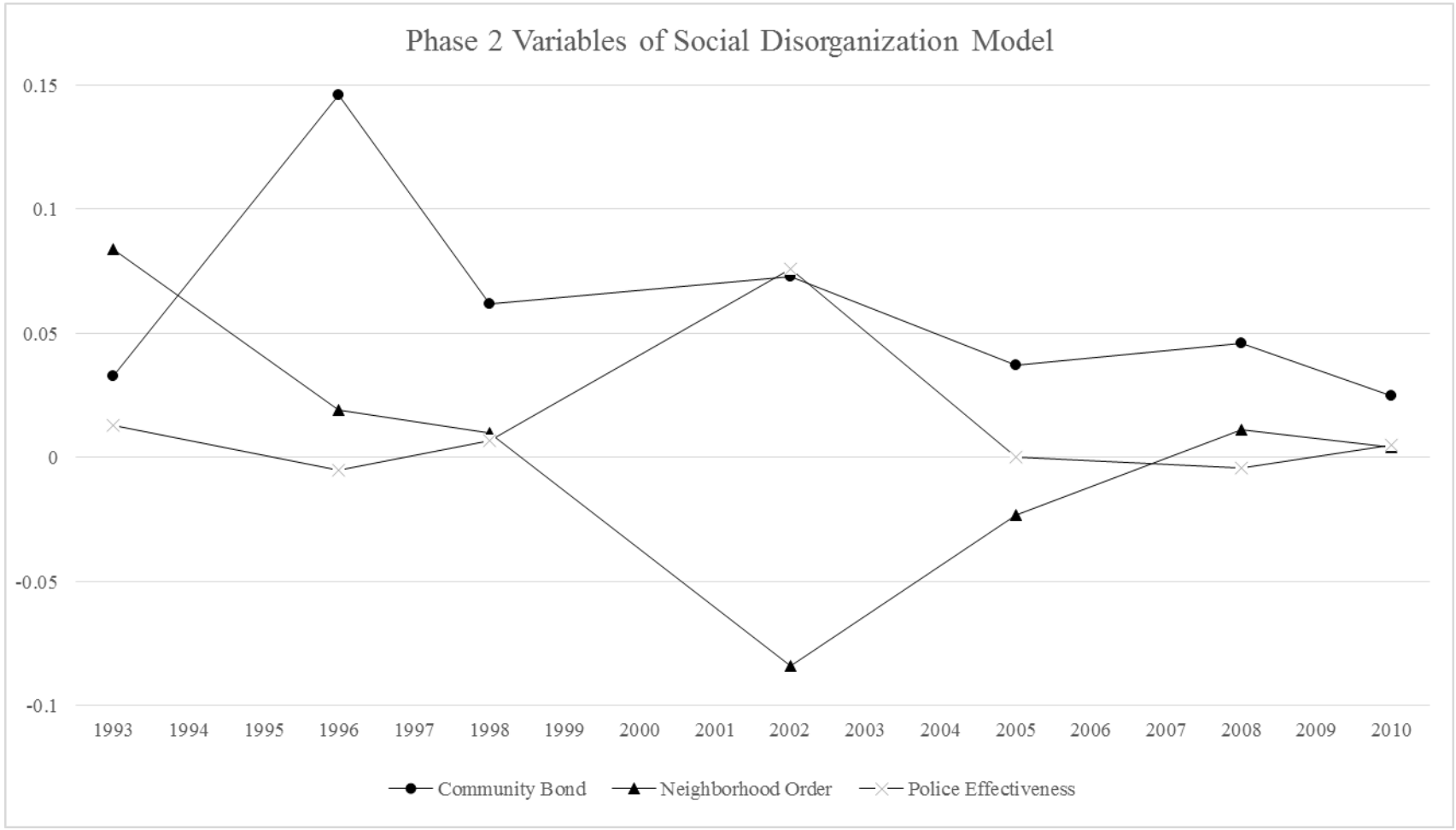


Figure 17. Collective Efficacy Variables of Social Disorganization Model at City/Province Spatial Unit Level 1993-2010



Third, except for a significantly high level of police effectiveness in 2002, police effectiveness presented as consistent throughout the years. The results suggest that collective efficacy in South Korea slightly decreased over time from 1993 to 2010. This trend has been discussed in recent studies on social change in South Korea (Yun & Lachman, 2006).

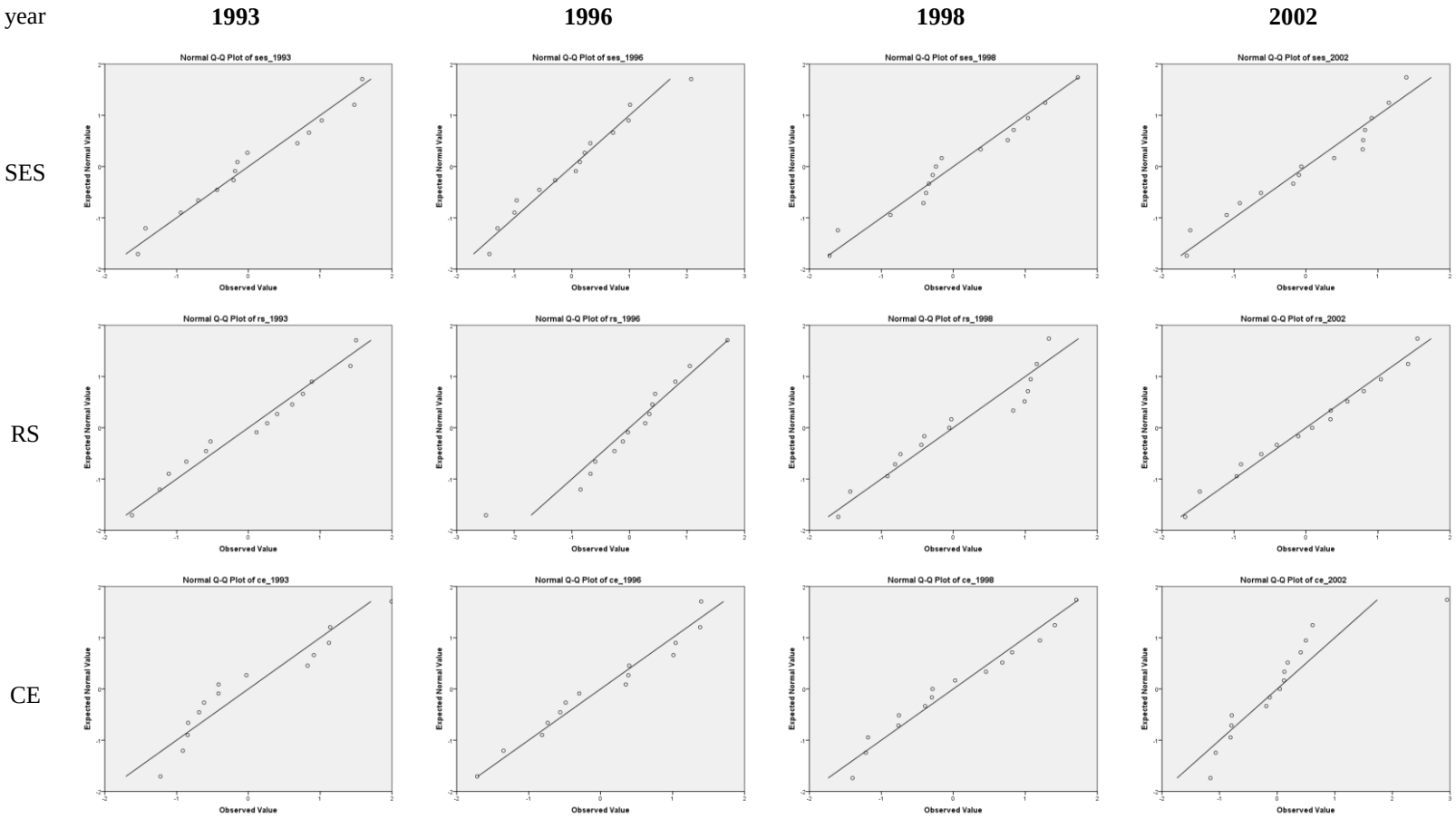
All variables were then constructed using reduction factor analysis in SPSS. Before conducting dimension reduction, a reliability test was performed to check internal consistency. This dimension reduction process was necessary due to having parsimonious variables in the model (Sampson et al., 1997). Initially, socioeconomic status included four elements (marital status, education level, household income, and occupation); however according to the reliability test for internal consistency, marital status was not consistent among variables (mean Cronbach's Alpha = .166). I therefore excluded marital status when I constructed the socioeconomic status variables (mean Cronbach's Alpha = .472). In addition, the 2005 dataset presented a negative Cronbach's Alpha, which indicated mean negative covariances violated the test's assumption (mean Cronbach's Alpha excluding 2005 is .683). It is hard to determine the specific reason for this as only the 2005 dataset presented inconsistency in this dimension. Although, this result could invalidate the dataset, I included the dataset with consideration of the inconsistency of latent variables. The 2005 results are therefore presented only as a reference of a possible midpoint between the 2002 and 2008 datasets. Table 13 summarizes the descriptive results by the city/province spatial unit.

Table 13. Summary of Social Disorganization Model's Latent Variables Descriptive Result at City/Province Spatial Unit Level.

	1993			1996			1998			2002			2005			2008			2010		
	SES	RS	CE	SES	RS	CE	SES	RS	CE	SES	RS	CE	SES	RS	CE	SES	RS	CE	SES	RS	CE
α	.656	.850	.605	.685	-.258	.417	.693	.706	.395	.711	.717	.853	-.793	.412	-.016	.611	.804	.833	.692	.889	.859
11	1.585	-.590	-.618	2.071	.446	-.298	.838	-.916	.025	1.150	-1.475	-.810	-.387	.494	.111	2.169	-1.773	-.643	1.859	-1.523	-1.050
21	-.186	-1.110	-.913	.139	.346	.349	-.378	-.027	-.392	.391	.340	-.794	.116	1.078	-.123	-.263	.367	-.524	.395	.274	-.173
22	.843	-.864	-.840	.322	1.049	-1.350	1.036	-1.431	-1.184	.787	.084	.047	1.414	-1.878	-.511	.722	-1.562	-.973	.305	.590	-.541
23	1.021	-1.235	-.687	.985	-2.491	.385	-.338	-.734	-1.216	.820	-.621	-1.068	-1.320	.554	3.096	.107	-.146	-.888	1.025	-.973	-1.487
24	-.153	-1.622	-1.225	-.565	-.849	-.736	1.277	-.056	.816	.794	-.903	-.190	1.712	-1.597	-1.203	1.151	.648	-1.184	.469	-2.152	-1.444
25	1.475	-.527	-.846	.223	-.676	-.813	.756	.832	-.298	-.625	-.405	-.789	-.512	.945	.731	1.521	-1.906	-.766	.481	.138	-.750
26	.	.	.	.	.	.	1.729	-1.598	.454	-1.102	-1.679	-.129	-.622	.213	.323	.122	.433	-.971	1.015	.104	-.275
31	-.206	.113	-.417	.715	-.261	-.487	.380	-.809	-.761	.913	-.963	.124	-.754	.831	.258	.548	-.515	-.777	1.376	-1.396	-.719
32	-.014	.610	.911	-.291	.274	1.396	-.873	.990	1.410	-.177	1.417	.118	.145	-1.248	-.434	-.760	-.487	.809	-.088	.673	1.875
33	-.699	1.500	1.139	.069	1.701	.397	-.242	-.403	-.289	-1.657	1.040	-1.159	-1.400	-.505	-.381	-.141	.457	.132	-.987	.300	.730
34	-1.539	.883	-.416	-1.291	.397	1.382	-1.604	1.159	-.756	-1.608	1.548	2.949	-1.047	-.899	-.305	-.606	.102	-.215	-.881	-.300	-.385
35	-.436	.262	.825	1.010	-.114	1.011	-.162	1.074	.680	1.394	-.106	.182	.956	-.170	.077	-.901	1.303	1.218	-1.115	1.063	1.293
36	-1.433	1.421	1.994	-.959	-.026	-.562	-1.719	1.035	-1.399	-.065	.344	.614	.779	.567	-.625	-1.267	1.126	2.099	-1.208	1.276	.741
37	-.942	.759	1.122	-.997	-.593	1.042	-.286	1.327	1.203	-.098	.576	.408	1.139	.418	-1.071	-.427	.655	.743	-1.102	.557	.523
38	.683	.400	-.028	-1.432	.797	-1.716	-.415	-.443	1.707	-.919	.802	.497	-.220	1.198	.055	-.647	.469	.972	-.733	.500	.997
39	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-1.327	.829	.969	-.810	.868	.664
N			14			14			15			15			15			16			16

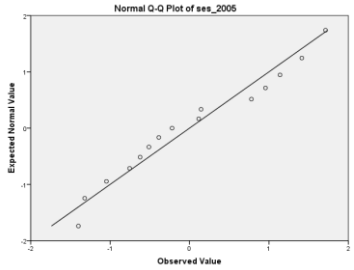
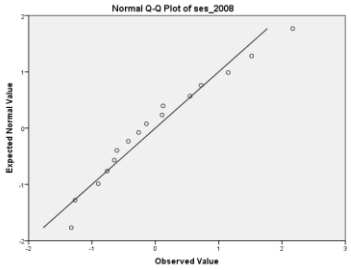
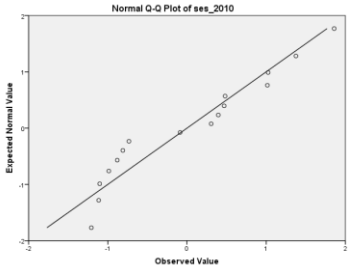
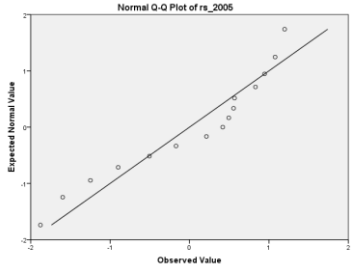
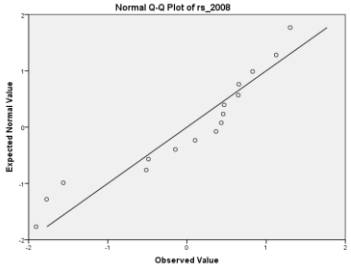
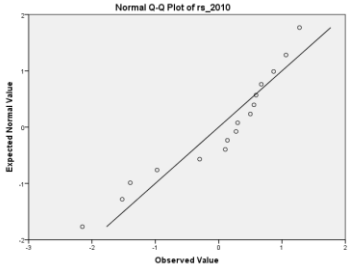
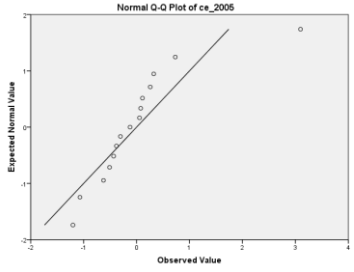
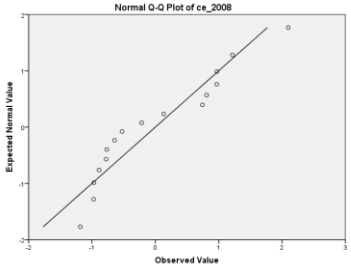
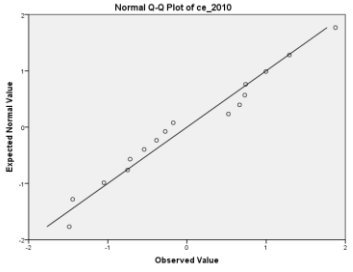
*SES=Socio-economic Status, RS=Residential stability, CE=Collective efficacy

Figure 18. Q-Q Plot for Independent Variable in Social Disorganization Model at City/Province Level 1993-2010.



(Figure 18 continued in next page).

(Figure 18 continued)

year	2005	2008	2010
SES			
RS			
CE			

The following step of the descriptive analysis aimed to confirm the normality of variables before model specification. In order to check the normality of each variable constructed, a Q-Q plot normal test was used. It is important to examine the normality of both independent and dependent variables to check if proper transformation is needed in order to build reliable models and results statistically. The Q-Q plot visually presented the normality of data distribution as a 45-degree angled diagonal line, normality probability plot (Ott & Longnecker, 2000; Porter, 2007). Therefore, all variables from 1993 to 2010 were analyzed via Q-Q plot; the result is summarized in Figure 18. Even though, the numbers of the sample were small; the plots presented the substantially normal distribution close to the normality line across the years and variables.

Statistical Description of Individual Characteristics

Individual level analysis, associated with routine activities/lifestyle model variables, included: (a) computation of the independent variables with reliability test, target suitability, and guardianship; (b) normality tests after the latent variables were built; and (c) correlation between the variables. Because protective and avoidance behaviors related to personal and household variables were expected to affect personal and household victimization respectively, independent variables were constructed to type specific target suitability and guardianship.

First, before creating the latent variables, reliability tests were conducted to check the internal consistency of the variables. Each dataset had a different set of questions associated with personal or household target suitability and guardianships. The personal target suitability latent variable included the use of public transportation, wearing expensive clothes/jewelry, money spending habits, and frequency of shopping. However, these items were difficult regress due to a lack of internal consistency (mean Cronbach's Alpha = .415; mean = 4). Therefore, I computed

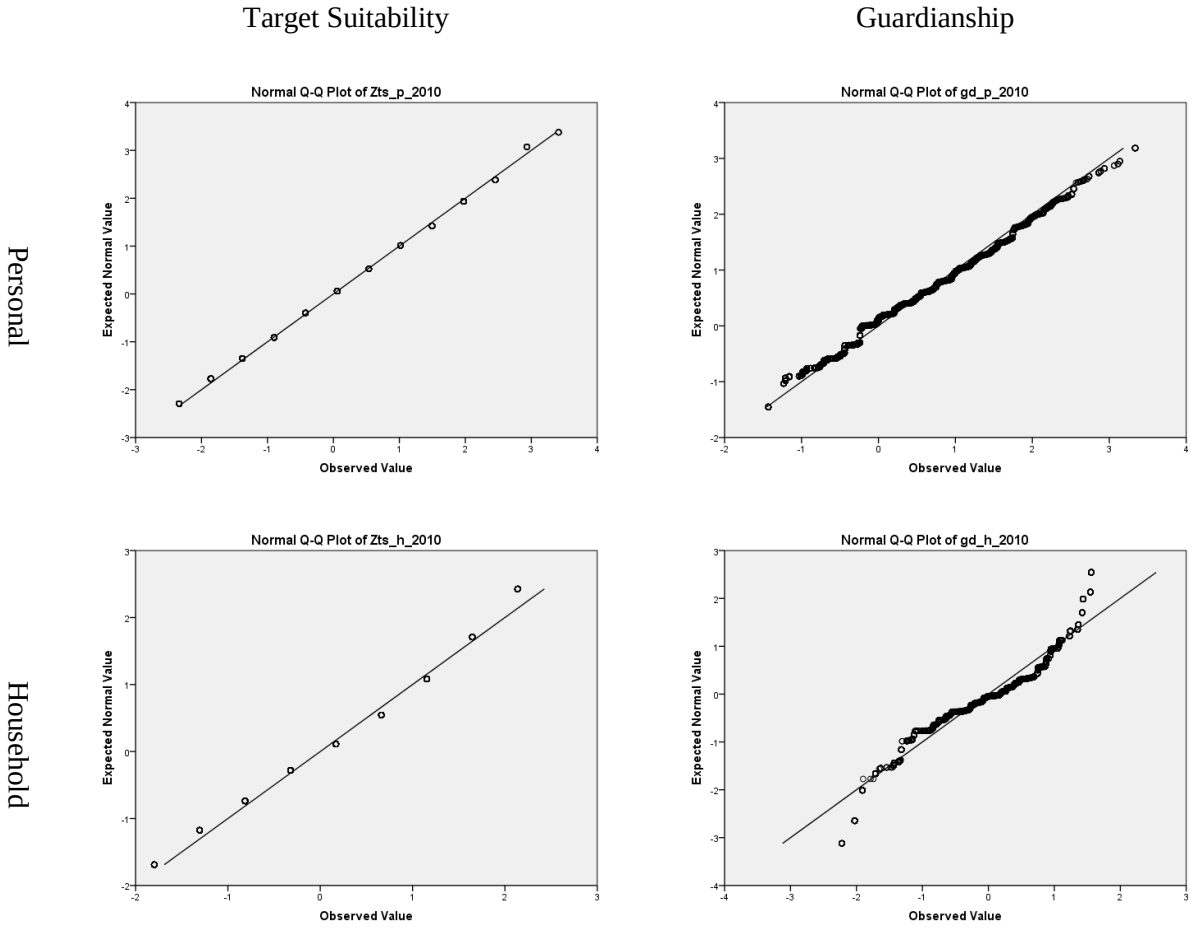
standardized sum scores because it was possible to consider each item added the possibility of suitability towards targets. Next, household target suitability displayed similar results with personal target suitability (mean Cronbach's Alpha = .385; mean = 2), consisting of variables on the frequency of coming home late and frequency of having an empty house. Personal and household guardianship variables were composed with a number of questions using Likert-scale items. Each latent variable's mean Alphas were .673 and .560 respectively, indicating acceptable internal consistency. I created regressed scores of personal and household guardianship variables using factor analysis, summarized in Table 14.

Table 14. Reliability Summary of Guardianship in Routine Activities/Lifestyle Model 1993-2010.

Latent Variable			1993	1996	1998	2002	2005	2008	2010
		N	2,029	2,040	2,100	2,048	2,056	10,835	16,703
Guardianship	Personal	Number of Qs.	4	5	6	5	5	2	5
		Cronbach's Alpha	.699	.680	.760	.785	.825	.131	.833
		Total	2,023	2,035	2,086	2,042	2,052	10,835	16,703
	Household	Number of Qs.	1	8	10	6	7	10	10
		Cronbach's Alpha	-	.491	.512	.444	.565	.633	.712
		Total	2,023	2,022	2,091	2,048	2055	10,835	16,703

The next step was to confirm if the created variables were normally distributed via Q-Q plot analysis. According to the analysis, with the exception of household guardianship in 1993 (one question and binary), all variables presented normal distribution patterns in the Q-Q plots. Target suitability normality plots displayed fewer values than guardianship variables, which was expected due to an overlap of values after computing the latent variables of target suitability by summing and standardizing. Because all latent variables were either regressed or standardized, means and standard deviations for all variables were 0 and 1 respectively. All years' Q-Q plots are included in Appendix D for further reference.

Figure 19. Q-Q Plot for Independent Variable in Routine Activities/Lifestyle Models in 2010.



Lastly, covariate analysis between the variables was conducted to determine relationships and multicollinearity. Each year's results showed different directions and powers. In general, personal target suitability displayed a positive, statistically significant relationship with household target suitability from 1993 to 1998, later changing to insignificant or negative. Personal and household guardianship presented consistently positive associations throughout the years. Personal target suitability had a positive relationship with personal guardianship; while a

significant but generally weak (less than .100) relationship was observed between household target suitability and guardianship. The least relevant variables were household target suitability and personal guardianship, which presented either negative or insignificant associations. In sum, there were some statistically significant relationships between the variables, however the directions and powers were neither particular nor strong. Therefore, multicollinearity was not an issue within the model.

Table 15. Correlation between All Variables in Routine Activities/Lifestyle Model

Year 1993 (N=2,029)

Variables	[1]	[2]	[3]	[4]
[1] Personal Target Suitability	1	.106**	.195**	.085**
[2] Household Target Suitability		1	.010	.070**
[3] Personal Guardianship			1	.161**
[4] Household Guardianship				1

Year 1996 (N=2,036)

Variables	[1]	[2]	[3]	[4]
[1] Personal Target Suitability	1	.148**	.162**	.067**
[2] Household Target Suitability		1	-.054*	.051*
[3] Personal Guardianship			1	.258**
[4] Household Guardianship				1

Year 1998 (N=2,100)

Variables	[1]	[2]	[3]	[4]
[1] Personal Target Suitability	1	.188**	.184**	.081**
[2] Household Target Suitability		1	-.103**	.049*
[3] Personal Guardianship			1	.226**
[4] Household Guardianship				1

Year 2002 (N=2,048)

Variables	[1]	[2]	[3]	[4]

[1] Personal Target Suitability	1	.009	.138**	.023
[2] Household Target Suitability		1	-.134**	-.005
[3] Personal Guardianship			1	.223**
[4] Household Guardianship				1

Year 2005 (N=2,056)

Variables	[1]	[2]	[3]	[4]
[1] Personal Target Suitability	1	.018	.291**	.204**
[2] Household Target Suitability		1	-.111**	.090**
[3] Personal Guardianship			1	.293**
[4] Household Guardianship				1

Year 2008 (N=10,835)

Variables	[1]	[2]	[3]	[4]
[1] Personal Target Suitability	1	-.058**	.009	-.084**
[2] Household Target Suitability		1	.035**	.107**
[3] Personal Guardianship			1	.019*
[4] Household Guardianship				1

Year 2010 (N=16,703)

Variables	[1]	[2]	[3]	[4]
[1] Personal Target Suitability	1	.020**	.095**	.127**
[2] Household Target Suitability		1	-.042**	.151**
[3] Personal Guardianship			1	.124**
[4] Household Guardianship				1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Table 15 (cont.)

Statistical Description of Victimization

The last statistical description focused on victimization and its relation to the model variables. This consisted of descriptive analysis, data distribution examination, and covariate analysis between model variables. Two types of specific victimizations (household and personal)

and total victimization were the dependent variables in the model analysis. The measure of victimization differed in three ways: binary and frequency at the individual level, and rate at the aggregate level.

Table 16 displays descriptive results of binary coded victimization as 1 = Yes and 0 = No. Because the variable was binary coded, the mean was interpreted as a percentage. The personal victimization level was higher than household victimization over the years. Also, there were significant decreases in both personal and household victimization. Personal victimization before 2000 was 20.67%; after 2000 the personal victimization rate decreased drastically to 3.5%. Household victimization also decreased from an average of 7.33–5% to 3.25% before and after 2000.

Table 16. Descriptive Results on Type-Specific Victimization (Binary)

		Total Victimization		Personal Victimization		Household Victimization	
Year	N	Mean	SD	Mean	SD	Mean	SD
1993	2,029	.28	.447	.23	.418	.08	.279
1996	2,040	.23	.418	.18	.383	.06	.237
1998	2,100	.26	.438	.21	.407	.08	.268
2002	2,048	.08	.271	.03	.183	.05	.220
2005	2,056	.06	.234	.02	.153	.04	.190
2008	10,835	.06	.235	.04	.194	.02	.144
2010	16,703	.06	.242	.05	.219	.02	.127

The other measure of victimization at the individual level was the frequency of victimization for personal, household, and total. Generally, similar longitudinal results saw the decrease of both types of victimization over the years, in particular before and after 2000. Because one individual can be victimized multiple times, the maximum frequency of victimization differed, so the means were higher than binary results. In general, personal victimization presented higher mean levels than household victimization. It is important to note that using binary and frequency measures led to different explanations in the model. Using

binary measures shows the relationship between the variables and victimization, while using frequency measures shows the association between the variables and intensity of victimization. Therefore, two different measures of victimization were used as dependent variables in the analysis.

Table 17. Descriptive Results on Type-Specific Victimization (Frequency)

		Total Victimization				Personal Victimization				Household Victimization			
Year	N	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD
1993	2,011	0	16	.52	1.223	0	16	.38	1.020	0	10	.14	.593
1996	2,040	0	14	.41	.996	0	14	.29	.830	0	6	.12	.476
1998	2,100	0	20	.45	1.098	0	20	.34	.923	0	6	.11	.478
2002	2,048	0	10	.12	.530	0	10	.05	.375	0	6	.07	.332
2005	2,056	0	5	.09	.388	0	5	.04	.282	0	3	.05	.259
2008	10,835	0	16	.15	.610	0	13	.06	.407	0	6	.08	.371
2010	16,703	0	30	.10	.611	0	13	.08	.479	0	20	.02	.295

Next, descriptive analysis of aggregate-level victimization was conducted at the city/province level. Aggregate-level measures also used binary and frequency computing into means. Table 18 and 19 present the descriptive results on victimization at the city/province level in binary and frequency measures. Overall mean patterns were similar to the previous results on victimization at the individuallevel; the results displayed higher personal than household victimization, as well as higher victimization before than after 2000.

Table 18. Descriptive Results on Type-Specific Victimization at City/Province Level (Binary).

		Total Victimization				Personal Victimization				Household Victimization			
Year	N	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD
1993	14	.16	.38	.2684	.05541	.13	.33	.2190	.04471	.02	.16	.0805	.03735
1996	14	.09	.43	.2120	.07865	.07	.38	.1713	.07280	.00	.10	.0529	.02729
1998	15	.13	.35	.2644	.05643	.10	.27	.2123	.05789	.05	.19	.0884	.03836
2002	15	.00	.13	.0773	.03457	.00	.06	.0270	.02245	.00	.10	.0547	.02997
2005	15	.02	.11	.0628	.02795	.00	.07	.0226	.02129	.01	.10	.0431	.02446
2008	16	.03	.11	.0598	.02151	.02	.10	.0389	.02083	.01	.04	.0227	.00851
2010	16	.04	.10	.0627	.01733	.03	.09	.0511	.01459	.00	.03	.0155	.00671

Table 19. Descriptive Results on Type-Specific Victimization at City/Province Level (Frequency).

		Total Victimization				Personal Victimization				Household Victimization			
Year	N	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD
1993	14	.28	.84	.4958	.15418	.22	.61	.3629	.12015	.02	.28	.1323	.07643
1996	14	.17	1.03	.4117	.20718	.08	.79	.2873	.17800	.06	.24	.1244	.05274
1998	15	.21	.79	.4596	.13655	.13	.64	.3284	.12363	.05	.25	.1312	.06430
2002	15	.00	.23	.1127	.06076	.00	.15	.0428	.04549	.00	.13	.0699	.03714
2005	15	.02	.23	.0974	.06232	.00	.11	.0367	.03287	.01	.15	.0608	.04390
2008	16	.06	.32	.1476	.06277	.02	.18	.0610	.04049	.03	.17	.0866	.03660
2010	16	.05	.18	.1034	.03788	.04	.15	.0798	.03054	.01	.05	.0235	.01186

In order to perform fit analysis, data distribution was checked via Q-Q plots as well as skewness and kurtosis. In the case of binary measures of dependent variables at the individual level, logistic regression was deemed appropriate. However, after the values were aggregated as mean per spatial unit, the values were considered as scale, which needed to be tested for normality of distribution for the regression model. Frequency, as well as aggregated frequency means, also required testing during the data distribution. Generally, crime and victimization rates were not normally distributed but positively skewed because most of the individuals had not experienced crime or victimization (Osgood, 2000). This distribution, with a high frequency of small values such as 0 or 1, indicated Poisson distribution (Reid, 1981; Aitchison & Ho, 1989). When Poisson distribution is the type of distribution of dependent variables, two treatments can be applied: log transformation and application of Poisson regression when analyzing the model. Due to parsimoniousness of analysis models using basic regression, I decided to log transform the dependent variables with Poisson distribution. Because log transformation could not be computed when the value is 0, I added 1 to all values before the transformation.

Log Transformation of Victimization Rate

$$Y = \ln(Y_{frequency\ of\ victimization} + 1) \qquad (7)$$

According to distribution analysis, all three frequency measured victimization variables displayed Poisson distribution with a high level of positive skewness (mean of original data's skewness = 9.922). Therefore, natural log transformation was conducted to reduce the level of skewness as well as to enhance data to a normal distribution. The transformation reduced the level of skewness to 4.292, which was not close enough to a normal level. In this case, consecutive log transformation was applied to achieve the most normal status of data distribution. However, this repeated transformation lost its substantiality explaining the results. Therefore, log-transformed values, which were as close to normal distribution as possible at this point, were used in the model analysis. Example Q-Q Plots in 2010 are presented in Figure 20. Moreover, Table 20 summarizes the log-transformed descriptive results.

Next, city/province level aggregate dependent variables were also tested for normality of distribution. Both binary and frequency means of victimization variables at the city/province level presented mostly normally distributed Q-Q Plots in Figure 21.

Figure 20. Q-Q Plot for Dependent Variables of Frequency and Log Transformed Measures at Individual Level in 2010.

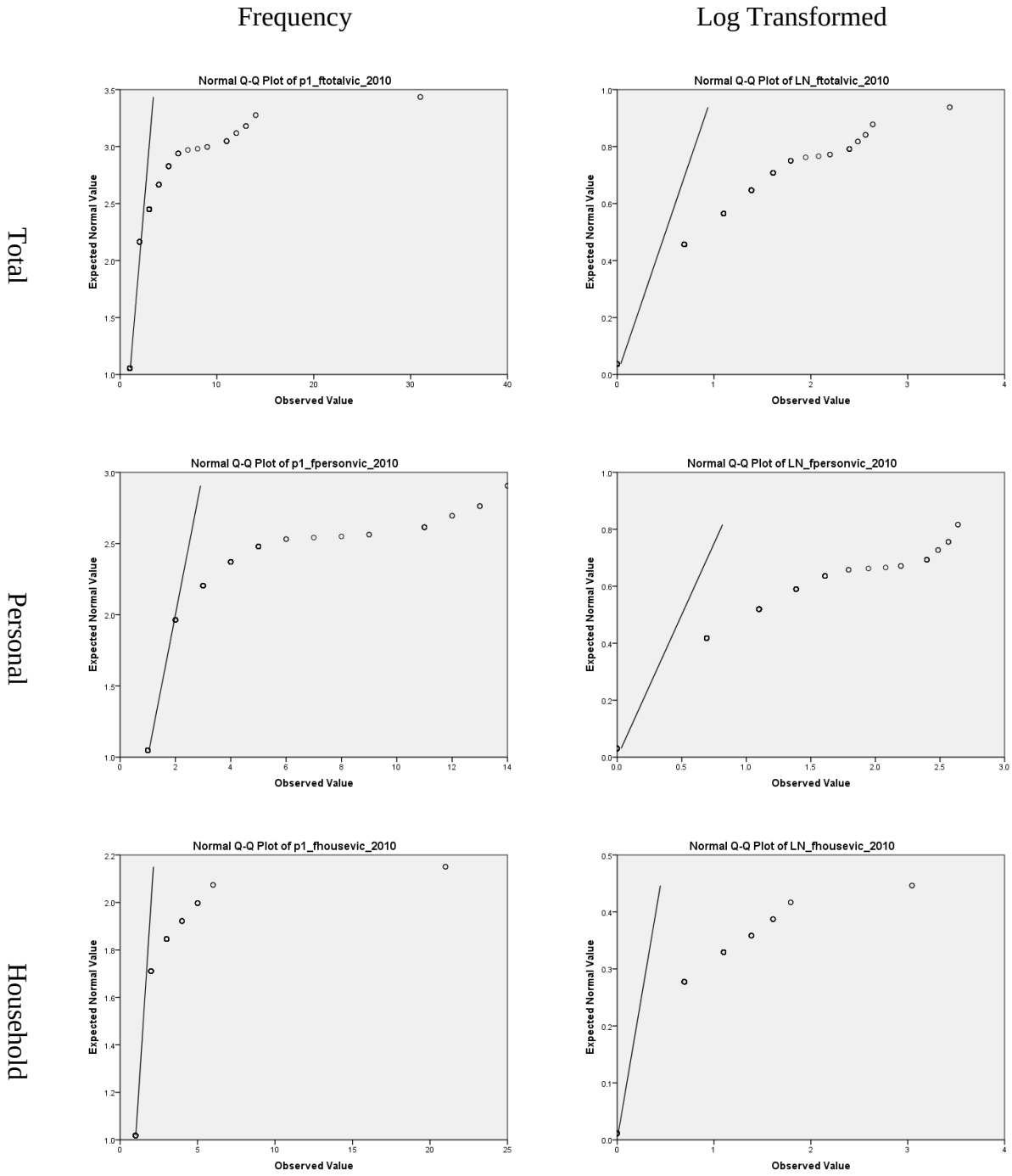


Figure 21. Q-Q Plot for Dependent Variables of Binary and Frequency Means at City/Province Level in 2010.

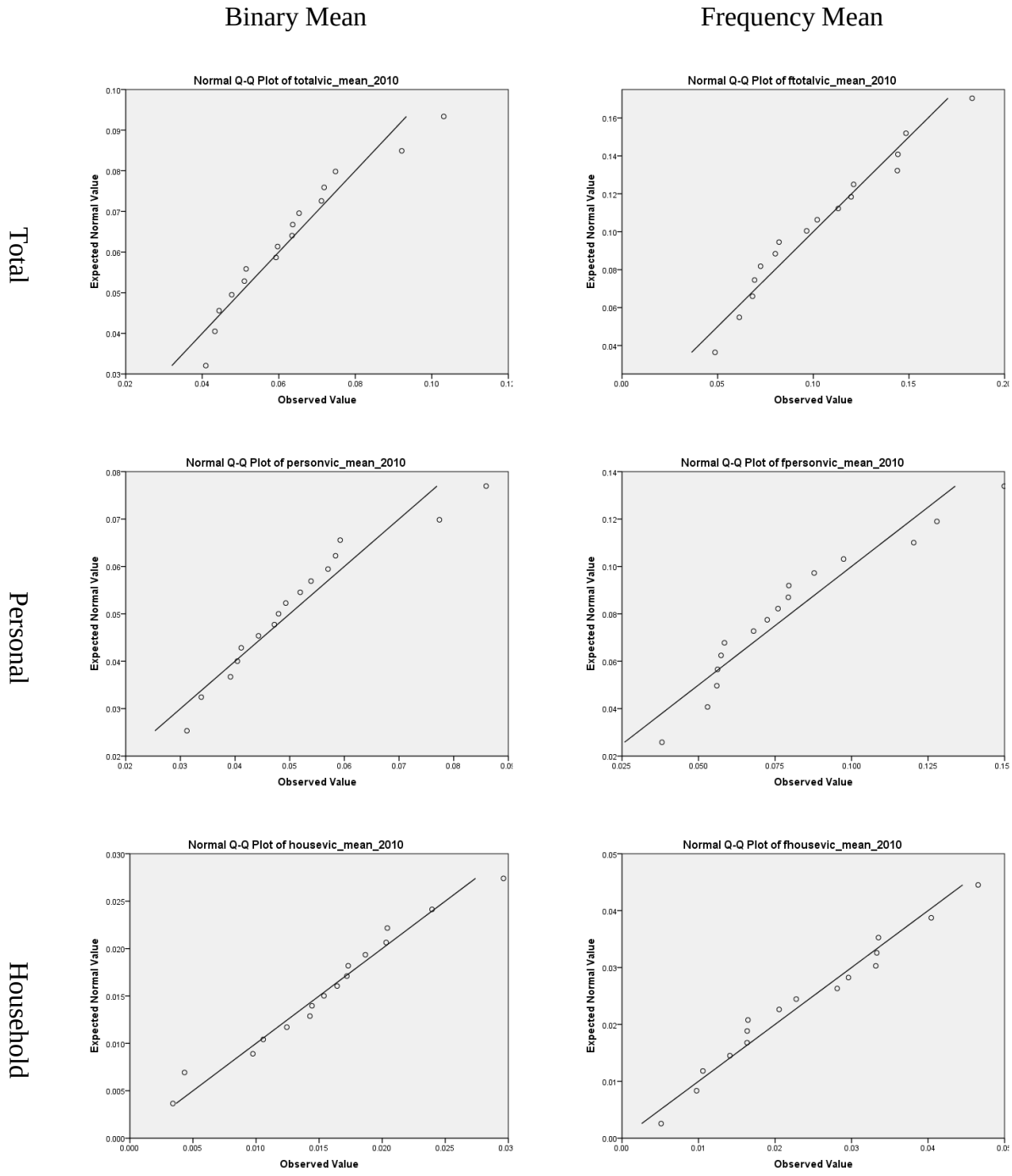


Table 20. Descriptive Results on Log Transformed Victimization Variables (Frequency).

		Total Victimization				Personal Victimization				Household Victimization			
Year	N	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD
1993	2,011	.00	2.83	.2643	.47719	.00	2.83	.2036	.41521	.00	2.40	.0750	.26618
1996	2,040	.00	2.71	.2191	.42975	.00	2.71	.1597	.37105	.00	1.95	.0695	.24613
1998	2,100	.00	3.04	.2398	.44876	.00	.69	.1456	.28239	.00	.69	.0538	.18551
2002	2,048	.00	2.40	.0680	.24741	.00	2.40	.0300	.16967	.00	1.95	.0405	.18305
2005	2,056	.00	1.79	.0530	.21272	.00	1.79	.0219	.14325	.00	1.39	.0321	.15873
2008	10,835	.00	2.83	.0803	.27604	.00	2.64	.0353	.18692	.00	1.95	.0500	.20453
2010	16,703	.00	3.43	.0553	.23125	.00	2.64	.0434	.20248	.00	3.04	.0136	.11334

The next statistical analysis examined covariate relationships between independent and dependent variables. First, routine activities/lifestyle model variables at the individual level were analyzed using a t-test for binary dependent variables and correlation for frequency dependent variables. It was expected that a higher level of target suitability and lower level of guardianship would result in a higher likelihood of victimization. It was also expected that if an individual was victimized, target suitability would display at a higher level than respondents not victimized, and guardianship level would present lower than the other. According to the results, respondents who were victimized were associated with a higher level of target suitability; however guardianship level also followed the same pattern as target suitability—a higherlevel of guardianship was related to respondent victimized—which was opposite to the expectation. The results can be explained by the fact that victimized respondents presented higher guardianship levels after they were victimized. It is difficult to determine the time order; the assumption that victimized individuals took additional measures to prevent future victimization was taken into consideration in the model analysis. T-tests with the total victimization binary variable and the independent variables showed that most of the independent variables were significant, expect for the 2002 and 2005 analysis. Also, personal victimization was significantly related to higher levels of personal target suitability and guardianship in 1993, 1996, 1998, 2008, and 2010. In general,

household victimization had a significant association with household target suitability in 1993, 1998, and 2010 statistically. In 1998 and 2008, household guardianship was significantly related to victimization. While household guardianship in 2008 met expectations, a lower level of guardianship was presented with victimized respondents. Summary tables are presented in Appendix G.

Correlation analysis results with frequency of victimization and independent variables presented similar results with the t-tests. Positive associations between the variables were displayed. Both personal and household target suitability followed the assumption; while guardianship levels were oppositely associated or insignificant. It is important to note that the relationships presented stronger relationships before 2000, and later the relationships became either insignificant or with weaker associations.

Table 21. Correlation between Routine Activities/Lifestyle Variables and Victimization

Year	N	Victimization (Frequency)	Personal		Household	
			Target Suitability	Guardianship	Target Suitability	Guardianship
1993	2,011	Total	.104**	.137**	.105**	-.004
		Personal	.107**	.149**	.097**	-.012
		Household	.024	.035	.048*	.012
1996	2,040	Total	.119**	.111**	.094**	.040
		Personal	.120**	.097**	.099**	.012
		Household	.031	.065**	.025	.061**
1998	2,100	Total	.074**	.085**	.130**	.045*
		Personal	.079**	.100**	.133**	.045*
		Household	.029	.014	.060**	.023
2002	2,048	Total	.043	.021	.063**	.021
		Personal	.041	.038	.053*	.028
		Household	.026	-.007	.042	.008
2005	2,056	Total	.017	.049*	.011	-.018

		Personal	.033	.022	.022	-.036
		Household	-.005	.049*	-.007	.008
2008	10,835	Total	-.072**	.026**	.080**	-.010
		Personal	-.044**	.012	.069**	.015
		Household	-.057**	.027**	.057**	-.027**
2010	16,703	Total	.025**	.047**	.063**	-.015
		Personal	.020*	.047**	.046**	-.012
		Household	.029**	.013	.053**	-.012

Note. p<.05, p**<.000*

Table 21 (cont.)

Before analyzing the association between the dependent and independent variables of the social disorganization model, it was important to confirm if there was a statistical difference between means of victimization rates regarding different spatial units. Therefore, one-way ANOVA tests were conducted to determine different means among aggregate-level spatial units. According to the analysis, personal victimization differed among spatial units for most years except for binary coded personal victimization in 1993, while household victimization did not present statistically significant differences among spatial units in 1996 and 2002. In general, most of the one-way ANOVA tests were significant throughout years, which indicated a difference in means of victimization rates among spatial units. It is interesting to note that the mean difference examination among spatial units regarding household victimization were insignificant during the years of 1996–2002, during which time South Korea experienced the national financial crisis.

Table 22. Summary of One-Way ANOVA Analysis of Personal Victimization by Area

Personal Victimization (Binary)							Personal Victimization (Frequency)						
year		SS	df	MS	F	Sig.	year		SS	df	MS	F	Sig.
1993 (N=14)	BG	2.593	13	0.199	1.144	.317	1993 (N=14)	BG	3.434	13	0.264	1.537	.097
	WG	351.475	2,015	0.174				WG	342.91	1,996	0.172		
	Total	354.068	2,028					Total	346.344	2,009			
1996 (N=14)	BG	6.67	13	0.513	3.555	.000	1996 (N=14)	BG	7.59	13	0.584	4.33	.000
	WG	292.381	2,026	0.144				WG	273.137	2,026	0.135		
	Total	299.051	2,039					Total	280.727	2,039			
1998 (N=15)	BG	4.765	14	0.34	2.065	.011	1998 (N=15)	BG	2.29	14	0.164	2.065	.011
	WG	343.625	2,085	0.165				WG	165.095	2,085	0.079		
	Total	348.39	2,099					Total	167.385	2,099			
2002 (N=15)	BG	0.732	14	0.052	1.568	.081	2002 (N=15)	BG	0.64	14	0.046	1.596	.073
	WG	67.806	2,033	0.033				WG	58.286	2,033	0.029		
	Total	68.539	2,047					Total	58.926	2,047			
2005 (N=15)	BG	0.656	14	0.047	2.026	.013	2005 (N=15)	BG	0.52	14	0.037	1.821	.031
	WG	47.176	2,041	0.023				WG	41.651	2,041	0.02		
	Total	47.832	2,055					Total	42.171	2,055			
2008 (N=16)	BG	4.191	15	0.279	7.463	.000	2008 (N=16)	BG	4.11	15	0.274	7.916	.000
	WG	405.06	10,819	0.037				WG	374.428	10,819	0.035		
	Total	409.251	10,834					Total	378.537	10,834			
2010 (N=16)	BG	2.596	15	0.173	3.619	.000	2010 (N=16)	BG	2.283	15	0.152	3.722	.000
	WG	797.858	16,687	0.048				WG	682.477	16,687	0.041		
	Total	800.454	16,702					Total	684.76	16,702			

BG=Between Groups; WG=Within Groups; SS=Sum of Squares; df=Degree of freedom; MS=Mean Square

Table 23. Summary of One-Way ANOVA Analysis of Household Victimization by Area

Household Victimization (Binary)							Household Victimization (Frequency)						
year		SS	df	MS	F	Sig.	year		SS	df	MS	F	Sig.
1993 (N=14)	BG	1.771	13	0.136	1.763	.043	1993 (N=14)	BG	1.777	13	0.137	1.941	.022
	WG	155.649	2,015	0.077				WG	141.91	2,015	0.07		
	Total	157.419	2,028					Total	143.688	2,028			
1996 (N=14)	BG	0.914	13	0.07	1.252	.236	1996 (N=14)	BG	0.734	13	0.056	0.932	.519
	WG	113.79	2,026	0.056				WG	122.794	2,026	0.061		
	Total	114.704	2,039					Total	123.528	2,039			
1998 (N=15)	BG	1.889	14	0.135	1.895	.023	1998 (N=15)	BG	0.908	14	0.065	1.895	.023
	WG	148.459	2,085	0.071				WG	71.328	2,085	0.034		
	Total	150.348	2,099					Total	72.235	2,099			
2002 (N=15)	BG	1.054	14	0.075	1.567	.081	2002 (N=15)	BG	0.57	14	0.041	1.218	.255
	WG	97.665	2,033	0.048				WG	68.016	2,033	0.033		
	Total	98.719	2,047					Total	68.587	2,047			
2005 (N=15)	BG	0.969	14	0.069	1.932	.020	2005 (N=15)	BG	1.145	14	0.082	3.297	.000
	WG	73.147	2,041	0.036				WG	50.63	2,041	0.025		
	Total	74.116	2,055					Total	51.775	2,055			
2008 (N=16)	BG	0.709	15	0.047	2.298	.003	2008 (N=16)	BG	3.239	15	0.216	5.192	.000
	WG	222.493	10,819	0.021				WG	449.957	10,819	0.042		
	Total	223.202	10,834					Total	453.195	10,834			
2010 (N=16)	BG	0.617	15	0.041	2.57	.001	2010 (N=16)	BG	0.411	15	0.027	2.137	.006
	WG	266.954	16,687	0.016				WG	214.141	16,687	0.013		
	Total	267.571	16,702					Total	214.552	16,702			

BG=Between Groups; WG=Within Groups; SS=Sum of Squares; df=Degree of freedom; MS=Mean Square

Table 24. Summary of One-Way ANOVA Analysis of Total Victimization by Area

Total Victimization (Binary)							Total Victimization (Frequency)						
year		SS	df	MS	F	Sig.	year		SS	df	MS	F	Sig.
1993 (N=14)	BG	3.931	13	0.302	1.521	.102	1993 (N=14)	BG	5.391	13	0.415	1.831	.034
	WG	400.612	2,015	0.199				WG	452.309	1,997	0.226		
	Total	404.543	2,028					Total	457.7	2,010			
1996 (N=14)	BG	7.87	13	0.605	3.515	.000	1996 (N=14)	BG	8.726	13	0.671	3.697	.000
	WG	348.953	2,026	0.172				WG	367.844	2,026	0.182		
	Total	356.823	2,039					Total	376.57	2,039			
1998 (N=15)	BG	4.583	14	0.327	1.715	.047	1998 (N=15)	BG	5.15	14	0.368	1.837	.029
	WG	398.012	2,085	0.191				WG	417.559	2,085	0.2		
	Total	402.596	2,099					Total	422.709	2,099			
2002 (N=15)	BG	1.426	14	0.102	1.393	.148	2002 (N=15)	BG	0.994	14	0.071	1.161	.299
	WG	148.601	2,033	0.073				WG	124.307	2,033	0.061		
	Total	150.027	2,047					Total	125.301	2,047			
2005 (N=15)	BG	1.338	14	0.096	1.761	.039	2005 (N=15)	BG	2.164	14	0.155	3.473	.000
	WG	110.774	2,041	0.054				WG	90.829	2,041	0.045		
	Total	112.112	2,055					Total	92.992	2,055			
2008 (N=16)	BG	4.551	15	0.303	5.541	.000	2008 (N=16)	BG	8.515	15	0.568	7.517	.000
	WG	592.351	10,819	0.055				WG	817.01	10,819	0.076		
	Total	596.902	10,834					Total	825.525	10,834			
2010 (N=16)	BG	3.624	15	0.242	4.146	.000	2010 (N=16)	BG	3.531	15	0.235	4.415	.000
	WG	972.497	16,687	0.058				WG	889.668	16,687	0.053		
	Total	976.121	16,702					Total	893.199	16,702			

BG=Between Groups; WG=Within Groups; SS=Sum of Squares; df=Degree of freedom; MS=Mean Square

Next, correlations between victimization rate at the aggregate level and social disorganization model variables were examined to understand general relationships before conducting the model analysis. First, a relationship between urbanization and victimization was analyzed using a t-test to compare means between urban and other areas. According to the results, statistically, only minor effects were present between urbanization and victimization patterns. Significant mean differences were found in household victimization of 1993 and personal victimization of 1996. There was astatistically minor relationship between urbanization and victimization. However, when comparing the actual means of victimization, there were differences between urban and other areas. Personal victimization was more likely to be experienced in an urban setting than elsewhere. Unlike the expectation that urbanized areas would be more likely to experience both forms of victimization than other areas, household victimization was more present before 2002. Graphical presentations of these results are attached as Appendix Figure #. T-test results are summarized in Table 25.

Table 25. Summary of T-Test Results between Urbanization and Victimization in Social Disorganization Model at Aggregate Level

		Year	1993		1996		1998		2002	
	Type of Victimization	Urbanization (Urban=1, Others=0)	N	Mean	N	Mean	N	Mean	N	Mean
Binary Mean	Personal	0	8	.2067	8	.1315	8	.1933	8	.0250
		1	6	.2353	6	.2244	7	.2340	7	.0294
	Household	0	8	.0977*	8	.0542	8	.0952	8	.0538
		1	6	.0576*	6	.0511	7	.0806	7	.0556
	Total	0	8	.2651	8	.1721	8	.2460	8	.0747
		1	6	.2729	6	.2652	7	.2855	7	.0804
Frequency Mean	Personal	0	8	.1815	8	.1151*	8	.1340	8	.0200
		1	6	.2140	6	.2065*	7	.1622	7	.0271
	Household	0	8	.0913*	8	.0690	8	.0660	8	.0441
		1	6	.0472*	6	.0716	7	.0558	7	.0424
	Total	0	8	.2571	8	.1750*	8	.2388	8	.0624
		1	6	.2532	6	.2641*	7	.2475	7	.0681

	Type of Victimization	Year / Urbanization (Urban=1, Others=0)	2005 N	2005 Mean	2008 N	2008 Mean	2010 N	2010 Mean
Binary Mean	Personal	0	8	.0253	9	.0672	9	.0473
		1	7	.0195	7	.0727	7	.0561
	Household	0	8	.0359	9	.0228	9	.0153
		1	7	.0513	7	.0225	7	.0158
	Total	0	8	.0595	9	.0900	9	.0585
		1	7	.0666	7	.0951	7	.0681
Frequency Mean	Personal	0	8	.0238	9	.0345	9	.0415
		1	7	.0181	7	.0341	7	.0469
	Household	0	8	.0325	9	.0518	9	.0125
		1	7	.0446	7	.0523	7	.0136
	Total	0	8	.0558	9	.0810	9	.0522
		1	7	.0615	7	.0834	7	.0592

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

Table 25 (cont.)

The following analysis performed correlations between victimization and social disorganization variables. The results inconsistently found a number of significances throughout the years. In 1993, household victimization was positively correlated with residential stability. The Pearson's index indicated .567 and .617 of binary and frequency means respectively, a considerably high level of positive association. However, in 1998 and 2010, a negative association was found between personal victimization and residential stability, therefore a higher level of residential stability was statistically related to a lower level of personal victimization. Also, collective efficacy in 2010 had an adverse relationship with personal victimization. Other relationships did not present statistically significant results in the correlation analysis.

Table 26. Summary of Correlations between Victimization and Social Disorganization Variables at Aggregate Level

		1993			1996			1998			2002			2005			2008			2010		
	P.	SES	RS	CE	SES	RS	CE	SES	RS	CE	SES	RS	CE	SES	RS	CE	SES	RS	CE	SES	RS	CE
Binary Mean	PV	.484	-.162	-.409	.371	-.511	-.412	.376	-.520*	-.119	.547*	-.246	-.123	.020	.157	-.275	.019	.225	-.259	.240	-.623**	-.591*
	HV	-.390	.567*	.496	-.169	.253	-.074	-.034	.189	.211	-.083	.181	-.411	.306	-.509	-.341	-.089	.066	-.172	.001	-.260	-.299
	TV	.177	.135	-.053	.344	-.414	-.374	.415	-.366	-.074	.204	.068	-.423	.258	-.381	-.494	-.007	.231	-.293	.203	-.610*	-.604*
Frequency Mean	PV	.479	-.212	-.491	.424	-.526	-.297	.376	-.520*	-.119	.562*	-.306	-.189	.207	.151	-.364	-.086	.283	.042	.223	-.629**	-.560*
	HV	-.423	.617*	.476	-.236	.043	-.382	-.034	.189	.211	.015	.154	-.439	.355	-.513	-.381	.005	.177	-.312	.162	-.339	-.339
	TV	.146	.155	-.120	.307	-.432	-.361	.192	-.373	.048	.365	-.066	-.451	.373	-.323	-.479	-.064	.287	-.189	.232	-.620*	-.583*
	N			14			14			15			15			15			16			16

*. Correlation is significant at the 0.05 level (2-tailed). **SES=Socio-economic Status, RS=Residential stability, CE=Collective efficacy, PV=Personal victimization, HV=Household victimization, TV=Total victimization

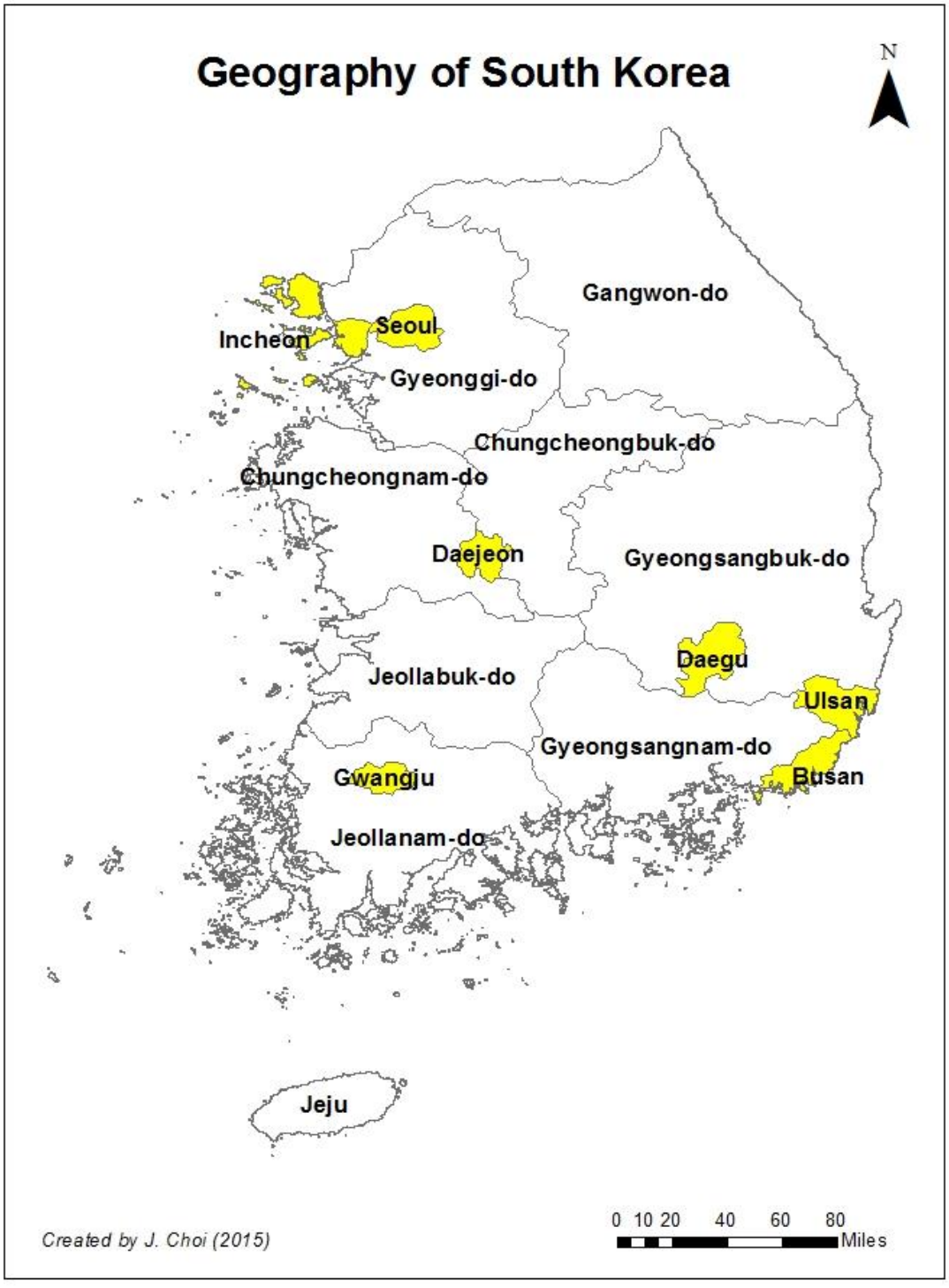
Even though the results from the bivariate analysis suggested insignificant associations between victimization and independent variables, the model analysis has yet to be concluded. The full model includes interrelationships among variables, which could be only found by analyzing the modes. In order to determine if the social disorganization model and multilevel model explain victimization in South Korea, further examination was required.

Spatial Description

General Spatial Description

This section presents the visual geographical patterns of the variables in the current study at the aggregate level. First, however, a general explanation of the geography of South Korea is useful. South Korea currently consists of eight special/metropolitan cities and nine provinces as of 2015. However, the datasets between 1993 and 2010 include a different number of metropolitan cities and provinces. Ulasn was promoted as a metropolitan city in 1997 and Jeju was included in the data from 2008. The newest metropolitan city, Sejong, was promoted in 2012, formerly a part of Chungcheongbuk-do. The current study used all data possible. Therefore, seven special/metropolitan cities and nine provinces were used for the analysis. Figure 21 present a map with names of cities and provinces, with the highlighted areas showing special/metropolitan cities. Similar to other metropolitan cities, special and metropolitan cities in South Korea are high in population density compared to provinces with larger areas.

Figure 21. Geography of South Korea

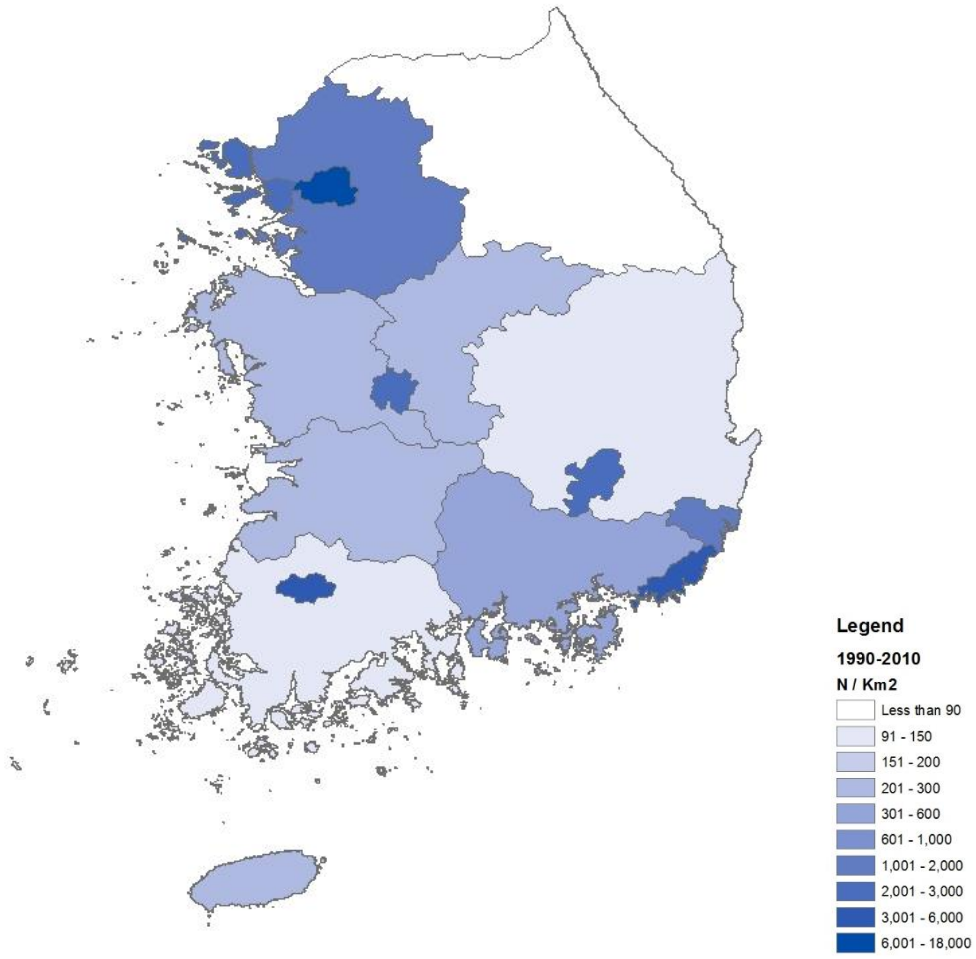


Spatial Distribution of the Variables

In this section, the spatial distribution of micro level variables is discussed and visually displayed in maps to learn any specific pattern of variable distributions across variables and over years. It is important to recognize the spatial distribution before moving towards analysis because it proves mean differences of variables by area visually which is the base of further examinations. Also, the descriptive maps will help to understand the possible spatio-temporal effects such as clustering and diffusion (Porter, 2008).

Before looking at the variables, population density throughout the areas in South Korea were calculated to see if there were any distinctive changes that might affect the further analysis. Therefore, population density was calculated by using Census and official map file. According to the results, the population density distribution across the cities and provinces were consistent over 20 years. The special and metropolitan cities presented generally higher population density over 2,000 per kilometer square while provinces presented lower population density. Particularly in *Gangwon-do* (the northeastern province on the map), the population density was lower than 90 per kilometer square over the given years. Thus, population density has less likely to have an effect on the analysis models in terms of a longitudinal perspective.

Figure 22. Population Density at City/Province Level in 2010[2].



Socioeconomic status at city/province level map distribution presented that most of the cities had a higher level of socioeconomic status than provinces. However, in 2005, the cities experienced lower socioeconomic status while the provinces such as *Gyeongsangbuk-do* and *Jeollanam-do* gain a higher level of socio-economic status. It appears that the year of 2005, the capital city and its surrounding provinces experienced a lower level of socioeconomic status and

[2]The other maps of population density from 1990 to 2010 were included in Appendix H.

recovered from 2008. Later years from 2008, a socioeconomic status level around the capital city *Seoul* and *Gyeonggi-do* got higher than the previous years. The overall maps presented differences between spatial divisions in each year.

The residential stability levels by spatial divisions presented generally high levels throughout the years. However, it was evident that the capital city (*Seoul*) and the surrounding province (*Gyeonggi-do*) had a lower level of residential stability in most years. The cities presented lower residential stability than provinces in some years, but the pattern is random as well as not much distinctive.

Except the years of 2002 and 2005, mostly the eastern part of South Korea presented higher collective efficacy than the western. Randomly there were some provinces presented unusually high collective efficacy (*Jeollanam-do* in 1993 and 2008, *Gyeongsangnam-do* in 1998, *Chungcheongnam-do* in 2002) while *Gangwon-do* and *Gyeongsangbuk-do* showed a high level of collective efficacy most of the years except 2002 and 2005. It is evident that the high level of collective efficacy was in provinces, not cities in general.

Due to a great decrease in victimization rates before and after 2000, it was difficult to use the same classifications for all maps over years. Thus, for the victimization distribution spatial analysis, natural break with 7 classifications was used to learn any spatial pattern in the specific year. According to the mapping analysis, personal victimization was higher in cities particularly from 1993 to 1996. However, this pattern disappeared in 1998; then the latter years presented the different results in each year. The maps showed mean differences between the spatial divisions most of the years except 1998, which presented less disinvite differences. The resulting maps of household victimization also presented random spatial pattern in terms of the time period but

distinctive mean differences by spatial divisions. Another finding is household victimization was not particularly related to neither city nor province.

Overall, according to the visual presentation of the spatial distributions of mean values, it is probable to have an effect on different macro-level characteristics on a different type of victimization. All map figures are available in Appendix H

Conclusions

According to the results, victimization rate in South Korea decreased over years from 1993 to 2010. In particular, personal victimization rate decreased drastically between 1998 and 2002 from 21% to 3%. The overall victimization rates were stable at .06 level between 2005 and 2010. This result presents different perspectives on crime and victimization in South Korea from the most of the literature and reports using official crime statistics.

The descriptive statisticalresults in this chapter suggest that ecological theoretical frames are possibly applicable to South Korea from 1993 to 2010. Firstly, at the aggregate level, the results are evident that criminal victimizations and areal characteristics are differently distributed across the administrative divisions in South Korea as well as temporal periods. Secondly, at the individual level, most of covariate analysis results suggest that relationships between victimization and individual characteristics. Over years, some relationships presented the supporting evidence to theoretical frameworks while others showed the opposite directionality or statistically insignificant relationships. Moreover, geographical descriptions visually presented the different distributions of variables on maps.

The chapter also includes details of statistical results of variables in this study. Due to sustain the parsimoniousness of variables, the study reduces the dimensions of variables when

they have multiple items. The variables were constructed with the confidence of reliability tests (Cronbach's alpha) for conducting factor analysis. These results of the process were shown in the chapter, presenting probable confidence of variables in statistical models.

These results in sum suggest that victimization is more likely linked to ecological characteristics both at the aggregate and individual level. Thus, in the following chapter, different models of ecological theories of crime will be analyzed in a series of cross-sectional analysis over years to learn the applicability of theory as well as possible distinctive difference from the previous literature in ecological theories of crime.

CHAPTER 5

EXPLANATIONS OF ECOLOGICAL THEORY MODELS ON VICTIMIZATION 1993–2010

This summarizes the results of ecological analyses on social disorganization, routine activities/lifestyle, and multilevel models. Each model of analysis includes results on three types of victimization (personal, household, and total). To identify differences and similarities between the binary and frequency measures, both results are included. Lastly, the conclusion section summarizes the results.

Social Disorganization Model

As previously described in Chapter 3, the social disorganization model was based on multiple regression techniques with urbanization, socioeconomic status, and residential stability as predictors and victimization as the predicted. This section discusses the results from the total, personal, and household victimization in that order. Each subsection includes both binary and frequency measures of victimization. There were four hypotheses in regards to testing social disorganization:

1.1 The spatial units with a lower socioeconomic status will have higher victimization rates than other spatial units.

1.2 The spatial units with a lower level of residential stability will have higher victimization rates than other spatial units.

1.3 The spatial units with a lower level of collective efficacy will have higher victimization rates than other spatial units.

1.4 The explanatory variances of the analysis will change over years.

The following subsections discuss each hypothesis.

Total Victimization

In order to obtain the results of testing the social disorganization model on total victimization from the years 1993 to 2010, a series of multiple regression analyses were conducted. Because the previous bivariate analysis of variables between predictors and dependent variables presented promising results towards model analysis, it was expected to show supportive results. According to the results, however, only the model testing in 2010 was statistically significant ($p < .100$), where the socioeconomic status of the spatial unit was negatively related to total victimization in mean the binary measure with significance ($p < .100$). Even with the mean frequency measure, the significance disappeared. These insignificant results could be explained by the limited sample size (N = 14~16 spatial units). Even though the analysis may lack confidence in statistical computation, the results are worth considering as the current study adopts possible data to test the theory of victimization in South Korea.

These insignificant results follow trends in current literature on ecological theories of crime and victimization in South Korea. Unlike Western studies testing the social disorganization model, Eastern studies disproved the theory (Zhang & Messner, 2007; Roh et al., 2010). Even though the current study considered both before and after the year of the financial crisis (1997), few changes were found. In general, from 1993 to 2005, socioeconomic status had a positive effect on total victimization, but in 2008 and 2010, the direction of effect was changed to negative. Second, residential stability presented a random relationship with total victimization over the years. Some years, the results showed positiverelationships (1993, 1998, 2002, 2008), while it was negative in other years. Lastly, collective efficacy had an adverse effect on total

victimization rates consistently (except for the year of 1998) in general. These results are summarized in Table 27.

Table 27. Summary of Multiple Regression Results of Social Disorganization Model on Total Victimization in South Korea 1993-2010.

	Total Victimization	**Binary Mean**			**Frequency (Logged) Mean**		
	(Model: Regression)	B	Std. Error	Beta	B	Std. Error	Beta
1993	(Constant)	.547	.695		.007	.833	
(N=14)	Urbanization	.072	.070	.663	.033	.084	.267
	Mean age	.002	.014	.077	.008	.017	.299
	Mean gender	-1.400	1.199	-.402	-.855	1.436	-.216
	Socio-Economic Status	.014	.026	.255	.027	.031	.425
	Residential Stability	.543	.327	1.237	.594	.391	1.190
	Collective Efficacy	-.018	.031	-.324	-.050	.037	-.797
	R^2			.435			.374
	F			.900			.698
1996	(Constant)	-.030	.762		-.506	.840	
(N=14)	Urbanization	.090	.061	.588	.087	.067	.525
	Mean age	.030	.022	.546	.036	.024	.609
	Mean gender	-1.620	1.766	-.351	-.747	1.946	-.149
	Socio-Economic Status	.011	.025	.134	.009	.027	.100
	Residential Stability	-.076	.423	-.066	-.357	.466	-.289
	Collective Efficacy	-.017	.023	-.212	-.019	.025	-.228
	R^2			.538			.524
	F			1.357			1.283
1998	(Constant)	.066	.585		.194	.581	
(N=15)	Urbanization	.031	.048	.280	.018	.047	.156
	Mean age	-.007	.011	-.252	-.006	.011	-.216
	Mean gender	.859	.510	.518	1.004	.506	.587
	Socio-Economic Status	.001	.027	.010	-.027	.027	-.457
	Residential Stability	.025	.288	.033	-.319	.286	-.408
	Collective Efficacy	.005	.019	.083	.018	.018	.311
	R^2			.534			.568
	F			1.529			1.754
2002	(Constant)	-.068	.574		.017	.490	
(N=15)	Urbanization	-.013	.024	-.199	-.020	.021	-.332
	Mean age	-.009	.008	-.501	-.008	.007	-.535
	Mean gender	.891	.625	.423	.757	.533	.405
	Socio-Economic Status	-.008	.012	-.235	-.004	.010	-.121

	Total Victimization (Model: Regression)	Binary Mean			Frequency (Logged) Mean		
		B	Std. Error	Beta	B	Std. Error	Beta
	Residential Stability	.055	.127	.152	-.005	.108	-.015
	Collective Efficacy	-.016	.012	-.477	-.013	.010	-.432
	R^2			.618			.646
	F			2.154			2.429
2005	(Constant)	.023	.381		-.088	.494	
(N=15)	Urbanization	.020	.020	.375	.009	.026	.138
	Mean age	.001	.006	.039	-.002	.008	-.077
	Mean gender	.120	.542	.066	.471	.702	.210
	Socio-Economic Status	-.007	.011	-.264	.003	.015	.100
	Residential Stability	-.075	.121	-.193	-.042	.156	-.087
	Collective Efficacy	-.019	.012	-.680	-.014	.016	-.413
	R^2			.406			.351
	F			.910			.721
2008	(Constant)	.097	.464		.153	.488	
(N=16)	Urbanization	-.016	.028	-.265	-.013	.029	-.219
	Mean age	-.001	.007	-.064	-.002	.008	-.179
	Mean gender	-.200	.478	-.124	-.234	.503	-.144
	Socio-Economic Status	-.004	.018	-.120	-.002	.019	-.079
	Residential Stability	.196	.180	.490	.206	.189	.515
	Collective Efficacy	-.026	.018	-.853	-.018	.019	-.599
	R^2			.370			.305
	F			.883			.660
2010	(Constant)	.461	.295		.372	.310	
(N=16)	Urbanization	-.001	.015	-.028	-.008	.016	-.230
	Mean age	-.003	.004	-.434	-.002	.004	-.350
	Mean gender	-.356	.370	-.270	-.266	.388	-.209
	Socio-Economic Status	-.014	.007	**-.834**$^{+}$	-.010	.008	-.608
	Residential Stability	-.134	.134	-.488	-.117	.141	-.437
	Collective Efficacy	-.009	.008	-.498	-.010	.009	-.572
	R^2			**.642**$^{+}$			.578
	F			2.689			2.055

*Note. Predictors: (Constant), urbanization, mean age, mean gender, socio-economic status,, residential stability, collective efficacy; +p<.100, *<.05*

Table 27 (cont.)

Even though it is difficult to determine thestatistical confidence of the model due to the limited sample size, the results followed the current trends in literature on crime and

victimization in South Korea. However, it is worth noting that collective efficacy presented consist effects on victimization with the exception of 1998, the year after the financial crisis in South Korea. This result may be a substantial finding if the model gains statistical confidence with a larger sample size. With the consideration of partial statistical confidence of the model, each type of victimization (personal and household) was analyzed.

Personal Victimization

Similar to the results on total victimization, social disorganization model analysis on personal victimization presented mostly insignificant results. The standardized coefficient patterns of the results presented similarities and differences between total and personal victimization. First, socioeconomic status was positively associated with personal victimization in 1996 (i.e., higher socioeconomic neighborhoods were more likely to have higher victimization rates); in 1998 the relationship changed to negative (i.e., higher socioeconomic neighborhoods were more likely to have lower victimization rates) for the year, and the pattern kept its association as negative with the exception of 2002. Second, similar to the total victimization results, residential stability did not have a pattern of associations. Lastly, collective efficacy presented negative relationships in the year 1996; however in 1998 and 2002 the relationship was positive—the years after the financial crisis in 1997. Moreover, the coefficient beta in 1998 was larger than 2002. This tendency may suggest that a higher level of collective efficacy was related to a higher likelihood of victimization during the crisis period.

Table 28. Summary of Multiple Regression Results of Social Disorganization Model on Personal Victimization in South Korea 1993-2010.

	Personal Victimization	**Binary Mean**			**Frequency (Logged) Mean**		
	(Model: Regression)	B	Std. Error	Beta	B	Std. Error	Beta
1993	(Constant)	.107	.492		-.087	.512	
(N=14)	Urbanization	.045	.050	.521	.037	.052	.380
	Mean age	.001	.010	.072	.010	.011	.466
	Mean gender	-.465	.849	-.166	-.775	.883	-.245
	Socio-Economic Status	.023	.018	.512	.031	.019	.624
	Residential Stability	.457	.231	1.292	.452	.240	1.132
	Collective Efficacy	-.035	.022	-.779	-.052	.023	-1.028
	R^2			.565			.630
	F			1.515			1.989
1996	(Constant)	-.116	.655		-.190	.776	
(N=14)	Urbanization	.079	.052	.561	.073	.062	.479
	Mean age	.025	.019	.490	.023	.022	.414
	Mean gender	-.929	1.517	-.217	-.535	1.799	-.117
	Socio-Economic Status	.008	.021	.107	.013	.025	.173
	Residential Stability	-.250	.363	-.238	-.331	.431	-.294
	Collective Efficacy	-.018	.019	-.247	-.012	.023	-.153
	R^2			.602			.512
	F			1.765			1.224
1998	(Constant)	.295	.646		.204	.448	
(N=15)	Urbanization	.031	.052	.275	.021	.036	.275
	Mean age	-.005	.012	-.194	-.004	.009	-.194
	Mean gender	.635	.563	.373	.440	.390	.373
	Socio-Economic Status	-.014	.030	-.248	-.010	.021	-.248
	Residential Stability	-.291	.318	-.373	-.201	.221	-.373
	Collective Efficacy	.008	.020	.136	.005	.014	.136
	R^2			.461			.461
	F			1.140			1.14
2002	(Constant)	-.053	.455		.010	.415	
(N=15)	Urbanization	-.008	.019	-.178	-.007	.018	-.177
	Mean age	-.003	.006	-.231	-.003	.006	-.331
	Mean gender	.441	.495	.322	.392	.452	.304
	Socio-Economic Status	.006	.009	.283	.004	.009	.212
	Residential Stability	-.048	.101	-.206	-.057	.092	-.260
	Collective Efficacy	.001	.010	.029	.001	.009	.033
	R^2			.432			.463
	F			1.012			1.152

	Personal Victimization (Model: Regression)	Binary Mean			Frequency (Logged) Mean		
		B	Std. Error	Beta	B	Std. Error	Beta
2005	(Constant)	-.202	.325		-.270	.269	
(N=15)	Urbanization	.010	.017	.248	.003	.014	.080
	Mean age	.004	.005	.346	.003	.004	.265
	Mean gender	-.004	.462	-.003	.236	.383	.200
	Socio-Economic Status	-.007	.010	-.352	.000	.008	-.006
	Residential Stability	.069	.103	.236	.081	.085	.321
	Collective Efficacy	-.012	.010	-.571	-.008	.008	-.414
	R^2			.255			.306
	F			.457			.587
2008	(Constant)	.144	.454		.252	.347	
(N=16)	Urbanization	-.012	.027	-.221	.000	.021	-.006
	Mean age	-.001	.007	-.113	-.002	.006	-.223
	Mean gender	-.288	.468	-.188	-.420	.358	-.380
	Socio-Economic Status	.000	.017	-.009	.002	.013	.107
	Residential Stability	.186	.176	.493	.093	.135	.342
	Collective Efficacy	-.019	.018	-.674	.000	.014	.019
	R^2			.323			.245
	F			.716			.488
2010	(Constant)	.361	.264		.308	.248	
(N=16)	Urbanization	.002	.014	.085	-.004	.013	-.144
	Mean age	-.003	.004	-.433	-.002	.003	-.398
	Mean gender	-.208	.331	-.188	-.169	.311	-.166
	Socio-Economic Status	-.012	.007	**-.832**$^{+}$	-.009	.006	-.705
	Residential Stability	-.143	.120	-.617	-.124	.113	-.584
	Collective Efficacy	-.004	.007	-.300	-.005	.007	-.402
	R^2			.596			.578
	F			2.214			2.051

*Note. Predictors: (Constant), urbanization, mean age, mean gender, socio-economic status,, residential stability, collective efficacy; +p<.100, *<.05*

Table 28 (cont.)

Yet, the model analysis was not statistically sufficient according to the *p*-value; the calculations of the equations are valid. Since the results present some patterns before and after the year of financial crisis in 1997, the association between collective efficacy and victimization may support the theoretical model of social disorganization theory.

Household Victimization

Besides random appearances of the significance of control variables, the results were generally statistically insignificant over the years. In results on household victimization, socioeconomic status was more consistent with the research hypothesis: a higher level of socioeconomic status was associated with a lowerlevel of victimization. In contrast to the previous results on total and personal victimization, the association between socioeconomic status and household victimization were more supportive of the theoretical model. This result may be due to the different types of victimization affected by different aspects of neighborhood characteristics. Similar to the total and personal victimization results, there was a random direction on the beta coefficient of residential stability and the consistently negative relationship between collective efficacy and household victimization, except for the year 1998, after the financial crisis in 1997.

Table 29. Summary of Multiple Regression Results of Social Disorganization Model on Household Victimization in South Korea 1993-2010.

	Household Victimization (Model: Regression)	**Binary Mean**			**Frequency (Logged) Mean**		
		B	Std. Error	Beta	B	Std. Error	Beta
1993	(Constant)	.184	.505		.031	.478	
(N=14)	Urbanization	-.018	.051	-.244	-.024	.048	-.324
	Mean age	.000	.010	-.015	-.003	.010	-.153
	Mean gender	-.277	.871	-.118	.105	.825	.045
	Socio-Economic Status	-.001	.019	-.019	-.002	.018	-.041
	Residential Stability	.088	.237	.296	.154	.225	.520
	Collective Efficacy	.004	.023	.109	-.005	.022	-.140
	R^2			.345			.411
	F			.614			.816
1996	(Constant)	-.025	.342		-.432	.192	
(N=14)	Urbanization	.014	.027	.269	.020	.015	.419
	Mean age	.010	.010	.524	.017	.006	**.956***

	Household Victimization (Model: Regression)	Binary Mean			Frequency (Logged) Mean		
		B	Std. Error	Beta	B	Std. Error	Beta
	Mean gender	-.773	.791	-.482	-.077	.444	-.053
	Socio-Economic Status	-.001	.011	-.049	-.006	.006	-.224
	Residential Stability	.155	.189	.394	-.098	.106	-.271
	Collective Efficacy	-.001	.010	-.052	-.009	.006	-.348
	R^2			.229			**.711**$^{+}$
	F			.347			2.864
1998	(Constant)	-.417	.444		-.289	.308	
(N=15)	Urbanization	.006	.036	.083	.004	.025	.083
	Mean age	.001	.009	.058	.001	.006	.058
	Mean gender	.725	.387	**.643**$^{+}$	.503	.268	**.643**$^{+}$
	Socio-Economic Status	-.002	.020	-.046	-.001	.014	-.046
	Residential Stability	.144	.219	.279	.100	.152	.279
	Collective Efficacy	.005	.014	.122	.003	.010	.122
	R^2			.420			.420
	F			.964			.964
2002	(Constant)	.046	.540		.044	.410	
(N=15)	Urbanization	-.012	.023	-.209	-.016	.017	-.361
	Mean age	-.008	.008	-.502	-.005	.006	-.469
	Mean gender	.527	.588	.288	.377	.446	.273
	Socio-Economic Status	-.015	.011	-.490	-.008	.008	-.363
	Residential Stability	.057	.119	.182	.033	.091	.138
	Collective Efficacy	-.016	.011	-.529	-.013	.009	-.590
	R^2			.550			.546
	F			1.630			1.603
2005	(Constant)	.120	.316		.151	.339	
(N=15)	Urbanization	.016	.017	.348	.008	.018	.163
	Mean age	-.002	.005	-.137	-.004	.005	-.253
	Mean gender	.159	.449	.100	.245	.483	.144
	Socio-Economic Status	-.001	.009	-.023	.003	.010	.128
	Residential Stability	-.117	.100	-.346	-.115	.108	-.316
	Collective Efficacy	-.009	.010	-.352	-.007	.011	-.277
	R^2			.469			.468
	F			1.175			1.175
2008	(Constant)	-.046	.146		-.062	.290	
(N=16)	Urbanization	-.003	.009	-.200	-.019	.017	-.490
	Mean age	.000	.002	.154	.000	.005	-.060
	Mean gender	.088	.151	.193	.110	.299	.106
	Socio-Economic Status	-.003	.006	-.396	-.001	.011	-.041
	Residential Stability	.009	.057	.084	.134	.113	.522

Table 29 (cont.)

	Household Victimization (Model: Regression)	Binary Mean			Frequency (Logged) Mean		
		B	Std. Error	Beta	B	Std. Error	Beta
	Collective Efficacy	-.007	.006	-.769	-.018	.011	-.945
	R^2			.206			.400
	F			.390			.999
2010	(Constant)	.031	.167		.035	.143	
(N=16)	Urbanization	-.002	.009	-.152	-.003	.007	-.250
	Mean age	.000	.002	.156	.000	.002	.084
	Mean gender	-.049	.209	-.096	-.049	.180	-.116
	Socio-Economic Status	-.002	.004	-.319	.000	.004	-.036
	Residential Stability	-.015	.076	-.143	-.009	.065	-.097
	Collective Efficacy	-.004	.005	-.646	-.003	.004	-.536
	R^2			.238			.192
	F			.468			.356

*Note. Predictors: (Constant), urbanization, mean age, mean gender, socio-economic status,, residential stability, collective efficacy; +p<.100, *<.05*

Table 29 (cont.)

Even though the model analysis may be not highly reliable statistically, the results present a number of interesting insights. First, Hypothesis 1-1 related to socioeconomic status was supportive when the dependent variable was household victimization. Second, residential stability had no relation in terms of coefficient beta patterns. Third, collective efficacy presented promising possibilities supporting the research hypothesis. It was evident that the national-level financial crisis in 1997 possibly had some effect on collective efficacy.

Routine Activities/Lifestyle Model

Next, the routine activities/lifestyle model was based on logistic and multiple regression techniques at an individual level with target suitability and guardianship as predictors and victimization as the predicted. Because the two different measures of victimization required different techniques of regression, first a binary measurement of victimization as the dependent variable was performed, followed by a frequency measurement of victimization as the

dependentvariable. Like the previous section, this section reviews the results from the total, personal, and household victimization in that order. There were three hypotheses in regards to testing routine activities/lifestyle theories:

2.1 An individual with ahigherlevel of target suitability will be more likely to be victimizedthan an individual with alower level.

2.2 An individual with a lowerlevel of guardianship will be more likely to be victimizedthan an individual with ahigherlevel.

2.3 The explanatory variances of the analysis will change over years.

Binary Measurement of Victimization

Because the routine activities/lifestyle model analyzes the data at the individual level, different measurements of dependent variables determined the type of regression analysis used. The binary dependent variable was analyzed by logit regression, while the logged frequency dependent variable was analyzed by regular multiple regression. With the inclusion of control variables (i.e., urbanization, age, gender, marital status, education level, income, and occupational status), the routine activities/lifestyle model analyzed total, personal, and household victimization. First, for the analysis of total victimization, target suitability and guardianship variables for both personal and household were included. According to the hypotheses, it was expected that a higher level of target suitability and lower level of guardianship would be related to the likelihood of victimization.

The results presented statistical significance on the model analysis in general, with the relative level of Pseudo R-squares from 2.3–6.4 % ($p < .001$). The results showed generally supportive evidence for the higher level of target suitability for both personal and household was related to the likelihood of total victimization (excluding 2008 personal target suitability). The

fact that the odd ratios of target suitability were larger than one meant that if the target suitability increased by one index, the likelihood of victimization the odd ratio number times more likely. In these results, the range of odd ratios of target suitability throughout years was between 1.030 and 1.435 (excluding .846 in 2008 personal target suitability). While the target suitability variable could be explained as a part of total victimization in South Korea, the guardianship variable was questionable. According to the results, the guardianship level presented as either one or more odd ratio or statistical insignificance. The only promising results were in the year 2008 and 2010 for household guardianship on total victimization. Other results from the analysis were insufficient for the model analysis in 2002 and 2005. Considering the variables were uniformly recoded into the measures, this dynamic of the result may suggest different patterns in victimization over the years.

Table 30. Summary of Logistic Regression Results of Routine Activities/Lifestyle Model on Total Victimization in South Korea 1993-2010.

	(Model: Logistic Regression)	**Linearized Coef.**	**S.E.**	**Sig.**	**Model Statistics**	
1993	Live urban (1)	.035	.106	.740	Number of strata	14
	Age	-.011	.005	.021	F(11, 1,928)	4.63
	Male (1)	.095	.126	.448	N	1,952
	Married (1)	-.085	.131	.521	Design df	1,938
	Univ. educated (1)	-.045	.128	.725	Sig.	.000*
	Higher income (1)	.071	.127	.572		
	Employed (1)	.058	.224	.794		
	Target suitability (personal)	.087	.054	.108		
	Target suitability (household)	.140	.057	.015*		
	Guardianship (personal)	.164	.060	.007*		
	Guardianship (household)	-.059	.053	.273		
	Constant	-.603	.176	.001*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
1996	Live urban (1)	.352	.114	.002*	Number of strata	14

	Age	-.017	.006	.003*	F(11, 1,964)	7.98
	Male (1)	.008	.136	.948	N	1,964
	Married (1)	.083	.140	.553	Design df	1,958
	Univ. educated (1)	-.040	.138	.748	Sig.	.000*
	Higher income (1)	.208	.127	.101		
	Employed (1)	.058	.222	.793		
	Target suitability (personal)	.166	.060	.003*		
	Target suitability (household)	.167	.060	.001*		
	Guardianship (personal)	.210	.059	.000*		
	Guardianship (household)	.014	.059	.818		
	Constant	-.972	.202	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
1998	Live urban (1)	-.028	.110	.803	Number of strata	15
	Age	-.004	.005	.392	F(11, 1,964)	6.58
	Male (1)	-.067	.132	.613	N	1,917
	Married (1)	-.056	.126	.659	Design df	1,902
	Univ. educated (1)	-.082	.124	.510	Sig.	.000*
	Higher income (1)	.083	.120	.489		
	Employed (1)	.269	.179	.134		
	Target suitability (personal)	.113	.059	.061		
	Target suitability (household)	.361	.064	.000*		
	Guardianship (personal)	.190	.062	.002*		
	Guardianship (household)	.019	.056	.736		
	Constant	-.963	.193	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
2002	Live urban (1)	.110	.162	.501	Number of strata	15
	Age	-.006	.008	.443	F(11, 1,869)	1.32
	Male (1)	-.069	.209	.740	N	1,871
	Married (1)	-.121	.233	.603	Design df	1,860
	Univ. educated (1)	-.031	.192	.871	Sig.	.210
	Higher income (1)	.044	.200	.828		
	Employed (1)	-1.008	.468	.033*		
	Target suitability (personal)	.029	.091	.748		
	Target suitability (household)	.155	.096	.107		
	Guardianship (personal)	.081	.095	.396		
	Guardianship (household)	.084	.091	.353		
	Constant	-2.127	.320	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
2005	Live urban (1)	-.153	.197	.436	Number of strata	15
	Age	.012	.008	.114	F(11, 1,911)	1.49

Table 30 (cont.)

	Male (1)	.151	.280	.591	N	1,920
	Married (1)	-.142	.237	.549	Design df	1,909
	Univ. educated (1)	.291	.209	.164	Sig.	.135
	Higher income (1)	-.432	.223	.054		
	Employed (1)	.486	.347	.163		
	Target suitability (personal)	.110	.111	.324		
	Target suitability (household)	.129	.104	.215		
	Guardianship (personal)	.242	.134	.072		
	Guardianship (household)	.042	.114	.718		
	Constant	-3.329	.361	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
2008	Live urban (1)	.009	.101	.932	Number of strata	16
	Age	.008	.003	.009*	F(11, 10,644)	11.66
	Male (1)	.416	.103	.000*	N	10,835
	Married (1)	.370	.121	.002*	Design df	10,654
	Univ. educated (1)	.045	.110	.681	Sig.	.000*
	Higher income (1)	-.266	.109	.015*		
	Employed (1)	.300	.157	.056		
	Target suitability (personal)	-.168	.053	.002*		
	Target suitability (household)	.306	.053	.000*		
	Guardianship (personal)	.091	.047	.053*		
	Guardianship (household)	-.098	.060	.103		
	Constant	-2.767	.200	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
2010	Live urban (1)	.062	.068	.366	Number of strata	16
	Age	-.010	.002	.000*	F(11, 16,676)	13.60
	Male (1)	.075	.070	.289	N	16,702
	Married (1)	.004	.078	.956	Design df	16,686
	Univ. educated (1)	-.173	.075	.021*	Sig.	.000*
	Higher income (1)	-.127	.076	.152		
	Employed (1)	.156	.109	.152		
	Target suitability (personal)	.120	.033	.000*		
	Target suitability (household)	.221	.036	.000*		
	Guardianship (personal)	.178	.034	.000*		
	Guardianship (household)	-.139	.035	.000*		
	Constant	-2.291	.114	.000*		

Note. p<.05*

Table 30 (cont.)

Next, each type of victimization was analyzed for the specifictype of target suitability and guardianship. As in the total victimization results, the hypothesis was that a higher level of personal target suitability and a lower level of personal guardianship were related to the likelihood of personal victimization. While all years' models on personal victimization were statistically significant ($p < .05$), personal target suitability was generally supportive of the hypothesis but with often insignificant odd ratios. Also, the higher level of guardianship seemed to relate to the likelihood of victimization over the years and was insignificant during the years 2002 and 2008. According to these results, it was difficult to determine if the results supported the theory or to determine any certain pattern of variances in regards to personal victimization.

Table 31. Summary of Logistic Regression Results of Routine Activities/Lifestyle Model on Personal Victimization in South Korea 1993-2010.

(Model: Logistic Regression)		**Linearized Coef.**	**S.E.**	**Sig.**	**Model Statistics**	
1993	Live urban (1)	.073	.114	.524	Number of strata	14
	Age	-.013	.005	.010*	F(9, 1,944)	6.20
	Male (1)	.005	.132	.971	N	1,958
	Married (1)	-.131	.140	.350	Design df	1,944
	Univ. educated (1)	-.028	.132	.832	Sig.	.000*
	Higher income (1)	.149	.133	.262		
	Employed (1)	.091	.236	.701		
	Target suitability (personal)	.104	.057	.069		
	Guardianship (personal)	.208	.064	.001*		
	Constant	-.815	.182	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
1996	Live urban (1)	.468	.127	.000*	Number of strata	14
	Age	-.020	.006	.001*	F(9, 1,979)	7.45
	Male (1)	.220	.145	.129	N	1,989
	Married (1)	.021	.157	.892	Design df	1,980
	Univ. educated (1)	.032	.141	.819	Sig.	.000*
	Higher income (1)	.217	.139	.122		
	Employed (1)	-.072	.245	.771		

	Target suitability (personal)	.172	.061	.005*		
	Guardianship (personal)	.204	.065	.002*		
	Constant	-1.307	.208	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
1998	Live urban (1)	.067	.115	.560	Number of strata	15
	Age	-.009	.005	.093	F(9, 1,899)	5.14
	Male (1)	-.019	.138	.886	N	1,922
	Married (1)	-.064	.129	.644	Design df	1,922
	Univ. educated (1)	.057	.133	.657	Sig.	.000*
	Higher income (1)	.152	.126	.226		
	Employed (1)	.323	.193	.086		
	Target suitability (personal)	.111	.065	.074		
	Guardianship (personal)	.217	.064	.001*		
	Constant	-1.119	.197	.035*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
2002	Live urban (1)	.074	.253	.770	Number of strata	15
	Age	.020	.013	.159	F(9, 1,800)	1.98
	Male (1)	-.358	.311	.251	N	1,881
	Married (1)	-.283	.389	.468	Design df	1,834
	Univ. educated (1)	.112	.260	.667	Sig.	.041*
	Higher income (1)	-.073	.307	.813		
	Employed (1)	-.574	.573	.317		
	Target suitability (personal)	.059	.136	.665		
	Guardianship (personal)	.149	.136	.272		
	Constant	-2.440	.471	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
2005	Live urban (1)	-.336	.311	.281	Number of strata	15
	Age	-.004	.014	.794	F(9, 1,910)	2.79
	Male (1)	-.643	.432	.138	N	1,922
	Married (1)	-.438	.406	.282	Design df	1,901
	Univ. educated (1)	.553	.326	.091	Sig.	.004*
	Higher income (1)	.360	.369	.329		
	Employed (1)	.831	.495	.094		
	Target suitability (personal)	.186	.183	.311		
	Guardianship (personal)	.015	.177	.931		
	Constant	-3.279	.429	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
2008	Live urban (1)	.017	.128	.897	Number of strata	16
	Age	-.008	.004	.033*	F(9, 10,646)	6.43
	Male (1)	.376	.126	.000*	N	10.835

Table 31 (cont.)

	Married (1)	.525	.155	.000*	Design df	10,654
	Univ. educated (1)	.122	.131	.351	Sig.	.000*
	Higher income (1)	-.190	.133	.155		
	Employed (1)	.260	.198	.191		
	Target suitability (personal)	-.178	.069	.000*		
	Guardianship (personal)	.074	.056	.187		
	Constant	-3.446	.214	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
2010	Live urban (1)	.051	.073	.489	Number of strata	16
	Age	-.014	.002	.000*	F(9, 16,686)	10.71
	Male (1)	.116	.077	.131	N	16,702
	Married (1)	-.094	.083	.258	Design df	10,686
	Univ. educated (1)	-.248	.081	.002*	Sig.	.000*
	Higher income (1)	-.070	.081	.387		
	Employed (1)	-.015	.128	.907		
	Target suitability (personal)	.122	.036	.001*		
	Guardianship (personal)	.167	.038	.000*		
	Constant	-2.248	.119	.000*		

Note. p<.05*

Table 31 (cont.)

In the results of household victimization routine activities/lifestyle model analysis, there was supportive evidence in 2008 and 2010 that both target suitability and guardianship were statistically significant ($p < .05$). Also, the odd ratios were one and more in target suitability and less than one in guardianship in those years, as the research hypotheses suggested. The full models for these years were also significantly sound with a *p*-value of .000. Even though the Pseudo R-square was low at 4.7 and 3.2 respectively, these results may suggest that recent years of household guardianship worked better than the previous years' household protective measures.

Table 32. Summary of Logistic Regression Results of Routine Activities/Lifestyle Model on Household Victimization in South Korea 1993-2010.

(Model: Logistic Regression)	**Linearized Coef.**	**S.E.**	**Sig.**	**Model Statistics**

1993	Live urban (1)	-.332	.168	.049*	Number of strata	14
	Age	-.014	.008	.089	F(9, 16,686)	1.90
	Male (1)	.233	.167	.163	N	1,984
	Married (1)	.327	.224	.146	Design df	1,970
	Univ. educated (1)	-.303	.211	.153	Sig.	.048*
	Higher income (1)	-.049	.212	.817		
	Employed (1)	.335	.338	.322		
	Target suitability (household)	.209	.086	.015*		
	Guardianship (household)	.009	.085	.915		
	Constant	-2.000	.270	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
1996	Live urban (1)	-.155	.195	.428	Number of strata	14
	Age	-.012	.010	.250	F(9, 1,993)	1.75
	Male (1)	-.406	.202	.046*	N	2,000
	Married (1)	.321	.224	.153	Design df	1,997
	Univ. educated (1)	-.201	.215	.351	Sig.	.076
	Higher income (1)	.254	.217	.245		
	Employed (1)	.357	.302	.238		
	Target suitability (household)	.156	.104	.136		
	Guardianship (household)	.249	.110	.025		
	Constant	-2.350	.360	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
1998	Live urban (1)	-.243	.177	.171	Number of strata	15
	Age	.000	.007	.998	F(9, 1,907)	1.21
	Male (1)	.021	.175	.902	N	1,930
	Married (1)	.132	.209	.530	Design df	1,915
	Univ. educated (1)	-.165	.199	.407	Sig.	.286
	Higher income (1)	.114	.187	.544		
	Employed (1)	.263	.264	.318		
	Target suitability (household)	.268	.107	.012*		
	Guardianship (household)	.047	.089	.596		
	Constant	-2.512	.299	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
2002	Live urban (1)	.119	.210	.570	Number of strata	15
	Age	-.008	.009	.363	F(9, 1,907)	1.21
	Male (1)	.102	.212	.631	N	1,930
	Married (1)	.110	.272	.685	Design df	1,915
	Univ. educated (1)	-.062	.234	.791	Sig.	.286
	Higher income (1)	.194	.223	.386		
	Employed (1)	-1.023	.632	.107		

Table 32 (cont.)

	Target suitability (household)	.063	.115	.581		
	Guardianship (household)	.049	.098	.614		
	Constant	-2.755	.358	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
2005	Live urban (1)	-.024	.252	.923	Number of strata	15
	Age	.014	.010	.169	F(9, 1,903)	1.77
	Male (1)	.358	.271	.188	N	1,929
	Married (1)	.230	.314	.465	Design df	1,913
	Univ. educated (1)	.061	.264	.819	Sig.	.074
	Higher income (1)	-.435	.278	.119		
	Employed (1)	.132	.474	.781		
	Target suitability (household)	.014	.123	.910		
	Guardianship (household)	.307	.138	.027*		
	Constant	-4.215	.473	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
2008	Live urban (1)	-.036	.147	.804	Number of strata	16
	Age	.020	.005	.000*	F(9, 10,646)	10.23
	Male (1)	.722	.144	.000*	N	10,835
	Married (1)	.170	.173	.328	Design df	10,654
	Univ. educated (1)	-.051	.165	.756	Sig.	.000*
	Higher income (1)	-.239	.175	.171		
	Employed (1)	.482	.229	.035*		
	Target suitability (household)	.219	.083	.008*		
	Guardianship (household)	-.351	.102	.001*		
	Constant	-5.311	.259	.000*		
		Linearized Coef.	**S.E.**	**Sig.**	**Model Statistics**	
2010	Live urban (1)	-.051	.129	.690	Number of strata	16
	Age	-.002	.005	.714	F(9, 16,678)	9.36
	Male (1)	-.107	.125	.394	N	16,702
	Married (1)	.348	.160	.030*	Design df	16,686
	Univ. educated (1)	.285	.139	.040*	Sig.	.000*
	Higher income (1)	-.335	.148	.024*		
	Employed (1)	.548	.177	.002*		
	Target suitability (household)	.469	.067	.000*		
	Guardianship (household)	-.177	.068	.010*		
	Constant	-4.379	.206	.000*		

Note. p<.05*

Table 32 (cont.)

Using the binary measurement of victimization, the results proved some possibilities for different perspectives on the original theory. The analysis suggested that target suitability may have a comparatively higher relation to personal victimization, while guardianship may be associated with household rather than personal victimization. As described in the next section, additional results confirmed this analysis frequency measurement of victimization as the dependent variable.

Frequency Measurement of Victimization

According to the results, routine activities/lifestyle model on frequency measure of victimization appeared to be less supportive than the binary measurement of victimization as the dependent variable. This second attempt tested the theory with a different measurement of the dependent variable so that any distinctive differences or similarities exist could be found in model explanations. However, the results suggested that the model was more appropriate to explain whether or not the respondent was victimized rather than any possible linear relationship between the frequency of victimization and the predictors. Yet, the results suggested that the theoretical model itself was significant except in the years 2002 and 2005, the same as the previous results on the binary measurement of victimization. Another substantial difference from the previous model was asignificantly lower level of variance in 2008 and 2010 (less than 1%). This result suggests the inadequacy of the model to explain frequency measures of victimization.

Table 33. Summary of Multiple Regression Results of Routine Activities/Lifestyle Model on Total, Personal, and Household Victimization in South Korea 1993-2010.

Dependent Variable	**Total**			**Personal**			**Household**		
(Model: Regression)	**Coef.**	**S.E.**	**Sig.**	**Coef.**	**S.E.**	**Sig.**	**Coef.**	**S.E.**	**Sig.**

	Dependent Variable	Total			Personal			Household		
	(Model: Regression)	**Coef.**	**S.E.**	**Sig.**	**Coef.**	**S.E.**	**Sig.**	**Coef.**	**S.E.**	**Sig.**
1993	(Constant)	.380	.037	.000*	.306	.031	.000*	.113	.020	.000*
	Live urban (1)	-.017	.022	.426	.011	.019	.566	-.031	.012	.012*
	Age	-.002	.001	.013*	-.002	.001	.006*	-.001	.001	.094
	Male (1)	-.001	.025	.067	-.020	.021	.342	.017	.012	.142
	Married (1)	-.040	.027	.118	-.051	.023	.021*	.012	.015	.408
	Univ. Educated (1)	-.043	.026	.111	-.018	.022	.450	-.034	.015	.017*
	Higher income (1)	.020	.027	.466	.026	.023	.299	-.002	.015	.873
	Employed (1)	.013	.044	.763	.002	.040	.950	.025	.026	.346
	Target suitability (personal)	.025	.013	.052	.024	.010	.038*			
	Target suitability (household)	.037	.012	.003*				.018	.007	.008*
	Guardianship (personal)	.052	.016	.000*	.049	.011	.000*			
	Guardianship (household)	-.018	.011	.110				.003	.006	.608
	R^2			.041			.041			.012
	F		(11, 1,916)	6.25		(9, 1,923)	6.87		(9, 1,962)	2.575
	Prob>F			.000*			.000*			.000*
	N of strata			14			14			14
	N			1,940			1,945			1,984
1996	(Constant)	.284	.034	.000*	.218	.028	.000*	.088	.019	.000*
	Live urban (1)	.060	.019	.002*	.069	.016	.000*	-.004	.011	.762
	Age	-.003	.001	.004*	-.003	.001	.000*	.000	.001	.586
	Male (1)	.012	.023	.578	.038	.019	.049	-.024	.012	.045*
	Married (1)	-.013	.026	.551	-.021	.022	.264	.010	.015	.473
	Univ. Educated (1)	-.034	.022	.195	-.011	.019	.625	-.014	.013	.301
	Higher income (1)	.032	.023	.157	.019	.019	.328	.014	.013	.308
	Employed (1)	-.010	.035	.777	-.021	.030	.485	.011	.020	.593
	Target suitability (personal)	.023	.010	.030*	.025	.009	.012*			
	Target suitability (household)	.030	.011	.044				.010	.006	.117
	Guardianship (personal)	.044	.011	.000*	.036	.009	.000*			
	Guardianship (household)	.003	.010	.763				.013	.006	.036*
	R^2			.043			.045			.008*
	F		(11, 1,951)	7.85		(9, 1,949)	9.66		(9, 1,941)	1.727
	Prob>F			.000*			.000*			.157
	N of strata			14			14			14
	N			1,964			1,989			2,000
1998	(Constant)	.290	.037	.000*	.171	.023	.000*	.053	.015	.000*
	Live urban (1)	-.030	.021	.155	.007	.013	.576	-.012	.009	.175
	Age	-.001	.001	.448	-.001	.001	.059	.000	.000	.965
	Male (1)	-.021	.025	.392	-.002	.015	.894	.001	.009	.895
	Married (1)	-.008	.025	.711	-.009	.015	.513	.006	.010	.511

Table 33 (cont.)

	Dependent Variable	Total			Personal			Household		
	(Model: Regression)	**Coef.**	**S.E.**	**Sig.**	**Coef.**	**S.E.**	**Sig.**	**Coef.**	**S.E.**	**Sig.**
	Univ. Educated (1)	-.026	.024	.303	.006	.015	.686	-.008	.010	.393
	Higher income (1)	.023	.023	.333	.018	.015	.246	.006	.010	.546
	Employed (1)	.047	.036	.210	.040	.023	.110	.015	.015	.349
	Target suitability (personal)	.015	.011	.204	.013	.007	.088			
	Target suitability (household)	.067	.012	.000*				.013	.005	.012*
	Guardianship (personal)	.041	.012	.002*	.027	.008	.000*			
	Guardianship (household)	.002	.011	.831				.002	.004	.620
	R^2			.037			.024			.006
	F		(11, 1,892)	6.58		(9, 1,899)	5.15		(9, 1,907)	1.18
	Prob>F			.000*			.000*			.302
	N of strata			15			15			15
	N			1,917			1,922			1,930
2002	(Constant)	.097	.021	.000*	.062	.015	.000*	.049	.015	.000*
	Live urban (1)	.002	.012	.885	.002	.008	.822	.000	.009	.975
	Age	.000	.001	.346	-.001	.000	.131	.000	.000	.391
	Male (1)	-.006	.014	.690	-.010	.009	.285	.006	.009	.516
	Married (1)	-.010	.016	.516	-.008	.011	.499	-.002	.012	.856
	Univ. Educated (1)	.004	.014	.786	.002	.009	.824	.002	.010	.864
	Higher income (1)	-.002	.014	.899	-.008	.010	.385	.011	.010	.301
	Employed (1)	-.034	.023	.133	-.008	.016	.564	-.020	.017	.317
	Target suitability (personal)	.006	.006	.383	.003	.004	.512			
	Target suitability (household)	.014	.006	.047*				.005	.005	.281
	Guardianship (personal)	.005	.007	.427	.004	.005	.393			
	Guardianship (household)	.004	.006	.446				.001	.004	.765
	R^2			.009			.007			.004*
	F		(11, 1,803)	1.35		(9, 1,813)	1.65		(9, 1811)	.757
	Prob>F			.197			.007*			.757
	N of strata			15			15			15
	N			1,871			1,881			1,877
2005	(Constant)	.033	.018	.029*	.028	.012	.002*	.017	.013	.148
	Live urban (1)	-.008	.010	.379	-.008	.006	.215	-.001	.007	.915
	Age	.001	.000	.163	.000	.000	.568	.000	.000	.484
	Male (1)	.000	.011	.999	-.013	.007	.102	.005	.007	.502
	Married (1)	-.005	.013	.648	-.012	.009	.149	.007	.010	.390
	Univ. Educated (1)	.013	.010	.220	.009	.007	.226	.004	.008	.622
	Higher income (1)	-.015	.011	.093	-.001	.007	.876	-.014	.008	.022*
	Employed (1)	.031	.020	.217	.027	.013	.165	.004	.015	.823
	Target suitability (personal)	.003	.005	.614	.001	.003	.741			
	Target suitability (household)	.006	.005	.206				.000	.004	.916

Table 33 (cont.)

	Dependent Variable	Total			Personal			Household		
	(Model: Regression)	**Coef.**	**S.E.**	**Sig.**	**Coef.**	**S.E.**	**Sig.**	**Coef.**	**S.E.**	**Sig.**
	Guardianship (personal)	.014	.006	.032*	.001	.004	.781			
	Guardianship (household)	-.006	.005	.270				.003	.004	.472
	R^2			.008			.008			.004
	F		(11, 1,901)	1.36		(9, 1,892)	1.63		(9, 1,911)	.754
	Prob>F			.193			.107			.425
	N of strata			15			15			15
	N			1,920			1,922			1,929
2008	(Constant)	.029	.010	.005*	.031	.006	.000*	.011	.007	.131
	Live urban (1)	.002	.006	.811	.000	.004	.927	-.002	.004	.664
	Age	.000	.000	.020*	.000	.000	.027*	.000	.000	.009*
	Male (1)	.035	.006	.000*	.012	.004	.013*	.027	.004	.000*
	Married (1)	.033	.006	.000*	.016	.004	.001*	.023	.004	.000*
	Univ. Educated (1)	-.006	.006	.430	.004	.004	.464	-.008	.005	.142
	Higher income (1)	-.017	.006	.020*	-.008	.004	.153	-.007	.004	.177
	Employed (1)	.037	.010	.023*	.018	.007	.124	.031	.008	.007*
	Target suitability (personal)	-.012	.003	.001*	-.005	.002	.034*			
	Target suitability (household)	.025	.003	.000*				.014	.002	.000*
	Guardianship (personal)	.009	.003	.007*	.002	.002	.319			
	Guardianship (household)	-.005	.003	.237				-.006	.002	.020*
	R^2			.023			.006			.017
	F		(11, 10,644)	14.62		(9, 10,646)	7.058		(9, 10,646)	12.11
	Prob>F			.000*			.000*			.000*
	N of strata			16			16			16
	N			10,835			10,835			10,835
2010	(Constant)	.089	.007	.000 *	.082	.006	.000*	.015	.003	.000*
	Live urban (1)	.002	.004	.612	.000	.003	.986	.000	.002	.944
	Age	-.001	.000	.000*	-.001	.000	.000*	.000	.000	.154
	Male (1)	.004	.004	.266	.006	.004	.066	-.001	.002	.429
	Married (1)	.000	.004	.977	-.005	.003	.156	.005	.002	.023*
	Univ. Educated (1)	-.012	.004	.005*	-.014	.004	.000*	.002	.002	.293
	Higher income (1)	-.008	.004	.060	-.003	.004	.459	-.006	.002	.001*
	Employed (1)	.012	.006	.093	.001	.006	.878	.012	.003	.004*
	Target suitability (personal)	.006	.002	.002*	.004	.002	.016*			
	Target suitability (household)	.012	.002	.000*				.006	.001	.005*
	Guardianship (personal)	.011	.002	.000*	.009	.002	.000*			
	Guardianship (household)	-.009	.002	.000*				-.003	.001	.000*
	R^2			.010			.007			.005
	F		(11, 16,676)	13.37		(9, 16,678)	10.47		(9, 16,678)	6.56
	Prob>F			.000*			.000*			.000*

Table 33 (cont.)

Dependent Variable	Total			Personal			Household		
(Model: Regression)	**Coef.**	**S.E.**	**Sig.**	**Coef.**	**S.E.**	**Sig.**	**Coef.**	**S.E.**	**Sig.**
N of strata			16			16			16
N			16,702			16,702			16,702

Note. p<.05*

Table 33 (cont.)

The analysis of routine activities/lifestyle models found several new perspectives on both the original theory and victimization in South Korea. First, each variable in the theoretical model had an independent effect on the type of victimization. Second, household victimization was partially determined by household guardianship in more recent years (2008 and 2010) than in previous years. This finding may be due to the development of household protective measures in recent years. Third, the model was not statistically significant during the years 2002 and 2005. This suggests that there may be a collective effect at the national level possibly causing changes in individuals' behaviors in some way. Though inconclusive, the binary measurement of victimization may be explained by the variables of the routine activities/lifestyle model.

Contextual Model

Because the current project dealt with seven datasets (1993, 1996, 1998, 2002, 2005, 2008, and 2010) with three different types of victimization (total, personal, and household) using two different measurement of victimization (binary and frequency), 42 full contextual model analyses at each level were conducted. The results were extensive; therefore in this section only important results are briefly discussed with consideration of the research hypotheses. The full results of these analyses is available in Appendix J. The research hypotheses concerning contextual model analysis were as follow:

3.1 Both elements of independent variables at the aggregate and individual level from each theory will explain the victimization better in multilevel analysis than in separate model analysis.

3.2 The explanatory variances of the analysis will change over years.

Individual Level Model

According to the results, the variances of each model analysis slightly increased by adding grouped values of social disorganization variables. In 1993, for example, by adding grouped values of social disorganization variables, the model variance on the binary measurement of total victimization increased from 3.9 to 4.2%. However, the odd ratios and/or standardized coefficient betas presented relatively similar before and after the addition of grouped values of socioeconomic status, residential stability, and collective efficacy. Like the previous analysis, in 2002 and 2005 the analysis models were generally insignificant or insufficient to explain the theory, even with the contextual values of social disorganization. Moreover, the grouped variables did not present significant results when full models were analyzed, and socioeconomic status and residential stability variables presented random directions with a significant unstable level over the years.

On the other hand, the most recent year's analysis (2010) presented the most fitted results following the research hypotheses. Except for the personal guardianship variable, which presented a positive relationship with victimization, the other elements in the model explained the victimization using the ecological theoretical framework. According to the results of the 2010 models, if the personal target suitability level increased by 1, the probability of victimization was 1.122 times more likely when only considering the routine activities/lifestyle model. However, when considering grouped social disorganization variables in the model, the odd ratio of target

suitability increased by .010. But if the individual lived in the index 1 higher level of grouped socio-economic status, there was .171 less likelihood of victimization in the same model.

Logistic Results of Baseline Model in 2010

$$\log\left[\frac{V_t}{1-V_t}\right] = .096 + 1.122X_{ts\_p} + 1.250X_{ts\_h} + 1.196X_{gd\_p} + .874X_{gd\_h} \quad (8)$$

Logistic Results of Full Model in 2010

$$\log\left[\frac{V_t}{1-V_t}\right] = .302 + 1.132X_{ts\_p} + 1.242X_{ts\_h} + 1.189X_{gd\_p} + .865X_{gd\_h} + .829X_{g\_ses} + .843X_{g\_ce} \quad (9)$$

Interestingly, the significances of the grouped variables in total and personal victimization model disappeared in the household victimization model. This finding indicated that personal victimization was affected by not only personal activities and lifestyle but by collective effects of social disorganization, while personal household target suitability and guardianship levels were solely responsible for household victimization.

Similar to the logistic regression results, multiple regression with logged frequency mean victimization led to supportive evidence for both ecological theories of crime. Due to the large sample number (N = 16,000) with a small number of victimizations, the variance was relatively small in nature. However, the results mostly supported the hypotheses with both theoretical elements presented. The effect size of personal guardianship was somewhat large, which cancelled out the other supportive effects in the models. Therefore, the evidence on logged frequency mean measurement victimization was inconclusive. The summary of results is presented in Table 34.

Aggregate Level Model

The other contextual analysis attempted was at the aggregate level with aggregated variables of social disorganization and routine activities/lifestyle models. Originally the social disorganization models presented a low level of statistical significance in the previous section. This analysis answered if there were any collective effects from target suitability and guardianship variables on victimization at the aggregate level, such as enhancing the significance level or variance of models. In this section, the same hypotheses of the contextual model are answered, finding any synergetic effects from both elements of theories in the same model.

In most analyses, variances increased in full models, but the level of significance was still lower than expected ($p < .05$). However, a number of full model analyses presented statistical significance (i.e., logged frequency mean of total victimization in 1993 and both measures of personal victimization in 1998). Moreover, baseline and full models of both measures of total and personal victimization in 2010 were both significant, but the addition of collective routine activities/lifestyle variables increased the variance level 55 to 85%.

In the full model on binary mean total victimization in 2010, spatial units with higher levels of socioeconomic status and residential stability were more likely to have a lowerlevel of victimization. The beta coefficient for socioeconomic status and residential stability on the dependent variables were -.819 and -1.026 ($p< .05$) respectively. Also, the personal guardianship variable at an aggregate level supported the theory in the collective form (β = -.587). This finding is worth mentioning because in the individual level model analysis, the personal guardianship variable worked against the research hypotheses.

In the two different types of victimization analyses models, the results are promising yet inconclusive. In both measurements of victimization, household victimization models were

significant for baseline and full models. Even the personal victimization models presented significance in some variables; only personal target suitability was a stable variable in the model to explain personal victimization with statistical confidence. Different explanations could account for why more recent years' models showed more supportive evidence for ecological theories on victimization in South Korea.

Table 34. Summary of Multiple Regression Results of Contextual Individual Level Model on Total, Personal, and Household Victimization in South Korea 1993-2010.

	Binary - Exp(B) Model: Contextual Individual Level Regression							**Frequency – Beta Model: Contextual Individual Level Regression**					
1993	Total		Personal		Household			Total		Personal		Household	
	Base	Full	Base	Full	Base	Full		Base	Full	Base	Full	Base	Full
Target suitability (personal)	1.092	1.092	1.109*	1.111*			Target suitability (personal)	.053*	.053*	.059*	.060*		
Target suitability (household)	1.149*	1.151*			1.220*	1.240*	Target suitability (household)	.076*	.076*			.064*	.068*
Guardianship (personal)	1.176*	1.182*	1.234*	1.229*			Guardianship (personal)	.107*	.109*	.120*	.117*		
Guardianship (household)	.942	.942			1.000	1.010	Guardianship (household)	-.039	-.039*			.008	.012
Constant (Base)	.590		.505*		.194*		Constant (Base)						
Socio-economic Status		1.074		1.087		1.114	Socio-economic Status		.048		.047		.019
Residential Stability		6.357*		4.262		33.423*	Residential Stability		.121*		.084*		.111*
Collective Efficacy		.922		.887		.951	Collective Efficacy		-.064*		-.066*		-.036
Constant (Full)		.196*		.208*		.025*	Constant (Full)						
Nagelkerke R^2	.039*	.042*	.043*	.045*	.016	.026*	R^2	.041*	.045*	.041*	.044*	.008*	.014*
Chi-square	52.943	56.912	55.766	58.847	14.201	22.815	F	8.176	7.004	10.242	8.009	2.116	2.537
1996	Total		Personal		Household			Total		Personal		Household	
	Base	Full	Base	Full	Base	Full		Base	Full	Base	Full	Base	Full
Target suitability (personal)	1.199*	1.183*	1.213*	1.187*			Target suitability (personal)	.061*	.055*	.076*	.066*		
Target suitability (household)	1.184*	1.171*			1.167	1.174	Target suitability (household)	.071*	.066*			.039	.041
Guardianship (personal)	1.225*	1.226*	1.221*	1.210*			Guardianship (personal)	.101*	.103*	.098*	.094*		
Guardianship	1.025	.996			1.277*	1.286*	Guardianship	.013	.001			.050*	.052*

Table 34 (cont.)

(household)							(household)							
Constant (Base)	.637		.546		.121*		Constant (Base)							
Socio-economic Status		1.141		1.159*		1.040	Socio-economic Status		.044		.068		-.013	
Residential Stability		.314		.136		8.561	Residential Stability		-.026		-.039		.012	
Collective Efficacy		.894		.862		.958	Collective Efficacy		-.049*		-.037		-.033	
Constant (Full)		1.349		1.942		.029*	Constant (Full)							
Nagelkerke R^2	.057*	.064*	.046*	.058*	.027*	.029*	R^2	.038*	.043*	.037*	.045*	.008	.010	
Chi-square	74.376	84.535	56.465	71.108	19.475	20.966	F	7.708	6.702	9.397	8.513	1.931	1.739	
1998	Total		Personal		Household			Total		Personal		Household		
	Base	Full	Base	Full	Base	Full		Base	Full	Base	Full	Base	Full	
Target suitability (personal)	1.120*	1.120*	1.119	1.120			Target suitability (personal)	.031	.032	.045	.046			
Target suitability (household)	1.432*	1.434*			1.287*	1.294*	Target suitability (household)	.144*	.147*			.065*	.066*	
Guardianship (personal)	1.209*	1.210*	1.245*	1.245*			Guardianship (personal)	.090*	.092*	.095*	.095*			
Guardianship (household)	1.017	1.015			1.031	1.054	Guardianship (household)	.001	.002			.008	.014	
Constant (Base)	.488*		.533*		.105*		Constant (Base)							
Socio-economic Status		.963		.903		1.050	Socio-economic Status		-.068		-.039		.015	
Residential Stability		.530		.075		12.040	Residential Stability		-.075		-.065		.046	
Collective Efficacy		.978		1.001		1.056	Collective Efficacy		.023		.001		.014	
Constant (Full)		.754		3.094		.019*	Constant (Full)							
Nagelkerke R^2	.056*	.057*	.036*	.039*	.013	.017	R^2	.036*	.038*	.023*	.025*	.005	.007	
Chi-square	75.215	75.902	44.521	48.639	10.253	13.850	F	7.089	5.793	5.748	4.538	1.287	1.270	
2002	Total		Personal		Household			Total		Personal		Household		
	Base	Full	Base	Full	Base	Full		Base	Full	Base	Full	Base	Full	
Target suitability (personal)	1.030	1.025	1.062	1.078			Target suitability (personal)	.023	.024	.018	.022			

Table 34 (cont.)

Target suitability (household)	1.173	1.156			1.070	1.059	Target suitability (household)	.056*	.052*			.029	.026
Guardianship (personal)	1.089	1.073	1.165	1.153			Guardianship (personal)	.022	.018	.026	.022		
Guardianship (household)	1.095	1.089			1.060	1.063	Guardianship (household)	.017	.014			.006	.007
Constant (Base)	.041*		.031*		.034*		Constant (Base)						
Socio-economic Status		1.085		1.430		.976	Socio-economic Status		.032		.054		-.003
Residential Stability		6.823		.426		13.287	Residential Stability		.030		-.017		.051
Collective Efficacy		.798*		1.061		.739*	Collective Efficacy		-.039		.008		-.059*
Constant (Full)		.010*		.045*		.005	Constant (Full)						
Nagelkerke R^2	.020	.026	.035*	.049*	.010	.021	R^2	.009	.011	.007	.011	.003	.006
Chi-square	15.783	20.808	17.131	24.295	6.022	13.173	F	1.656	1.549	1.733	1.916	.812	1.063
2005	Total		Personal		Household			Total		Personal		Household	
	Base	Full	Base	Full	Base	Full		Base	Full	Base	Full	Base	Full
Target suitability (personal)	1.105	1.102	1.181	1.185			Target suitability (personal)	.010	.008	.005	.005		
Target suitability (household)	1.125	1.152			1.012	1.038	Target suitability (household)	.026	.033			-.003	.004
Guardianship (personal)	1.280*	1.258*	1.023	.972			Guardianship (personal)	.067*	.064*	.008	.003		
Guardianship (household)	1.029	1.053			1.356*	1.407*	Guardianship (household)	-.031	-.024			.017	.022
Constant (Base)	.047*		.029*		.021*		Constant (Base)						
Socio-economic Status		.995		.795		1.101	Socio-economic Status		.029		.005		.033
Residential Stability		.212		91.803		.017	Residential Stability		-.029		.033		-.063*
Collective Efficacy		.796		.601		.888	Collective Efficacy		-.030		-.037		-.014
Constant (Full)		.148		.001*		.409	Constant (Full)						
Nagelkerke R^2	.022	.031	.046*	.059*	.027	.049*	R^2	.008	.012*	.007	.009	.004	.012
Chi-square	14.381	20.559	16.483	21.082	13.647	24.751	F	1.455	1.814	1.772	1.563	.847	2.046
2008	Total		Personal		Household			Total		Personal		Household	

Table 34 (cont.)

	Base	Full	Base	Full	Base	Full		Base	Full	Base	Full	Base	Full
Target suitability (personal)	.847*	.862*	.838*	.852*			Target suitability (personal)	-.042*	-.040*	-.027*	-.025*		
Target suitability (household)	1.359*	1.366*			1.244*	1.246*	Target suitability (household)	.089*	.088*			.070*	.068*
Guardianship (personal)	1.096*	1.101*	1.077	1.083			Guardianship (personal)	.032*	.032*	.013	.013		
Guardianship (household)	.907*	.902*			.704*	.695*	Guardianship (household)	-.017	-.018			-.030*	-.032*
Constant (Base)	.063*		.096*		.014*		Constant (Base)						
Socio-economic Status		1.137		1.319*		.805	Socio-economic Status		.026		.060*		-.006
Residential Stability		58.035*		218.873*		2.183	Residential Stability		.081*		.085*		.047*
Collective Efficacy		.873*		.916		.774*	Collective Efficacy		-.053*		-.009		-.059*
Constant (Full)		.005*		.003*		.009*	Constant (Full)						
Nagelkerke R^2	.040*	.046*	.024*	.030*	.047*	.051*	R^2	.023*	.026*	.006*	.008*	.017*	.019*
Chi-square	158.011	180.084	72.610	93.370	94.196	103.113	F	25.920	22.446	7.939	7.470	23.570	19.428
2010	Total		Personal		Household			Total		Personal		Household	
	Base	Full	Base	Full	Base	Full		Base	Full	Base	Full	Base	Full
Target suitability (personal)	1.122*	1.132*	1.126*	1.132*			Target suitability (personal)	.027*	.029*	.021*	.022*		
Target suitability (household)	1.250*	1.242*			1.595*	1.591*	Target suitability (household)	.054*	.052*			.054*	.053*
Guardianship (personal)	1.196*	1.189*	1.182*	1.176*			Guardianship (personal)	.049*	.048*	.044*	.042*		
Guardianship (household)	.874*	.865*			.835*	.834*	Guardianship (household)	-.037*	-.040*			-.024*	-.025*
Constant (Base)	.096*		.079*		.026*		Constant (Base)						
Socio-economic Status		.829*		.819*		.829	Socio-economic Status		-.044*		-.049*		-.008
Residential Stability		.176		.117*		.253	Residential Stability		-.038*		-.042*		-.012
Collective Efficacy		.843*		.868*		.872	Collective Efficacy		-.032*		-.024		-.008

Table 34 (cont.)

Constant (Full)		.302		.323		.064*	Constant (Full)						
Nagelkerke R^2	.023*	.027*	.017*	.021*	.032*	.034*	R^2	.010*	.012*	.007*	.008*	.005*	.005*
Chi-square	145.108	170.045	94.214	113.537	81.748	86.070	F	17.471	15.437	14.517	12.483	10.458	7.868

*Note. +p<.100, *<.05, **<.01, Control variables (individual's age, gender, socio-economic status) are excluded in the table due to brief presentation of results.*

Table 34 (cont.)

Table 35. Summary of Multiple Regression Results of Contextual Aggregate Level Model on Total, Personal, and Household Victimization in South Korea 1993-2010.

	Binary Mean (Beta) Model: Contextual Aggregate Level Regression							**Logged Frequency Mean (Beta) Model: Contextual Aggregate Level Regression**					
1993 (N=14)	Total		Personal		Household			Total		Personal		Household	
	Base	Full	Base	Full	Base	Full		Base	Full	Base	Full	Base	Full
Socio-economic Status	.438	.041	.613	.793	-.026	-.445	Socio-economic Status	.388	.072	.536	.839*	-.039	-.441
Residential Stability	.861	.794	.965	.908	.497	.760	Residential Stability	1.093	1.071*	.987*	.886	.720	.993
Collective Efficacy	-.520	-.809	-.859	-.918	.063	.673	Collective Efficacy	-.811	-.690	-1.005*	-1.100*	-.153	.564
Mean Target Suitability (personal)		-.229		.043			Mean Target Suitability (personal)		-.207		.062		
Mean Target Suitability (household)		.215				1.076	Mean Target Suitability (household)		.828				1.208
Mean Guardianship (personal)		-.938		-.321			Mean Guardianship (personal)		-1.138*		-.542		
Mean Guardianship (household)		1.110				.295	Mean Guardianship (household)		.991*				.238
R^2	.222	.631	.492	.520	.323	.518	R^2	.324	.827*	.541*	.624	.388	.596
F	.950	1.464	3.224	1.736	1.593	1.721	F	1.594	4.101	3.927	2.654	2.111	2.356
1996 (N=14)	Total		Personal		Household			Total		Personal		Household	
	Base	Full	Base	Full	Base	Full		Base	Full	Base	Full	Base	Full

Table 35 (cont.)

Socio-economic Status	.206	.135	.180	.258	-.052	-.456	Socio-economic Status	.144	.237	.235	.307	-.262	-.043
Residential Stability	-.284	-.474	-.392	-.572	.235	.324	Residential Stability	-.335	-.516	-.389	-.548	-.056	-.123
Collective Efficacy	-.353	-.442	-.382	-.615*	-.093	.263	Collective Efficacy	-.335	-.537	-.267	-.475	-.376	-.417
Mean Target Suitability (personal)		-.615		-.524			Mean Target Suitability (personal)		-.513		-.468		
Mean Target Suitability (household)		-.138				.123	Mean Target Suitability (household)		-.106				-.505
Mean Guardianship (personal)		.293		.176			Mean Guardianship (personal)		.152		.146		
Mean Guardianship (household)		.428				.676	Mean Guardianship (household)		.087				.093
R^2	.321	.605	.425	.601	.075	.311	R^2	.310	.470	.383	.521	.203	.342
F	1.574	1.315	2.462	2.411	.271	.724	F	1.496	.759	2.070	1.740	.851	.831
1998 (N=15)	Total		Personal		Household			Total		Personal		Household	
	Base	Full	Base	Full	Base	Full		Base	Full	Base	Full	Base	Full
Socio-economic Status	.360	-.393	.064	-.569	.091	.205	Socio-economic Status	-.202	-1.016	.064	-.569	.091	.205
Residential Stability	-.103	-.454	-.471	-.764*	.218	.299	Residential Stability	-.547	-.913*	-.471	-.764*	.218	.299
Collective Efficacy	-.104	.332	-.031	.441	.153	.050	Collective Efficacy	.189	.615	-.031	.441	.153	.050
Mean Target Suitability (personal)		.533		.808*			Mean Target Suitability (personal)		.449		.808		
Mean Target Suitability (household)		.118				.072	Mean Target Suitability (household)		.221				.072
Mean Guardianship (personal)		.498		.082			Mean Guardianship (personal)		.587		.082		
Mean Guardianship (household)		-.125				-.340	Mean Guardianship (household)		-.196				-.340
R^2	.195	.648	.273	.682*	.070	.166	R^2	.174	.663	.273	.682*	.070	.166
F	.886	1.839	1.376	3.863	.277	.358	F	.773	1.971	1.376	3.863	.277	.358
2002 (N=16)	Total		Personal		Household			Total		Personal		Household	
	Base	Full	Base	Full	Base	Full		Base	Full	Base	Full	Base	Full
Socio-economic Status	.253	.270	.578	.887	-.068	-.145	Socio-economic Status	.386	.443	.550	.842*	.046	.035

Table 35 (cont.)

Residential Stability	.452	-.099	.022	.045	.443	-.111	Residential Stability	.358	-.213	-.028	-.008	.476	-.110
Collective Efficacy	-.549	-.735	.057	.261	-.639*	-.936*	Collective Efficacy	-.490	-.763	.005	.176	-.645*	-1.006*
Mean Target Suitability (personal)		.219		.537			Mean Target Suitability (personal)		.142		.492		
Mean Target Suitability (household)		-.207				-.251	Mean Target Suitability (household)		-.410				-.411
Mean Guardianship (personal)		.026		-.020			Mean Guardianship (personal)		.061		-.056		
Mean Guardianship (household)		-.771				-.775	Mean Guardianship (household)		-.848				-.859
R^2	.315	.536	.304	.499	.349	.512	R^2	.338	.636	.317	.482	.357	.593
F	1.684	1.153	1.599	1.791	1.962	1.887	F	1.872	1.749	1.701	1.675	2.038	2.623
2005 (N=16)	Total		Personal		Household			Total		Personal		Household	
	Base	Full	Base	Full	Base	Full		Base	Full	Base	Full	Base	Full
Socio-economic Status	-.121	-.181	-.172	-.877	.061	-.109	Socio-economic Status	.099	-.180	.055	-.751	.105	-.146
Residential Stability	-.237	-.294	.293	.233	-.434	-.456	Residential Stability	-.139	-.277	.366	.301	-.412	-.478
Collective Efficacy	-.472	-.722	-.498	-1.182*	-.128	-.505	Collective Efficacy	-.362	-.664	-.479	-1.312*	-.151	-.541
Mean Target Suitability (personal)		.001		.622			Mean Target Suitability (personal)		.060		.531		
Mean Target Suitability (household)		.990				.623	Mean Target Suitability (household)		.887				.670
Mean Guardianship (personal)		.406		-.703			Mean Guardianship (personal)		.248		-.903*		
Mean Guardianship (household)		-.838				-.455	Mean Guardianship (household)		-.984				-.614
R^2	.292	.638	.179	.464	.283	.469	R^2	.255	.660	.241	.569	.306	.571
F	1.513	1.761	.802	1.556	1.450	1.593	F	1.255	1.945	1.165	2.379	1.618	2.395
2008 (N=16)	Total		Personal		Household			Total		Personal		Household	
	Base	Full	Base	Full	Base	Full		Base	Full	Base	Full	Base	Full
Socio-economic Status	-.153	.270	.011	-.001	-.582	-.493	Socio-economic Status	-.062	.467	.307	.099	-.250	-.014
Residential Stability	.533	.657	.574	.697	-.034	-.004	Residential Stability	.571	.702	.543	.721	.421	.425

Table 35 (cont.)

Collective Efficacy	-.723	-.704	-.586	-.584	-.603	-.915	Collective Efficacy	-.569	-.564	-.036	-.027	-.751	-.826
Mean Target Suitability (personal)		-.354		-.048			Mean Target Suitability (personal)		-.335		.287		
Mean Target Suitability (household)		.162				-.414	Mean Target Suitability (household)		.197				.001
Mean Guardianship (personal)		.448		.395			Mean Guardianship (personal)		.470		.542		
Mean Guardianship (household)		-.432				-.104	Mean Guardianship (household)		-.614				-.361
R^2	.336	.638	.281	.414	.153	.234	R^2	.275	.656	.126	.428	.308	.351
F	2.025	2.014	1.565	1.414	.724	.611	F	1.518	2.177	.577	1.495	1.778	1.081
2010 (N=16)	Total		Personal		Household			Total		Personal		Household	
	Base	Full	Base	Full	Base	Full		Base	Full	Base	Full	Base	Full
Socio-economic Status	-.664*	-.819*	-.578	-.284	-.521	-.427	Socio-economic Status	-.587	-.427	-.597	-.267	-.256	-.108
Residential Stability	-.625	-1.026*	-.652	-.629	-.272	-.305	Residential Stability	-.667	-.874*	-.745*	-.652*	-.293	-.337
Collective Efficacy	-.582	-.542	-.487	-.799*	-.456	-.523	Collective Efficacy	-.472	-.689	-.394	-.780	-.289	-.391
Mean Target Suitability (personal)		.518		.625*			Mean Target Suitability (personal)		.691*		.755*		
Mean Target Suitability (household)		.095				-.343	Mean Target Suitability (household)		-.062				-.487
Mean Guardianship (personal)		-.587*		-.106			Mean Guardianship (personal)		-.385		-.020		
Mean Guardianship (household)		.742*				.108	Mean Guardianship (household)		.403				.132
R^2	.598*	.855*	.555*	.701*	.207	.272	R^2	.553*	.831*	.557*	.789*	.156	.282
F	5.940	6.739	4.984	4.688	1.041	.746	F	4.958	5.607	5.033	7.480	.738	.785

*Note: +p<.100, *<.05, **<.01*

Table 35 (cont.)

Conclusion

This chapter conducted multiple statistical approaches to the analysis of victimization using variables of social disorganization and routine activities/lifestyle theories. Based on the results of the previous chapter, which presented possibilities of significant relationships between ecological characteristics and victimization at both aggregate and individual levels, this chapter was expected to present some significances in the model analysis in a differenttemporal period of years. However, the results present inconclusive evidence supporting the theories' applicability to South Korea.

First, two conventional theoretical frames (i.e., social disorganization and routine activities/lifestyle theories) were applied to learn if the original ecological models on victimization from the Western can explain the victimization in South Korea. In social disorganization model at the aggregate level of city/province level, the evidence was partially supportive of the theory. From 1993 to 2005, the socio-economic status has a positive effect on total victimization but later years of 2008 and 2010, the direction of effect was changed to negative. Residential stability presents a random relationship with total victimization over years. Some years the results show the positiverelationship, while negative in the other years. Lastly, collective efficacy has an adverse effect on total victimization rates consistently (except the year of 1998) in general. Even though the models lack its significance level, however, it is worth note that collective efficacy presented consist effect on victimization with an exception of 1998, right after the year of the financial crisis in South Korea.

CHAPTER 6

TIME-LAGGED APPROACH ANALYSIS OF ECOLOGICAL MODELS 1993–2010

In the results of the cross-sectional analysis in the previous chapter, social disorganization models were generally not statistically significant, while routine activities/lifestyle models were significant but type-specific—target suitability was significantly related to personal victimization over the years, while guardianship was more associated with household victimization in recent years. Contextual model analysis was inconclusive as significantly supportive results were only found in 2010. In this chapter, exploratory models of ecological theories are presented to show further explanations of victimization in South Korea. As previously discussed, a certain amount of time is needed for independent variables to have an effect on the dependent variable. Therefore, this chapter discusses the results of time-lagged analysis of ecological models on total, personal, and household victimization. Because the individual respondents in the datasets over the years do not yield panel data, aggregate-level data was considered as panel data in the same spatial units. The time-lagged analysis in this study was at the aggregate level. Also, analysis included a series of analysis with the year's victimization as dependent and the previous year's predictors. The time-lagged analysis was based on the following equation:

Time-lagged Analysis Equation

$$V_y = \beta_0 + X_{1(y-1)} + X_{2(y-1)} + \cdots + X_{i(y-1)} + \varepsilon \qquad (10)$$

Where: V_y= Victimization (V) in a certain year (y)

$X_{i(y-1)}$= Predictor (X) in the previous year (y-1)

However, the data was collected either bi- or triannually, therefore the *previous year* was the previous year of data collection.

Sensitivity Analysis

Before conducting time-lagged analysis, it is necessary to conduct time sensitivity analysis to learn which previous years' independent variables have significant effects on the latter year's dependent variables (Rihan, 2003; Wilson & Butler, 2007). The expectation of the result is the higher relationship between closer years' variables. For instance, victimization in 2010 is expected to associate with the closest years' independent variables, which is of 2008. However, these year gaps and relationship amongst the variables may present different statistical evidence. Therefore, a sensitivity analysis was conducted with a year of victimization from 1996 to 2010 and the previous years' independent variables (i.e., social disorganization and routine activities/lifestyle variables) using a series of correlations.

According to the results, aggregate level personal victimization in 1996 has statistically significant relationships with aggregate level all social disorganization variables (i.e., socio-economic status, residential stability, collective efficacy) and routine activities/lifestyle variables (except target suitability of personal victimization) in 1993. Also, household victimization in 1996 is statistically related to personal target suitability in 1996. Specifically, in social disorganization frame, higher socioeconomic status ($r=.773$, $p<.01$), lower residential stability ($r=-.592$, $p<.05$), and lower collective efficacy ($r=-.631$, $p<.05$) in 1993 were associated with higher level of personal victimization in 1996. Moreover, in routine activities/lifestyle frame, higher household target suitability ($r=.761$, $p<.01$) and higher guardianship levels in both personal ($r=.592$, $p<.05$) and household ($r=.538$, $p<.05$) were related to higher level of personal

victimization while lower level of target suitability (r=-.536, p<.05) was related to higher level of household victimization. The directionality of effects were not entirely supporting the theoretical framework, but the results strongly suggest that there are time-lagged effects between ecological variables and crime at aggregate level between these years.

After 1996, however, the time-lagged relationships were shown partially. In the analysis of the relationship between victimization in 1998 and the previous years' ecological characteristics, collective efficacy in 1996 (r=-.670, p<.05) was negatively related to personal victimization but not to the other variables nor variables in 1993. Also, household victimization in 2002 was negatively associated with personal guardianship in 1996 (r=-.673, p<.01) and positively associated with personal target suitability (r=.536, p<.05). Moreover, personal victimization in 2005 was positively related to personal target suitability in 2002 (r=.620, p<.01) and negatively related to personal guardianship in 1996 (r=-.610, p<.01). None of sensitivity analysis in 2008 presented statistically significant results between victimization and the independent variables. In an analysis of 2010, household guardianship (r=.572, p<.05) in 2008 was positively related to personal victimization.

These results suggested that there were time-lagged effects between the years of 1993 and 1996, before the national economic crisis in 1997. However, in later years, the time-lagged relationship among variables became insignificant and partial. Summary of all results are available in Appendix I.

Total Victimization

Time-lagged analysis on total victimization found that prior to 2000, there were some time-lagged relationships between the year's dependent variable and the previous year's independent variables (1993 to 1996 and 1996 to 1998). However, the relationships between

those two periods of times differed from each other. First, both social disorganization and routine activities/lifestyle variables at the aggregate level on total victimization had statistically significant relationships ($p < .05$) in the individual analysis. In particular, socioeconomic level ($\beta = .582$, $p < .05$) in the social disorganization model and household target suitability ($\beta = .359$, $p < .05$) in the routine activities/lifestyle model were the significant independent variables in each model. As the socioeconomic status variable presented the opposite effect from the research hypothesis, the evidence of the model only supported household target suitability. Moreover, when those predictors were in one analysis on total victimization, neither variable nor the model presented as significant.

Table 36. Summary of Time-Lagged Analysis on Total Victimization 1993-1996.

Model (Time-Lagged Regression)	**1**		**2**		**3**	
N=14	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	(.138)	.365	(.231)*	.000	(.087)	.577
Socio-economic Status	.582*	.048			.507	.217
Residential Stability	.199	.619			.382	.378
Collective Efficacy	-.478	.214			.309	.600
Mean Target Suitability (personal)			-.125	.547	.048	.837
Mean Target Suitability (household)			.856*	.014	1.257	.078
Mean Guardianship (personal)			-.248	.516	-.255	.549
Mean Guardianship (household)			.301	.324	-.023	.949
R^2		.623*		.686*		.795
F		5.501		4.918		3.319

Note. p<.05, Dependent Variable: Total Victimization in 1996*

Second, the results of 1996 predictors on 1998 total victimization yielded a different conclusion. The social disorganization model presented as significant individually, while the routine activities/lifestyle model did not. The combined model showed statistical significance as a model. However, the significant independent variables supporting the theoretical model were

the social disorganization variables of residential stability (β = -.622, p< .05) and collective efficacy (β = -.957, p < .05) only. Considering that the residential stability variable was not significant in the individual model but significant in the combined model, the aggregated variables of routine activities/lifestyle acted either as intervening or controlling variables.

Table 37. Summary of Time-Lagged Analysis on Total Victimization 1996-1998.

Model (Time-Lagged Regression)	**1**		**2**		**3**	
N=14	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	(.541)*	.002	(.269)*	.000	(.599)*	.002
Socio-economic Status	-.184	.442			.309	.268
Residential Stability	-.484	.062			-.622*	.022
Collective Efficacy	-.610*	.012			-.957*	.005
Mean Target Suitability (personal)			.329	.508	.060	.828
Mean Target Suitability (household)			-.288	.585	-.620	.095
Mean Guardianship (personal)			-.062	.888	.317	.250
Mean Guardianship (household)			.127	.794	-.508	.146
R^2		.601*		.136		.840*
F		5.017		.356		4.491

Note. p<.05, Dependent Variable: Total Victimization in 1998*

These results are both supportive and questionable at the same time. Among the six analysis results, two sets of analyses were significant but inconsistent. It is interesting that the effects of social disorganization were distinctive in the years before and right after the national financial crisis in 1997. These results led to looking into any possible supportive answers for time-lagged analysis on each type of victimization (personal and household).

Personal and Household Victimization

Similar to the results of total victimization, results on personal victimization presented significances between 1993–1996, 1996–1998, and 2002–2005. Although the analysis of personal victimization expected more supportive results for the ecological theories, it presented

similar results. The first set of analysis from 1993 to 1996 on personal victimization resulted in very similar results as total victimization. First, socioeconomic status (β = .652, p<. 05) was only significant in the individual model; the opposite effect from the research hypothesis. The combined model became significant as a result, however as the only significant variable was socioeconomic status with negative on supporting the theories, the result was not promising.

Second, evidence supporting the theories was partially found in the second set of analysis from 1996 to 1998. In this analysis, collective efficacy was significant in the social disorganization model (β = -.641, p< .05). However, considering this model was simplified due to limited sample size, it as difficult to determine if this result was conclusive. The last significant set of analysis from 2002 to 2005 presented a similar pattern in the results. The personal target suitability (β = .617, p< .05; β = .645, p< .05) was significant and supportive of the theory both in individual and combined model analysis. It is interesting to see model significances before and after the year of the national crisis in 1997, though no model significance was found from 1998–2002. It is possible the years between 1998 and 2002 were too long a gap to see time-lagged effects among the variables. The time-lagged analysis on household victimization presented no promising results in model or variables supporting the theories. The probable explanation for these results is that household victimization was not affected by time-lagged effects.

Table 38. Summary of Time-Lagged Analysis on Personal Victimization 1993-1996, 1996-1998, 2002-2005.

Model (Time-Lagged Regression)	**1**		**2**		**3**	
N=14	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	(.119)	.381	(.183)*	.000	(.095)	.521

Socio-economic Status in 1993	.652*	.026			.861	.035
Residential Stability	.152	.692			.199	.640
Collective Efficacy	-.375	.306			-.487	.231
Mean Target Suitability (personal)			-.018	.942	.215	.349
Mean Guardianship (personal)			.596*	.035	-.303	.437
R^2		.650*		.351		.697
F		6.193		2.978		3.686

Note. p<.05, Dependent Variable: Personal Victimization in 1996*

Model (Time-Lagged Regression)	**1**		**2**		**3**	
N=15	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	(.418)	.014	(.214)*	.000	(.408)*	.027
Socio-economic Status in 1996	-.084	.737			-.018	.948
Residential Stability	-.362	.168			-.352	.221
Collective Efficacy	-.641*	.013			-.628*	.035
Mean Target Suitability (personal)			.449	.108	-.002	.996
Mean Guardianship (personal)			-.333	.220	-.282	.236
R^2		.556*		.285		.632
F		4.174		2.191		2.745

Note. p<.05, Dependent Variable: Personal Victimization in 1998*

Model (Time-Lagged Regression)	**1**		**2**		**3**	
N=15	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	(-.088)	.087	(.023)*	.000	(-.092)*	.031
Socio-economic Status in 2002	.019	.943			.386	.139
Residential Stability	.657*	.037			.684*	.011
Collective Efficacy	-.653*	.025			-.399	.118
Mean Target Suitability (personal)			.617*	.017	.645*	.013
Mean Guardianship (personal)			.128	.578	-.006	.979
R^2		.456		.401*		.738*
F		3.079		4.014		5.060

Note. p<.05, Dependent Variable: Personal victimization in 2005*

Table 38 (cont.)

In sum, there are few findings considering if the time-lagged approach answers the theoretical framework of ecological theories on victimization in South Korea. Examining lagged effects on the models may better explain the victimization as the results do not present much supportive evidence.

Conclusions

In this exploratory chapter, the aim of analysis was to find time-lagged relationship between ecological variables and victimization. The results presented strong time-lagged effects from ecological variables on victimization between 1993 and 1996 as well as partial effects between 1996 and 1998. This result identifies different supporting evidence from the previous chapter which was evident that more recent year of model was significant and supporting the hypothesis. This evidence suggests before 2000s, there were time-lagged effects between ecological variables and victimization (i.e., taking more time for ecological variables to have effects on victimization). However, the results also suggest less time-lagged but spontaneous effects among the variables (i.e., ecological variables have almost instantons effects on victimization) in more recent years. With regarding the type of victimization, the results were more explanatory on personal victimization than household victimization in general.

CHAPTER 7

CONCLUSION

Summary of Finding

The primary goal of this dissertation was to understand the applicability of Western Theories of victimization in the cultural context of South Korea from 1993 to 2010. In particular, ecological theories of crime were used to learn the applicability of theories not only in cross-sectional analysis but a series of cross-sectional and time-lagged analyses from 1993 to 2010. The results of the analysis have found important evidence supporting the utility of this theory application in South Korea.

This dissertation adopted and synthesized two major ecological theories on crime at both macro and micro levels (i.e., social disorganization and routine activities/lifestyle theories) to study victimization in South Korea. Following the literature, the current study had built a hypothesis based on that modern South Korea could be comparable with Chicago and other Western cities where societal changes were drastic. Because South Korea experienced the national economic crisis in 1997-98, lower social disorganization was expected with higher victimization rates over the years. According to the results, however, the criminal victimization in South Korea decreased during these years: approximately 25% in 1993-1998 and 5% in 2005-2010. The major decrease came from personal victimization rate drop while the household victimization was stable throughout the years (approximately 5%). Therefore, the study attempted to find any possible answer that will explain this phenomenon with analytic models of conventional theoretical perspectives.

In terms of applying the two conventional models of ecological theories at macro and micro levels, the results presented partially and temporarily supportive evidence towards research hypothesis. First, the results of the macro level social disorganization model presented socio-economic status was possibly related to victimization in more recent years. Between 2008 and 2010, a city/province with a lower level of socio-economic status presented higher victimization rates.

Secondly, lower level of collective efficacy were also conceivably related to higher level of victimization. The results presented mostly consistent evidence on relationships between collective efficacy and victimization but in 1998, right after the national crisis in 1997. However, residential stability presented random results over years, and the analysis models lack their statistical confidence due to a small number of sample size.

Third, routine activities/lifestyle models at micro level proved that target suitability and guardianship were effective variables on victimization while they were type-specific. An individual with a higher level of personal target suitability are more likely to be victimized in person while an individual with a lower level of household guardianship were more likely to be victimized in their households. In particular, the fact that the relationship between guardianship and household victimization only presented in recent years (2008 and 2010) indicates that probably more improved measures of household guardianship was taken in recent years with advanced technologies. Technological development is one of the aspects when discussed crime and victimization trends. For example, auto theft cases were decreased as the security system of cars (i.e., alarm, auto-lock, black box, etc.) developed. Likewise, houses can be more protected by security system such as auto-light, auto-lock, house alarm, video recording, and smart-lock (i.e., finger print or voice lock doors).

Furthermore, the current study not only applied each model but took a synthesized approach to learning contextual effects among the macro and micro variables on victimization. According to the results of the synthesized model analysis, the most the recent year 2010 presented supportive evidence but in the other years, no distinctive differences were found in terms of variances and significance of the models. On the other hand, in the time-lagged analysis results, it was evident that there were strong time-lagged effects between ecological characters and victimization in 1993-1996 and medium time-lagged effects in 1996-1998. The results prevailed the important fact that there were time-lagged effects in terms of effectiveness of the variables on victimization in the past before the 2000s. However, because the most recent analysis found full model effective using cross-sectional data the effectiveness of the variables on victimization possibly became more simultaneously.

Overall, the each model analysis of ecological theories proved specific variables had effects on victimization whereas contextual and time-lagged model analysis captured holistic perspectives on victimization over time. The results definitely indicate the applicability of ecological theories to South Korea context and the importance of applying the models in timely than cross-sectional. In terms of the type of victimization, social disorganization variables were generally effective on both personal and household victimization while routine activities/lifestyle variables were type-specific. Moreover, in full contextual and time-lagged model analysis, personal victimization was affected but household victimization in general.

Discussion and Future Research

Based on the results from this dissertation, a number of arguments can be made explaining victimization in South Korea.

First, reliability in crime and victimization data became questionable in terms of representing the actual criminal phenomenon in South Korea. Official crime data from government presented consistently increasing crime rates years between 1993 and 2010 (Statistics Korea). However, national victimization data in current dissertation presented opposite trend in those years decreased victimization rates drastically between the late 1990s and early 2000s. This controversial issue was also discussed in the previous literature by Hwang (2010), argued that the official data was not representing the current phenomenon. According to the Western literature on self-report crime and victimization data, about 20 percent higher accuracy was presented in self-report data (Hill and Paynich, 2013). The victimization data are presented about 5 times more victimization than official data in the 2000s, which indicates a discovery of unreported crimes as well as different time series pattern over years. Based on the previous arguments in literature and the current result, it is evident that KCVS data capture a better understanding of victimization in South Korea.

Second, macro level collective efficacy had probable effects on total victimization. The literature insisted the importance of community level collective efficacy on victimization, however, city/province level collective efficacy was also had probable effects on victimization. This notion suggests an important implication of using macro-level social disorganization analysis, such as country-level, to the current body of literature. Also, another interesting finding was the directional change of collective efficacy effect on victimization due to a societal crisis such as the national financial crisis in 1997. During this national financial crisis, it is possible that other effective variable(s) interrupted the relationship between collective efficacy and victimization.

Third, a few of previous studies indicated that routine activities/lifestyle theories can be type-specific in terms of the variables of the type of victimization at the micro level (Porter, 2008). In the current study, it is also proven that target suitability and guardianship had type-specific on personal and household victimization respectively. Moreover, household guardianship started to gain its effect on household victimizations from the recent years (2008 and 2010). This result indicates that recent years' prevention measures of the household estate were advanced as the development of technology. In particular, CCTV and surveillance equipment became more available to public (Park et al, 2012).

Lastly, based on the results of the contextual model analysis at cross-sectional and time-lagged the effects of ecological variables on victimization were time sensitive at the macro level, took longer time than recent years when the effects were more simultaneously. This is an original finding in regards to the literature on crime and victimization in South Korea. In previous literature, most of the evidence were random or disapproval to conventional frameworks of ecological theories on crime in the Asian context (Kuo et al., 2009; Yang and Hoffmann, 1998; Zhang et al., 2007; Roh et al., 2011; Jiang et al., 2013). However, using the synthesized model of the established ecological perspectives on crime in both cross-sectional and timely manner, it is evident that there is a possibility of ecological theories' generalization to the Eastern context.

Despite these meaningful contributions to the current field, this dissertation also has two main limitations. First, low level of model significance and variables in overall models. The first limitation came from a majorly small number of sample size at the macro level and low level of victimization. This limitation of data also limited to use more sophisticated multilevel analysis model such as HLM. Second, different year gaps between each dataset for a time-series analysis may cause a discrepancy in result analysis. The year gaps ideally were supposed to be equal

interval to have equal time-lagged effects. However, these two major difficulties in the dissertation came from the limitation of original datasets. Once having refined datasets with the consistency of year gaps and detailed geographical divisions, the analysis frame from this study can be a reference to study further on the topic with improved statistical confidence.

The current project present multiple implications on both the theories and applications. First, this dissertation presented possible applicability of ecological theories on crime in the Eastern context, particularly in South Korea. Second, the holistic approach of ecological theories over a certain time period allowed to understand victimization, which can be a referenceto the future study of ecological theories. Third, specific prevention measure can be applied to prevent personal and household victimizations. The actual prevention strategies should involve reduction of personal target suitability such as avoiding streets without lightings, walking the street with a company as well as improvement of household guardianship by use of technologies such as CCTV. Lastly, usage of descriptive maps was introduced in this study. This attempt will be a reference in the future study using maps in ecological studies on crimes and victimizations in the future.

Based on the current study, I suggest relevant future studies on the topic using the current dissertation as a referenceto either approach or analytic method. Since the most recent contextual model cross-sectional analysis in 2010 presented promising evidence on ecological theories in South Korea, the same analysis using more recent data should be conducted to confirm if these results hold their confidence after 2010. Another suggestion forfuture study is to conduct the analysis at smaller geographical division such as community level to adopt more sophisticated analysis such as HLM and spatio-temporal techniques. Lastly, future research should include not only different countries and times in the Eastern but the Western as well.

APPENDIX A

Korean Criminal Victimization Survey[3]

A-1. Sample Translated Questionnaire in 2010 (English)

2010 KCVS Questionnaire Translation

<Neighborhood and Ecological Characteristics>

2010-1. My neighbors… (at the end of 2010)
1-Never / 2-Little / 3-Somewhat / 4-Much / 5-Very much

1) Know each other well
2) Talk often about events in our neighborhood
3) Help each other when there is difficult situation
4) Corporately participate neighborhood events
5) Will help in any way when a neighbor's child is being bullied by strange children
6) Will call the police when crime is occurred
7) Will participate neighborhood watch patrolling if needed

2010-2. My neighborhood… (at the end of 2010)
1-Never / 2-Little / 3-Somewhat / 4-Much / 5-Very much

1) Garbage is everywhere and not organized in my neighborhood
2) There are lots of abandoned or dark areasin my neighborhood
3) Not clear environment because of bad odor and/or noise.
4) There are people who violate public orders (jay-walk, illegal parking, and more).
5) Often I can see juvenile delinquents loitering as a group.
6) I can see people fighting or making loud arguments.

2010-3. My community's police… (at the end of 2010)
1-Never / 2-Little / 3-Somewhat / 4-Much / 5-Very much

1) My neighbor's police are patrolling well
2) The police will come immediately when I report the crime when it happens
3) The police will catch the criminal if I report when it happens

2010-4. How do you think about overall crime trend in the future as comparing last year (2010)?

[3]Due to limitation of space, a sample questionnaire in 2010 is presented. The other documents are available upon request regarding KCVS questionnaire of the other years.

1-Decrease a lot / 2-Decrease / 3-The same / 4-Increase /5-Increase a lot

1) In nation
2) In neighborhood

<Fear of Crime>

2010-5. How much do you fear in following situations?
1-Never fearful / 2-Not much fearful / 3-Somewhat / 4-Fearful / 5-Very fearful

1) When you are at home alone at night
2) When you are walking street at night in your neighborhood

2010-6. How much do you worry about following individuals are victimized in everyday life? Please check the mark.
0-Not applicable / 1-Never / 2-Little / 3-Somewhat / 4-Much / 5-Very much

1) Myself
2) My family (children, spouse, parents, siblings, etc.)
3) Friends or neighbors

2010-7. How much do you worry of being victimized by someone with followings crimes? Read the items and choose the level of fear you feel.
1-Never / 2-Little / 3-Somewhat / 4-Much / 5-Very much

1) Street pickpocketing
2) Street robbery
3) Assault
4) Scheme
5) Sexual assault / Harassment
6) House burglary
7) House intrusion
8) Stalking

2010-8. How do you think about followings? Read items carefully and check where your opinion is close.
1-Never / 2-Little /3-Some / 5-Much /4-Very much

1) I am more exposed to danger of victimization than other people
2) I can defend myself if someone attack (or sexually assault) me
3) My aftermath of victimization would be server and longer than others if I am victimized

<Victimization>
2010-9. Scheme
2010-10. Robbery / Burglary

2010-11. House intrusion
2010-12. House destruction
2010-13. Robbery / Assault / Threats (home and street)
2010-14. Assault / Threats – Tool / Method
2010-15. Sexual harassment / assault
2010-16. Stalking
2010-17. Victimization by acquaintance

1) Yes - Who (select all, if applicable)?
    1-Office or school colleagues
    2-Neighbor, friends, or romantic partner
    3-Relative or family
    4-Other acquaintance
2) No

2010-18. Sexual victimization by acquaintance

1) Stranger
2) Known by chance
3) Well known acquaintance

2010-19. Have any of your acquaintance experienced following crime victimization last year (2010)?
1-No / 2-Yes

1) Stolen items (Street pickpocketing / House burglary)
2) Stolen item with force (Street robbery / House robbery when people in)
3) Assault
4) Scheme
5) Sexual assault or harassment
6) House or property destruction
7) House intrusion
8) Stalking

<Everyday life and Protective Behaviors>

2010-20. How many times did you use public transportation (bus, subway, train, etc.) last year (2010)?

1) Everyday
2) 5 or 6 days a week
3) 3 or 4 days a week
4) 1 or 2 days a week
5) Rarely

2010-21. How many times in average did you come home late night (about 10 pm and later) during last year (2010)?

1) Almost everyday
2) Every two or three days
3) Once a week
4) Once a 15 days
5) Once a month
6) Once every three or 4 months
7) Once or twice per six months
8) Never

2010-22. How many times in average did you come home drunk last year (2010)?

1) Almost everyday
2) Every two or three days
3) Once a week
4) Once a 15 days
5) Once a month
6) Once every three or 4 months
7) Once or twice per six months
8) Never

2010-23. How many hours per day did your house empty due to family member's job or out last year (2010)?

1) Rarely empty
2) Less than 2 hours
3) 2 hours to less than 4 hours
4) 4 hours to less than 8 hours
5) 8 hours to less than 12 hours
6) 12 hours and more

2010-24. How much are you satisfied considering life as whole?

0) Never
1)
2)
3)
4)
5) Middle
6)
7)
8)

9)
10) Very much

2010-25. Followings are asking about your everyday life. Answer the items.
1-Never / 2-Little /3-Some / 5-Much /4-Very much

1) I wear glamorous clothes than quite when I am out.
2) I wear expensive and glamorous accessories when I am out.
3) I use famous brands usually.
4) I watch news or program related to crime.
5) I talk about crime issues with others.

2010-26. Have you taken any following measures or equipment to protect yourself and your house?
1-Never / 2-Little /3-Some / 5-Much /4-Very much

1) Check doors locked before going to bed at night
2) I bring self-protective equipment such as whistle
3) I am with someone else because I feared that I am being alone at night
4) I avoid certain areas where I think that it is dangerous of being victimized
5) I postpone schedule when it was at night because I fear
6) I do not take taxi alone at night
7) I participate neighborhood watch
8) I ask neighbor to look out house when no one is at home for one or two days (remove delivered newspaper or milk)

<I. Demographical and Socio-Economic information>

2010-I.1. How long have you lived the current residence?

Year(s) Month(s)

2010-I.2. Anyone has business with the residence?

1) Yes (Go to 2-1)
2) No

2-1. Street sign for the current residence?

1) Yes
2) No

2010-I.3. How many times did you move in recent 5 years (since January 2006)?

1) Time(s)
2) No

2010-I.4. What is your ownership of the current residence?

1) Own (including family own)
2) Lease (no monthly rent)

3) Rent (including deposit monthly rent)
4) Others (including no charge rent/lease)

2010-I.5. How much are your individual income and household income (including bonus and property income)?

Self: Household:

1) None
2) Less than 1,000,000 won per month
3) 1,000,000 to less than 2,000,000 wonper month
4) 2,000,000 to less than 3,000,000 wonper month
5) 3,000,000 to less than 4,000,000 wonper month
6) 4,000,000 to less than 5,000,000 wonper month
7) 5,000,000 to less than 6,000,000 wonper month
8) 6,000,000 to less than 7,000,000 wonper month
9) 7,000,000 to less than 10,000,000 wonper month
10) 10,000,000 won and moreper month

2010-I.6. What is your highest education so far?

1) Elementary
2) Junior high
3) High
4) Community college
5) University
6) Graduate School and above
7) Never went school

<II. Survey agent answers>

1. Check list – omitted

2010-II.2. Level of security of survey taker's house.

1-Yes / 2-No / 3-Don't know

1) Installed double locks for entrance door and windows
2) Installed iron grating on windows or emergency exits
3) Installed video phone / door hole
4) Use entrance card
5) Have security system
6) Have a security guard
7) CCTV are installed around house
8) Have outer lights around house

A-2. Sample Original Questionnaire in 2010 (Korean)

승인(협의)번호
제40301호

통계법 제33조(비밀의 보호)
① 통계작성과정에서 알려진 사항으로서 개인 또는 법인이나 단체의 비밀에 속하는 사항은 보호되어야 한다.
② 통계의 작성을 위하여 수집된 개인이나 법인 또는 단체 등의 비밀에 속하는 자료는 통계작성 외의 목적으로 사용되어서는 아니 된다.

2010년 기준

전국범죄피해조사

[기초 조사표-가구주]

인 사 말 씀

통계청에서는 한국형사정책연구원과 공동으로 우리나라 국민을 대상으로 범죄피해실태를 파악합니다. 본 조사는 국민이 느끼는 범죄피해정도 및 안전에 대한 인식과 함께 신고되지 않은 내용까지도 포괄하여 파악함으로써 국민의 실제 범죄피해정도와 위해요인을 파악, 정부의 범죄예방정책을 추진하기 위한 기초자료로 사용됩니다. 적극적인 협조와 정확한 작성을 부탁드립니다. 감사합니다.

※ 귀하께서 답변해 주신 내용은 통계법 제33조에 의거 비밀이 보장되며 통계목적 이외의 사용은 금지되어 있습니다.

※ 아래 표는 조사원이 기입합니다.

시·도	시·군·구	읍·면·동	조사구 번호	거처번호	가구번호	가구원번호
			-			

전체 조사표 수	기초조사표 수	사건조사표 수
총 ( )부	( )부	총 ( )부

지방청·사무소	조사원 성명	휴대폰 번호	조사방법
		( ) -	1 면접 2 자기기입식 3 면접 + 자기기입 병행

KIC 한국형사정책연구원 Korean Institute of Criminology　통계청 STATISTICS KOREA

조/사/표 기/입/요/령

■ 각 항목별로 응답항목에 ○, √ 표하거나 해당되는 숫자 및 내용을 기입하십시오.
■ 한 항목의 기입이 끝나면 다음 항목을 기입하되, 화살표(→)로 표시된 항목은 지정된 항목으로 가서 기입하십시오.

H

H 가구 구성

가구 구성

H0 **H** 귀 가구의 구성형태는 어떻게 되십니까?

① 1인 가구 ② 부부만으로 구성 ③ 부부와 자녀로 구성
④ 한부모와 자녀로 구성 ⑤ 3세대 가구 ⑥ 형제자매로만 구성
⑦ 조부모와 손자녀로 구성 ⑧ 비혈연 가구 ⑨ 기타(H0c)

H-1 현재 귀 댁에 실제로 함께 살고 있는 만 14세 이상(1997년 4월 이전 출생) 가구원에 대하여 다음 내용을 응답해 주십시오.

가구원 번호	H1 가구주와 관계	H2 성별 ① 남 ② 여	H3-1/H3-2 생년·월 (만 연령) H3-3	결혼여부 H4 ① 미혼 ② 기혼-현재 배우자 있음 ③ 기혼-현재 배우자 없음	H5 고용형태	H6 종사상 지위	H7 장애여부 ① 있음 ② 없음	H8 출신국가	H9 비고
1	① 가구주		년 월 (만 세)						
2			년 월 (만 세)						
3			년 월 (만 세)						
4			년 월 (만 세)						
5			년 월 (만 세)						
6			년 월 (만 세)						
7			년 월 (만 세)						
8			년 월 (만 세)						

〈 가구주와의 관계보기 〉

① 가구주 ② 가구주의 배우자 ③ 자녀
④ 자녀의 배우자 ⑤ 가구주의 부모 ⑥ 배우자의 부모
⑦ 손자녀 ⑧ 손자녀의 배우자 ⑨ 증손자녀
⑩ 증손자녀의 배우자 ⑪ 조부모 ⑫ 가구주 및 배우자의 형제자매
⑬ 가구주 및 배우자의 형제자매의 배우자 ⑭ 기타

H. 가구구성

· 가 구 : 1인 또는 2인 이상이 모여서 취사, 취침 등 생계를 같이 하는 생활단위
· 가구주를 가장 먼저 적은 후, 보기 번호 순서대로 기입
※ 가구주 : 가족관계등록부나 주민등록상의 가족관계 또는 세대주와 관계없이 그 가구를 실질적으로 대표하는 사람 (가구의 중대사를 결정하는 사람 또는 생계를 책임지는 사람)

I 동네와 이웃환경

1 우리 동네 사람들은 . . . (2010년 연말 기준)

우리 동네 사람들은 . . .	전혀 그렇지 않다	그렇지 않은 편이다	보통이다	그런 편이다	매우 그렇다
1) 서로서로 잘 알고 지내는 편이다	①	②	③	④	⑤
2) 동네에서 일어나는 일에 대해 자주 이야기한다	①	②	③	④	⑤
3) 어려운 일이 있으면 서로 잘 돕는다	①	②	③	④	⑤
4) 동네의 각종행사 및 모임에 적극적으로 참여한다	①	②	③	④	⑤
5) 동네 아이들이 낯선 아이들에게 괴롭힘을 당하면 도와줄 것이다	①	②	③	④	⑤
6) 범죄사건이 발생하면 경찰에 신고할 것이다	①	②	③	④	⑤
7) 범죄예방을 위해 주민들의 순찰이 필요하다면 이 활동에 참여할 것이다	①	②	③	④	⑤

2 우리 동네는 . . . (2010년 연말 기준)

우리 동네는 . . .	전혀 그렇지 않다	그렇지 않은 편이다	보통이다	그런 편이다	매우 그렇다
1) 주변에 쓰레기가 아무렇게나 버려져 있고 지저분하다	①	②	③	④	⑤
2) 어둡고 후미진 곳이 많다	①	②	③	④	⑤
3) 주변에 방치된 차나 빈 건물이 많다	①	②	③	④	⑤
4) 기초 질서(무단횡단, 불법 주 · 정차 등)를 지키지 않는 사람들이 많다	①	②	③	④	⑤
5) 무리지어 다니는 불량 청소년들이 많다	①	②	③	④	⑤
6) 큰소리로 다투거나 싸우는 사람들을 자주 볼 수 있다	①	②	③	④	⑤

3 우리 동네 경찰은 . . . (2010년 연말 기준)

우리 동네 경찰은 . . .	전혀 그렇지 않다	그렇지 않은 편이다	보통이다	그런 편이다	매우 그렇다
1) 순찰활동을 잘 하고 있다	①	②	③	④	⑤
2) 범죄사건이 발생하여 신고하면, 즉시 출동할 것이다	①	②	③	④	⑤
3) 범죄사건을 신고하면, 반드시 범인을 잡아 줄 것이다	①	②	③	④	⑤

4 작년 한해(2010년)와 비교해 볼 때, 앞으로 범죄가 증가할 것 같습니까, 아니면 감소할 것 같습니까?

문 항	매우 감소할 것	감소할 것	변화 없을 것	증가할 것	매우 증가할 것
1) 우리나라 전체의 범죄	①	②	③	④	⑤
2) 내가 살고 있는 동네(지역)의 범죄	①	②	③	④	⑤

Ⅱ 범죄에 대한 두려움

V5 **5** 귀하는 다음과 같은 상황에서 얼마나 두려움을 느끼십니까?

	문 항	전혀 두렵지 않다	두렵지 않은 편이다	그저 그렇다	두려운 편이다	매우 두렵다
V5-1	1) 밤에 혼자 집에 있을 때	①	②	③	④	⑤
V5-2	2) 밤에 혼자 동네 골목길을 걸을 때	①	②	③	④	⑤

V6 **6** 귀하는 다음과 같은 사람들이 일상생활 중에 범죄피해를 당할까 봐 평소 얼마나 두려우십니까?

	문 항	해당자 없음	전혀 두렵지 않다	두렵지 않은 편이다	그저 그렇다	두려운 편이다	매우 두렵다
V6-1	1) 나 자신		①	②	③	④	⑤
V6-2	2) 배우자(애인)	⓪	①	②	③	④	⑤
V6-3	3) 자녀	⓪	①	②	③	④	⑤

V7 **7** 귀하는 다음 각 항목의 범죄피해를 당할까 봐 평소 얼마나 두려우십니까?

	범죄피해 유형	전혀 그렇지 않다	그렇지 않은 편이다	그저 그렇다	그런 편이다	매우 그렇다
V7-1	1) 누군가 몰래 내 돈이나 물건을 훔쳐갈까 봐 두렵다	①	②	③	④	⑤
V7-2	2) 누군가 강제로 내 돈이나 물건을 빼앗아갈까 봐 두렵다	①	②	③	④	⑤
V7-3	3) 누군가 나를 구타(폭행)하여 다치게 할까 봐 두렵다	①	②	③	④	⑤
V7-4	4) 누군가에게 속임을 당해 내 재산을 잃을까 봐 두렵다	①	②	③	④	⑤
V7-5	5) 누군가 나를 성적으로 괴롭히거나 성폭행할까 봐 두렵다	①	②	③	④	⑤
V7-6	6) 누군가 내 물건이나 재산을 부수거나 못쓰게 할까 봐 두렵다	①	②	③	④	⑤
V7-7	7) 누군가 허락도 없이 내 집에 침입할까 봐 두렵다	①	②	③	④	⑤
V7-8	8) 누군가 나를 쫓아다니거나 전화 등으로 집요하게 괴롭힐까 봐 두렵다	①	②	③	④	⑤

V8 **8** 귀하는 다음에 대해서 어떻게 생각하십니까?

	문 항	전혀 그렇지 않다	그렇지 않은 편이다	그저 그렇다	그런 편이다	매우 그렇다
V8-1	1) 나는 다른 사람에 비해 범죄피해를 당할 가능성이 높다	①	②	③	④	⑤
V8-2	2) 누군가 나를 공격(혹은 성폭행)하려 한다면, 그 상황에서 나는 내 자신을 방어할 수 있다	①	②	③	④	⑤
V8-3	3) 내가 범죄피해를 당한다면, 다른 사람에 비해 피해결과가 더 심각하고 오래 지속될 것이다	①	②	③	④	⑤

Ⅲ 작년(2010년) 1년간의 범죄피해 경험

V9 **9** 작년(2010년) 한 해 동안, 귀하는 누군가로부터 아래에 예시한 것과 같은 방법으로 **속임(사기)을 당해 재산상의 피해를 입은 적이 있습니까?**

예시
V9-1 ① 상점이나 영업점(인터넷쇼핑몰 포함)에서 가짜상품을 진품이라고 속여 판매함
V9-2 ② 상점이나 영업점(인터넷쇼핑몰 포함)에서 상품이나 서비스의 질이나 양을 속여 판매함
V9-3 ③ 상점이나 영업점(인터넷쇼핑몰 포함)에서 공짜, 할인, 경품 당첨 등을 미끼로 상품을 구매하게 함
V9-4 ④ 인터넷 쇼핑몰에서 결재를 하였으나 물건을 받지 못함
V9-5 ⑤ ~~우체국, 전화국, 은행 및 신용카드회사, 국세청, 수사기관, 가족 등을 사칭하여 송금이나 금융정보를 요구함~~
V9-6 ⑥ 돈을 갚을 의사나 능력이 없으면서 갚겠다고 속여 돈을 빌려 감
V9-7 ⑦ 기타의 사기(속임수)로 인한 재산상의 피해

V9-0 1) 있다 → **어떤 속임(사기)을 당하였습니까?** (해당되는 것을 위 예시에 모두 표시해 주십시오) → 9-1 번으로
2) 피해를 당할 뻔한 적이 있다 → 9-1 번으로
3) 없다 → 10 번으로

V9-at 9-1 그렇다면, 속임을 당하거나 당할 뻔한 적이 몇 번이나 있었습니까? 약 _____ 번

V10 **10** 작년(2010년) 한 해 동안, 귀하는 아래에 예시한 **물품을 도난당하거나 빼앗긴 적이 있습니까?**

예시
V10-1 ① 현금, 수표, 유가증권 등
V10-2 ② 지갑, 핸드백, 가방 등 들고 다니는 물품
V10-3 ③ 의류나 액세서리 등 패션용품
V10-4 ④ 핸드폰, MP3, CD 플레이어, 카메라, TV 등 가전제품
V10-5 ⑤ 보석 등 귀중품
V10-6 ⑥ 공구, 기계 등 마당이나 창고 등에 보관한 물품
V10-7 ⑦ 네비게이션, GPS등 자동차 용품
V10-8 ⑧ 자전거 등 레저·스포츠 용품
V10-9 ⑨ 기타 물품

V10-0 1) 있다 → **무엇을 도난당하였습니까?** (해당되는 것을 위 예시에 모두 표시해 주십시오) → 10-1 번으로
2) 피해를 당할 뻔한 적이 있다 → 10-1 번으로
3) 없다 → 11 번으로

V10-at 10-1 그렇다면, 도난을 당하거나 당할 뻔한 적이 몇 번이나 있었습니까? 약 _____ 번

11 앞에서 이미 말씀해 주신 사건은 제외하고, 작년(2010년) 한 해 동안, 누군가 문이나 창문을 열거나, 자물쇠나 방범창을 절단하는 등의 방법으로 **귀하의 집에 무단으로 들어오거나 들어오려고 시도한 적이 있습니까?**

V11-0 1) 있다 → 11-1 **몇 번이나 있었습니까?** 약 _____ 번
2) 없다 V11-at

V12 **12** 앞에서 이미 말씀해 주신 사건은 제외하고, 작년(2010년) 한 해 동안, **누군가 고의로 귀하와 가족의 재산이나 물품에 손상을 입히거나 입히려고 한 적이 있습니까?**
(예: 누군가 귀하의 집 창문 또는 집밖에 놓아둔 물건이나 자동차에 손상을 입히거나 입히려고 한 적이 있다)

V12-0 1) 있다 → 12-1 **몇 번이나 있었습니까?** 약 _____ 번
2) 없다 V12-at

V13 **13** 앞에서 이미 말씀해 주신 사건은 제외하고, 작년(2010년) 한 해 동안, 아래에 예시한 장소에서 **누군가로부터 물품을 도난당하거나, 위협(협박) 또는 폭행을 당한 적이 있습니까?**

예시
V13-1 ① 현관, 복도, 마당 등 집 안
V13-2 ② 친척, 친구, 이웃집이나 그 근처
V13-3 ③ 직장이나 학교
V13-4 ④ 시장, 쇼핑센터, 식당, 은행 등
V13-5 ⑤ 체육관, 극장, 놀이공원, 등산로(산책로) 등
⑥ 지하철(역), 버스(정류장), 터미널 등 대중교통 시설
V13-6
V13-7 ⑦ 그 밖의 장소

V13-0 1) 있다 → **어디에서 일어났습니까?** (해당되는 것을 위 예시에 모두 표시해 주십시오) → 13-1 번으로
2) 피해를 당할 뻔한 적이 있다 → 13-1 번으로
3) 없다 → 14 번으로

V13-at 13-1 그렇다면, 누군가로부터 물품도난, 위협, 폭행을 당하거나 당할 뻔한 적이 몇 번이나 있었습니까? 약 _____ 번

V14 **14** 앞에서 이미 말씀해 주신 사건은 제외하고, 작년(2010년) 한 해 동안, 누군가 아래에 예시한 것과 같은 도구나 방법으로 **귀하를 위협(협박)하거나 폭행한 적이 있습니까?** (전화로 위협한 경우는 제외)

예시
V14-1 ① 칼, 총과 같은 무기로
V14-2 ② 야구방망이, 가위, 프라이팬, 막대기 등으로
V14-3 ③ 돌이나 병을 던져서
V14-4 ④ 몸을 붙잡거나 치거나 목을 졸라서
V14-5 ⑤ 직접 면전에서 위협을 가해서
V14-6 ⑥ 기타 방법으로 위협하거나 폭행을 가해서

V14-0 1) 있다 → **어떤 방법이었습니까?** (해당되는 것을 위 예시에 모두 표시해 주십시오) → 14-1 번으로
2) 피해를 당할 뻔한 적이 있다 → 14-1 번으로
3) 없다 → 15 번으로

V14-at 14-1 그렇다면, 위협이나 폭행을 당하거나 당할 뻔한 적이 몇번이나 있었습니까? 약 _____ 번

V15 **15** 앞에서 이미 말씀해 주신 사건은 제외하고, 작년(2010년) 한 해 동안, 아래에 예시한 것과 같이 **누군가로부터 폭력이나 위협을 통해 원치 않은 성적인 접촉이나 행동을 강요당한 적이 있습니까?**

예시
V15-1 ① 강간
V15-2 ② 강간하고자 했으나 실패
V15-3 ③ 강제로 성기를 만짐
V15-4 ④ 강제로 키스를 함
V15-5 ⑤ 강제로 몸을 밀착시키고 가슴이나 엉덩이를 만짐
⑥ 기타의 원치 않는 성적인 접촉이나 행동을 강요당함
V15-6

V15-0 1) 있다 → **어떤 행위였습니까?** (해당되는 것을 위 예시에 모두 표시해 주십시오) → 15-1 번으로
2) 피해를 당할 뻔한 적이 있다 → 15-1 번으로
3) 없다 → 16 번으로

V15-at 15-1 그렇다면, 피해를 당했거나 당할 뻔한 적이 몇 번이나 있었습니까? 약 _____ 번

V16

16 앞에서 이미 말씀해 주신 사건은 제외하고, 작년(2010년) 한 해 동안, 누군가로부터 아래에 예시한 것과 같은 **괴롭힘을 당한 적이 있습니까?**

예시
V16-1 ① "열 번 찍어 안 넘어가는 나무 없다" 며 일방적으로 구애하는 행위
V16-2 ② 집요하게 쫓아 다니거나 몰래 염탐·감시하는 행위
V16-3 ③ 음란하거나 위협적인 문서, 영상, 물건 등을 지속적으로 보내는 행위
V16-4 ④ 나에 대한 비방이나 헛소문을 퍼뜨려 사회생활을 어렵게 하는 행위
V16-5 ⑤ 만나주지 않으면 자해나 자살하겠다거나, 가만두지 않겠다며 위협하는 행위
V16-6 ⑥ 일상생활을 심하게 침해하거나 그밖에 신변안전을 위협하는 행위

V16-0 1) 있다 → **어떤 행위였습니까?** (해당되는 것을 위 예시에 모두 표시해 주십시오) → 16-1 번으로
2) 없다 → 17 번으로

V16-at 16-1 그렇다면, 몇 번이나 있었습니까? 약 _____ 번

※ 괴롭힘 사건이 여러 번 발생했더라도, 동일가해자로부터 동일패턴으로 지속적으로 이루어진 경우는 1회로 산정합니다.

V17

17 사람들은 보통 아는 사람들에게 당한 피해는 잘 인식하지 못합니다. 앞에서 이미 말씀해 주신 사건은 제외하고, 작년(2010년) 한 해 동안, 아래에 예시한 사람들이 **귀하의 물품을 훔치거나, 귀하를 때리거나, 위협하거나, 괴롭힌 적이 있습니까?**

예시
V17-1 ① 직장 동료나 학교 선후배
V17-2 ② 이웃이나 친구, 애인
V17-3 ③ 친척이나 가족
V17-4 ④ 그밖에 내가 알고 있는 사람

V17-0 1) 있다 → **누구였습니까?** (해당되는 것을 위 예시에 모두 표시해 주십시오) → 17-1 번으로
2) 피해를 당할 뻔한 적이 있다 → 17-1 번으로
3) 없다 → 18 번으로

V17-at 17-1 그렇다면, 피해를 당했거나 당할 뻔한 적이 몇 번이나 있었습니까? 약 _____ 번

V18

18 앞에서 이미 말씀해 주신 사건은 제외하고, 작년(2010년) 한 해 동안 아래에 예시한 사람들로부터 **원치 않은 성적인 접촉을 당하거나 강요를 당한 적이 있습니까?**
(예 : 신체의 일부를 만지거나 밀착시키는 행위, 키스, 성행위 등)

예시
V18-1 ① 낯선 사람으로부터
V18-2 ② 우연히 아는 사람으로부터
V18-3 ③ 잘 아는 사람으로부터

V18-0 1) 있다 → **누구였습니까?** (해당되는 것을 위 예시에 모두 표시해 주십시오) → 18-1 번으로
2) 피해를 당할 뻔한 적이 있다 → 18-1 번으로
3) 없다 → 19 번으로

V18-at 18-1 그렇다면, 피해를 당했거나 당할 뻔한 적이 몇 번이나 있었습니까? 약 _____ 번

V19 **19** 작년(2010년) 한 해 동안 귀하와 평소에 가깝게 지내는 사람이 다음과 같은 범죄피해를 당한 적이 있습니까?

	범죄피해 유형	없다	있다
V19-1	1) 누군가 몰래 돈이나 물건을 훔쳐 갔다	①	②
V19-2	2) 누군가 강제로 돈이나 물건을 빼앗아 갔다	①	②
V19-3	3) 누군가에게 폭행을 당해 다쳤다	①	②
V19-4	4) 누군가에게 속임을 당해 재산을 잃었다	①	②
V19-5	5) 누군가에게 원치 않는 성적인 접촉이나 성폭행을 당했다	①	②
V19-6	6) 누군가 물건이나 재산을 부수어 못쓰게 만들었다	①	②
V19-7	7) 누군가 집에 침입하였다	①	②
V19-8	8) 누군가 지속적으로 쫓아다니거나 전화 등으로 집요하게 괴롭혔다	①	②

Ⅳ 일상생활 및 범죄예방활동

V20 **20** 귀하는 작년(2010년) 한 해 동안 대중교통수단(버스, 지하철, 기차 등)을 얼마나 자주 이용하였습니까?

① 매일 ② 일주일에 5~6일 ③ 일주일에 3~4일
④ 일주일에 1~2일 ⑤ 거의 없음

V21 **21** 귀하는 작년(2010년) 한 해 동안 저녁 10시 이후 집에 들어간 경우가 평균적으로 얼마나 되었습니까?

① 거의 매일 ② 2~3일에 한번 정도 ③ 일주일에 한번 정도
④ 보름에 한번 정도 ⑤ 한달에 한번 정도 ⑥ 3~4개월에 한번 정도
⑦ 6개월에 한번 정도 ⑧ 전혀 없음

V22 **22** 귀하는 작년(2010) 한 해 동안 술에 만취해서 귀가한 적이 평균적으로 얼마나 되었습니까?

① 거의 매일 ② 2~3일에 한번 정도 ③ 일주일에 한번 정도
④ 보름에 한번 정도 ⑤ 한달에 한번 정도 ⑥ 3~4개월에 한번 정도
⑦ 6개월에 한번 정도 ⑧ 전혀 없음

V23 **23** 작년(2010년) 한 해 동안 귀하와 가족이 전부 외출하거나 출근하여 집이 비어있는 시간이 하루에 대략 몇 시간 정도나 됩니까?

① 거의 비우지 않음 ② 2시간 미만 ③ 2시간 이상 ~ 4시간 미만
④ 4시간 이상 ~ 8시간 미만 ⑤ 8시간 이상 ~ 12시간 미만 ⑥ 12시간 이상

V24

24 귀하는 삶의 모든 것을 고려해 볼 때, 자신의 생활에 어느 정도 만족하십니까?

전혀 만족하지 않는다 — 보통이다 — 매우 만족한다

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

V25

25 귀하의 일상생활에 관한 질문입니다. 각 항목별로 해당되는 곳에 표시해 주십시오.

	항 목	전혀 그렇지 않다	그렇지 않은 편이다	그저 그렇다	그런 편이다	매우 그렇다
V25-1	1) 외출할 때 수수한 것보다 고급스런 옷차림을 하는 경우가 많다	①	②	③	④	⑤
V25-2	2) 외출할 때 비싸고 고급스런 액세서리를 하는 경우가 많다	①	②	③	④	⑤
V25-3	3) 평소 유명 브랜드 제품을 즐겨 사용하는 편이다	①	②	③	④	⑤
V25-4	4) 범죄관련 뉴스나 프로그램 등을 자주 보는 편이다	①	②	③	④	⑤
V25-5	5) 사람들과 대화할 때 범죄사건에 관련된 이야기를 자주 하는 편이다	①	②	③	④	⑤

V26

26 귀하는 범죄로부터 자신과 재산을 보호하기 위하여 다음과 같은 조치나 행동을 하고 있습니까?

	항 목	전혀 그렇지 않다	그렇지 않은 편이다	그저 그렇다	그런 편이다	매우 그렇다
V26-1	1) 밤에 자기 전에 문이 잘 잠겼는지 꼭 확인한다	①	②	③	④	⑤
V26-2	2) 만약을 대비해서 호신도구(호루라기 등)를 가지고 다닌다	①	②	③	④	⑤
V26-3	3) 밤에 혼자 다니기가 무서워 누군가와 같이 다닌다	①	②	③	④	⑤
V26-4	4) 범죄피해를 당할까봐 위험하다고 생각하는 곳을 피해 다닌다	①	②	③	④	⑤
V26-5	5) 밤에 일이 있어도 밖에 나가기가 무서워서 그 일을 미룬다	①	②	③	④	⑤
V26-6	6) 밤에는 혼자 택시를 타지 않는다	①	②	③	④	⑤
V26-7	7) 동네의 자율방범활동에 참여하고 있다	①	②	③	④	⑤
V26-8	8) 2-3일 정도 집을 비워놓았을 때 이웃집에 보아달라고 (배달된 신문이나 우유치우기 등) 부탁한다	①	②	③	④	⑤

보다 안전한 대한민국을 위한 첫걸음!

전 국 범 죄 피 해 조 사

P

V 배경문항

P 배문1 귀하는 현재 살고 있는 동네에 얼마나 오래 거주하고 있습니까?

P1-1 년 P1-2 개월

P2-0 배문2 가구원 가운데 현재 살고 있는 집(주소지)에서 영업을 하고 있는 사람이 있습니까?

1) 예 → 배문2-1 현 주소에서 영업을 하고 있음을 사람들에게 알리는 상호나 간판, 표식이 있습니까?
P2-1
① 예 ② 아니오

2) 아니오

P3-0 배문3 최근 5년 이내(2006년 1월부터 지금까지) 몇 번이나 이사를 하셨습니까?

1) 약 P3-1 회 2) 5년 이내에 이사한 경험 없음

P4 배문4 지금 살고계신 집의 소유형태는 무엇입니까?

① 자가(가족소유 포함) ② 월세 없는 전세
③ 월세(보증부 월세포함) ④ 기타(무상 등)

P5 배문5 귀댁의 월평균 소득(상여금, 재산소득, 이전소득 등 포함)은 얼마나 되십니까?

1) 본인 소득	2) 가구 전체소득
P5a	P5b

① 소득없음 ② 월평균 100만원 미만
③ 월평균 100~200만원 미만 ④ 월평균 200~300만원 미만
⑤ 월평균 300~400만원 미만 ⑥ 월평균 400~500만원 미만
⑦ 월평균 500~600만원 미만 ⑧ 월평균 600~700만원 미만
⑨ 월평균 700~1000만원 미만 ⑩ 월평균 1000만원 이상

P6 배문6 귀하의 최종학력은 어떻게 되십니까?

① 초등학교 ② 중학교 ③ 고등학교
④ 대학(4년제 미만) ⑤ 대학(4년제 이상) ⑥ 대학원 이상
⑦ 무학

＊ 이 페이지는 조사원이 직접 기입합니다.

CH1

1. 체크리스트

항목번호	관련 피해 유형		경험여부	
9 번	사기관련 피해	Ch1-9	1) 없다	2) 있다(미수포함) 약 Ch1-9B 번
10 번	절도관련 피해	Ch1-10	1) 없다	2) 있다(미수포함) 약 Ch1-10B 번
11 번	주거침입관련 피해	Ch1-11	1) 없다	2) 있다(미수포함) 약 Ch1-11B 번
12 번	손괴관련 피해	Ch1-12	1) 없다	2) 있다(미수포함) 약 Ch1-12B 번
13 번	장소관련(절도, 협박, 폭행) 피해	Ch1-13	1) 없다	2) 있다(미수포함) 약 Ch1-13B 번
14 번	도구·방법관련(협박, 폭행) 피해	Ch1-14	1) 없다	2) 있다(미수포함) 약 Ch1-14B 번
15 번	성폭력관련 피해	Ch1-15	1) 없다	2) 있다(미수포함) 약 Ch1-15B 번
16 번	괴롭힘관련 피해	Ch1-16	1) 없다	2) 있다(미수포함) 약 Ch1-16B 번
17 번	지인(아는사람)에 의한 피해	Ch1-17	1) 없다	2) 있다(미수포함) 약 Ch1-17B 번
18 번	가해자 유형별 성폭력관련 피해	Ch1-18	1) 없다	2) 있다(미수포함) 약 Ch1-18B 번
	총 경 험 사 건 수	Ch1-tot	1) 없다	2) 있다(미수포함) 약 Ch1-totB 번

※ 상기 체크리스트의 9 번~ 18 번 중 "한 번이라도 있다"라고 응답하신 분에게 총 경험 사건 수만큼의 [사건조사표]를 나누어 주시고, 각 사건별로 사건조사표를 작성하시도록 하여 주시기 바랍니다.

CH2

2. 조사대상 가구 및 주변의 방범수준

항 목	예	아니오	잘 모르겠다
Ch2-1 1) 현관이나 창문에 이중자물쇠 등 특수 잠금장치가 있다	①	②	③
Ch2-2 2) 창문이나 비상구 등에 방범창(쇠창살)이 있다	①	②	③
Ch2-3 3) 비디오폰이나 현관문에 들여다보는 구멍이 있다	①	②	③
Ch2-4 4) 출입카드를 사용한다	①	②	③
Ch2-5 5) 도난 경보시스템이 있다	①	②	③
Ch2-6 6) 경비가 있다	①	②	③
Ch2-7 7) 집 주위에 CCTV 등 감시카메라가 있다	①	②	③
Ch2-8 8) 집 주변에 외부 조명이 있다	①	②	③

CH3

3. 조사구 특성

지역 특성	주택의 유형
Ch3a 1) 농어촌의 일반마을	Ch3b-0 1) 단독주택
2) 농어촌 상업행정중심지	2) 아파트
3) 도시적 특성을 가진 농촌	3) 연립주택
4) 도시의 단독/연립주택지역	4) 다세대주택
5) 대규모 아파트단지	5) 비 거주형 건물(상가, 공장, 여관 등)내 주택
6) 도시의 상업지역, 유흥가	6) 오피스텔
7) 도시의 공업지역	7) 기타(Ch3b-0c)
8) 기타(Ch3aC)	〈아파트인 경우〉
	1) 단지규모 : 총 Ch3b-1 동
	2) 층 수 : Ch3b-21 층 중 Ch3b-22 층
	3) 형 태 : ① 계단식 ② 복도식 Ch3b-3

2010년 기준

전국범죄피해조사

※ 응답하신 분의 성명과 연락번호를 기입하여 주십시오.

※ 연락번호는 응답하신 내용에 대해 추가 질문사항이 있을 경우 질의하기 위한 것으로 다른 목적으로는 사용되지 않습니다.

응답자 성명	응답자 연락번호	
	휴대폰	( ) –
	집	( ) –

귀중한 시간을 내어 응답하여 주셔서 감사드립니다.

A-4. Questionnaire Items within Variables

General : Items within variables

CONTROL/BASIC

Area Categories

Age

Gender

SOCIAL DISORGANIZATION

Group 1

Socio-Economic Status: summing z-score of dimensions / factor analysis

Marital status: percent of married and cohabitant

Highest education: percent college educated

Household (or individual) income: percent of higher income

Occupation: percent in professional and managerial positions

Residential Stability:summing z-score of dimensions / factor analysis

How long have been lived the current residence (in year or month): percent of living 5 years and more

Ownership of current residence: percent of owner-occupied homes

Urbanization

Special and metropolitan cities (1) / others (0)

Group 2

Community Bond (social cohesion and trust)

My neighbors know each other well

My neighbors often talk about events in our neighborhood

My neighbors help each other when there isa difficult situation

My neighbors corporately participate in neighborhood events

My neighbors will help in any way when a neighbor's child is being bullied by strange children

My neighbors will call the police when crime occurs

My neighbors will participate in neighborhood watch patrolling if needed

Neighborhood Dis-ordinance (reversed code: informal social control)

Garbage is everywhere and not organized in my neighborhood

There are lots of secluded and dark areas in my neighborhood

There are lots of abandoned cars or buildings in my neighborhood

Many people violate public orders

A lot of juvenile delinquents are loitering

I can often see people fighting or making loud arguments

Police Supervision

Police patrolling well

Police will come immediately when crime is reported

Police will catch the criminals when crime is reported

Group 3

Victimization (either frequency or binary)

ROUTINE ACTIVITIES/LIFESTYLE

Group 1

Suitable Target (target attractiveness)

Personal

Use of Public Transportation

Wear fancy clothes

Wear fancy jewelry

Frequency of Coming Home Late

Household

Frequency of Coming Home Late

Hours of Home Empty a Day

Type of Residence

Guardianship (protective/avoidance behaviors)

Personal

Self-Protective Action - Bringing self-defense equipment

Self-Protective Action - With someone at night

Self-Protective Action - Avoid certain area

Self-Protective Action - Avoid schedule at night

Self-Protective Action - Not taking taxi alone at night

Household

House Protective Action - Installed double locks

House Protective Action - Installed iron grating

House Protective Action - Installed video phone

House Protective Action - Use entrance card

House Protective Action - Have a security system

House Protective Action - Have a security guard

House Protective Action - CCTV around house

House Protective Action - Have outer lights around thehouse

House Protective Action - Lock windows before going to bed

House Protective Action - Ask aneighbor to look out when out

Group 2

Victimization: Yes (1) / No (0)

Personal

Scheme

Robbery

Assault

Sexual Assault

Harassment / Stalking

Household

House Intrusion

House Destruction

All

All Victimization (binary)

Frequency of Victimization

APPENDIX B

One-way ANOVA Results of Social Disorganization Variable by City/Province Spatial Unit

B-1. Table. Mean Differences of Social Disorganization Variables by City/Province Spatial Unit

		1993	1996	1998	2002	2005	2008	2010
age	11:Seoul	34.84	35.29	36.33	37.92	37.87	41.28	42.65
	21:Busan	34.50	35.95	36.65	36.07	40.38	44.76	45.57
	22:Daegu	33.63	35.86	35.03	37.29	39.22	41.57	42.86
	23:Incheon	34.74	32.74	35.38	37.62	37.32	40.56	43.55
	24:Gwangju	37.44	33.06	36.35	35.29	36.74	43.34	42.20
	25:Daejeon	34.76	35.95	36.22	38.39	36.50	43.25	42.81
	26:Ulsan			39.49	41.24	37.54	41.30	41.31
	31:Gyeonggi-do	34.48	35.61	36.57	38.93	38.24	43.43	43.14
	32:Gangwon-do	37.88	37.16	39.33	40.72	39.74	47.41	46.14
	33:Chungcheongbuk-do	38.54	37.77	35.02	39.23	39.11	45.13	44.78
	34:Chungcheongnam-do	39.52	36.57	39.58	42.68	38.05	46.90	45.61
	35:Jeollabuk-do	38.29	35.32	39.56	38.83	41.13	47.56	48.83
	36:Jeollanam-do	40.15	35.54	39.67	40.85	42.59	49.55	48.82
	37:Gyeongsangbuk-do	39.22	36.70	41.41	38.03	38.18	45.73	47.96
	38:Gyeongsangnam-do	38.02	37.19	38.79	40.19	39.32	46.18	46.93
	39:Jeju						46.95	47.39
	Total	36.20	35.71	37.32	38.55	38.66	44.22	44.96
gender	11:Seoul	.50	.49	.51	.50	.50	.48	.47
	21:Busan	.49	.51	.48	.49	.49	.45	.48
	22:Daegu	.50	.52	.50	.50	.51	.51	.50
	23:Incheon	.49	.49	.47	.51	.50	.46	.46
	24:Gwangju	.51	.47	.56	.52	.51	.48	.47
	25:Daejeon	.49	.51	.47	.51	.52	.50	.49
	26:Ulsan			.48	.46	.49	.52	.48
	31:Gyeonggi-do	.48	.51	.52	.49	.49	.48	.48
	32:Gangwon-do	.54	.50	.50	.49	.51	.50	.49
	33:Chungcheongbuk-do	.51	.53	.56	.48	.50	.48	.49
	34:Chungcheongnam-do	.51	.53	.43	.51	.50	.47	.48
	35:Jeollabuk-do	.52	.51	.50	.51	.45	.49	.45
	36:Jeollanam-do	.50	.52	.52	.50	.51	.46	.46
	37:Gyeongsangbuk-do	.51	.50	.47	.53	.50	.47	.49
	38:Gyeongsangnam-do	.49	.51	.48	.51	.51	.46	.47
	39:Jeju						.50	.49
	Total	.50	.50	.50	.50	.50	.48	.48
married	11:Seoul	.53	.56	.54	.59	.68	.59	.57
	21:Busan	.54	.55	.52	.57	.62	.57	.62
	22:Daegu	.53	.58	.47	.66	.64	.62	.59
	23:Incheon	.52	.58	.53	.63	.65	.61	.64

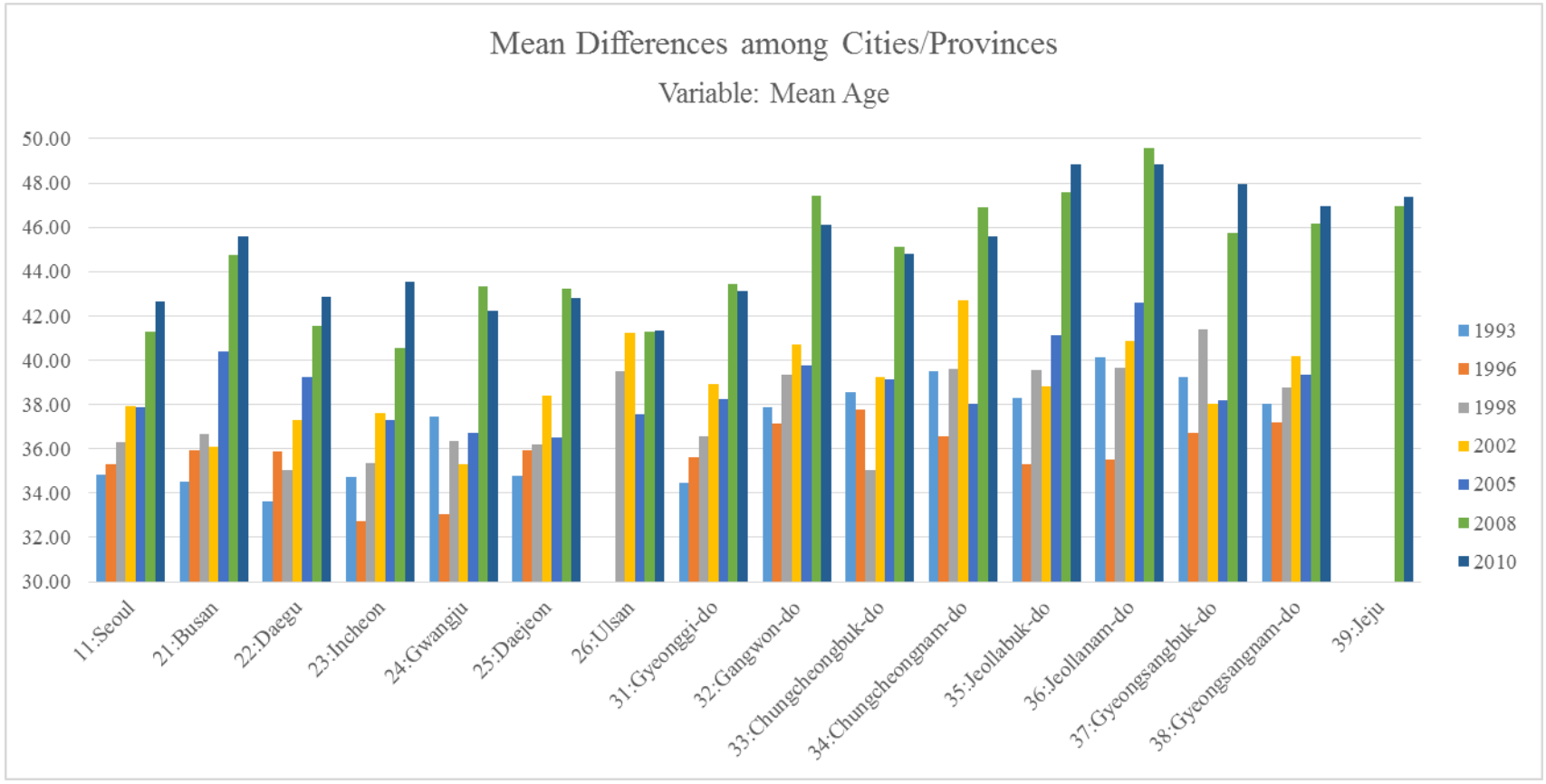
		1993	1996	1998	2002	2005	2008	2010
	24:Gwangju	.59	.65	.44	.60	.54	.62	.58
	25:Daejeon	.55	.62	.53	.67	.68	.64	.59
	26:Ulsan			.62	.63	.59	.67	.64
	31:Gyeonggi-do	.57	.61	.56	.67	.68	.65	.64
	32:Gangwon-do	.66	.64	.67	.67	.70	.58	.65
	33:Chungcheongbuk-do	.59	.56	.60	.68	.69	.68	.64
	34:Chungcheongnam-do	.68	.66	.66	.73	.70	.65	.62
	35:Jeollabuk-do	.72	.61	.54	.53	.63	.64	.62
	36:Jeollanam-do	.65	.59	.57	.68	.65	.64	.61
	37:Gyeongsangbuk-do	.59	.64	.64	.61	.58	.64	.62
	38:Gyeongsangnam-do	.67	.60	.57	.68	.58	.64	.66
	39:Jeju						.66	.64
	Total	.58	.59	.56	.63	.65	.62	.62
hiedu	11:Seoul	.38	.52	.42	.40	.41	.46	.50
	21:Busan	.30	.34	.36	.43	.48	.36	.41
	22:Daegu	.35	.38	.50	.47	.48	.45	.42
	23:Incheon	.41	.40	.30	.38	.26	.30	.39
	24:Gwangju	.34	.33	.41	.48	.49	.40	.43
	25:Daejeon	.37	.38	.42	.37	.44	.47	.46
	26:Ulsan			.43	.29	.38	.32	.38
	31:Gyeonggi-do	.26	.44	.36	.34	.34	.34	.44
	32:Gangwon-do	.21	.34	.27	.18	.43	.31	.36
	33:Chungcheongbuk-do	.22	.36	.31	.11	.23	.30	.26
	34:Chungcheongnam-do	.10	.23	.22	.16	.37	.26	.29
	35:Jeollabuk-do	.22	.45	.38	.49	.38	.30	.29
	36:Jeollanam-do	.13	.25	.17	.29	.27	.22	.27
	37:Gyeongsangbuk-do	.25	.25	.32	.36	.43	.29	.30
	38:Gyeongsangnam-do	.29	.27	.31	.23	.33	.28	.31
	39:Jeju						.27	.31
	Total	.29	.39	.36	.35	.38	.35	.37
incomh	11:Seoul	.36	.36	.37	.32	.35	.54	.39
	21:Busan	.15	.31	.27	.14	.31	.33	.31
	22:Daegu	.28	.21	.25	.14	.19	.43	.31
	23:Incheon	.32	.27	.31	.29	.40	.35	.30
	24:Gwangju	.12	.16	.46	.21	.15	.45	.25
	25:Daejeon	.32	.37	.32	.11	.34	.46	.32
	26:Ulsan			.30	.10	.25	.52	.47
	31:Gyeonggi-do	.19	.22	.31	.35	.32	.45	.33
	32:Gangwon-do	.22	.20	.15	.24	.23	.21	.25
	33:Chungcheongbuk-do	.10	.19	.26	.10	.29	.29	.24
	34:Chungcheongnam-do	.11	.19	.21	.04	.35	.33	.20
	35:Jeollabuk-do	.09	.25	.14	.28	.14	.23	.20
	36:Jeollanam-do	.13	.15	.18	.19	.14	.30	.25
	37:Gyeongsangbuk-do	.07	.24	.19	.17	.13	.30	.21
	38:Gyeongsangnam-do	.28	.17	.22	.10	.21	.31	.22
	39:Jeju						.21	.23

		1993	1996	1998	2002	2005	2008	2010
	Total	.23	.26	.29	.23	.28	.39	.29
job	11:Seoul	.08	.13	.09	.10	.06	.12	.11
	21:Busan	.05	.07	.04	.08	.07	.05	.09
	22:Daegu	.07	.11	.13	.11	.14	.05	.08
	23:Incheon	.02	.14	.07	.08	.05	.10	.13
	24:Gwangju	.05	.08	.11	.08	.15	.10	.10
	25:Daejeon	.10	.03	.11	.02	.03	.09	.07
	26:Ulsan			.24	.00	.00	.04	.08
	31:Gyeonggi-do	.05	.11	.11	.08	.03	.08	.13
	32:Gangwon-do	.09	.08	.10	.07	.05	.07	.10
	33:Chungcheongbuk-do	.07	.11	.10	.00	.00	.09	.08
	34:Chungcheongnam-do	.04	.05	.01	.01	.01	.07	.09
	35:Jeollabuk-do	.11	.12	.12	.11	.11	.06	.08
	36:Jeollanam-do	.02	.09	.05	.06	.13	.05	.07
	37:Gyeongsangbuk-do	.04	.05	.12	.05	.10	.08	.07
	38:Gyeongsangnam-do	.08	.03	.10	.04	.04	.06	.09
	39:Jeju						.05	.08
	Total	.06	.09	.10	.07	.06	.08	.09
liveyr	11:Seoul	.44	.63	.66	.64	.81	.54	.61
	21:Busan	.45	.61	.82	.79	.81	.76	.68
	22:Daegu	.41	.77	.60	.80	.64	.53	.68
	23:Incheon	.30	.39	.64	.64	.69	.68	.60
	24:Gwangju	.24	.44	.67	.73	.66	.66	.52
	25:Daejeon	.37	.52	.71	.63	.81	.49	.70
	26:Ulsan			.56	.59	.68	.65	.69
	31:Gyeonggi-do	.51	.57	.60	.58	.80	.60	.57
	32:Gangwon-do	.62	.59	.79	.85	.64	.64	.70
	33:Chungcheongbuk-do	.78	.75	.63	.79	.71	.65	.70
	34:Chungcheongnam-do	.75	.77	.79	.84	.54	.67	.66
	35:Jeollabuk-do	.57	.69	.79	.75	.72	.73	.71
	36:Jeollanam-do	.72	.75	.82	.74	.87	.78	.75
	37:Gyeongsangbuk-do	.60	.76	.79	.84	.78	.73	.71
	38:Gyeongsangnam-do	.56	.80	.69	.83	.84	.75	.70
	39:Jeju						.76	.76
	Total	.51	.64	.69	.70	.77	.65	.66
ownh	11:Seoul	.61	.66	.63	.59	.74	.52	.55
	21:Busan	.51	.66	.61	.79	.82	.63	.71
	22:Daegu	.58	.67	.61	.72	.56	.57	.75
	23:Incheon	.57	.82	.68	.77	.86	.63	.63
	24:Gwangju	.54	.69	.75	.60	.59	.76	.56
	25:Daejeon	.67	.71	.83	.82	.81	.55	.67
	26:Ulsan			.63	.61	.83	.74	.67
	31:Gyeonggi-do	.70	.70	.70	.77	.79	.65	.60
	32:Gangwon-do	.73	.66	.79	.93	.66	.62	.74
	33:Chungcheongbuk-do	.80	.59	.73	.94	.69	.74	.69
	34:Chungcheongnam-do	.71	.73	.81	.98	.80	.67	.66

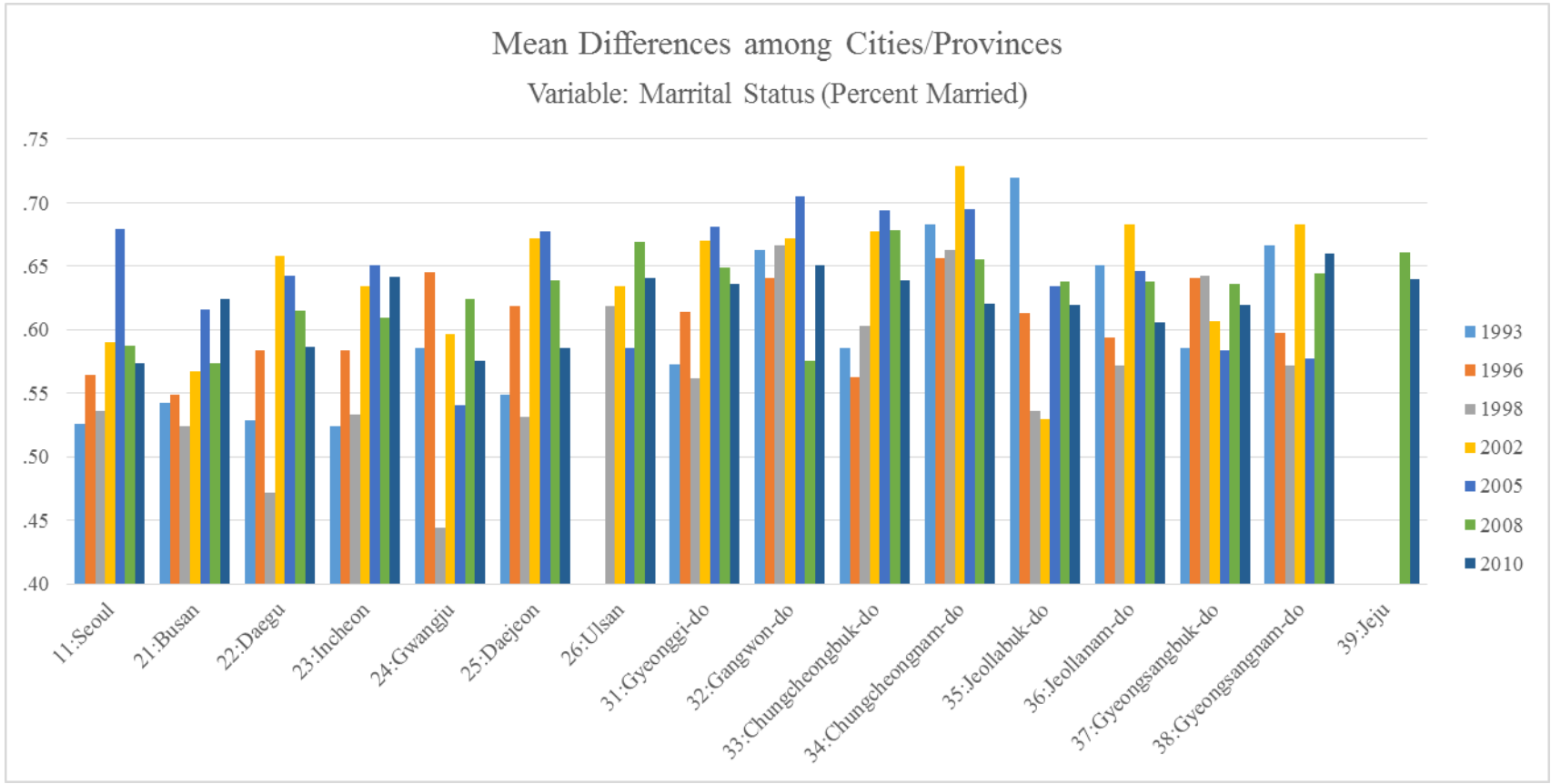
		1993	1996	1998	2002	2005	2008	2010
	35:Jeollabuk-do	.70	.74	.80	.75	.73	.79	.78
	36:Jeollanam-do	.83	.76	.76	.84	.70	.72	.77
	37:Gyeongsangbuk-do	.77	.82	.83	.78	.75	.70	.71
	38:Gyeongsangnam-do	.73	.70	.67	.83	.81	.66	.71
	39:Jeju						.70	.70
	Total	.66	.70	.70	.75	.76	.64	.67
combond	11:Seoul	-.0576390	-.4188794	-.2008960	-.3035084	-.2732340	-.2857832	-.3591406
	21:Busan	-.2294842	-.1186989	.0399021	-.1433012	.0499589	-.0068623	-.0961167
	22:Daegu	-.1586316	-.1483621	-.3994324	.0299225	.2158531	-.4228884	-.1878296
	23:Incheon	-.1677739	-.2504630	-.2537395	-.3108459	-.9942784	-.1191304	-.1906754
	24:Gwangju	-.2500543	-.3296125	-.0554730	.1006416	-.1458606	-.2702440	-.3092458
	25:Daejeon	-.1745459	-.0922799	.1439656	-.0579946	.0069228	-.1607349	.0212758
	26:Ulsan			-.4291358	.1388746	-.0579676	-.0822895	-.2576790
	31:Gyeonggi-do	-.0972478	-.1392826	-.0479899	.0480267	.0659774	-.0567747	-.1385984
	32:Gangwon-do	.4510431	.5589544	.3114946	.0480548	.1410517	.2728862	.4125191
	33:Chungcheongbuk-do	.2436280	.5039783	.2143257	-.2461020	.0511437	.2557445	.0233151
	34:Chungcheongnam-do	-.1220626	.6446494	.5888618	.8322136	.0120884	.1691713	.0991448
	35:Jeollabuk-do	.1202074	.2735724	.1559445	.1264995	.0184112	.1971944	.3509702
	36:Jeollanam-do	.5178960	.6122089	.1685098	.3446251	.8768943	.4235713	.2881211
	37:Gyeongsangbuk-do	.3899042	.7020972	.2513966	.2031521	.1378771	.3085730	.1530852
	38:Gyeongsangnam-do	.0012437	.2494993	.4426667	.2838390	.4429695	.1430705	.2745050
	39:Jeju						.3638762	.3242703
	Total	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000
norder	11:Seoul	-.2206504	.0266326	.0575032	-.0999772	-.1174899	-.0953091	-.1662921
	21:Busan	-.1312661	.1336772	-.1704267	-.2708090	-.1394614	-.2428314	.0079233
	22:Daegu	-.2507108	-.2671927	-.2079062	-.0067410	-.1798799	.0294269	-.0636541
	23:Incheon	-.1824567	.3114901	-.1602340	-.2716142	.9334066	-.2065521	-.4131720
	24:Gwangju	-.2336473	.0022885	.1275197	-.3795497	-.4882016	-.1503848	-.3042351
	25:Daejeon	-.1979402	-.0120318	.0123628	-.5031206	.4007279	-.0488492	-.1766449
	26:Ulsan			.3451560	-.4859061	.0535759	-.3800218	.0515258
	31:Gyeonggi-do	-.1788002	-.0905639	-.0307225	.3569825	.1712910	-.0915046	-.0374781
	32:Gangwon-do	.2715400	.0610088	.1391296	-.0081042	-.2282231	.1987227	.2843782
	33:Chungcheongbuk-do	.4574258	.1676012	.0138208	-.3010729	-.2199996	.1189551	.2056097
	34:Chungcheongnam-do	-.0032896	.1284895	-.1202759	.5928911	.0445633	-.1311187	.0068811
	35:Jeollabuk-do	.4190329	.2128788	.1231233	.0503013	.0056309	.2475243	.2125651
	36:Jeollanam-do	.8328235	-.1493237	-.2931497	-.1859410	-.0848778	.3780415	.0709636
	37:Gyeongsangbuk-do	.3806399	.0311777	.1572424	.0896683	-.6133509	.0624756	.1224602
	38:Gyeongsangnam-do	.2137071	-.2956530	.1594530	.1645423	.1114522	.2654742	.1080244
	39:Jeju						.2155633	.1577048
	Total	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000
police	11:Seoul	.0132229	.0297478	.0251711	-.1086679	-.0980652	.0115225	-.0616137
	21:Busan	.1195624	.0719001	.0503573	-.1308391	.0955231	-.0013806	.0016534
	22:Daegu	-.0008118	-.1208313	-.0505742	.0943308	-.0469150	-.1468286	-.0365041
	23:Incheon	-.0738961	-.0313248	-.1246349	-.1563462	.3425371	-.1201284	-.1359350
	24:Gwangju	.2485348	-.1076008	.1549700	.1329643	-.7032348	-.1986649	-.1376612
	25:Daejeon	.0550762	-.1763677	-.0905762	-.0397766	-.0130850	-.1648487	-.1480881

		1993	1996	1998	2002	2005	2008	2010
	26:Ulsan			-.0471771	.2165157	.0952603	-.0421165	.0177747
	31:Gyeonggi-do	-.2120808	.0005589	-.1447305	-.1380326	-.0370086	-.2041340	-.1551752
	32:Gangwon-do	.1733805	.2958468	.2366703	.1273597	.0322769	.0579423	.3117750
	33:Chungcheongbuk-do	-.1899713	-.0889585	-.1025463	-.2629227	-.0387381	-.1718799	.1378604
	34:Chungcheongnam-do	.0077864	.2159161	-.1910767	.8983790	-.4939614	-.0689411	-.1909809
	35:Jeollabuk-do	-.1641768	.1196164	.0818936	.0514047	.0090362	.2534830	.1719902
	36:Jeollanam-do	.0335808	-.1529367	-.1467488	.3134440	.4935482	.3952148	.0992152
	37:Gyeongsangbuk-do	-.0008118	.1763042	.1776556	.1053941	.0360319	.1144861	.0482166
	38:Gyeongsangnam-do	.1792019	-.3057335	.2758446	.0323481	.3302990	.1642370	.1792138
	39:Jeju						.0562666	-.0197046
	Total	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.0000000

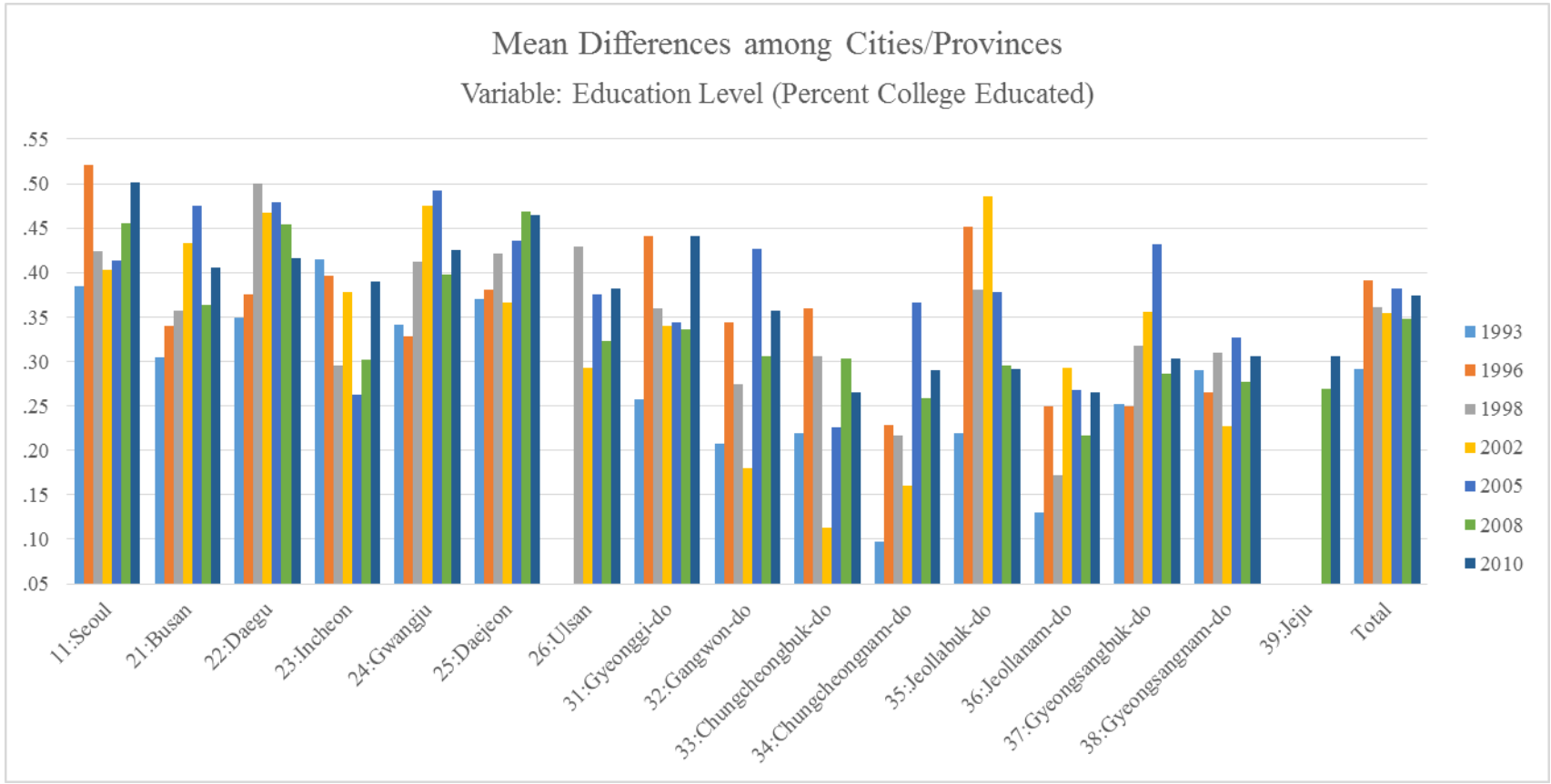
B-2. Mean Plot (Age)



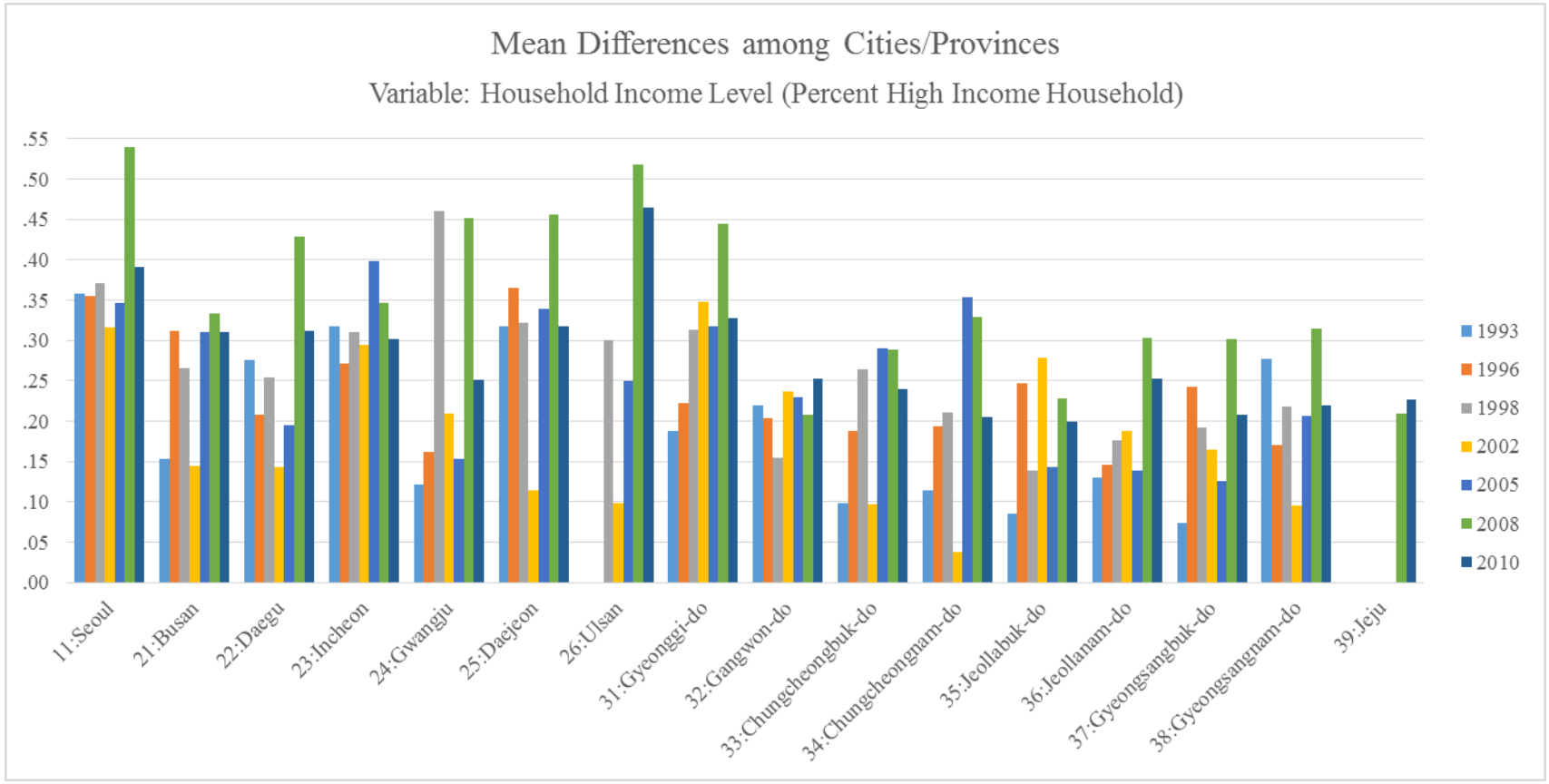
B-3. Mean Plot (Marital Status)



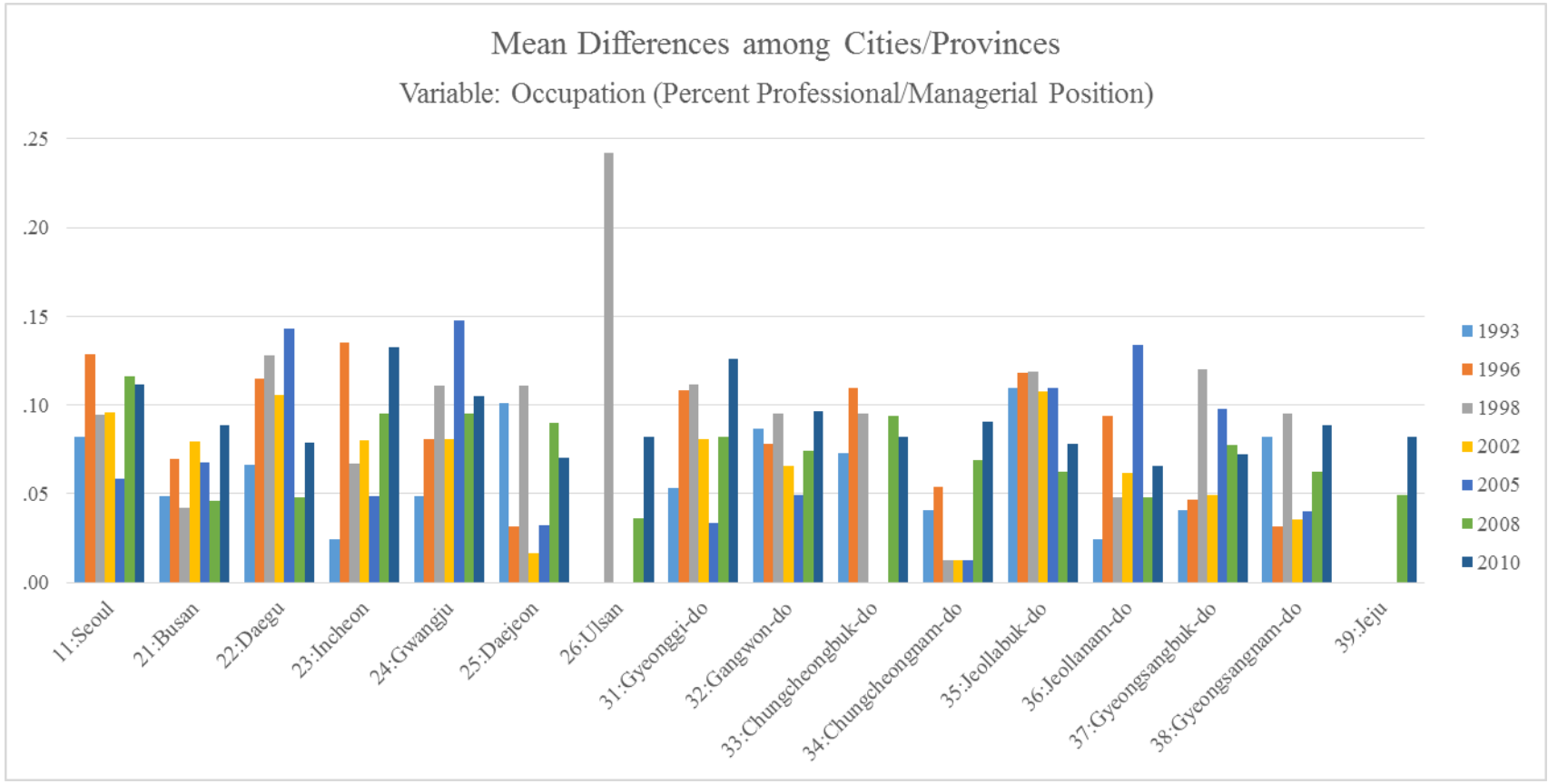
B-4. Mean Plot (Education Level)



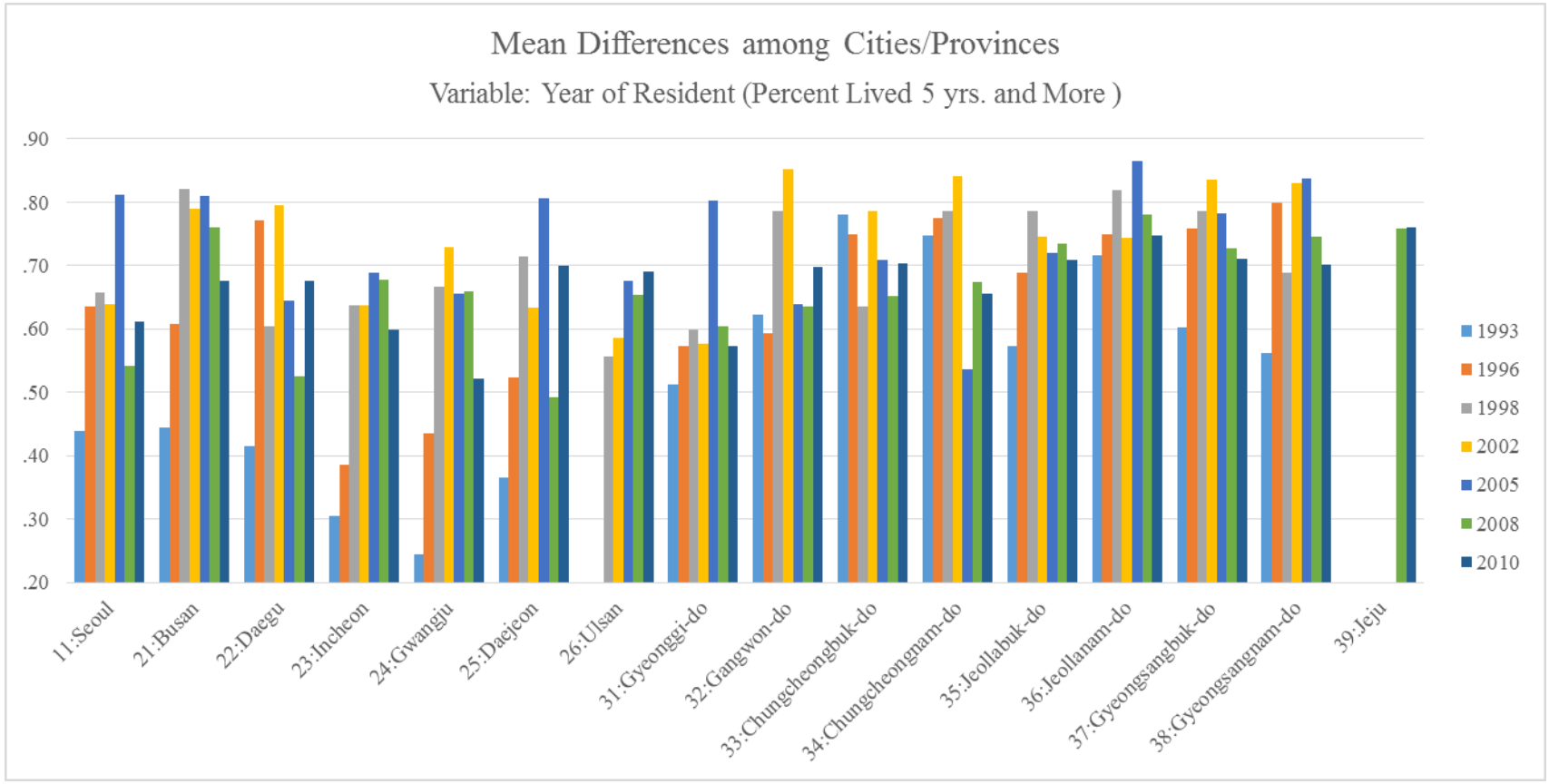
B-5. Mean Plot (Household Income)



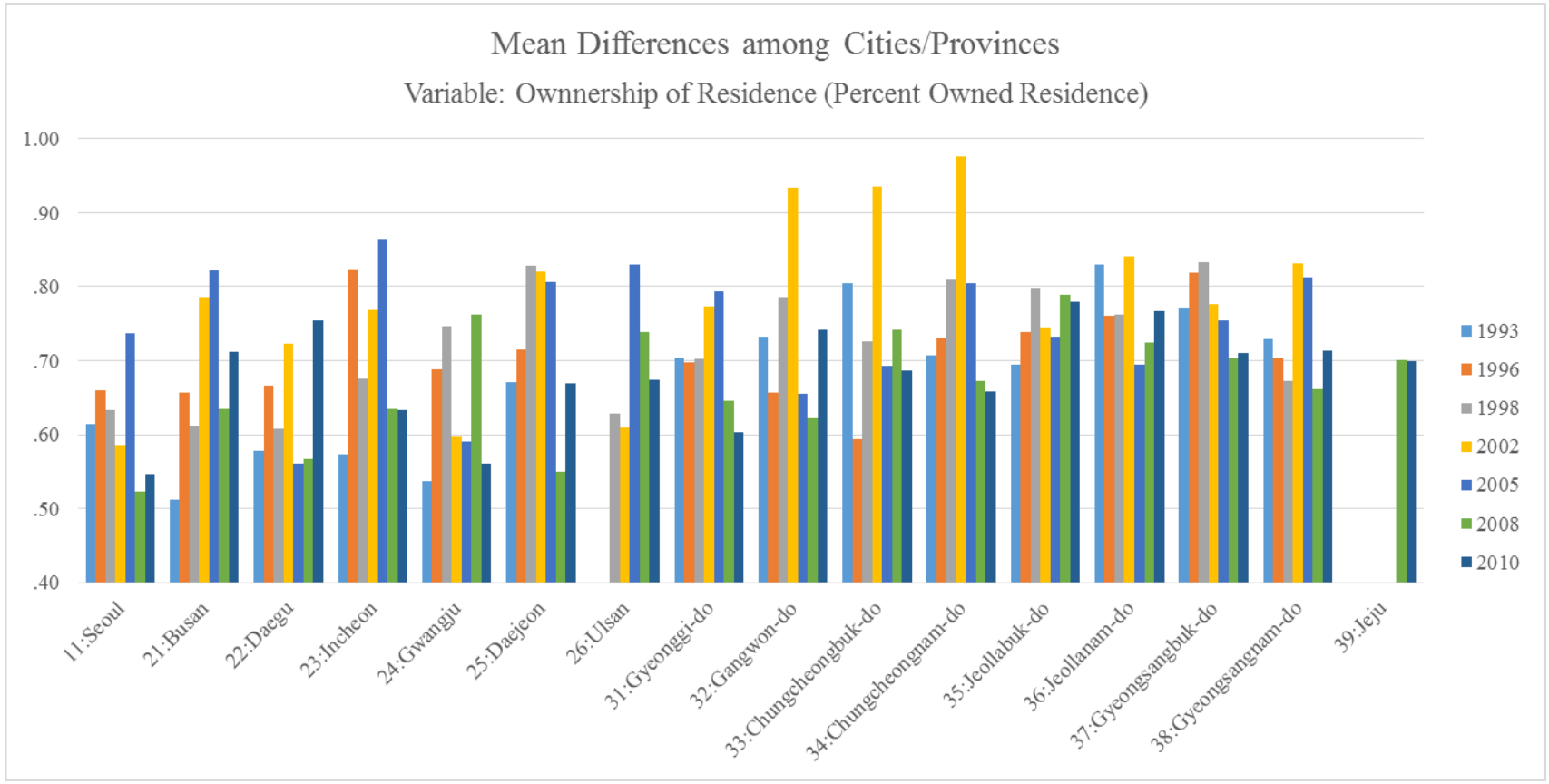
B-6. Mean Plot (Occupation)



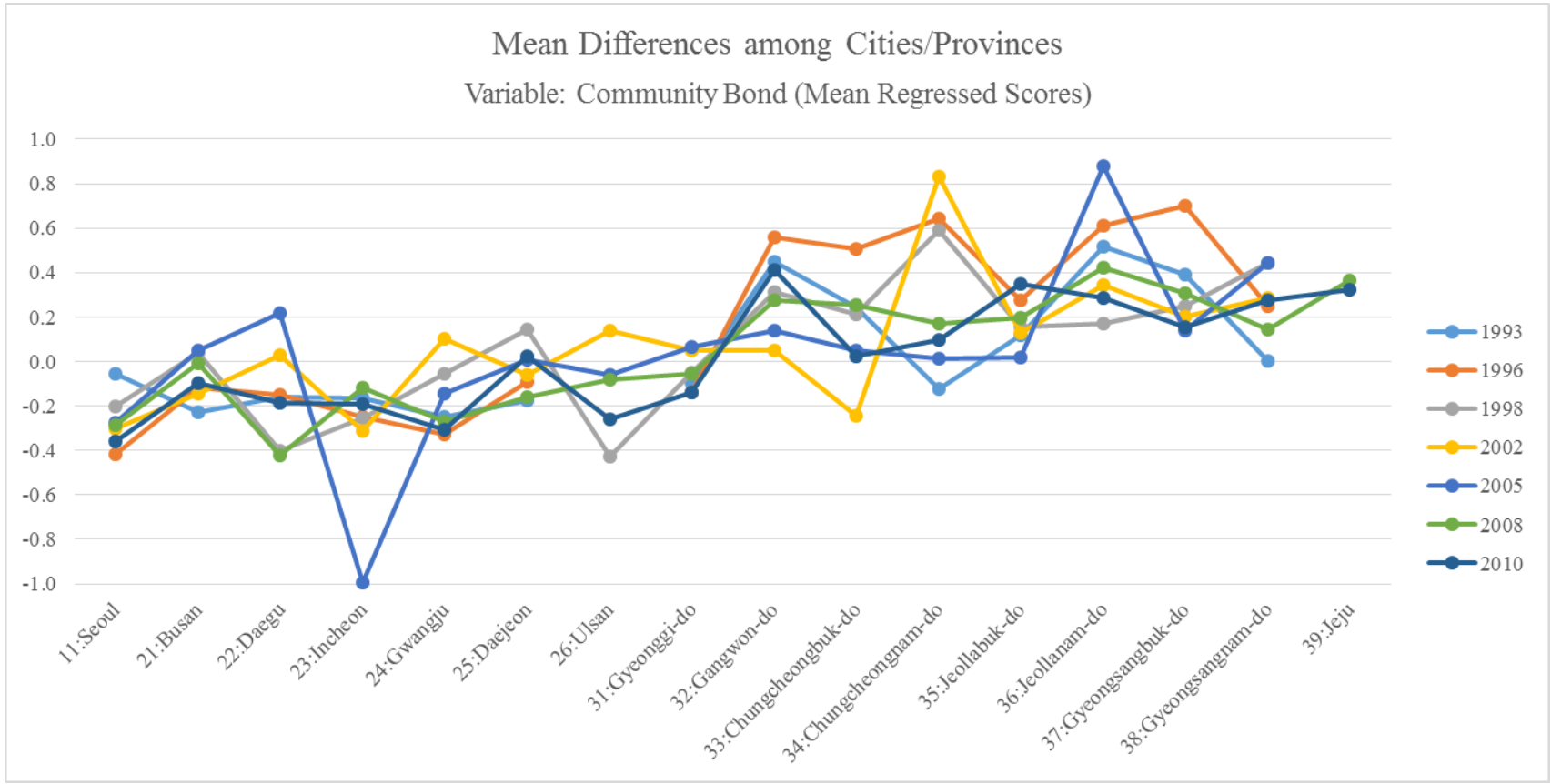
B-7. Mean Plot (Year of Resident)



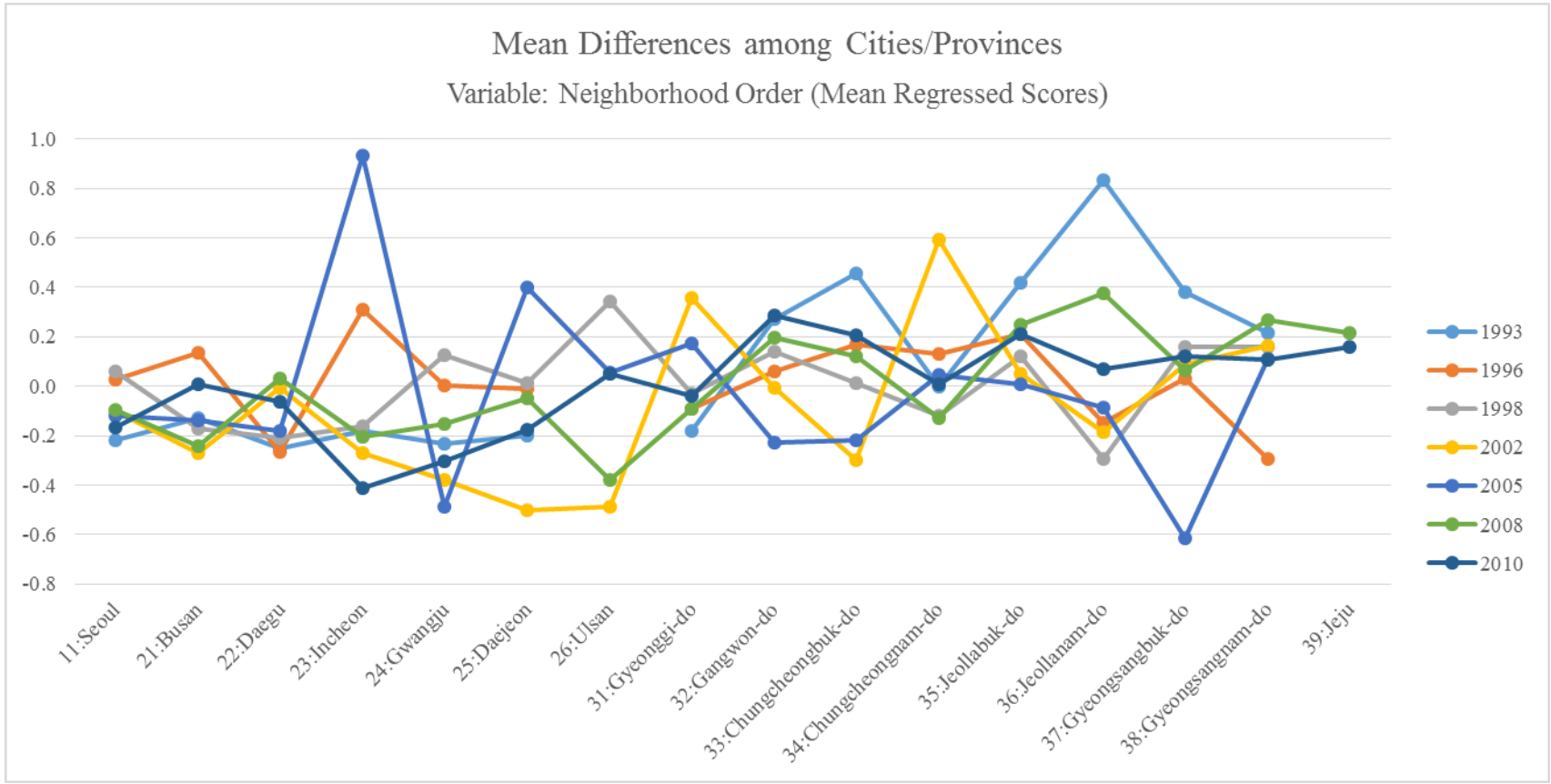
B-8. Mean Plot (Residence Ownership)



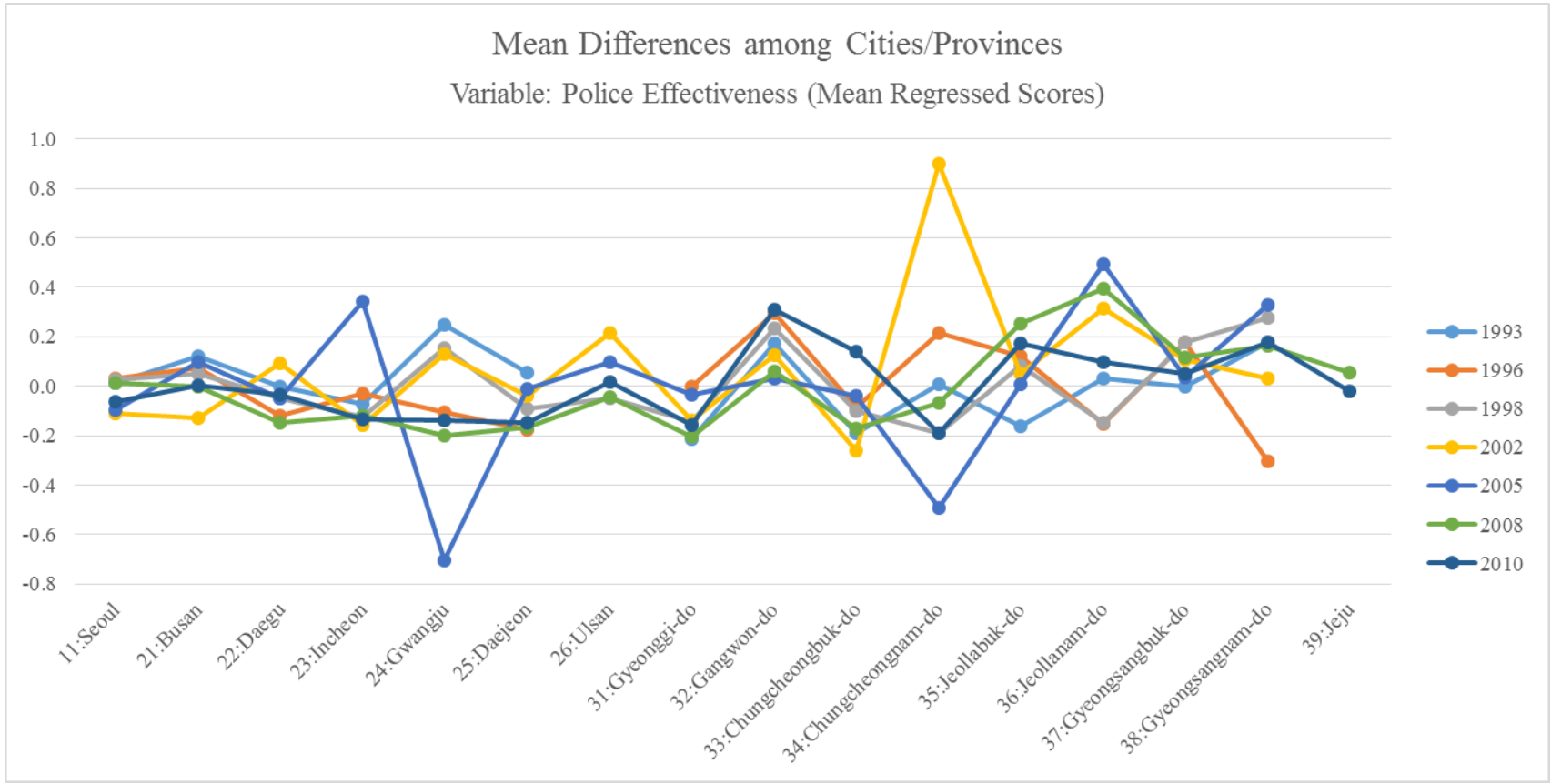
B-9. Mean Plot (Community Bond)



B-10. Mean Plot (Neighborhood Disorder)



B-11. Mean Plot (Police Effectiveness)



APPENDIX C

Correlation Results of Social Disorganization Variables

C-1. Individual Level

Year 1993 (N=2,029)

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1] Mean Age	1	-.054*	-.097**	.572**	-.210**	-.102**	.019	.219**	.138**	.127**	.184**	.184**
[2] Gender (Female=1, Others=0)		1	-.001	.006	-.078**	.039	-.018	-.025	-.027	-.025	-.024	-.009
[3] Urbanization (Urban=1, Others=0)			1	-.099**	.162**	.160**	.021	-.196**	-.154**	-.123**	-.204**	.035
[4] Marital Status (Married=1, Others=0)				1	-.121**	-.115**	.039	-.008	-.036	.019	.036	.079**
[5] Education Level (College Educated=1, Others=0)					1	.184**	.303**	-.116**	.024	-.131**	-.159**	-.095**
[6] Household Income (High1/4=1, Low3/4=0)						1	.156**	-.012	.024	.008	-.031	.006
[7] Occupation (Professional/Managerial=1, Others=0)							1	-.050*	.022	-.056*	-.073**	-.028
[8] Year of Resident (5yrs. more=1, Less than 5yrs.=0)								1	.441**	.118**	.163**	.031
[9] Ownership of Residence (Own=1, Others=0)									1	.076**	.103**	.006
[10] Community Bond (Regressed Score)										1	.651**	.277**
[11] Neighborhood Order (Regressed Score)											1	.260**
[12] Police Effectiveness (Regressed Score)												1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Year 1996 (N=2,036)

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1] Mean Age	1	.069**	-.041	.624**	-.240**	-.052*	.038	.188**	.099**	.211**	.129**	.204**
[2] Gender (Female=1, Others=0)		1	-.017	-.007	.119**	.017	.067**	.066**	.006	-.020	-.003	.012
[3] Urbanization (Urban=1, Others=0)			1	-.042	.099**	.123**	.045*	-.092**	-.040	-.289**	.041	-.004
[4] Marital Status (Married=1, Others=0)				1	-.171**	-.058**	.076**	-.021	-.081**	.146**	.103**	.143**
[5] Education Level (College Educated=1, Others=0)					1	.220**	.311**	-.144**	-.021	-.225**	.010	-.098**

[6] Household Income (High1/4=1, Low3/4=0)	1	.207**	.023	.118**	-.062**	.038	.003
[7] Occupation (Professional/Managerial=1, Others=0)		1	-.050*	.003	-.047*	.021	-.017
[8] Year of Resident (5yrs. more=1, Less than 5yrs.=0)			1	.323**	.240**	-.092**	.040
[9] Ownership of Residence (Own=1, Others=0)				1	.161**	-.005	.002
[10] Community Bond (Regressed Score)					1	.021	.236**
[11] Neighborhood Order (Regressed Score)						1	.164**
[12] Police Effectiveness (Regressed Score)							1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Year 1998 (N=2,100)

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1] Mean Age	1	-.008	-.068**	.532**	-.315**	-.065**	-.043*	.165**	.063**	.250**	.126**	.196**
[2] Gender (Female=1, Others=0)		1	-.002	-.001	.101**	.015	.083**	.020	.046*	-.026	-.001	-.019
[3] Urbanization (Urban=1, Others=0)			1	-.066**	.105**	.114**	.007	-.035	-.105**	-.181**	-.011	.003
[4] Marital Status (Married=1, Others=0)				1	-.191**	-.058*	.003	-.030	-.079**	.158**	.108**	.116**
[5] Education Level (College Educated=1, Others=0)					1	.170**	.311**	-.143**	.015	-.195**	.032	-.085**
[6] Household Income (High1/4=1, Low3/4=0)						1	.189**	.013	.164**	-.105**	.057*	-.011
[7] Occupation (Professional/Managerial=1, Others=0)							1	-.046*	.021	-.132**	.009	-.018
[8] Year of Resident (5yrs. more=1, Less than 5yrs.=0)								1	.321**	.243**	-.061**	.075**
[9] Ownership of Residence (Own=1, Others=0)									1	.155**	.065**	.022
[10] Community Bond (Regressed Score)										1	-.002	.196**
[11] Neighborhood Order (Regressed Score)											1	.181**
[12] Police Effectiveness (Regressed Score)												1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Year 2002 (N=2,048)

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1] Mean Age	1	.041	-.070**	.617**	-.288**	-.049*	-.014	.162**	.131**	.340**	.171**	.212**
[2] Gender (Female=1, Others=0)		1	-.002	-.029	.099**	-.047*	.042	.029	.017	-.042	-.016	.000
[3] Urbanization (Urban=1, Others=0)			1	-.052*	.117**	.012	.043	-.040	-.171**	-.177**	-.188**	-.059**

[4] Marital Status (Married=1, Others=0)	1	-.183**	-.034	.018	.004	.031	.253**	.155**	.147**	
[5] Education Level (College Educated=1, Others=0)		1	.178**	.262**	-.139**	-.065**	-.201**	-.038	-.108**	
[6] Household Income (High1/4=1, Low3/4=0)			1	.143**	-.092**	.070**	-.157**	.040	-.062**	
[7] Occupation (Professional/Managerial=1, Others=0)				1	-.065**	-.001	-.053*	.013	-.009	
[8] Year of Resident (5yrs. more=1, Less than 5yrs.=0)					1	.231**	.212**	-.027	.091**	
[9] Ownership of Residence (Own=1, Others=0)						1	.095**	.120**	.038	
[10] Community Bond (Regressed Score)							1	.092**	.352**	
[11] Neighborhood Order (Regressed Score)								1	.147**	
[12] Police Effectiveness (Regressed Score)									1	

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Year 2005 (N=2,056)

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1] Mean Age	1	.038	-.031	.633**	-.254**	-.017	.046*	.163**	.116**	.258**	.078**	.127**
[2] Gender (Female=1, Others=0)		1	.006	-.036	.116**	-.056*	.059**	.006	-.040	-.067**	.017	.007
[3] Urbanization (Urban=1, Others=0)			1	-.006	.077**	.063**	.045*	-.008	-.030	-.191**	-.002	-.036
[4] Marital Status (Married=1, Others=0)				1	-.153**	-.012	.064**	.050*	-.009	.178**	.052*	.062**
[5] Education Level (College Educated=1, Others=0)					1	.122**	.179**	-.147**	-.055*	-.133**	-.083**	-.083**
[6] Household Income (High1/4=1, Low3/4=0)						1	.075**	-.022	.167**	-.112**	.049*	-.038
[7] Occupation (Professional/Managerial=1, Others=0)							1	-.049*	-.006	-.009	-.033	-.012
[8] Year of Resident (5yrs. more=1, Less than 5yrs.=0)								1	.179**	.173**	.004	.106**
[9] Ownership of Residence (Own=1, Others=0)									1	.149**	.068**	.066**
[10] Community Bond (Regressed Score)										1	-.049*	.193**
[11] Neighborhood Order (Regressed Score)											1	.216**
[12] Police Effectiveness (Regressed Score)												1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Year 2008 (N=10,835)

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1] Mean Age	1	-.058**	-.118**	.357**	-.344**	-.202**	-.036**	.230**	.188**	.289**	.167**	.221**

[2] Gender (Female=1, Others=0)	1	.004	.048**	.111**	.027**	.122**	-.017	-.001	.009	-.014	-.037**
[3] Urbanization (Urban=1, Others=0)		1	-.041**	.133**	.162**	.034**	-.101**	-.109**	-.208**	-.125**	-.047**
[4] Marital Status (Married=1, Others=0)			1	-.063**	.057**	.098**	-.006	.088**	.231**	.073**	.078**
[5] Education Level (College Educated=1, Others=0)				1	.239**	.231**	-.170**	-.065**	-.158**	-.023*	-.125**
[6] Household Income (High1/4=1, Low3/4=0)					1	.167**	-.022*	.146**	-.045**	.024*	-.068**
[7] Occupation (Professional/Managerial=1, Others=0)						1	-.073**	-.017	-.016	.009	-.025**
[8] Year of Resident (5yrs. more=1, Less than 5yrs.=0)							1	.435**	.274**	.065**	.105**
[9] Ownership of Residence (Own=1, Others=0)								1	.260**	.158**	.087**
[10] Community Bond (Regressed Score)									1	.226**	.332**
[11] Neighborhood Order (Regressed Score)										1	.253**
[12] Police Effectiveness (Regressed Score)											1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Year 2010 (N=16,703)

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1] Mean Age	1	-.054**	-.087**	.312**	-.345**	-.174**	-.067**	.208**	.196**	.377**	.171**	.216**
[2] Gender (Female=1, Others=0)		1	.000	.052**	.106**	.019*	.097**	-.016*	-.019*	-.025**	-.004	.004
[3] Urbanization (Urban=1, Others=0)			1	-.035**	.117**	.107**	.014	-.047**	-.066**	-.189**	-.126**	-.055**
[4] Marital Status (Married=1, Others=0)				1	-.009	.056**	.066**	-.021**	.091**	.211**	.094**	.039**
[5] Education Level (College Educated=1, Others=0)					1	.236**	.260**	-.171**	-.071**	-.208**	-.024**	-.109**
[6] Household Income (High1/4=1, Low3/4=0)						1	.178**	-.036**	.127**	-.088**	.043**	-.061**
[7] Occupation (Professional/Managerial=1, Others=0)							1	-.071**	-.025**	-.053**	.000	-.033**
[8] Year of Resident (5yrs. more=1, Less than 5yrs.=0)								1	.352**	.260**	.038**	.088**
[9] Ownership of Residence (Own=1, Others=0)									1	.256**	.192**	.079**
[10] Community Bond (Regressed Score)										1	.158**	.296**
[11] Neighborhood Order (Regressed Score)											1	.278**
[12] Police Effectiveness (Regressed Score)												1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

C-2. Aggregate Level

Year 1993 (N=14)

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1] Mean Age	1	.538*	-.749**	.774**	-.789**	-.681**	-.134	.716**	.720**	.689**	.815**	.084
[2] Percent Female		1	-.349	.527	-.425	-.462	.298	.365	.226	.492	.378	.132
[3] Percent Urban			1	-.769**	.825**	.571*	-.039	-.848**	-.859**	-.701**	-.751**	.301
[4] Percent Married				1	-.770**	-.510	.234	.614*	.553*	.475	.638*	.048
[5] Percent College Educated					1	.701**	.148	-.877**	-.697**	-.594*	-.701**	.144
[6] Percent High (1/4) Household Income						1	.233	-.527	-.376	-.393	-.561*	.174
[7] Percent Professional/Managerial Job							1	-.007	.062	-.013	-.036	-.031
[8] Percent Lived 5 yrs. and More in Current Residence								1	.835**	.694**	.762**	-.319
[9] Percent Own the Current Residence									1	.820**	.826**	-.315
[10] Mean Community Bond (Regressed Score)										1	.889**	-.093
[11] Mean Neighborhood Order (Regressed Score)											1	-.152
[12] Mean Police Effectiveness (Regressed Score)												1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Year 1996 (N=14)

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1] Mean Age	1	.696**	-.601*	-.013	-.311	-.134	-.444	.762**	-.417	.652*	-.273	.146
[2] Percent Female		1	-.473	-.206	-.329	-.226	-.135	.709**	-.216	.562*	-.165	-.046
[3] Percent Urban			1	-.366	.401	.574*	.197	-.586*	-.093	-.834**	.072	-.270
[4] Percent Married				1	-.411	-.331	-.454	-.052	.370	.382	-.027	.375
[5] Percent College Educated					1	.589*	.671**	-.414	-.288	-.676**	.236	.020
[6] Percent High (1/4) Household Income						1	.044	-.360	.010	-.499	.328	.121
[7] Percent Professional/Managerial Job							1	-.246	-.101	-.377	.318	.082
[8] Percent Lived 5 yrs. and More in Current Residence								1	-.146	.643*	-.433	-.003
[9] Percent Own the Current Residence									1	.173	.162	.096
[10] Mean Community Bond (Regressed Score)										1	.028	.357

[11] Mean Neighborhood Order (Regressed Score)	1	.554*
[12] Mean Police Effectiveness (Regressed Score)		1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Year 1998 (N=15)

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1] Mean Age	1	-.377	-.562*	.649**	-.459	-.629*	.082	.542*	.497	.483	.371	.338
[2] Percent Female		1	-.055	-.400	.133	.324	.132	-.238	-.129	-.198	.040	.121
[3] Percent Urban			1	-.628*	.671**	.702**	.267	-.410	-.547*	-.745**	-.054	-.121
[4] Percent Married				1	-.599*	-.593*	-.036	.281	.402	.538*	.275	.014
[5] Percent College Educated					1	.520*	.630*	-.577*	-.442	-.681**	.313	.129
[6] Percent High (1/4) Household Income						1	.196	-.588*	-.353	-.523*	.096	-.136
[7] Percent Professional/Managerial Job							1	-.622*	-.224	-.569*	.714**	.183
[8] Percent Lived 5 yrs. and More in Current Residence								1	.548*	.679**	-.263	.239
[9] Percent Own the Current Residence									1	.671**	.120	.056
[10] Mean Community Bond (Regressed Score)										1	-.001	.229
[11] Mean Neighborhood Order (Regressed Score)											1	.573*
[12] Mean Police Effectiveness (Regressed Score)												1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Year 2002 (N=15)

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1] Mean Age	1	-.247	-.580*	.634*	-.754**	-.357	-.571*	.138	.535*	.625*	.418	.607*
[2] Percent Female		1	-.191	-.121	.251	.112	.251	.345	.057	.244	.331	.182
[3] Percent Urban			1	-.335	.582*	.043	.192	-.480	-.662**	-.504	-.643**	-.261
[4] Percent Married				1	-.746**	-.447	-.579*	.150	.624*	.438	.314	.411
[5] Percent College Educated					1	.456	.741**	-.322	-.729**	-.320	-.262	-.279
[6] Percent High (1/4) Household Income						1	.738**	-.458	-.387	-.480	.051	-.463
[7] Percent Professional/Managerial Job							1	-.041	-.413	-.307	.126	-.276
[8] Percent Lived 5 yrs. and More in Current Residence								1	.571*	.419	.385	.352

[9] Percent Own the Current Residence									1	.366	.417	.278
[10] Mean Community Bond (Regressed Score)										1	.608*	.913**
[11] Mean Neighborhood Order (Regressed Score)											1	.478
[12] Mean Police Effectiveness (Regressed Score)												1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Year 2005 (N=15)

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1] Mean Age	1	-.253	-.496	.106	-.247	-.462	.348	.299	-.198	.642**	-.215	.505
[2] Percent Female		1	.189	.085	.118	.112	.044	.096	-.265	.238	-.101	-.030
[3] Percent Urban			1	-.254	.460	.338	.117	-.051	.009	-.516*	.238	-.153
[4] Percent Married				1	-.318	.561*	-.424	-.147	.054	-.069	.305	.061
[5] Percent College Educated					1	-.216	.412	-.152	-.347	.000	-.450	-.506
[6] Percent High (1/4) Household Income						1	-.689**	-.119	.568*	-.610*	.664**	-.035
[7] Percent Professional/Managerial Job							1	.111	-.661**	.268	-.408	-.074
[8] Percent Lived 5 yrs. and More in Current Residence								1	.259	.354	.040	.596*
[9] Percent Own the Current Residence									1	-.321	.627*	.372
[10] Mean Community Bond (Regressed Score)										1	-.502	.219
[11] Mean Neighborhood Order (Regressed Score)											1	.405
[12] Mean Police Effectiveness (Regressed Score)												1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Year 2008 (N=16)

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1] Mean Age	1	-.286	-.810**	.154	-.695**	-.784**	-.343	.643**	.456	.867**	.761**	.703**
[2] Percent Female		1	.185	.218	.374	.210	-.148	-.567*	-.106	-.270	-.101	-.323
[3] Percent Urban			1	-.404	.757**	.718**	.144	-.501*	-.437	-.846**	-.712**	-.477
[4] Percent Married				1	-.383	-.035	-.177	.135	.539*	.316	.125	-.061
[5] Percent College Educated					1	.692**	.374	-.826**	-.644**	-.862**	-.436	-.577*
[6] Percent High (1/4) Household Income						1	.279	-.657**	-.406	-.813**	-.679**	-.506*

[7] Percent Professional/Managerial Job							1	-.462	-.302	-.292	-.137	-.413
[8] Percent Lived 5 yrs. and More in Current Residence								1	.677**	.723**	.353	.651**
[9] Percent Own the Current Residence									1	.522*	.207	.309
[10] Mean Community Bond (Regressed Score)										1	.640**	.645**
[11] Mean Neighborhood Order (Regressed Score)											1	.666**
[12] Mean Police Effectiveness (Regressed Score)												1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Year 2010 (N=16)

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1] Mean Age	1	-.316	-.753**	.343	-.777**	-.758**	-.461	.652**	.680**	.871**	.641**	.566*
[2] Percent Female		1	.039	.031	.147	.136	-.215	.194	.047	-.083	.191	-.091
[3] Percent Urban			1	-.537*	.765**	.691**	.230	-.453	-.422	-.796**	-.740**	-.481
[4] Percent Married				1	-.526*	-.190	.116	.339	.343	.484	.510*	.468
[5] Percent College Educated					1	.690**	.487	-.623**	-.631**	-.732**	-.658**	-.519*
[6] Percent High (1/4) Household Income						1	.257	-.272	-.399	-.708**	-.371	-.288
[7] Percent Professional/Managerial Job							1	-.794**	-.689**	-.491	-.556*	-.385
[8] Percent Lived 5 yrs. and More in Current Residence								1	.803**	.728**	.728**	.578*
[9] Percent Own the Current Residence									1	.729**	.677**	.659**
[10] Mean Community Bond (Regressed Score)										1	.746**	.652**
[11] Mean Neighborhood Order (Regressed Score)											1	.776**
[12] Mean Police Effectiveness (Regressed Score)												1

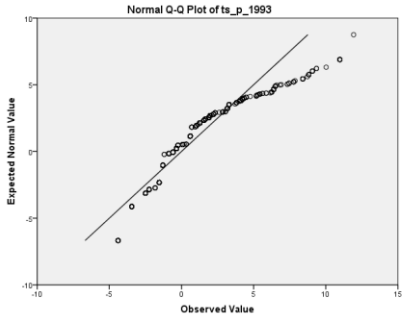
**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

APPENDIX D

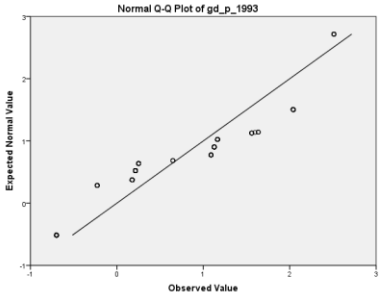
Q-Q Plots of Independent Variables in Routine Activities/Lifestyle Model 1993-2010

1993

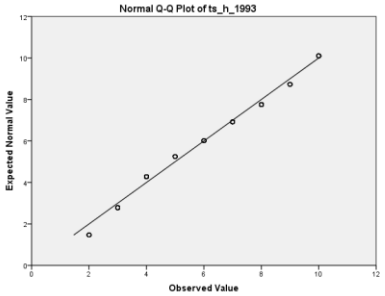
Personal Target Suitability



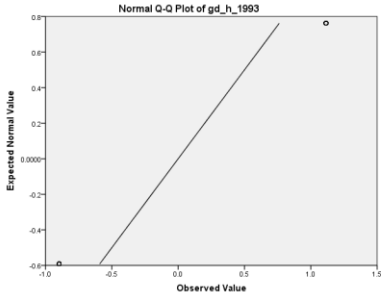
Personal Guardianship



Household Target Suitability

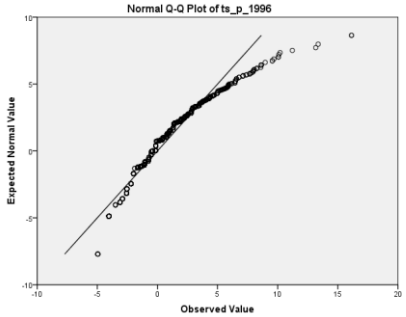


Personal Guardianship

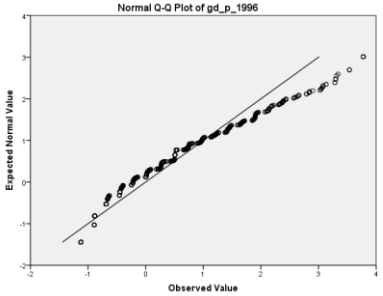


1996

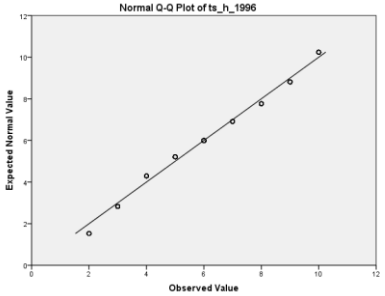
Personal Target Suitability



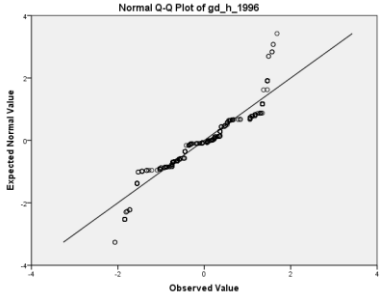
Personal Guardianship



Household Target Suitability

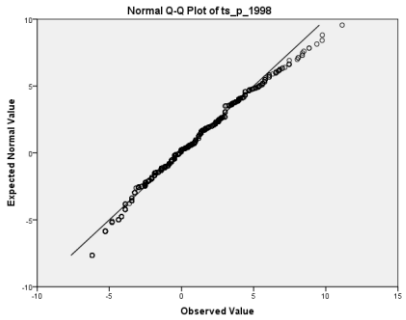


Personal Guardianship

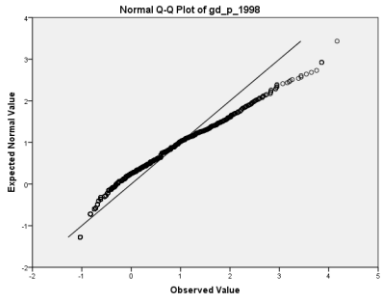


1998

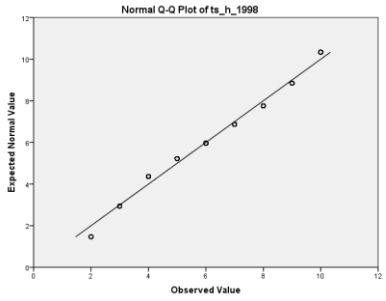
Personal Target Suitability



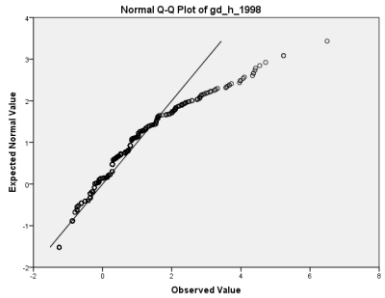
Personal Guardianship



Household Target Suitability

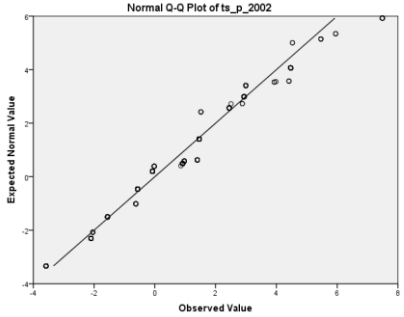


Personal Guardianship

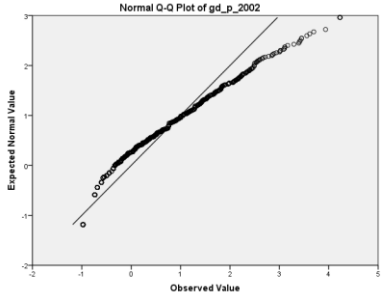


2002

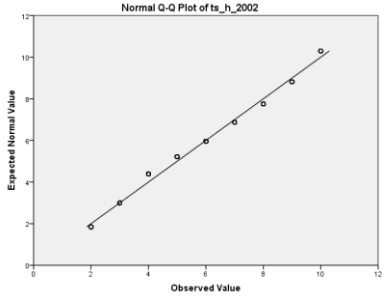
Personal Target Suitability



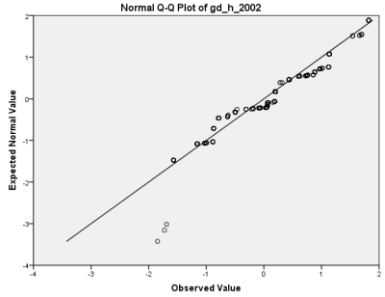
Personal Guardianship



Household Target Suitability

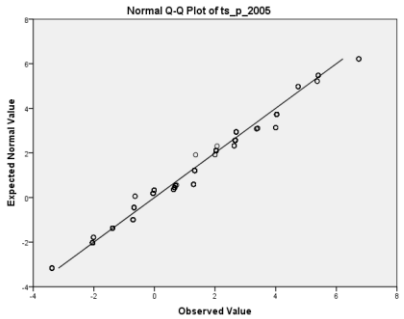


Personal Guardianship

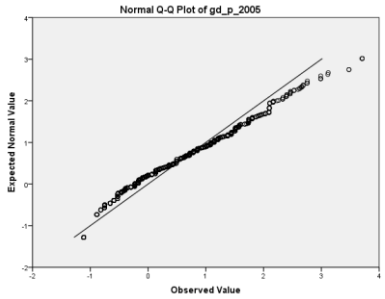


2005

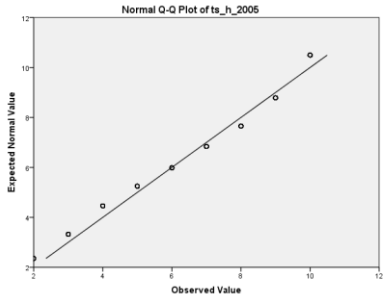
Personal Target Suitability



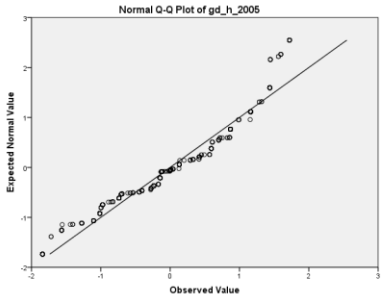
Personal Guardianship



Household Target Suitability

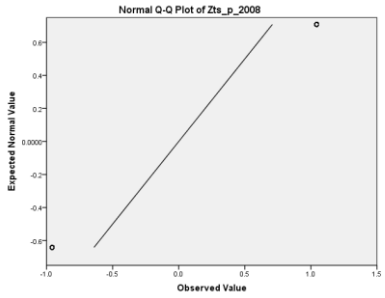


Personal Guardianship

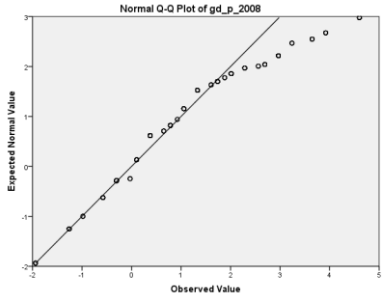


2008

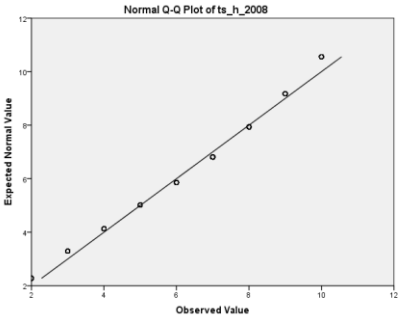
Personal Target Suitability



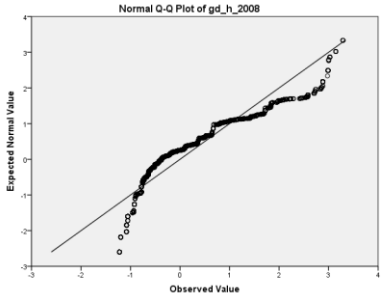
Personal Guardianship



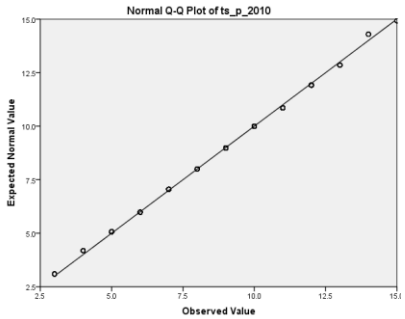
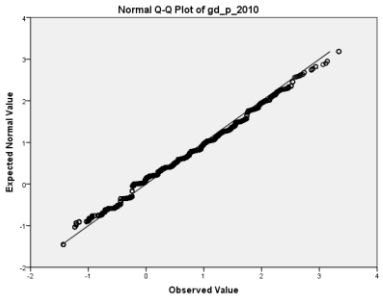
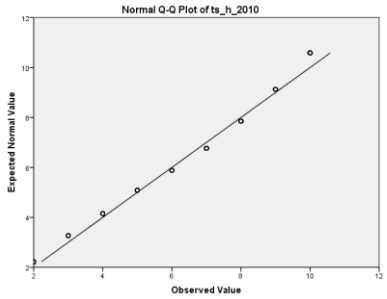
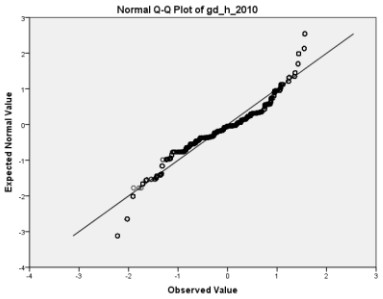
Household Target Suitability



Personal Guardianship



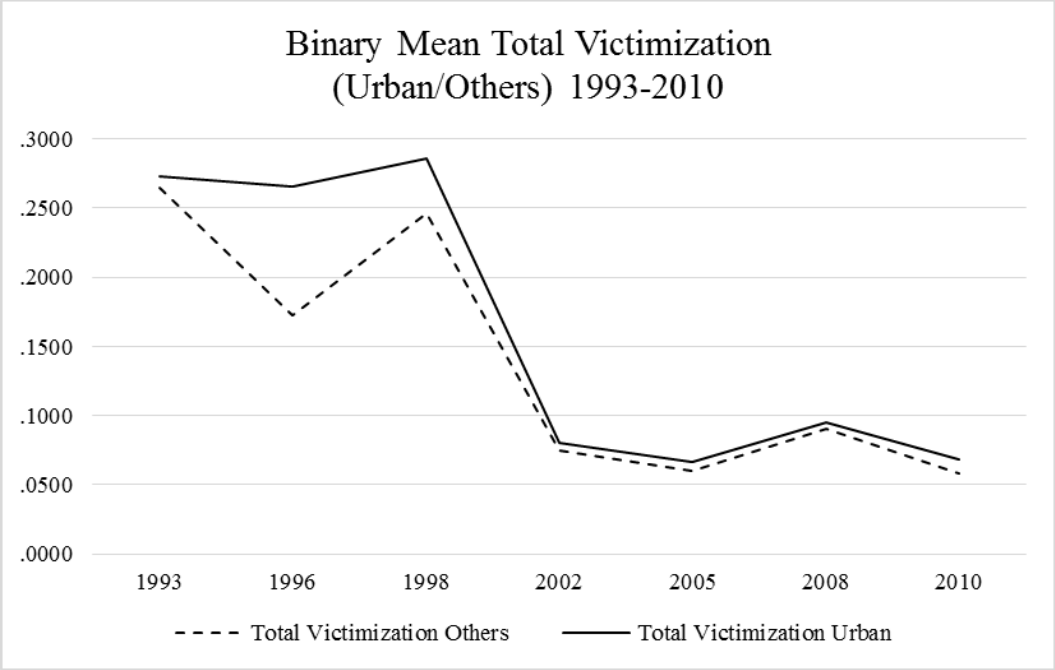
2010

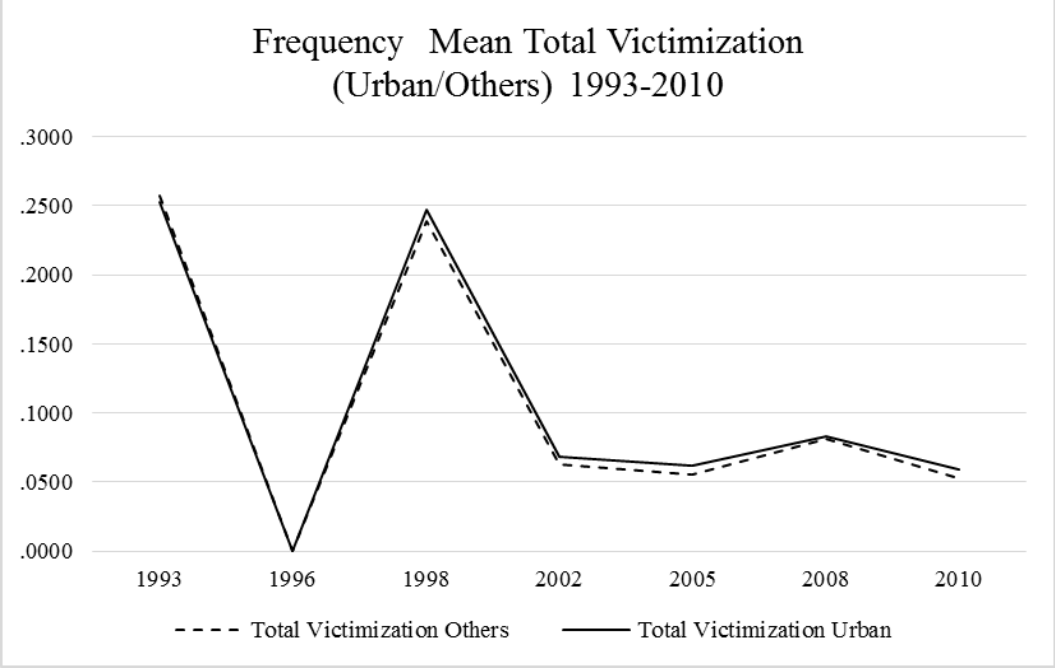
Personal Target Suitability	Personal Guardianship	Household Target Suitability	Personal Guardianship
			

APPENDIX E

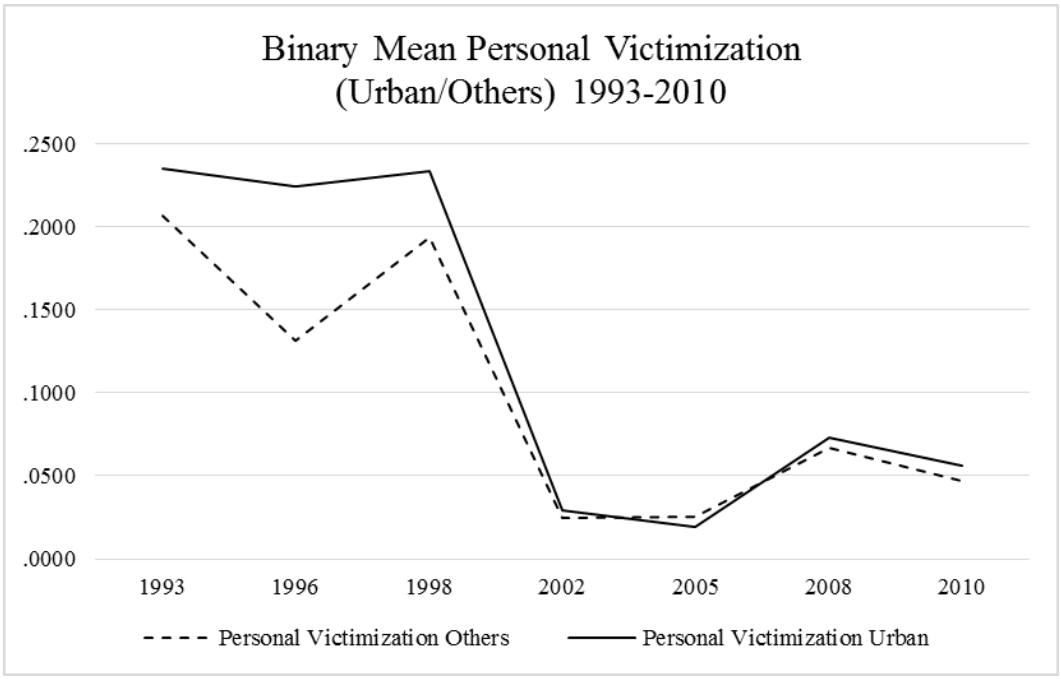
T-Test Results of Victimization by Urbanization

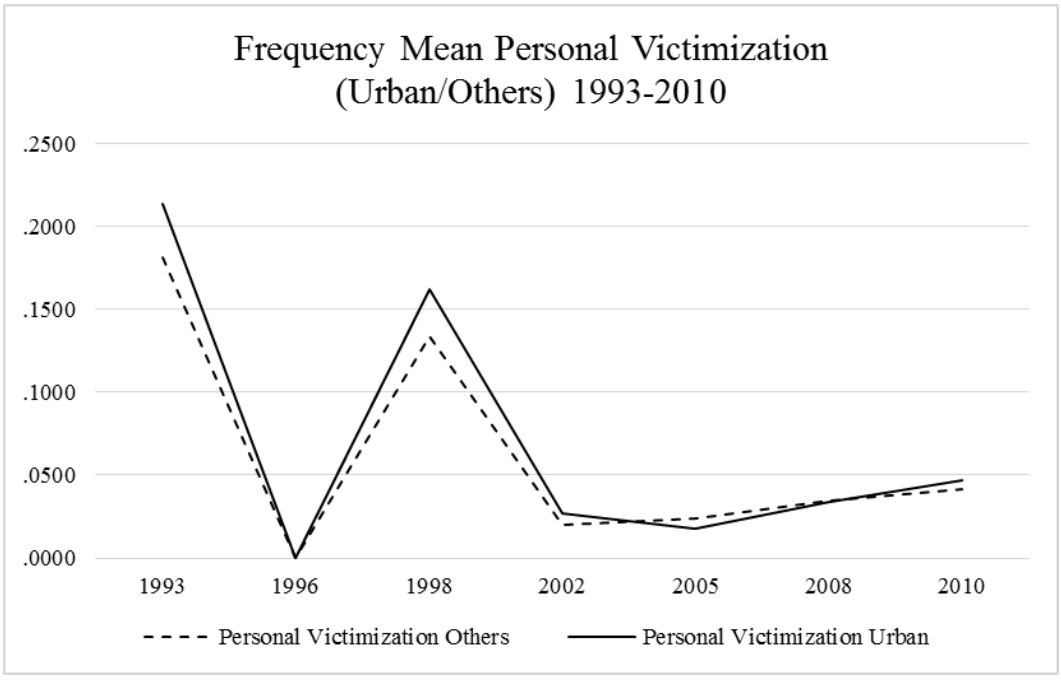
E-1. Total Victimization by Urbanization 1993-2010.



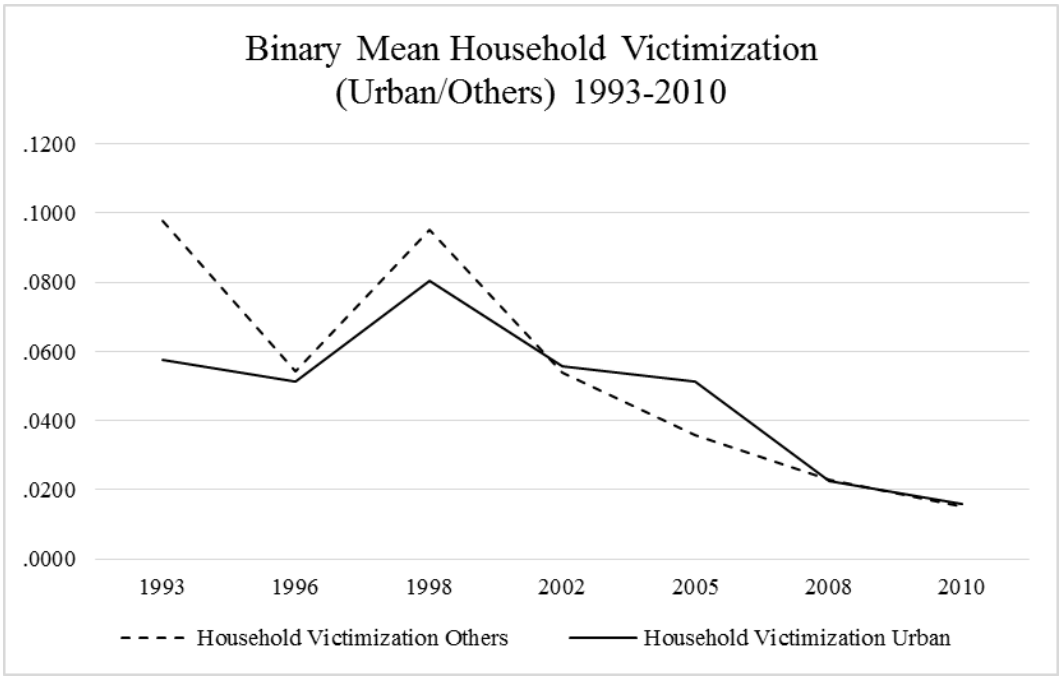


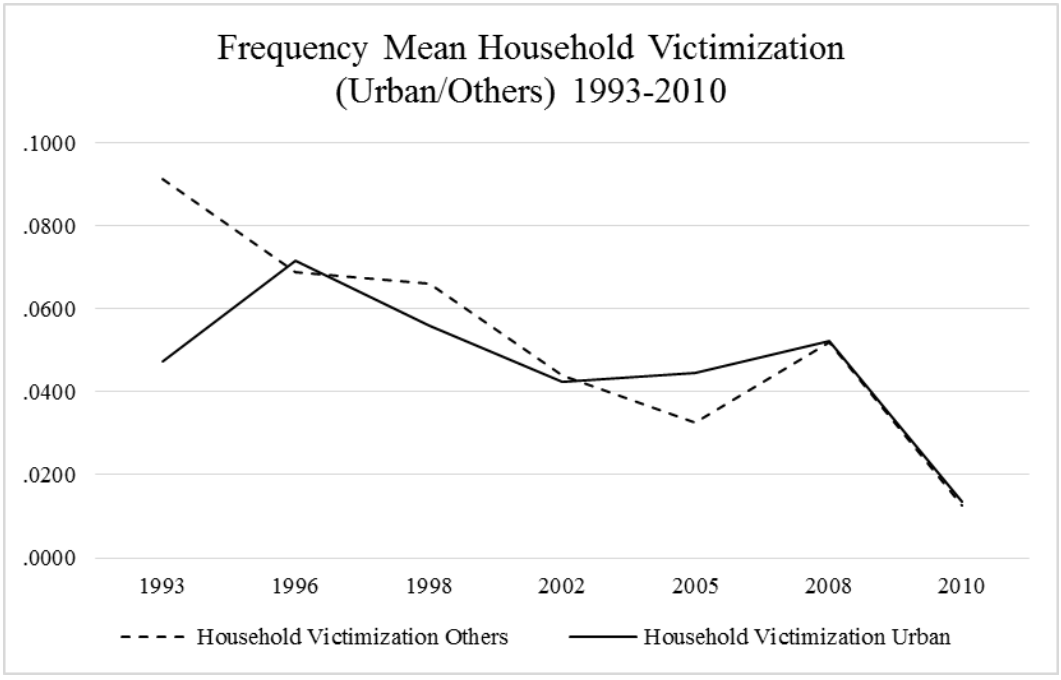
E-2. Personal Victimization by Urbanization 1993-2010.





E-3. Household Victimization by Urbanization 1993-2010.





APPENDIX F

ANOVA Results of Victimization by City/Province Spatial Unit

F-1. Table. Descriptive Results of Distribution of Total Victimization at City/Province Level (Binary).

	1993			1996**			1998*			2002			2005*			2008**			2010**		
Area	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD
11	514	.29	.454	498	.29	.454	498	.25	.434	452	.09	.288	430	.04	.206	2,326	.05	.210	2,196	.05	.221
21	164	.25	.434	186	.22	.412	168	.28	.450	164	.12	.321	164	.09	.280	649	.09	.290	1,039	.05	.220
22	123	.27	.445	96	.23	.423	125	.34	.474	123	.03	.178	123	.11	.319	504	.04	.195	911	.06	.236
23	82	.26	.439	96	.19	.392	105	.20	.402	104	.10	.296	103	.02	.139	484	.05	.226	814	.09	.289
24	41	.20	.401	62	.24	.432	63	.35	.481	62	.13	.338	61	.08	.277	367	.05	.222	640	.10	.304
25	82	.38	.488	63	.43	.499	64	.31	.467	61	.10	.300	62	.05	.216	346	.06	.239	668	.07	.258
26	0	.	.	0	.	.	63	.27	.447	41	.00	.000	41	.07	.264	363	.08	.271	587	.05	.213
31	287	.28	.451	342	.22	.414	342	.26	.438	387	.06	.241	451	.04	.201	1,159	.06	.240	1,982	.07	.257
32	82	.21	.408	64	.17	.380	84	.27	.449	61	.07	.250	61	.07	.250	514	.03	.179	924	.04	.204
33	41	.27	.449	64	.13	.333	63	.30	.463	62	.10	.298	62	.10	.298	616	.06	.238	974	.06	.244
34	123	.31	.464	93	.17	.379	84	.19	.395	82	.04	.189	82	.05	.217	568	.07	.247	1,040	.06	.244
35	82	.29	.458	93	.19	.397	84	.24	.428	102	.06	.236	82	.04	.189	660	.07	.252	946	.04	.206
36	123	.33	.473	96	.09	.293	105	.29	.454	82	.10	.299	82	.02	.155	563	.05	.218	980	.07	.247
37	123	.16	.371	128	.19	.392	126	.13	.343	122	.08	.275	102	.07	.254	670	.11	.319	1,206	.06	.237
38	162	.27	.443	159	.21	.411	126	.29	.454	143	.10	.298	150	.09	.292	722	.03	.183	1,283	.07	.263
39	0	.	.	0	.	.	0	.	.	0	.	.	0	.	.	324	.05	.210	513	.04	.198
Total	2,029	.28	.447	2,040	.23	.418	2,100	.26	.438	2,048	.08	.271	2,056	.06	.234	10,835	.06	.235	16,703	.06	.242

**. One-way ANOVA is significant at the 0.01 level. *. One-way ANOVA is significant at the 0.05 level.

F-2. Table. Descriptive Results of Distribution of Personal Victimization at City/Province Level (Binary).

	1993			1996**			1998*			2002+			2005*			2008**			2010**		
Area	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD
11	514	.24	.429	498	.23	.424	498	.20	.402	452	.05	.215	430	.02	.135	2,326	.03	.179	2,196	.04	.194
21	164	.23	.419	186	.17	.374	168	.25	.434	164	.04	.203	164	.07	.251	649	.08	.264	1,039	.04	.197
22	123	.24	.426	96	.19	.392	125	.27	.447	123	.01	.090	123	.02	.155	504	.02	.125	911	.05	.212
23	82	.21	.408	96	.17	.375	105	.17	.379	104	.06	.234	103	.01	.099	484	.03	.173	814	.08	.267
24	41	.17	.381	62	.21	.410	63	.22	.419	62	.05	.216	61	.02	.128	367	.04	.192	640	.09	.280
25	82	.33	.473	63	.38	.490	64	.27	.445	61	.00	.000	62	.00	.000	346	.03	.183	668	.06	.235
26	0	.	.	0	.	.	63	.25	.439	41	.00	.000	41	.00	.000	363	.05	.217	587	.04	.206
31	287	.22	.412	342	.16	.365	342	.21	.410	387	.04	.199	451	.02	.132	1,159	.05	.211	1,982	.06	.232
32	82	.20	.399	64	.14	.350	84	.23	.421	61	.02	.128	61	.02	.128	514	.02	.145	924	.04	.199
33	41	.20	.401	64	.13	.333	63	.27	.447	62	.00	.000	62	.06	.248	616	.03	.173	974	.05	.217
34	123	.25	.436	93	.12	.325	84	.11	.311	82	.01	.110	82	.00	.000	568	.03	.171	1,040	.05	.222
35	82	.22	.416	93	.15	.360	84	.14	.352	102	.01	.099	82	.01	.110	660	.04	.187	946	.03	.181
36	123	.21	.410	96	.07	.261	105	.24	.428	82	.05	.217	82	.01	.110	563	.04	.185	980	.05	.214
37	123	.13	.338	128	.12	.323	126	.10	.295	122	.06	.234	102	.04	.195	670	.10	.296	1,206	.05	.226
38	162	.23	.425	159	.17	.377	126	.25	.437	143	.01	.118	150	.04	.197	722	.02	.138	1,283	.06	.236
39	0	.	.	0	.	.	0	.	.	0	.	.	0	.	.	324	.03	.165	513	.03	.174
Total	2,029	.23	.418	2,040	.18	.383	2,100	.21	.407	2,048	.03	.183	2,056	.02	.153	10,835	.04	.194	16,703	.05	.219

**. One-way ANOVA is significant at the 0.01 level. *. One-way ANOVA is significant at the 0.05 level.+. One-way ANOVA is significant at the 0.1 level

F-3. Table. Descriptive Results of Distribution of Household Victimization at City/Province Level (Binary).

	1993*			1996			1998*			2002+			2005*			2008**			2010**		
Area	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD
11	514	.09	.286	498	.07	.252	498	.06	.245	452	.05	.215	430	.03	.165	2,326	.01	.118	2,196	.02	.130
21	164	.05	.216	186	.05	.215	168	.05	.214	164	.07	.261	164	.04	.188	649	.02	.145	1,039	.01	.119
22	123	.05	.216	96	.04	.201	125	.09	.284	123	.02	.155	123	.10	.298	504	.02	.153	911	.01	.119
23	82	.06	.241	96	.02	.144	105	.05	.214	104	.05	.215	103	.01	.099	484	.02	.156	814	.02	.130
24	41	.02	.156	62	.03	.178	63	.19	.396	62	.10	.298	61	.07	.250	367	.01	.116	640	.02	.141
25	82	.07	.262	63	.10	.296	64	.06	.244	61	.10	.300	62	.05	.216	346	.03	.168	668	.02	.153
26	0	.	.	0	.	.	63	.06	.246	41	.00	.000	41	.07	.264	363	.03	.172	587	.00	.058
31	287	.10	.297	342	.07	.261	342	.06	.246	387	.03	.180	451	.02	.154	1,159	.02	.130	1,982	.02	.135
32	82	.06	.241	64	.05	.213	84	.10	.295	61	.05	.218	61	.05	.218	514	.01	.108	924	.00	.066
33	41	.07	.264	64	.00	.000	63	.11	.317	62	.10	.298	62	.03	.178	616	.04	.186	974	.02	.127
34	123	.12	.329	93	.09	.282	84	.11	.311	82	.02	.155	82	.05	.217	568	.04	.193	1,040	.02	.123
35	82	.16	.367	93	.04	.204	84	.12	.326	102	.05	.217	82	.02	.155	660	.03	.180	946	.01	.102
36	123	.14	.347	96	.03	.175	105	.11	.320	82	.06	.241	82	.01	.110	563	.01	.118	980	.02	.141
37	123	.06	.233	128	.08	.269	126	.05	.214	122	.03	.179	102	.03	.170	670	.02	.138	1,206	.01	.111
38	162	.07	.263	159	.08	.265	126	.10	.305	143	.08	.278	150	.07	.250	722	.02	.128	1,283	.03	.170
39	0	.	.	0	.	.	0	.	.	0	.	.	0	.	.	324	.02	.135	513	.01	.098
Total	2,029	.08	.279	2,040	.06	.237	2,100	.08	.268	2,048	.05	.220	2,056	.04	.190	10,835	.02	.144	16,703	.02	.127

**. One-way ANOVA is significant at the 0.01 level. *. One-way ANOVA is significant at the 0.05 level.+. One-way ANOVA is significant at the 0.1 level

F-4. Table. Descriptive Results of Distribution of Total Victimization at City/Province Level (Frequency).

	1993*			1996**			1998*			2002			2005**			2008**			2010**		
Area	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD
11	509	.58	1.292	498	.52	1.047	498	.40	.903	452	.12	.457	430	.05	.250	2,326	.13	.702	2,196	.08	.395
21	164	.34	.687	186	.31	.681	168	.46	1.020	164	.14	.413	164	.12	.435	649	.21	.646	1,039	.07	.336
22	123	.41	.849	96	.41	.980	125	.52	.921	123	.04	.236	123	.19	.605	504	.08	.314	911	.07	.317
23	82	.52	1.887	96	.50	1.369	105	.35	.940	104	.23	1.081	103	.02	.139	484	.14	.496	814	.18	.888
24	40	.33	.764	62	.32	.621	63	.60	1.185	62	.21	.656	61	.20	.601	367	.13	.455	640	.15	.580
25	81	.72	1.186	63	1.03	1.858	64	.36	.601	61	.10	.300	62	.05	.216	346	.12	.438	668	.12	.505
26	0	.	.	0	.	.	63	.40	.890	41	.00	.000	41	.10	.374	363	.22	.694	587	.06	.291
31	283	.53	1.247	342	.35	.835	342	.50	1.168	387	.13	.659	451	.06	.307	1,159	.15	.481	1,982	.12	.542
32	77	.40	1.115	64	.52	1.869	84	.50	1.275	61	.07	.250	61	.08	.331	514	.06	.348	924	.14	1.521
33	41	.39	.737	64	.41	1.165	63	.54	.981	62	.13	.424	62	.11	.367	616	.13	.541	974	.10	.498
34	123	.84	2.074	93	.29	.746	84	.32	.959	82	.04	.189	82	.07	.344	568	.18	.528	1,040	.14	.850
35	82	.60	1.132	93	.27	.662	84	.40	1.066	102	.13	.685	82	.04	.189	660	.11	.448	946	.05	.234
36	123	.49	.881	96	.17	.516	105	.52	1.010	82	.13	.438	82	.05	.268	563	.11	.454	980	.10	.509
37	123	.28	.835	128	.25	.561	126	.21	.677	122	.12	.474	102	.11	.561	670	.32	1.069	1,206	.08	.381
38	160	.51	1.034	159	.43	.931	126	.79	2.137	143	.10	.330	150	.23	.636	722	.11	.616	1,283	.11	.453
39	0	.	.	0	.	.	0	.	.	0	.	.	0	.	.	324	.16	.653	513	.07	.517
Total	2,011	.52	1.223	2,040	.41	.996	2,100	.45	1.098	2,048	.12	.530	2,056	.09	.388	10,835	.15	.610	16,703	.10	.611

**. One-way ANOVA is significant at the 0.01 level. *. One-way ANOVA is significant at the 0.05 level.

F-5. Table. Descriptive Results of Distribution of Personal Victimization at City/Province Level (Frequency).

	1993+			1996**			1998*			2002+			2005+			2008**			2010**		
Area	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD
11	509	.45	1.154	498	.40	.934	498	.31	.783	452	.06	.313	430	.02	.166	2,326	.06	.481	2,196	.06	.323
21	164	.28	.581	186	.19	.459	168	.41	.937	164	.06	.307	164	.08	.350	649	.13	.555	1,039	.05	.295
22	123	.33	.707	96	.27	.718	125	.41	.843	123	.01	.090	123	.06	.467	504	.02	.166	911	.06	.278
23	82	.46	1.874	96	.44	1.150	105	.30	.878	104	.15	1.012	103	.01	.099	484	.06	.357	814	.15	.831
24	40	.30	.758	62	.23	.459	63	.35	.786	62	.10	.534	61	.05	.284	367	.05	.246	640	.12	.539
25	80	.61	1.119	63	.79	1.578	64	.30	.554	61	.00	.000	62	.00	.000	346	.04	.225	668	.08	.385
26	0	.	.	0	.	.	63	.30	.586	41	.00	.000	41	.00	.000	363	.06	.252	587	.06	.278
31	283	.34	.748	342	.25	.715	342	.40	1.019	387	.08	.443	451	.03	.219	1,159	.06	.314	1,982	.09	.451
32	77	.26	.696	64	.41	1.815	84	.30	.708	61	.02	.128	61	.02	.128	514	.03	.270	924	.10	.766
33	41	.24	.538	64	.20	.622	63	.37	.679	62	.00	.000	62	.06	.248	616	.05	.301	974	.08	.454
34	123	.57	1.732	93	.16	.495	84	.15	.503	82	.01	.110	82	.00	.000	568	.04	.211	1,040	.13	.837
35	82	.32	.752	93	.20	.582	84	.18	.495	102	.01	.099	82	.01	.110	660	.05	.274	946	.04	.212
36	123	.30	.746	96	.08	.313	105	.37	.750	82	.05	.217	82	.04	.246	563	.05	.275	980	.07	.443
37	123	.22	.752	128	.16	.477	126	.13	.479	122	.08	.377	102	.07	.512	670	.18	.687	1,206	.07	.326
38	160	.39	.862	159	.23	.597	126	.64	2.022	143	.01	.118	150	.11	.507	722	.05	.556	1,283	.08	.360
39	0	.	.	0	.	.	0	.	.	0	.	.	0	.	.	324	.05	.343	513	.06	.508
Total	2,010	.38	1.020	2,040	.29	.830	2,100	.34	.923	2,048	.05	.375	2,056	.04	.282	10,835	.06	.407	16,703	.08	.479

**. One-way ANOVA is significant at the 0.01 level. *. One-way ANOVA is significant at the 0.05 level.+. One-way ANOVA is significant at the 0.1 level

F-6. Table. Descriptive Results of Distribution of Household Victimization at City/Province Level (Frequency).

	1993*			1996			1998*			2002			2005**			2008**			2010		
Area	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD	N	M.	SD
11	514	.13	.473	498	.12	.419	498	.09	.386	452	.06	.288	430	.03	.165	2,326	.07	.351	2,196	.02	.194
21	164	.06	.307	186	.12	.506	168	.05	.251	164	.08	.293	164	.04	.188	649	.07	.303	1,039	.02	.141
22	123	.09	.479	96	.14	.555	125	.11	.406	123	.03	.219	123	.13	.383	504	.06	.272	911	.02	.144
23	82	.06	.241	96	.06	.431	105	.05	.214	104	.08	.386	103	.01	.099	484	.08	.346	814	.03	.298
24	41	.02	.156	62	.10	.393	63	.25	.647	62	.11	.367	61	.15	.543	367	.08	.332	640	.03	.215
25	82	.11	.445	63	.24	.756	64	.06	.244	61	.10	.300	62	.05	.216	346	.08	.336	668	.04	.290
26	0	.	.	0	.	.	63	.10	.429	41	.00	.000	41	.10	.374	363	.17	.661	587	.01	.092
31	287	.19	.844	342	.10	.333	342	.10	.540	387	.05	.341	451	.03	.219	1,159	.08	.313	1,982	.03	.288
32	82	.13	.716	64	.11	.403	84	.20	.741	61	.05	.218	61	.07	.309	514	.03	.185	924	.05	.933
33	41	.15	.573	64	.20	.894	63	.17	.525	62	.13	.424	62	.05	.282	616	.09	.381	974	.02	.202
34	123	.27	1.079	93	.13	.448	84	.17	.637	82	.02	.155	82	.07	.344	568	.15	.454	1,040	.02	.134
35	82	.28	.774	93	.06	.288	84	.23	.827	102	.12	.679	82	.02	.155	660	.07	.319	946	.01	.102
36	123	.19	.518	96	.08	.402	105	.15	.476	82	.09	.358	82	.01	.110	563	.06	.327	980	.03	.235
37	123	.07	.279	128	.09	.318	126	.08	.392	122	.04	.237	102	.04	.241	670	.14	.524	1,206	.01	.131
38	162	.11	.460	159	.19	.707	126	.15	.474	143	.09	.312	150	.12	.383	722	.05	.266	1,283	.03	.201
39	0	.	.	0	.	.	0	.	.	0	.	.	0	.	.	324	.11	.565	513	.01	.098
Total	2,029	.14	.593	2,040	.12	.476	2,100	.11	.478	2,048	.07	.332	2,056	.05	.259	10,835	.08	.371	16,703	.02	.295

**. One-way ANOVA is significant at the 0.01 level. *. One-way ANOVA is significant at the 0.05 level.+. One-way ANOVA is significant at the 0.1 level

APPENDIX G

T-Test Results of Routine Activities/lifestyle Variables by Victimization (binary) 1993-2010

G-1. Total Victimization

Total Victimization

1993		N	Mean	1996		N	Mean	1998		N	Mean
H. GD.	N	1,471	-.0042575	H. GD.+	N	1,570	-.0211493	H. GD.*	N	1,551	-.0290824
	Y	558	.0112236		Y	455	.0729766		Y	541	.0833766
P. GD.**	N	1,458	-.0725289	P. GD.**	N	1,567	-.0546849	P. GD.**	N	1,550	-.0476058
	Y	550	.1922675		Y	458	.1870987		Y	543	.1358914
H. TS.**	N	1,467	-.0561783	H. TS.**	N	1,568	-.0528189	H. TS.**	N	1,555	-.0855483
	Y	555	.1484929		Y	458	.1808297		Y	542	.2454385
P. TS.**	N	1,459	-.0542672	P. TS.**	N	1,561	-.0719234	P. TS.**	N	1,547	-.0510961
	Y	556	.1424025		Y	453	.2478420		Y	539	.1466525

H. GD. : Household Guardianship

P. GD : Personal Guardianship

H. TS : Household Target Suitability

P. TS. : Personal Target Suitability

2002		N	Mean	2005		N	Mean	2008		N	Mean	2010		N	Mean
H. GD.	N	1,875	-.0075318	H. GD.	N	1,934	-.0028911	H. GD.+	N	10,201	.0040388	H. GD.+	N	15,662	.0034781
	Y	162	.0871731		Y	119	.0469870		Y	634	-.0649840		Y	1,041	-.0523284
P. GD.	N	1,878	-.0062987	P. GD.+	N	1,934	-.0110784	P. GD.	N	10,201	-.0037421	P. GD.**	N	15,662	-.0107565
	Y	163	.0725698		Y	119	.1800471		Y	634	.0602100		Y	1,041	.1618335
H. TS.*	N	1,883	-.0147809	H. TS.	N	1,936	-.0044458	H. TS.**	N	10,201	-.0145492	H. TS.**	N	15,662	-.0154858
	Y	163	.1707506		Y	119	.0723290		Y	634	.2340951		Y	1,041	.2329862
P. TS.	N	1,881	-.0088882	P. TS.	N	1,929	-.0074063	P. TS.**	N	10,201	.0146101	P. TS.**	N	15,662	-.0067424
	Y	162	.1032019		Y	118	.1210745		Y	634	-.2350745		Y	1,041	.1014411

**. T-Test is significant at the 0.01 level. *. T-Test is significant at the 0.05 level. +. T-Test is significant at the 0.1 level.

G-2. Personal Victimization

Personal Victimization

1993		N	Mean	1996		N	Mean	1998		N	Mean
H. GD.	N	1,572	-.0002087	H. GD.	N	1,666	-.0052539	H. GD.*	N	1,651	-.0234329
	Y	457	.0007180		Y	359	.0243815		Y	441	.0877272
P. GD.**	N	1,558	-.0722542	P. GD.**	N	1,663	-.0372239	P. GD.**	N	1,652	-.0517830
	Y	450	.2501600		Y	362	.1710036		Y	441	.1939809
H. TS.**	N	1,567	-.0445822	H. TS.**	N	1,663	-.0464564	H. TS.**	N	1,657	-.0684144
	Y	455	.1535392		Y	363	.2128294		Y	440	.2576425
P. TS.**	N	1,559	-.0490683	P. TS.**	N	1,657	-.0539324	P. TS.**	N	1,647	-.0406220
	Y	456	.1677575		Y	357	.2503248		Y	439	.1524017

H. GD. : Household Guardianship

P. GD : Personal Guardianship

H. TS : Household Target Suitability

P. TS. : Personal Target Suitability

2002		N	Mean	2005		N	Mean	2008		N	Mean	2010		N	Mean
H. GD.*	N	1,966	-.0082534	H. GD.	N	2,004	.0046407	H. GD.	N	10,409	-.0021567	H. GD.	N	15,860	.0025801
	Y	71	.2285384		Y	49	-.1897970		Y	426	.0526984		Y	843	-.0485417
P. GD.+	N	1,970	-.0078416	P. GD.	N	2,004	-.0039643	P. GD.	N	10,409	-.0026279	P. GD.**	N	15,860	-.0096551
	Y	71	.2175758		Y	49	.1621309		Y	426	.0642103		Y	843	.1816480
H. TS.*	N	1,975	-.0104802	H. TS.	N	2,006	-.0037579	H. TS.**	N	10,409	-.0133711	H. TS.**	N	15,860	-.0099111
	Y	71	.2915279		Y	49	.1538429		Y	426	.3267142		Y	843	.1864650
P. TS.+	N	1,972	-.0072184	P. TS.*	N	1,999	-.0075582	P. TS.**	N	10,409	.0103650	P. TS.*	N	15,860	-.0053997
	Y	71	.2004888		Y	48	.3147677		Y	426	-.2532624		Y	843	.1015886

**. T-Test is significant at the 0.01 level. *. T-Test is significant at the 0.05 level. +. T-Test is significant at the 0.1 level.

G-3. Household Victimization

Household Victimization

1993		N	Mean	1996		N	Mean	1998		N	Mean
H. GD.	N	1,857	-.0013889	H. GD.*	N	1,904	-.0171223	H. GD.	N	1,931	-.0067805
	Y	172	.0149956		Y	121	.2694288		Y	161	.0813236
P. GD.	N	1,838	-.0104773	P. GD.*	N	1,904	-.0138367	P. GD.	N	1,930	-.0041211
	Y	170	.1132777		Y	121	.2177285		Y	163	.0487963
H. TS.*	N	1,851	-.0133030	H. TS.	N	1,906	-.0074717	H. TS.*	N	1,934	-.0172950
	Y	171	.1439993		Y	120	.1186759		Y	163	.2052060
P. TS.	N	1,844	-.0044485	P. TS.+	N	1,893	-.0097114	P. TS.	N	1,925	-.0084315
	Y	171	.0479712		Y	121	.1519310		Y	161	.1008111

H. GD. : Household Guardianship

P. GD : Personal Guardianship

H. TS : Household Target Suitability

P. TS. : Personal Target Suitability

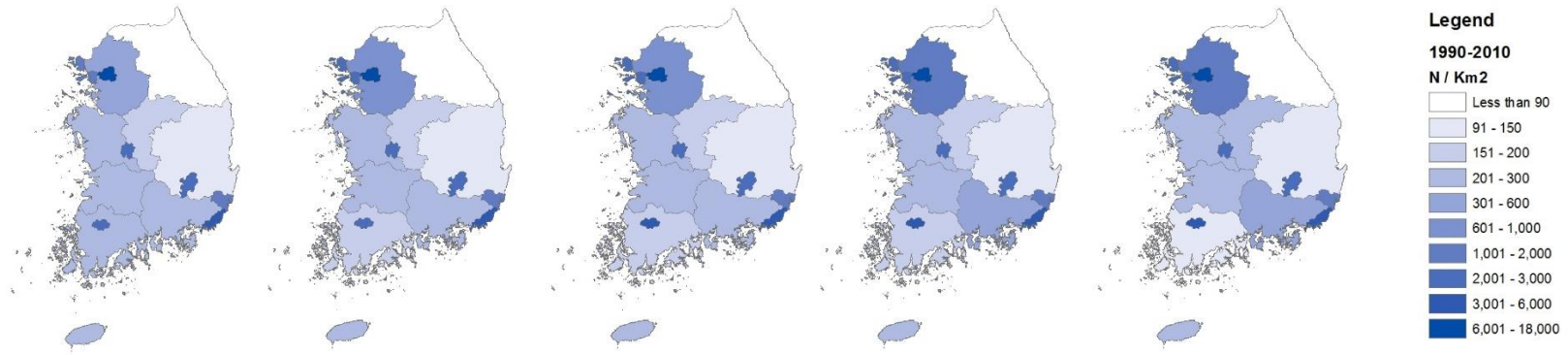
2002		N	Mean	2005		N	Mean	2008		N	Mean	2010		N	Mean
H. GD.	N	1,934	-.0025325	H. GD.+	N	1,976	-.0075778	H. GD.**	N	10,607	.0064914	H. GD.	N	16,431	.0011850
	Y	103	.0475521		Y	77	.1944633		Y	228	-.3019903		Y	272	-.0715847
P. GD.	N	1,937	.0017501	P. GD.+	N	1,976	-.0085272	P. GD.	N	10,607	-.0007527	P. GD.+	N	16,431	-.0018001
	Y	104	-.0325948		Y	77	.2188283		Y	228	.0350172		Y	272	.1087377
H. TS.	N	1,942	-.0057195	H. TS.	N	1,978	.0000297	H. TS.	N	10,607	-.0016465	H. TS.**	N	16,431	-.0070087
	Y	104	.1068014		Y	77	-.0007640		Y	228	.0765963		Y	272	.4233792
P. TS.	N	1,940	-.0024769	P. TS.	N	1,970	-.0004953	P. TS.**	N	10,607	.0045535	P. TS.**	N	16,431	-.0048571
	Y	103	.0466529		Y	77	.0126717		Y	228	-.2118378		Y	272	.2934075

**. T-Test is significant at the 0.01 level. *. T-Test is significant at the 0.05 level. +. T-Test is significant at the 0.1 level.

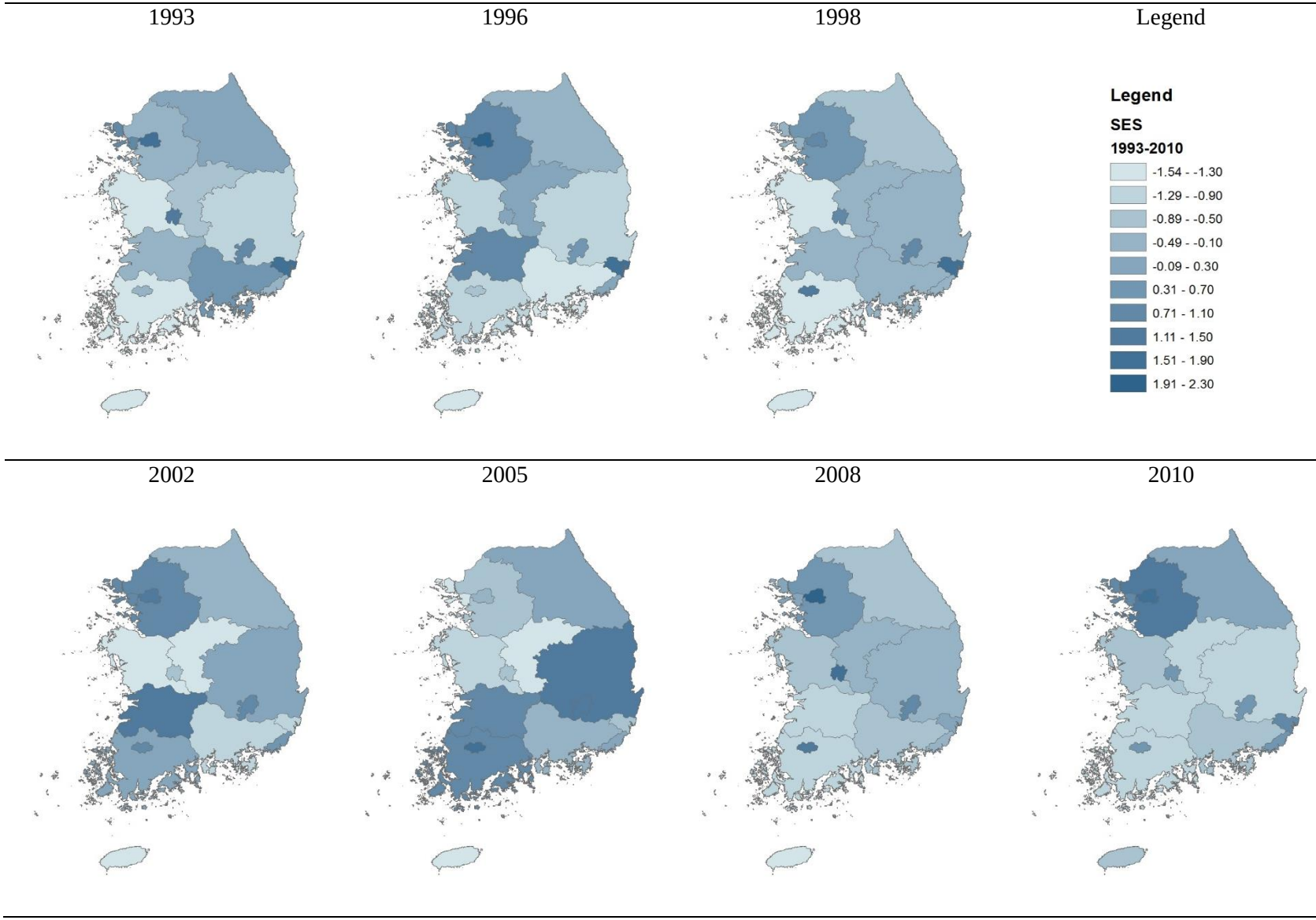
APPENDIX H

Geographical Distributions of Variables

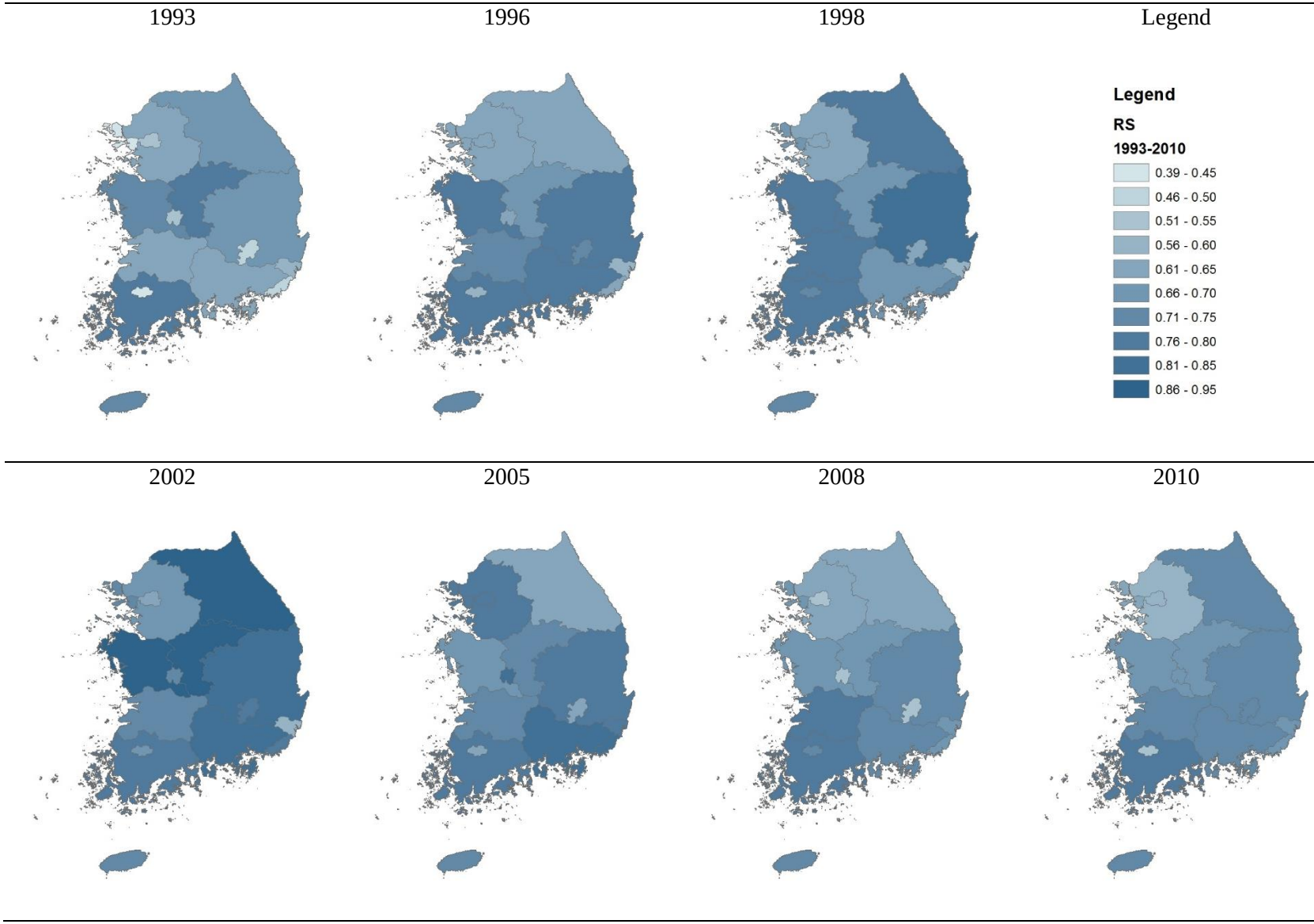
H-1. Geographical Descriptive of Population Density 1993-2010



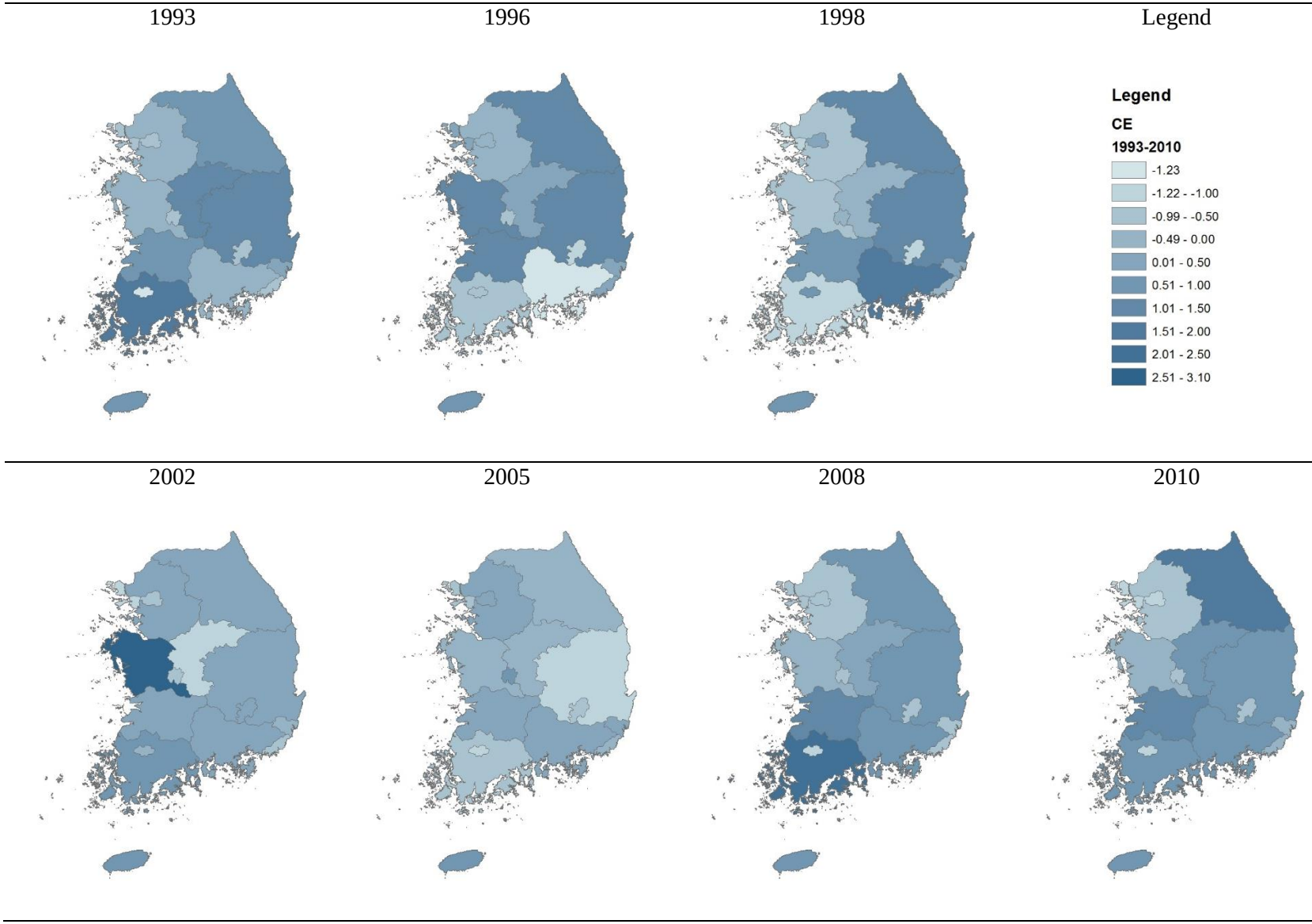
H-2. Socioeconomic Status Distribution at City/Province Level 1993-2010



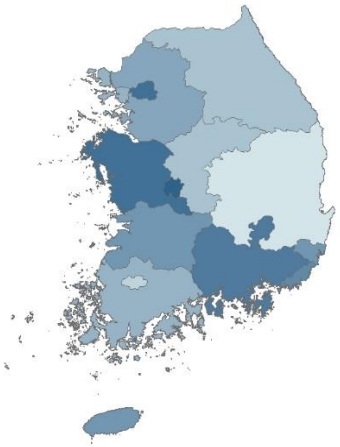
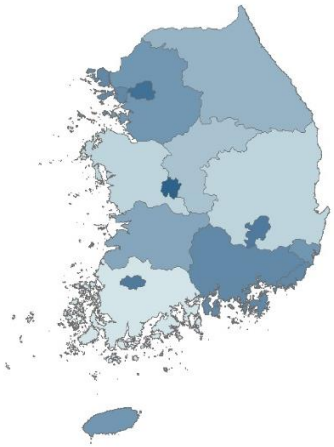
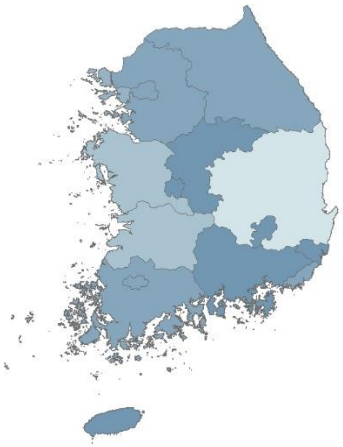
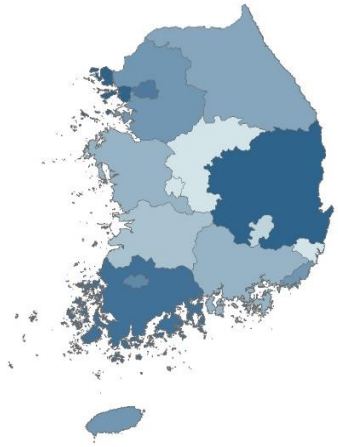
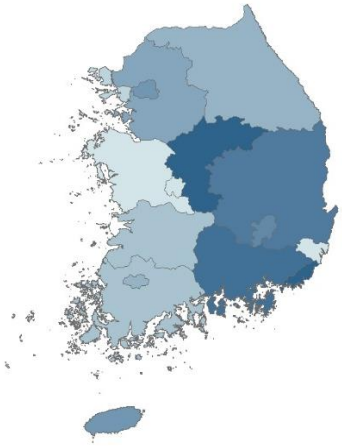
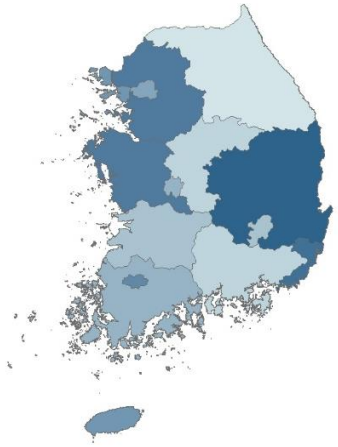
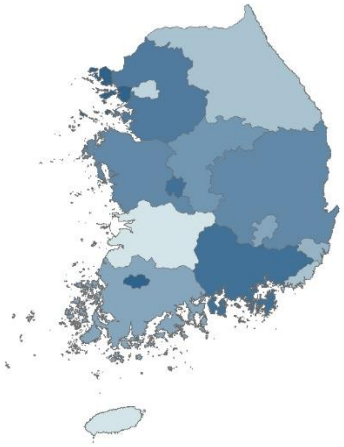
H-3. Residential Stability Distribution at City/Province Level 1993-2010



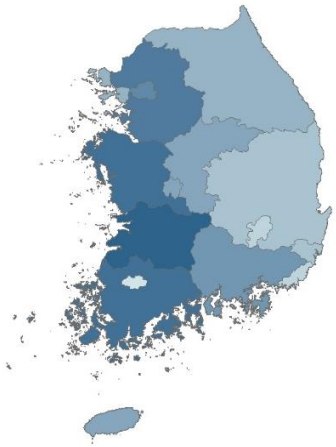
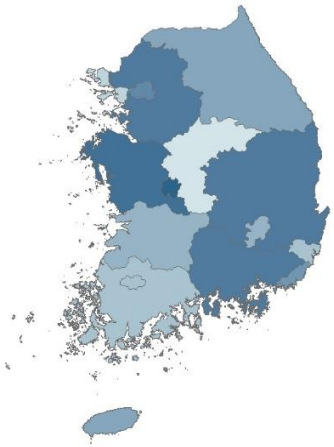
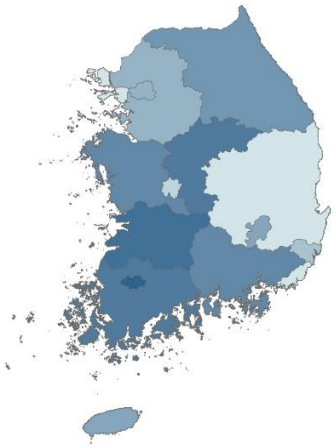
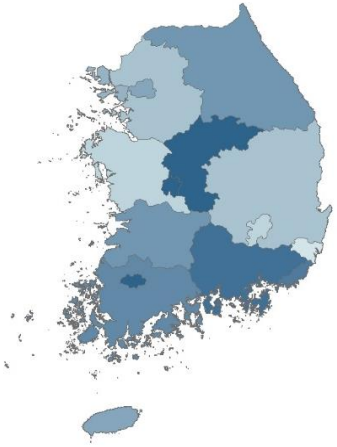
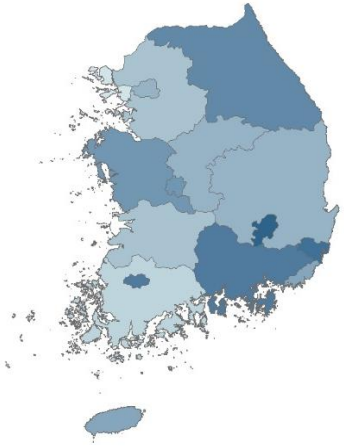
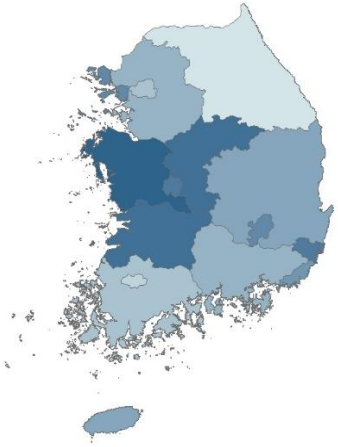
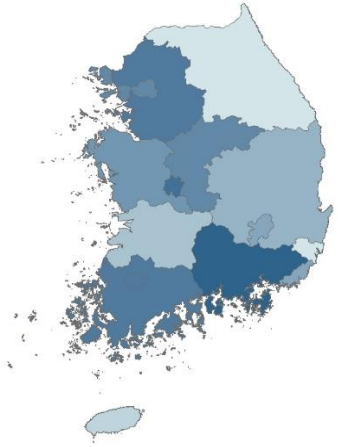
H-4. Collective Efficacy Distribution at City/Province Level 1993-2010



H-5. Personal Victimization Distribution at City/Province Level 1993-2010

1993	1996	1998	Legend
			*Natural Break within Year* *7 Classifications*
2002	**2005**	**2008**	**2010**
			

H-6. Household Victimization Distribution at City/Province Level 1993-2010

1993	1996	1998	Legend
			*Natural Break within Year* *7 Classifications*
2002	**2005**	**2008**	**2010**
			

APPENDIX I

Results of Time Sensitivity Analysis on Victimization

I-1. Table . Summary of Time Sensitivity Analysis on Victimization in 1996

Year	Variables	totalvic_mean _1996	personvic_mean _1996	housevic_mean _1996
1996	ses_1996	.344	.371	-.169
	rstable_mean_1996	-.414	-.511	.253
	ce_1996	-.374	-.412	-.074
	Zts_p_mean_1996	.112	.143	-.234
	Zts_h_mean_1996	.335	.285	.073
	gd_p_mean_1996	.338	.195	.549*
	gd_h_mean_1996	.499	.435	.241
1993	ses_1993	.733**	.773**	.162
	rstable_mean_1993	-.587*	-.592*	-.011
	ce_1993	-.654*	-.631*	-.271
	Zts_p_mean_1993	-.032	.104	-.536*
	Zts_h_mean_1993	.802**	.761**	.373
	gd_p_mean_1993	.572*	.592*	-.001
	gd_h_mean_1993	.458	.538*	-.099

N=14. **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

I-2. Table. Summary of Time Sensitivity Analysis on Victimization in 1998

Year	Variables	totalvic_mean _1998	personvic_mean _1998	housevic_mean _1998
1998	ses_1998	.415	.376	-.034
	rstable_mean_1998	-.366	-.520*	.189
	ce_1998	-.074	-.119	.211
	Zts_p_mean_1998	.611*	.647**	-.170
	Zts_h_mean_1998	.356	.244	-.015
	gd_p_mean_1998	.656**	.343	.622*
	gd_h_mean_1998	.202	.229	-.315
1996	ses_1996	.051	.091	-.345
	rstable_mean_1996	-.442	-.372	-.087
	ce_1996	-.650*	-.670**	-.140
	Zts_p_mean_1996	.256	.418	-.295

Year	Variables	totalvic_mean _1998	personvic_mean _1998	housevic_mean _1998
	Zts_h_mean_1996	-.075	-.038	-.424
	gd_p_mean_1996	-.169	-.292	-.233
	gd_h_mean_1996	.159	.225	-.372
1993	ses_1993	.309	.414	-.330
	rstable_mean_1993	-.300	-.181	.059
	ce_1993	-.272	-.163	.083
	Zts_p_mean_1993	.445	.321	.423
	Zts_h_mean_1993	.268	.130	-.119
	gd_p_mean_1993	.255	.388	-.474
	gd_h_mean_1993	.175	.313	-.360

N=16. **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

I-3. Table. Summary of Time Sensitivity Analysis on Victimization in 2002

Year	Variables	totalvic_mean _2002	personvic_mean _2002	housevic_mean _2002
2002	ses_2002	.204	.547*	-.083
	rstable_mean_2002	.068	-.246	.181
	ce_2002	-.423	-.123	-.411
	Zts_p_mean_2002	.268	.111	.218
	Zts_h_mean_2002	.088	.100	.009
	gd_p_mean_2002	.289	.181	.224
	gd_h_mean_2002	-.166	-.010	-.177
1998	ses_1998	-.175	-.160	-.070
	rstable_mean_1998	.252	.088	.221
	ce_1998	.075	-.134	.150
	Zts_p_mean_1998	.346	-.091	.450
	Zts_h_mean_1998	.142	.224	.058
	gd_p_mean_1998	.257	-.248	.491
	gd_h_mean_1998	.023	-.318	.191
1996	ses_1996	-.036	.118	-.124
	rstable_mean_1996	-.455	-.143	-.419
	ce_1996	-.262	.049	-.357
	Zts_p_mean_1996	.446	.599*	.077
	Zts_h_mean_1996	-.153	.432	-.430
	gd_p_mean_1996	-.516	.220	-.673**
	gd_h_mean_1996	.226	.395	-.006

Year	Variables	totalvic_mean _2002	personvic_mean _2002	housevic_mean _2002
1993	ses_1993	.163	-.065	.196
	rstable_mean_1993	-.321	-.313	-.136
	ce_1993	-.097	-.045	-.071
	Zts_p_mean_1993	.506	.069	.536*
	Zts_h_mean_1993	.035	.035	.020
	gd_p_mean_1993	.131	.126	.043
	gd_h_mean_1993	.242	.176	.165

N=16. **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

I-4. Table. Summary of Time Sensitivity Analysis on Victimization in 2005

Year	Variables	totalvic_mean _2005	personvic_mean _2005	housevic_mean _2005
2005	ses_2005	.258	.020	.306
	rstable_mean_2005	-.381	.157	-.509
	ce_2005	-.494	-.275	-.341
	Zts_p_mean_2005	.081	.268	-.055
	Zts_h_mean_2005	.025	.024	.029
	gd_p_mean_2005	.130	.067	.066
	gd_h_mean_2005	-.166	-.063	-.176
2002	ses_2002	-.284	-.101	-.224
	rstable_mean_2002	.208	.345	-.026
	ce_2002	-.106	-.355	.160
	Zts_p_mean_2002	.422	.620*	.013
	Zts_h_mean_2002	-.166	-.243	.046
	gd_p_mean_2002	-.211	.142	-.388
	gd_h_mean_2002	.133	.033	.168
1998	ses_1998	.345	-.137	.507
	rstable_mean_1998	-.351	-.075	-.390
	ce_1998	.315	.149	.247
	Zts_p_mean_1998	.082	.124	.058
	Zts_h_mean_1998	.210	-.179	.424
	gd_p_mean_1998	.106	-.018	.125
	gd_h_mean_1998	.034	-.017	.101
1996	ses_1996	-.293	-.100	-.296
	rstable_mean_1996	.073	.089	.030
	ce_1996	-.314	-.021	-.451

Year	Variables	totalvic_mean _2005	personvic_mean _2005	housevic_mean _2005
	Zts_p_mean_1996	.019	.218	-.076
	Zts_h_mean_1996	-.234	-.313	-.020
	gd_p_mean_1996	-.286	-.610*	.151
	gd_h_mean_1996	-.093	.048	-.078
1993	ses_1993	.066	-.133	.249
	rstable_mean_1993	-.071	.136	-.273
	ce_1993	-.187	.139	-.432
	Zts_p_mean_1993	-.012	.101	-.178
	Zts_h_mean_1993	.033	-.313	.360
	gd_p_mean_1993	.081	.060	.094
	gd_h_mean_1993	-.473	-.281	-.384

N=16. **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

I-5. Table. Summary of Time Sensitivity Analysis on Victimization in 2008

Year	Variables	totalvic_mean _2008	personvic_mean _2008	housevic_mean _2008
2008	ses_2008	-.007	.019	-.089
	rstable_mean_2008	.231	.225	.066
	ce_2008	-.293	-.259	-.172
	Zts_p_mean_2008	-.132	-.024	-.388
	Zts_h_mean_2008	.364	.409	-.078
	gd_p_mean_2008	.346	.266	.337
	gd_h_mean_2008	-.049	-.050	-.007
2005	ses_2005	-.047	.078	-.432
	rstable_mean_2005	.164	.203	-.101
	ce_2005	-.071	-.138	.212
	Zts_p_mean_2005	.166	.286	-.373
	Zts_h_mean_2005	-.016	-.019	.008
	gd_p_mean_2005	.245	.188	.240
	gd_h_mean_2005	.253	.164	.352
2002	ses_2002	-.168	-.042	-.459
	rstable_mean_2002	-.146	-.211	.190
	ce_2002	.242	.198	.197
	Zts_p_mean_2002	.133	.154	-.043
	Zts_h_mean_2002	-.296	-.197	-.392
	gd_p_mean_2002	-.004	-.084	.269

Year	Variables	totalvic_mean _2008	personvic_mean _2008	housevic_mean _2008
	gd_h_mean_2002	.211	.199	.085
1998	ses_1998	.112	.130	-.041
	rstable_mean_1998	.064	.056	.042
	ce_1998	-.040	.035	-.261
	Zts_p_mean_1998	-.256	-.265	-.018
	Zts_h_mean_1998	.215	.286	-.200
	gd_p_mean_1998	-.374	-.452	.192
	gd_h_mean_1998	.059	-.037	.334
1996	ses_1996	-.205	-.217	.013
	rstable_mean_1996	.214	.156	.219
	ce_1996	.377	.286	.351
	Zts_p_mean_1996	-.070	.085	-.523
	Zts_h_mean_1996	.014	.127	-.371
	gd_p_mean_1996	.178	.266	-.270
	gd_h_mean_1996	.167	.254	-.269
1993	ses_1993	-.411	-.360	-.224
	rstable_mean_1993	-.027	-.105	.256
	ce_1993	-.136	-.137	-.013
	Zts_p_mean_1993	-.235	-.200	-.148
	Zts_h_mean_1993	.025	.055	-.099
	gd_p_mean_1993	-.112	-.053	-.212
	gd_h_mean_1993	-.345	-.303	-.183

N=16. **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

I-6. Table. Summary of Time Sensitivity Analysis on Victimization in 2010

Year	Variables	totalvic_mean _2010	personvic_mean _2010	housevic_mean _2010
2010	ses_2010	.203	.240	.001
	rstable_mean_2010	-.610*	-.623**	-.260
	ce_2010	-.604*	-.591*	-.299
	Zts_p_mean_2010	-.092	-.077	-.007
	Zts_h_mean_2010	.176	.184	-.061
	gd_p_mean_2010	.387	.446	-.086
	gd_h_mean_2010	.440	.485	.143
2008	ses_2008	.355	.353	.284
	rstable_mean_2008	-.047	-.055	-.164

Year	Variables	totalvic_mean_2010	personvic_mean_2010	housevic_mean_2010
	ce_2008	-.386	-.441	-.025
	Zts_p_mean_2008	.059	.008	.190
	Zts_h_mean_2008	.307	.371	.083
	gd_p_mean_2008	.061	.055	.169
	gd_h_mean_2008	.570*	.572*	.352
2005	ses_2005	.001	.008	-.064
	rstable_mean_2005	-.028	-.083	.386
	ce_2005	.242	.249	.091
	Zts_p_mean_2005	-.226	-.225	-.227
	Zts_h_mean_2005	.149	.183	-.096
	gd_p_mean_2005	-.500	-.516*	-.179
	gd_h_mean_2005	-.285	-.258	-.351
2002	ses_2002	.079	.043	-.025
	rstable_mean_2002	-.181	-.187	.027
	ce_2002	-.098	-.088	-.031
	Zts_p_mean_2002	.113	.111	.187
	Zts_h_mean_2002	-.222	-.146	-.295
	gd_p_mean_2002	.068	-.033	.046
	gd_h_mean_2002	.036	.020	-.011
1998	ses_1998	.115	.170	-.106
	rstable_mean_1998	-.130	-.124	.002
	ce_1998	-.159	-.046	-.131
	Zts_p_mean_1998	.067	-.025	.260
	Zts_h_mean_1998	.441	.460	.203
	gd_p_mean_1998	.202	.075	.223
	gd_h_mean_1998	-.121	-.168	.177
1996	ses_1996	-.193	-.227	-.218
	rstable_mean_1996	-.381	-.407	.024
	ce_1996	-.435	-.318	-.780**
	Zts_p_mean_1996	.334	.286	.258
	Zts_h_mean_1996	.184	.238	-.135
	gd_p_mean_1996	-.145	-.079	-.284
	gd_h_mean_1996	.218	.145	.383
1993	ses_1993	.141	.138	.283
	rstable_mean_1993	-.446	-.466	-.148
	ce_1993	-.415	-.417	-.279
	Zts_p_mean_1993	.188	.196	-.206
	Zts_h_mean_1993	.262	.280	.160

Year	Variables	totalvic_mean_2010	personvic_mean_2010	housevic_mean_2010
	gd_p_mean_1993	.117	.146	-.015
	gd_h_mean_1993	.175	.142	.131

N=16. **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

APPENDIX J

Results of Time-Lagged Analysis on Victimization

J-1. Results of Time-Lagged Analysis on Total Victimization 1993-2010

Model	**1**		**2**		**3**	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	.138	.365	.231*	.000	.087	.577
ses_1993	.582*	.048			.507	.217
rstable_mean_1993	.199	.619			.382	.378
ce_1993	-.478	.214			.309	.600
Zts_p_mean_1993			-.125	.547	.048	.837
Zts_h_mean_1993			.856*	.014	1.257	.078
gd_p_mean_1993			-.248	.516	-.255	.549
gd_h_mean_1993			.301	.324	-.023	.949
R^2		**.623***		**.686***		.795
F		5.501		4.918		3.319

Note. p<.05, Dependent Variable: totalvic_mean_1996*

Model	**1**		**2**		**3**	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	.541*	.002	.269*	.000	.599*	.002
ses_1996	-.184	.442			.309	.268
rstable_mean_1996	-.484	.062			-.622*	.022
ce_1996	-.610*	.012			-.957*	.005
Zts_p_mean_1996			.329	.508	.060	.828
Zts_h_mean_1996			-.288	.585	-.620	.095
gd_p_mean_1996			-.062	.888	.317	.250
gd_h_mean_1996			.127	.794	-.508	.146
R^2		**.601***		.136		**.840***
F		5.017		.356		4.491

Note. p<.05, Dependent Variable: totalvic_mean_1998*

Model	**1**		**2**		**3**	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	.002	.989	.076*	.000	.172	.235
ses_1998	-.026	.952			-1.360	.059
rstable_mean_1998	.227	.609			-.274	.510
ce_1998	.032	.923			.695	.083
Zts_p_mean_1998			.488	.298	.620	.148
Zts_h_mean_1998			-.060	.862	.764	.114
gd_p_mean_1998			.077	.824	.289	.362
gd_h_mean_1998			-.260	.481	-.099	.749

R^2	.064	.174	.615
F	.252	.527	1.599

Note. p<.05, Dependent Variable: totalvic_mean_2002*

Model	1		2		3	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	.018	.816	.065*	.000	-.099	.443
ses_2002	-.277	.413			.143	.757
rstable_mean_2002	.201	.573			.759	.220
ce_2002	-.290	.378			.015	.979
Zts_p_mean_2002			.462	.195	.418	.382
Zts_h_mean_2002			.104	.758	.158	.762
gd_p_mean_2002			-.281	.357	-.271	.509
gd_h_mean_2002			.160	.598	.734	.244
R^2		.151		.258		.421
F		.653		.870		.726

Note. p<.05, Dependent Variable: totalvic_mean_2005*

Model	1		2		3	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	.024	.819	.096*	.000	-.124	.507
ses_2005	-.098	.801			.299	.701
rstable_mean_2005	.214	.525			.683	.256
ce_2005	-.217	.580			-.925	.380
Zts_p_mean_2005			.100	.783	-.429	.576
Zts_h_mean_2005			-.278	.607	-.102	.881
gd_p_mean_2005			-.052	.924	-.814	.439
gd_h_mean_2005			.386	.554	1.491	.255
R^2		.055		.106		.272
F		.214		.297		.374

Note. p<.05, Dependent Variable: totalvic_mean_2008*

Model	1		2		3	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	-.023	.706	.062*	.000	-.007	.913
ses_2008	.594	.256			.174	.782
rstable_mean_2008	.561	.173			.465	.273
ce_2008	-.254	.524			.251	.636
Zts_p_mean_2008			-.342	.275	-.264	.488
Zts_h_mean_2008			.389	.256	.476	.329
gd_p_mean_2008			-.212	.430	-.149	.630
gd_h_mean_2008			.598*	.037	.846	.092
R^2		.282		.427		.547
F		1.574		2.052		1.379

Note. p<.05, Dependent Variable: totalvic_mean_2010*

J-2. Results of Time-Lagged Analysis on Personal Victimization 1993-2010

Model	1		2		3	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	.119	.381	.183*	.000	.095	.521
ses_1993	.652*	.026			.861	.035
rstable_mean_1993	.152	.692			.199	.640
ce_1993	-.375	.306			-.487	.231
Zts_p_mean_1993			-.018	.942	.215	.349
gd_p_mean_1993			.596*	.035	-.303	.437
R^2		.650*		.351		.697
F		6.193		2.978		3.686

Note. p<.05, Dependent Variable: personvic_mean_1996*

Model	1		2		3	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	.418	.014	.214*	.000	.408*	.027
ses_1996	-.084	.737			-.018	.948
rstable_mean_1996	-.362	.168			-.352	.221
ce_1996	-.641*	.013			-.628*	.035
Zts_p_mean_1996			.449	.108	-.002	.996
gd_p_mean_1996			-.333	.220	-.282	.236
R^2		.556*		.285		.632
F		4.174		2.191		2.745

Note. p<.05, Dependent Variable: personvic_mean_1998*

Model	1		2		3	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	.020	.836	.028	.001	-.002	.982
ses_1998	-.121	.784			.072	.902
rstable_mean_1998	.032	.942			.139	.786
ce_1998	-.123	.713			-.217	.618
Zts_p_mean_1998			.053	.874	-.027	.954
gd_p_mean_1998			-.275	.417	-.269	.501
R^2		.039		.063		.099
F		.148		.406		.198

Note. p<.05, Dependent Variable: personvic_mean_2002*

Model	1		2		3	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	-.088	.087	.023*	.000	-.092*	.031
ses_2002	.019	.943			.386	.139
rstable_mean_2002	.657*	.037			.684*	.011
ce_2002	-.653*	.025			-.399	.118
Zts_p_mean_2002			.617*	.017	.645*	.013

gd_p_mean_2002			.128	.578	-.006	.979
R^2		.456		.401*		.738*
F		3.079		4.014		5.060

Note. p<.05, Dependent Variable: personvic_mean_2005*

Model	**1**		**2**		**3**	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	-.026	.789	.075	.000	-.019	.859
ses_2005	.060	.874			-.001	.999
rstable_mean_2005	.319	.338			.309	.384
ce_2005	-.230	.548			-.226	.711
Zts_p_mean_2005			.255	.386	.270	.491
gd_p_mean_2005			.125	.668	.060	.905
R^2		.101		.096		.182
F		.412		.640		.401

Note. p<.05, Dependent Variable: personvic_mean_2008*

Model	**1**		**2**		**3**	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	-.017	.734	.051	.000	-.018	.741
ses_2008	.459	.366			.618	.280
rstable_mean_2008	.531	.188			.523	.230
ce_2008	-.395	.319			-.400	.339
Zts_p_mean_2008			-.003	.992	-.293	.368
gd_p_mean_2008			.055	.848	.001	.998
R^2		.307		.003		.364
F		1.773		.020		1.143

Note. p<.05, Dependent Variable: personvic_mean_2010*

J-3. Results of Time-Lagged Analysis on Household Victimization 1993-2010

Model	**1**		**2**		**3**	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	-.059	.423	.054	.000	-.078	.223
ses_1993	.220	.558			.195	.626
rstable_mean_1993	.864	.142			1.079	.049
ce_1993	-.868	.116			.443	.517
Zts_h_mean_1993			.519	.107	1.765	.038
gd_h_mean_1993			-.330	.289	-.429	.222
R^2		.261		.226		.600
F		1.176		1.609		2.399

Note. p<.05, Dependent Variable: housevic_mean_1996*

Model	**1**		**2**		**3**	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	.215	.113	.082	.000	.240	.075
ses_1996	-.505	.147			-.077	.845
rstable_mean_1996	-.327	.335			-.430	.200

ce_1996	-.111	.701			-.420	.237
Zts_h_mean_1996			-.314	.374	-.329	.390
gd_h_mean_1996			-.183	.600	-.509	.261
R^2		.218		.201		.451
F		.930		1.382		1.316

Note. p<.05, Dependent Variable: housevic_mean_1998*

Model	**1**		**2**		**3**	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	-.024	.853	.056	.000	.038	.795
ses_1998	.101	.817			-.438	.556
rstable_mean_1998	.272	.541			.071	.887
ce_1998	.080	.810			.329	.443
Zts_h_mean_1998			.003	.993	.380	.485
gd_h_mean_1998			.190	.532	.298	.405
R^2		.065		.037		.175
F		.254		.228		.381

Note. p<.05, Dependent Variable: housevic_mean_2002*

Model	**1**		**2**		**3**	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	.094	.201	.044	.000	.017	.877
ses_2002	-.298	.391			-.360	.390
rstable_mean_2002	-.264	.475			.160	.778
ce_2002	.184	.582			.491	.232
Zts_h_mean_2002			.048	.868	.439	.253
gd_h_mean_2002			.169	.564	.660	.266
R^2		.103		.031		.286
F		.423		.189		.721

Note. p<.05, Dependent Variable: housevic_mean_2005*

Model	**1**		**2**		**3**	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	.051	.073	.024	.000	.052	.086
ses_2005	-.551	.124			-.449	.255
rstable_mean_2005	-.313	.299			-.329	.309
ce_2005	.002	.996			.368	.408
Zts_h_mean_2005			-.266	.414	-.584	.183
gd_h_mean_2005			.498	.139	.316	.387
R^2		.270		.173		.412
F		1.357		1.257		1.260

Note. p<.05, Dependent Variable: housevic_mean_2008*

Model	**1**		**2**		**3**	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)	.006	.814	.016	.000	.008	.749
ses_2008	.793	.160			.398	.541

rstable_mean_2008	.164	.699			.139	.747
ce_2008	.494	.254			.798	.159
Zts_h_mean_2008			-.058	.838	.257	.521
gd_h_mean_2008			.374	.205	.586	.252
R^2		.186		.127		.298
F		.915		.943		.848

Note. p<.05, Dependent Variable: housevic_mean_2010*

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