AN EXAMINATION OF THE DECLINE OF CROSS-NATIONAL HOMICIDE TRENDS, 1995-2006

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Abstract: The early 1990s witnessed a sudden cross-national drop in crime which researchers are unable to explain. Numerous studies attempt to explain the phenomenon, providing several variables as potential indicators, but no results have yet been unanimously confirmed. In this study, I examine the 1990s crime drop from a cross-national perspective using variables that are theoretically relevant and drawn from prior research. I estimate a series of Ordinary Least Squares (OLS) regression equations to assess the impact various indicators have on homicide rates across a sample of 85 countries from 1995-2006. The indicators include GDP per capita, Human Development Index, Gini Index, poverty, urbanization, unemployment, police per capita, Political Rights Index and Corruption Perception Index. The most significant findings suggest that the Gini Index, an indicator of relative deprivation theory, and unemployment, an indicator of routine activity theory, have large influences on cross-national homicide rates. Based on these findings, I believe that future research should place greater emphasis on economic indicators, as both the Gini Index and unemployment express frustrations that accrue from economic inequalities.

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CHAPTER I

INTRODUCTION

The 1980s witnessed an increase in crime that gained the widespread attention of researchers, but the decline in crime that followed left scholars searching for explanations. Several aspects of the decline are particularly noteworthy: its size, breadth and persistence across categories of crime; its universality across geographic and demographic groups; and its unexpectedness (Levitt 2004). In fact, many crime analysts predicted that crime rates, or the number of offenses of a specified type divided by the population of some jurisdiction (Rosenfeld 2002), during this period would dramatically increase. The crime drop that began in the early 1990s and continues into the present is baffling not just because of its unexpected onset and longevity but because the decrease is so significant. During this time most types of crime fell drastically, most notably, homicide rates went down by approximately 40 percent. The magnitude of the decline motivates researchers to study the crime drop and identify its major indicators for use in future policies.

Originally, the majority of crime drop research focused on the United States; however, the crime drop actually occurred cross-nationally. Cross-national research is invaluable because variables that are influential in predicting the US crime drop may not

be applicable in other countries. Ignoring this fact is a huge oversight, as it challenges the validity and accuracy of the findings and their application to social policies. Although the number and sophistication of cross-national studies has lagged behind US studies, they gradually have become rigorous and common (Pridemore and Trent 2010).

Crime drop studies have examined a variety of crimes over the past several decades; however, the most common crime studied is homicide, on both national and cross-national levels (Bennett and Lynch 1990; Blumstein and Wallman 2006; Huang and Wellford 1989; Nivette 2011; Vigderhous 1978). Many other crimes are subject to inconsistent reporting patterns due to fear, shame or indifference; however, homicide is a crime that is more difficult to avoid reporting. Additionally, homicide is considered the most universally agreed-upon common law crime, as virtually all societies in the world include laws against homicide (Marshall and Block 2004). However, there are still differences in the definition of homicide between countries. Most countries collect crime statistics in categories that reflect their legal code and their cultural mores, but for international comparisons of crime rates to have validity, it is essential for crime definitions to be similar (Kalish 1988). For this study, I will use *intentional homicide*, which, as defined by the United Nations, is death deliberately inflicted on a person by another person, including infanticide (United Nations Surveys 2010).

Studies from the United States produce an array of explanations for the crime drop; ranging from abortion rates to economic conditions, the drug decline and gun ownership. The inclusion of cross-national homicide research lengthens this list and creates an even larger amount of empirical and theoretical results for future analysts to consider in their own studies.

For example, arguments exist that suggest incarceration successfully deters crime. Offenders who are locked up can no longer commit deviant acts and, at the same time, the threat of incarceration will deter potential offenders. The US imprisonment rate increased 260 percent between 1980 and 2006 (Rosenfeld and Messner 2009), the same time frame that contains the crime drop; therefore, suggesting increases in incarceration might have an effect on declining homicide rates. One commonly overlooked problem with the utility of this explanation is that incarceration can only work as a long-term deterrent if recidivism rates are also decreasing. Otherwise, it appears that prison does not work to rehabilitate or fix any social problems, only temporarily delay them. Additionally, homicides are often "crimes of passion", where deterrence does not apply.

Economic conditions during this time were also at highs that had not been witnessed in decades; unemployment was reduced, real gross domestic product (GDP) was growing, and there were improved collective perceptions of economic conditions (Rosenfeld and Messner 2009). There are numerous perspectives purporting that economic conditions directly influence crime rates. First, negative economic conditions drive individuals to take drastic measures to improve their life situation, which can lead to crime. Second, a large social emphasis on economic status pressures individuals to focus too heavily on earning money and overlooks the importance of family and education, which are shown to be essential tools in reducing crime. Other studies argue that economic conditions only significantly affect property crimes and other crimes that benefit their social or economic status, not homicide rates (Gould, Weinberg, and Mustard 2002; Levitt 2004; Raphael and Winter-Ebmer 2001; Rosenfeld and Messner 2009).

Another explanation to consider is that many analysts had actually predicted that crime rates would skyrocket in the 1990s based on a large increase in the youth population (Fox 1996; Levitt 2004; Rosenfeld and Messner 2009; Wilson and Petersilia 2011). In a study commissioned by the US Attorney General, criminologist James Alan Fox (1996) optimistically projected youth homicide would increase by 15 percent, however, in a more pessimistic scenario, he predicted youth homicide would more than double over the next decade (Levitt 2004). The youth cohort was expected to increase during the 1990s and consequently so was the crime rates; however, this did not happen.

Policing is another variable used in US studies, but because research on these policing changes are country specific it is difficult to logically conclude they have the same impact cross-nationally. In the US, policing policies were changing rapidly during the 1990s, which led to an increase in the number of police on the streets at the same time homicide rates drastically declined. The number of police officers per capita, which is tracked by the FBI and reported annually in the Uniform Crime Reports, increased by 50,000-60,000 officers, or roughly 14 percent (Levitt 2004). Based on these numbers, Levitt (2004) suggests that the increase in police explains somewhere between one-fifth and one-tenth of the overall decline in crime. However, the idea of more police on the streets deterring homicide still faces the challenge of overcoming the simultaneity problem: increases in police strength may well reduce crime, but crime just as surely causes changes in police strength as cities brought on or laid off officers in response to crime trends (Blumstein and Wallman 2006; Eck and Maguire 2000).

In this study, I examine the 1990s crime drop from a cross-national perspective using variables that are theoretically relevant and drawn from prior research. I will

address the following question using data compiled from several secondary sources including the United Nations, World Bank, Freedom House and Transparency International: *What factors are important in explaining the cross-national decline in homicide rates that began in the early 1990s and continues into the present?*

In the following chapter, I review the literature on declines in the United States and cross-national homicide rates. This review helps to determine gaps in the literature. Following the literature review, I present theoretical perspectives and hypotheses. Next, I discuss my methodology and present an analysis of the results of the study. Finally, my discussion and conclusion situates my findings within the existing crime drop literature and suggests future directions for crime drop research.

CHAPTER II

LITERATURE REVIEW

Following an increase in crime in the 1980s, the United States' crime rates began to plummet in the 1990s. Crime fell sharply, between 24 and 46 percent, in all categories of crime and all parts of the nation between 1991 and 2001 (Levitt 2004). The decline occurred without warning, as leading experts were predicting an explosion of crime in the early and mid-1990s, precisely the point when crime rates plunged (Levitt 2004). Many thought that the crime rates were going to increase for a variety of factors, especially a growing population of youth in their late teens and early 20s and a rapidly growing drug market. In fact, several analysts predicted a generation of "superpredators" who would unleash the full force of their destructive capacities on an already crime-weary nation (Bennett, DiIulio, and Walters 1996; Fox and Pierce 1994; LaFree 1999).

Even more puzzling, some studies demonstrated that the drop was not contained to the United States. Many countries from the early to mid-1990s onwards experienced major drops in crime. For example, estimates of mean international crime reductions of 20.6 percent in assaults and 49 percent in violent crime were reported in the United Kingdom (Tseloni, Mailley, Farrell, and Tilley 2010). This dramatic and unexpected change became a mystery worthy of study for many researchers and analysts. The absence of an adequate explanation identified a gap in criminological literature and meant

that the forces that reduced crime could not be confidently harnessed for policy purposes (Tseloni, Mailley, Farrell, and Tilley 2010).

US CRIME DROP

Observed first in the United States, dramatic falls in violent crimes including homicide, which fell by 40 percent, attracted much media and research attention. Most research to date has focused on the United States (Blumstein and Rosenfeld 2008; Blumstein and Wallman 2006; LaFree 1999; Levitt 2004; Tseloni, Mailley, Farrell, and Tilley 2010).

US Data

The nation has two "official" methods for determining crime rates. One, consisting of offenses known to the police, is the FBI's Uniform Crime Reports (UCR). The other is based on reports by victims to the Justice Department's annual National Crime Victimization Survey (NCVS) (Rosenfeld 2002). Data from both the UCR and NCVS strongly supported the conclusion that there were substantial, broad-based declines in street crime rates during the first half of the 1990s (Lafree 1998). The statistics showed a rise in crime that began in 1985 that included a sharp spike in violence that ended around 1993. At this time, a pronounced crime drop began in which the murder rate alone declined by 42 percent (Blumstein and Wallman 2006). The most remarkable feature of the crime decline in the United States was its sheer magnitude and persistence, as homicide rates alone fell from 9.8 to 5.5 per 100,000 between 1991 and 2000 respectively (Levitt 2004). Messner et al. (2005) found that slightly over half of the 68 largest US cities experienced a clear rise and subsequent fall in crime rates during this

time. In the space of the ten years prior to the crime drop, murder rates more than doubled and robbery rates more than tripled; conversely, in the space of only six years in the 1990s, murder and robbery rates fell by nearly a third (LaFree 1999).

US Studies

Blumstein and Wallman (2006) reviewed the US crime trends and potential explanations, including changes in incarceration rates, illicit drug markets, gun ownership and gun control, policing, economics and various demographics and concluded that the most reasonable accounts involved a complex interaction among several of these factors. Levitt (2004) also analyzed the leading explanations for why crime fell while looking at possible determinants that changed in some substantial way in the 1990s. He concluded that most of the existing explanations actually played little direct role in the decline and instead cited four factors he felt could account for virtually all of the observed decline in crime: increased number of police, the rising prison population, the waning crack epidemic and the legalization of abortion (Levitt 2004). Blumstein (2006) examined the data on the crime decline while focusing on incarceration, changing demographic composition, policing and control of guns, and the changing nature of the crack cocaine market. The results suggested two possible factors contributing to the drop, first, a decline in recruitment of young people with handguns into the crack market; the second, an incapacitation effect of people aged 30 and above (Blumstein 2006). It is clear that there is no consensus among researchers what factors contributed most to the decline in crime in the United States in the 1990s. However, I now review the research on some of the most commonly reported explanations.

Incarceration Rates

Many studies proposed that increased incarceration rates were associated with reductions in crime (Blumstein, Cohen, and Nagin 1978; Devine, Sheley, and Smith 1988; Don 2007; LaFree 1999; Levitt 1996; Liedka, Piehl, and Useem 2006; Marvell and Moody 1991; Rosenfeld and Messner 2009). Increased imprisonment worked to reduce crime through incapacitation, or locking up offenders so they were unable to commit further crimes. Furthermore, the increased threat of punishment often deterred criminals from committing crimes they otherwise might have found attractive (Levitt 2004).

Devine et al. (1988) found a strong connection between annual changes in homicide, robbery, and burglary rates and changes in prison population; a finding later updated and replicated by Marvell and Moody (1991). Additionally, analysis of US time-series data revealed positive effects of imprisonment on violent crime rates (Bowker 1981; Cantor and Land 1985; LaFree 1999). Another study suggested a 10 percent increase in incarceration is associated with a 2 to 4 percent drop in crime (Don 2007). Despite these findings, however, some uncertainty remains over how to identify the effect of incarceration on crime, given that rising crime rates tended to result in rising incarceration rates as offenders were processed through the criminal justice system (Rosenfeld and Messner 2009; Spelman 2008).

Economic Conditions

Economic growth was another popular variable used to explain crime rates. Changes in measures of economic development, such as income distribution,

urbanization, per capita income and institutional development were often linked to crime (Soares 2004). The 1990s saw sustained economic growth as GDP per capita increased almost 30 percent between 1991 and 2001. Additionally, the annual unemployment rate fell from 6.8 percent in 1991 to 4.8 percent in 2001. If macroeconomic performance was an important determinant of crime, then the economic changes may have helped explain decreases in crime rates (Levitt 2004).

Some theorists argued that economic stress weakened social bonds and may have led to crime (Lafree 1998). Rosenfeld (2009) found that economic conditions predicted increases in violence as people often adopt more "risky" criminal lifestyles when faced with limited access to more lawful means. Conversely, arguments could be made that better economic conditions might have eliminated the need to engage in criminal behavior.

It is also possible that increased legitimate employment opportunities that result from a strong economy could reduce the number of potential offenders from committing crimes. For instance, there may have been a relationship between the decline in the unemployment rate during the 1990s and crime rates. Despite some evidence in favor of this argument in the case of property crimes, research has been unable to document a strong effect of unemployment on violent crime; particularly, homicide (Donohue and Levitt 2001; Gould, Weinberg, and Mustard 2002; Levitt 2004; Machin and Meghir 2004; Raphael and Winter-Ebmer 2001). Robbery had the strongest and most consistent positive relationship with unemployment (Blumstein and Wallman 2006; Raphael and Winter-Ebmer 2001).

Age

Some researchers argued that a growing cohort of youths would lead to an increase in crime. According to Hirschi and Gottfredson (1983), the strength of the relationship between age structure and crime rates was "invariant" across cultures, historical periods, and types of crime. Studies also found moderate to strong relationships between age and homicide rates (LaFree 1999; Marvell and Moody 1991). Criminal activity increases noticeably during the mid-teen years and peaks around the age of 20, following which, criminal propensity steadily declines (Blumstein and Wallman 2006; Fox 2000; Gottfredson and Hirschi 1990; Phillips 2006; Trussler 2012). Based on these findings, coupled with a growing number of teens and young adults, one might have expected an increase in crime. Yet, Blumstein and Wallman (2006) pointed out that the aggregate crime spike of the late 1980s and early 1990s was driven by a sharp rise in the violent crime rate of young men despite their *decreasing* proportion in the population.

Drug Trends

The 1980s saw a huge increase in drug usage as drugs became cheaper and were more accessible. Wilson (1983) drew connections between the crime boom of the 1980s and dramatic increases in heroin use. Further, Blumstein and Rosenfeld (1997) argued that the crime drop may be explained in part by the decreased number of new crack users and the increased stability of drug markets (LaFree 1999). By the early 1990s, retail crack markets, which had previously been a major source of crime and violence, contracted because either they had become too violent for the participants, police tactics

against them were succeeding, a new generation of drug users feared the destruction of crack, or a combination of these factors (Blumstein and Wallman 2006).

Policing Policies

Poor relations between the police and communities were a common explanation for the crime boom of the 1960s (Wilson 1983). However, more attention was focused on the role of police in the crime bust of the 1990s (LaFree 1999). Blumstein and Wallman (2006) suggested that changes in policing policies might have been related to the crime drop. Readily linked to decreased crime rates were well-received efforts by the police to be more available and involved in the community. The approaches typically used in these new strategies included, increased enforcement of nuisance activities, better use of technology, and "community policing" (Levitt 2004). Community policing, which enlisted the public in an anticrime partnership (Blumstein and Wallman 2006), was an innovative and popular new strategy utilized by police.

Unfortunately, these new strategies were often not effective, especially in the case of violent crime. However, Levitt (2004) concluded that homicide rates were the violent crime that was most responsive to increased police, which was somewhat surprising, because murder was often a crime of passion and, therefore, not among those expected to be deterred by fear of police detection and subsequent punishment (Blumstein and Wallman 2006). In their comprehensive review of the role of policing in the crime drop, Eck and Maguire (2000) concluded that police efforts to impede the drug trade provided the largest reduction in violence (Blumstein and Wallman 2006).

Guns

Changes in gun control laws and gun ownership also received a significant amount of attention within the United States as a cause of the crime drop. Levitt (2004) posited it was due to the fact that there were more than 200 million firearms in private hands in the United States –more than the number of adults (Cook and Ludwig 1996), and that almost two-thirds of the homicides in the United States involved one of these firearms, a fraction far greater than other industrialized nations. Research on the subject found that higher rates of handgun ownership, which represented about one-third of all firearms, might have been a causal factor in increased violent crime rates (Duggan 2000; Levitt 2004). Based on these findings, new laws during the 1990s (which expired in 2004), required gun sellers to run background checks on potential buyers, imposed a five-day waiting period before receiving the gun and banned semi-automatic and other large-capacity ammunition firearms.

Despite findings that linked overall gun ownership with increased homicides (Duggan 2000), other studies noted that non-criminals carrying guns may also have positive effects on reducing crime. Lott and Mustard (1997) found substantial reductions in violent crime due to concealed weapons laws that allowed citizens to own and legally carry their guns outside of the home. The theory behind this claim was straightforward: armed victims raised the costs faced by a potential offender (Levitt 2004). If criminals were deterred from committing crimes when potential victims were more likely to possess a firearm, then more gun ownership may have led to a reduction in criminal activity (Duggan 2000).

Summary

In sum, although the crime drop in the United States that began in the early 1990s was unexpected, scholars have devoted considerable effort to uncovering it causes. Explanations have been varied, however incarceration rates, economic conditions, age, drug usage, policing policies, and changes in gun control laws and increased gun ownership appeared to be the most common. It is unclear, however, whether these findings extend cross-nationally. In the next section, I review cross-national crime drop studies.

CROSS-NATIONAL CRIME DROP

The majority of cross-national studies on the 1990s crime drop have focused on homicide since it is considered the most reliable crime indicator in cross-national research (Nivette 2011). The reasons for this are simple. First, homicide is arguably the most serious crime in the world, with a high degree of moral condemnation in most societies. Second, the availability and presumed reliability and validity of homicide data make homicide a common focus for comparative research (Bennett and Lynch 1990; Huang and Wellford 1989; Marshall and Block 2004; Vigderhous 1978). Other types of violent crime are much less reliably measured (Blumstein and Wallman (2006). Non-homicide crimes are often significantly underreported and are subject to the discretion of the police and constantly changing local policies which are often influenced by local politics (Blumstein and Wallman 2006). However, although considerable international variation exists in the legal definition, the intentional taking of human life is undoubtedly

condemned in almost all societies and virtually all penal laws in the world include a prohibition against homicide (Marshall and Block 2004).

Cross-National Crime Trends

The crime drop occurred in most geographic areas, not just the United States (Levitt 2004). Zimring (2006) criticized his American colleagues for neglecting crime trends in other nations and presented data showing crime declines in Canada similar to those in the United States (Rosenfeld and Messner 2009). Major reductions in crime were also recorded in Australia and Japan (Rosenfeld 2009; Rosenfeld and Messner 2009; Tseloni, Mailley, Farrell, and Tilley 2010; Zimring 2006) and in the United Kingdom (Hoare 2009; Tseloni, Mailley, Farrell, and Tilley 2010). The *British Crime Survey* found that between 1995 and 2007 violent crime fell by 49 percent (Tseloni, Mailley, Farrell, and Tilley 2010). Likewise, studies done by European researchers van Dijk, van Kesteren and Smit (2007) found comparable trends using the *International Crime Victim Survey* of 15 nations that allowed for comparisons over 10-15 year periods. They observed that, similar to the general population in the United States, average victimization rates peaked in the mid-1990's and steadily declined thereafter (Rosenfeld and Messner 2009). These studies indicated that there was a need to study the crime drop cross-nationally. As Killias and Aebi (2000) noted, one case –the United States –does not make a sample, making it difficult to assess the explanatory power of a theory with data from only one case.

Review of Cross-National Studies

Tseloni et al. (2010), examined aggregate crime trends from 1988 to 2004 for 26 countries and concluded that, with the exception of burglary, all crime rates fell by roughly the same rate across the 26 countries. They determined there was a pronounced overall fall in crime post-1995 which suggested a European crime drop that was identifiable despite limitations in the data (i.e. the limited number of years and countries for which data were available). In a study of Western European countries, Aebi and Linde (2010) found that after an increase in the early 1990s, homicides followed a downward trend until the beginning of the 2000s, when they started decreasing even more rapidly. Cole and Gramajo (2009) looked at the homicide rates of 187 countries, including formerly socialist economies, the Middle East crescent, Asian and other islands, sub-Saharan Africa, and Latin America and the Caribbean to provide a broader grasp of international trends. They reported that with a world average of 9.08 out of 100,000, homicide rates in Latin American and sub-Saharan countries tended to be much higher than the rest of the world. On the other hand, homicide rates in the developed countries and in the Middle East crescent were much lower than the world average (Cole and Gramajo 2009).

Cross-National Variables

Incarceration Rates

Cross-national shifts in incarceration rates may have had a significant effect on the crime drop. In the last two decades of the twentieth century the incarceration rates in Scandinavian countries had, for the most part, seen slight but steady increases; and the Dutch incarceration rate quintupled, which surpassed even the growth rate in the United

States (Heiner 2005). Prison populations grew elsewhere in Europe during the 1990s and into the current century, albeit from far lower base rates than in the US. For example, Germany's imprisonment rate increased by 38 percent and the Netherlands' rate more than doubled between 1992 and 2004 (Rosenfeld and Messner 2009).

However, Van Dijk et al. (2005) pointed out that although prison populations had gone up since the early nineties in many EU countries, the increase was not consistent. In fact, between 1995 and 2000 the rates went down in Sweden, France, Poland, and Finland (Farrell, Tilley, Tseloni, and Mailley 2010; Killias 2003; Van Dijk et al. 2005). Comparative corrections policy analysts argued that whatever the effect of imprisonment on crime in the United States was, the sharply lower imprisonment rates in Europe had not resulted in crime reductions (Rosenfeld and Messner 2009).

Economic Conditions

Numerous studies employing differing methodologies consistently found a positive association between economic deprivation and cross-national homicide rates (Avison and Loring 1986; Braithwaite 1979; Braithwaite and Braithwaite 1980; Chamlin and Cochran 2006; Hansmann and Quigley 1982; Krahn, Hartnagel, and Gartrell 1986; Krohn 1976; Messner 1989; Messner, Raffalovich, and Shrock 2002; Neapolitan 1998; Pratt and Godsey 2003). Sun et al. (2011) tested a model of economic deprivation and crime using 52 nations for the years 1995-1999. The model, which centered on the roles of absolute and relative economic deprivation in mediating crime, predicted that social change caused variation in economic deprivation, which, in turn, led to variation in crime rates (Sun, Chu, and Sung 2011). The study found that when examining the direct effect

of economic deprivation on crime, only income inequality had a significant direct impact on homicide; nations with high levels of income inequality were likely to experience high homicide rates (Sun, Chu, and Sung 2011). Furthermore, Chamlin and Cochran (2006) modeled the linkages between economic inequality and homicide among 44 nations and found that, consistent with past research, economic inequality significantly affected cross-national homicide rates.

Age

It has been suggested that countries with a high percentage of teenagers and young adults may have higher levels of crime, simply because age has been shown to be a strong predictor of criminal conduct (Ouimet and Blais 2002; Ouimet 2012; South and Messner 2000). A population skewed toward the teen and young adult years typically has higher homicide rates because of the larger numbers of motivated offenders (Cohen and Land 1987; Gartner 1990). However, Gartner and Parker (1990) performed a time-series analyses of data from five nations, Japan, Scotland, Wales, Italy and the United States, and determined that trends in the proportion of young males in a population did not exert a consistent influence on homicide rates across time and place.

Summary

In sum, researchers had begun to study the crime drop cross-nationally. Current cross-national research suggests that incarceration rates, economic conditions, and age have all been linked to the drop in crime rates across countries. However, in most cases, the analyses were still limited to North America and European countries. Although several of the significant variables in US studies and cross-national research were the

same, others were only evident in the US studies. Policing policies, drug trends, gun control laws and gun ownership are indicators that were unique to the US crime drop studies; other countries mentioned in the cross-national research did not experience these changes. There are many potential explanations for the suddenness and sheer magnitude of the 1990s crime drop; however, the empirical evidence remains mixed.

It is clear that from this review of the literature that the causes of the crime drop remain relatively unexplained. Previous findings have helped identify some important variables, yet a wider and more theoretically informed approach is necessary to better unpack the mechanisms that have impacted homicide rates over the last two decades across the globe. Therefore, I now examine the theoretical traditions that potentially explain the variations in cross-national homicide rates. The following chapter contains competing theoretical paradigms explaining the relationships between cross-national homicide rates, modernization and development, economic conditions, routine activities, deterrence and democracy. I then construct hypotheses based on these paradigms.

CHAPTER III

THEORY

MODERNIZATION AND DEVELOPMENT THEORIES

Modernization, a phenomenon that had been occurring for centuries, was a popular post-World War II term used for societies as they shifted from traditional and antiquated to industrialized and modern. It was a movement from small social units (*Gemeinschaft*) toward a mass society (*Gesellschaft*) (Tonnies 1887), toward functional differentiation (Durkheim 1933), toward high levels of rationality (Weber 1978), or toward modern action orientations such as universalism, achievement, and affective neutrality (Savelsberg 2002). These movements were multifaceted and influenced every institution in society, as they created rapid social changes that many struggled to keep up with; forming a deep dividing line between those that did and those that did not. Evidence of modernization included a shift from agricultural to industrial labor, advanced technology and communication, increased access to education and breakdowns in traditional community structure (Austin and Kim 1999; Howard and Smith 2003; Nivette 2011). These frustrations that accompanied movements away from social stability and tradition were what modernization theorists believed caused crime. Emile Durkheim argued that in the process of modernization, rapid social changes disrupted the integrative force of the collective conscience and consensus on social values associated with

traditional society broke down, and resulted in social disintegration (Durkheim 1933; Durkheim 1950; Liu 2006). When attempting to understand the impact modernization had on society, theorists looked primarily at changing social patterns, which had disturbed traditional methods of social control (Hartnagel 1982; LaFree 1999; Nivette 2011; Shichor 1990).

Many economists assessed the progress in welfare in a society through a comparison of the gross domestic product (GDP) over time, that is, by adding up the annual dollar value of all goods and services produced within a country over successive years (Cobb, Halstead, and Rowe 1995). However, many emphasized that GDP was a measure of economic activity, not economic well-being (Costanza, Hart, Posner, and Talberth 2009). This is often overlooked by researchers as GDP has become a measure of how financially prosperous a country was at the time.

Anand and Sen (2000) introduced the term 'human development', which argued that 'human choice', or the capability of human beings to choose the lives they wanted, should be the ultimate measure of social progress (Welzel, Inglehart, and Kligemann 2003). The Human Development Index (HDI) measured the well-being of the inhabitants of a country along three different dimensions: health, education, and income and was constructed using country data on life expectancy at birth, adult literacy, school enrollment ratio and GDP per capita (Abadie 2004). The three dimensions represented the essential components that enabled people to lead a long and healthy life, to acquire knowledge and to have access to resources needed for a decent standard of living (Noorbakhsh 1998). This concept of individual resources, emancipative values and effective democracy working together to create a sense of human progress was not

something new to modernization; however, the HDI effectively brought the concepts together. Additionally, it was often preferred to per capita income as the latter neglected the non-financial aspects of development (Desai, Westendorff, and Ghai 1993). Previous empirical research and the modernization/development literature suggest hypothesis 1:

> *Hypothesis 1:* As a country becomes more modernized, this leads to an increase in homicide.

RELATIVE AND ABSOLUTE DEPRIVATION THEORIES

Economic deprivation arises due to inequality within a group or when an individual feels deprived compared with other individuals whom he or she considered to be better off (Imedio-Olmedo, Parrado-Gallardo, and Bárcena-Martín 2012). Deprivation is often expressed in two forms, relative and absolute deprivation. Relative deprivation occurs when an individual perceives him or herself as deprived compared to others in society, while absolute deprivation occurs when he or she is actually lacking the necessary means for survival according to fixed societal standards.

Absolute deprivation refers to how individuals or groups of individuals were doing in comparison to some fixed level of economic well-being (LaFree 1999). A common measure of absolute economic deprivation is poverty (LaFree 1999). Poverty, or a state in which individuals lack the financial resources to satisfy their basic needs and reach a minimum standard of living, is often measured using the poverty line, a distinct and measurable cut-off between the poor and the non-poor (Misturelli and Heffernan 2008). A link between poverty and homicide has been a consistent finding in criminological research (Pratt and Cullen 2005; Pridemore 2002; Pridemore 2008) which

stemmed from the idea that resource deprivation caused frustration, which ultimately leads to aggression (Hsieh and Pugh 1993; Nivette 2011). Popular among Marxist scholars, absolute deprivation's relationship to crime suggests that those living in poverty are involved in crime because they were forced into a situation in which it was impossible for them to survive otherwise (Sun, Chu, and Sung 2011). When an individual was living in an impoverished state, they might become desperate for money and commit criminal acts to obtain it. Absolute deprivation explanations of crime suggest that the amount of hardships suffered by the poor and oppressed would lead to crime (Greenburg 1991; Sun, Chu, and Sung 2011). Hypothesis 2 is based on this premise:

> *Hypothesis 2:* As levels of absolute deprivation increase in a country, this leads to an increase in homicide.

Relative deprivation suggests that people compare themselves with some reference group within society rather than with the entire society, and determine that they have disproportionately less resources than most others (Yitzhaki 1979). The theory of relative deprivation stems from the Mertonian anomie perspective that notes that blocked opportunities to achieve prescribed cultural goals causes an individual frustration and aggression, which leads to homicide (Chamlin and Cochran 2006; LaFree 1999; Nivette 2011). Relative deprivation is often measured with an indicator of economic inequality, like the Gini index, which quantifies the difference between the richest rich and the poorest poor. A long tradition in criminological research suggests that crime is most prevalent in societies that have large disparities in the material standard of living of its citizens (Hsieh and Pugh 1993; Kawachi, Kennedy, and Wilkinson 1999). This becomes

apparent when social pressures of relative deprivation drove those who perceived themselves as poor to use any means to gain a higher social status. Hypothesis 3 follows this argument:

> *Hypothesis 3:* As levels of relative deprivation increase in a country, this leads to an increase in homicide.

ROUTINE ACTIVITY THEORY

Routine activity theory addresses crime analysis from a different perspective than most theories as it explores the convergence of the crucial components of crime at specific locations in space and time without regard to the motivation of the deviant act (Boetig and King 2006). It argues that changes brought by modernization have altered population patterns and effectively increased the opportunity for crime (Cohen and Felson 1979; LaFree 1999; Nivette 2011). Most crime theories are concerned with the underlying social factors that contribute to a change in crime rates, but routine activity theory argues that it is the lifestyle choices of the individual which motivates his/her deviant behavior. Essentially, changing structural factors (e.g., unemployment, urbanization) brought together both potential offenders (e.g., youth population, the unemployed) and potential targets in unsupervised situations , which may lead to acts of crime (Nivette 2011). At a macro level, this approach ties a shift in routine activities away from home-based activities as the source of the crime rise experienced in the 1960s and the 1970s (Groff 2007). Rather than spending time at home, individuals who spend their time outside the home could set themselves up to become victims of crime. At the micro level, Cohen and Felson (1979) identified the role of individuals' routine activities

as one which facilitated or hindered the convergence of offenders, targets, and capable guardians at the same time and in the same place (Groff 2007). Fundamentally, however, the theory posits that crimes occur when individuals give them the opportunity to occur.

There is a substantial amount of research conducted using routine activity theory, with the majority of results having found a positive link between daily activities (e.g., where we go and whom we choose to go with) in our lives and crime. One recent study by Felson (1997) found that males with an active nightlife were more likely to have witnessed as well as participated in violent encounters. Another study broke down the variations in the concentration of victimization and found significant relationships between family income and assault, gender and robbery and marital status and family income and larceny incidents (Kuo, Cuvelier, Sheu, and Zhao 2012). Osgood et al. (1996) determined that participation in the routine activities of heavy alcohol use, and use of marijuana and other illicit drugs was strongly associated with criminal behavior. Furthermore, routine activities accounted for a substantial portion of the association between deviant behavior and age, sex, and socioeconomic status (Osgood et al. 1996).

Modernization scholars asserted that urban expansion was part of the natural transition from a traditional society to a modern nation. The expansion of large cities was an indicator of modernization in a society, which, accordingly, should have been encouraged (Bradshaw 1987); however, when examining crime, urbanization also presented more opportunities for potential offenders. Durkheim was one of the first writers to state clearly that urbanization inevitably resulted in a greater amount of crime (Clinard 1942) as the large cities offered ample situations noted in routine activity theory for engaging in delinquent behavior. The general rise in the crime rate and its

concentration in the urban environment were explained by the greater availability of goods and the increased feasibility of crime commission (Shelley 1981).

Another indicator of routine activities is the unemployment rate. The lack of legal work can drive frustrated individuals to seek unlawful means of obtaining resources. For example, Raphael and Winter-Ebmer (2001) found that decreased income and potential earnings associated with involuntary unemployment increased the relative returns to illegal activity.

Routine activity theory proposed that when one considered what drove crime rates, it was more important to examine the individual behavior and/or lifestyles of the victims, rather than external factors, in other words, increased opportunities to commit crime was what mattered. Urbanization and unemployment increase opportunity, so I hypothesize that:

Hypothesis 4: As urbanization increases in a country, this leads to an increase in homicide.

Hypothesis 5: As unemployment increases in a country, this leads to an increase in homicide.

DETERRENCE THEORY

Researchers who study crime often consider deterrence theory, or the idea that the threat of legal sanctions would deter crime (Matthews and Agnew 2008). The determination as to whether an individual would commit a crime was determined by the size of the sanction and by the probability of apprehension and conviction; more frequent

and harsh expected sanctions would lower crime rates. In other words, the more likely an individual was to be caught and the more severe the expected punishment, the less likely they were to participate in the deviant act. Morris and Zimring (1969) noted that deterrence was framed in two ways: to refer to the influence of threatened sanctions on an individual who had been convicted of crime and punished – "specific deterrence" –and also, in a wider sense, to refer to its operation on the rest of society –"general deterrence".

Classic depictions of the deterrence doctrine anticipate that swift, certain, and severe sanctions from formal systems of social control create costs that will deter future criminal activity (Fagan and Piquero 2007; Gibbs 1975; Tittle 1980; Zimring, Hawkins, and Gorenberg 1973). These concepts were largely a product of classical criminologist's Cesare Beccaria (1764) and Jeremy Bentham's (1791) work on crime and punishment. Based on the rational calculation of costs and benefits, Beccaria proposed a simple model of human choice. On the basis of this model, he argued that punishments should be proportional to the seriousness of offenses so that the costs of crime always exceeded its reward (Bernard 2010). Bentham additionally postulated that crimes and similar behaviors would be committed by individuals if pleasurable consequences of acts exceed painful ones (Chen and Vazsonyi 2010). Rational choice theories expanded on these ideas with the assumption that all crime was purposeful, committed with the intention of benefitting the offenders (Bernard 2010). The goal was to consider how potential offenders might have weighed the costs and benefits in particular situation and then determined whether to commit crimes (Bernard 2010).

The deterrence hypothesis suggests that jurisdictions with more police officers should have less crime (Bernard 2010). Based on this argument, researchers studied the deterrent impact of the number of police on the streets, with the expectation being that the increased threat of detection would decrease the likelihood of deviant behavior. Police per capita, or the number of police per citizens, is a useful measure of deterrence. If more police are available then the threat of being caught increases and forces potential offenders to rethink whether the cost is worth the gain. Rational choice theory assumes that humans, acting independently or in concert with others, are cognizant of the relative costs and benefits associated with behavioral intentions and take this information into account before they select a specific course of action (Chamlin 2008). The relationship between the presence of police and criminal behavior may also have been supported by the recent popularity of hot-spots policing, or focused police attention on areas known for high criminal activity (Weisburd and Eck 2004).

There is a significant amount of debate surrounding the effectiveness of increasing the number of police on the streets as deterrence theory would suggest. The popular Kansas City policing study broke the area of Kansas City into three groups: proactive, reactive and control groups – of five beats each. The five reactive beats eliminated routine preventative patrol and in the proactive beats, the department doubled or tripled the normal level of police patrol vehicles. Results did not indicate statistically significant differences in crime in any of the 69 comparisons that were made between reactive, control, and proactive beats (Pages 1980). Although some argued for its utility, others suggested that deterrence was only a temporary fix and was incapable of producing long-term benefits. For example, Kane (2006) looked at structural deterrence

and found that aggressive arrest patterns had no significant effect on aggravated assault and rejected the deterrence argument.

Despite mixed evidence on the deterrent impact of police on crime reduction, the theory of deterrence suggests that an increased number of police should reduce crime. Therefore, I hypothesize:

> *Hypothesis 6:* As police per capita increase in a country, this leads to a decrease in homicide.

POLITICAL STRUCTURE

Theorists have attempted to understand the relationship between homicide rates and a society's political structure (Braithwaite and Braithwaite 1980; Durkheim 1933; Karstedt and LaFree 2006; LaFree and Tseloni 2006; Lin 2007; Marx 1986; Parsons 1971; Weber 1984; Wright Mills 1956). The civilization perspective predicts that violent crime rates would decline along with the civilizing effects of democratization; however, the conflict perspective predicts that violent crime rates would increase along with the brutalizing effects of the market economies that had so far universally accompanied democratization. Ideally, democracy referred to a free and equal representation of the people by the people. Some theorists believed that when it was the predominant political force in a society there would be a collective bond among its members that would reduce the risks of violence (Parsons 1971; Weber 1984). However, despite the intentions of democracy, it may not always equally benefit all the people in a society, and this inequality may cause conflict in a society. Others theorists posited that democracy only served to divide those with power and those without in a society, and the more

democratic the society became the larger the gap between these two groups, creating tensions and increasing violence (Durkheim 1933; Marx 1986; Wright Mills 1956). The initial introduction of democracy into a society would create chaos among its citizens and may have raised rates of criminal behavior, but as democracy became more established these would fade and crime would have leveled off.

Democracy was a form of collective social governance, so one way researchers measured its effectiveness was to look at an indicator of the political rights of the country. High levels of political rights guaranteed that the government provided the ability to provide opportunities for political participation of all eligible citizens (Milovanovich 2012). A measure of (or absence of) political freedom is the Freedom House's Political Rights Index (PRI) (Abadie 2004).

In addition to the political rights present in a society, the stability of democracy was also contingent on the integrity and trustworthiness of a country's political leaders. Corruption, which involves behavior on the part of the officials in the public and private sectors in which they improperly and unlawfully enriched themselves and/or those close to them by misusing the position in which they were placed, creates distrust and instability in a society (Campbell 2004).

Political structure may influence homicide in a variety of ways; however, most prior research suggests that higher levels of democracy or democratic values are inversely related to violence (Nivette 2011). Additionally, it follows that there would be a positive relationship between higher levels of corruption and crime. Therefore, I hypothesize that:

Hypothesis 7: As democracy increases in a country, this leads to a decrease in homicide.

Hypothesis 8: As corruption increases in a country, this leads to an increase in homicide.

In the following chapter I describe the data sources and variables I used to test the eight hypotheses that I formulated in this chapter.

CHAPTER IV

METHODS

DATA

Due to data availability, I use a sample of 85 countries in this study. The data sources are the United Nations, World Bank, Freedom House and Transparency International. I gathered data on all variables for the 85 countries for the time period 1995 – 2006.

Dependent Variable

Homicide: The homicide rate is measured using data from the United Nations Surveys on Crime Trends and Operation of Criminal Justice Systems, Waves 1-10, 2010 (United Nations Surveys 2010).

Independent Variables

Modernization/Development: I measure modernization/development with two indicators: Gross Domestic Product (GDP; World Bank 2012) and the Human Development Index (HDI; United Nations Surveys 2010). GDP is the annual dollar value of all goods and services produced within a country over successive years (Cobb, Halstead, and Rowe 1995). HDI measures the well-being of the inhabitants of a country along three different dimensions: health, education, and income and is constructed using

country data on life expectancy at birth, adult literacy, school enrollment ratio and GDP per capita (Abadie 2004). The HDI ranges from 0 to 1, with 0 representing a completely underdeveloped country and 1 representing one that is completely developed.

Absolute and Relative Deprivation: I use the indicator poverty (World Bank 2012), a headcount ratio at $2 a day (purchasing power parity or PPP), measured by the percent of the population (World Bank 2002) to measure absolute deprivation. The Gini Index is used to measure relative deprivation (World Bank 2012). It is an income distribution index that indicates the level of inequality between people within a country, ranging from 0 (perfect equality) to 100 (perfect inequality).

Routine Activities: Two indicators measure routine activity theory: urbanization, the percent of a population residing in urban areas (World Bank 2012); and the unemployment rate (World Bank 2012). Unemployed refers to all persons 16 and above who, during the reference period, were: (a) without work; (b) currently available for work; and (c) actively seeking work (MDG Indicators 2012).

Deterrence: I measure deterrence using the indicator of police per capita, or the number of police per citizens in a country (United Nations Surveys 2010). Unlike some previous studies, I am unable to test the deterrence hypothesis with incarceration data, due to the high level of missing data.

Political Structure: I use two indicators to account for the effects of political structure: Political Rights Index (PRI) and Corruption Perception Index (CPI). PRI is a measure of (or absence of) political freedom, ranging from 1 (completely free) to 7 (no political freedom; Freedom House 2012). CPI scores countries and territories based on

perceived levels of public sector corruption based on perspectives of business people and country experts and is measured from 0 (highly corrupt) to 10 (not corrupt at all; Transparency International 2012).

Population Structure: I control for population effects by measuring the percentage of the population age 15-64, and the total population for each country (World Bank 2012). I use population age 15-64 to account for the changing age structure of a country's population. A superior measure would be an indicator of the youth population of each country, because previous research (see for example, LaFree 1999; Marvell and Moody 1991) has found that young people tend to be involved in criminal activities more frequently; however, this data is not reliably available cross-nationally.

Analytic Strategy

As noted above, the analysis used a sample of 85 countries. Countries omitted from the sample are countries with sparse and/or missing data on one or more of the variables. Many cross-national studies use smaller sample sizes because of the difficult nature of gathering data from some countries and I follow that process here. However, even the 85 countries that I analyzed often had missing data for some variables for some of the 12 year period (1995-2006) that I studied. Although analysis of cross-national longitudinal data would have been ideal for this study, this process proved impossible because of the substantially large amount of missing data. Therefore, I averaged the values of each variable, for each country and used these values in the analysis. This process enabled me to analyze the average effect of each independent variable for 1995-2006 on the average homicide rate for 1995-2006.

I analyzed the data in two ways. First, I used pairwise Pearson Product Moment Correlations (*r*) to examine the strength and direction of the bivariate relationships between all of the variables. In order to test the eight hypotheses about the cross-national crime drop I estimated a series of Ordinary Least Squares (OLS) regression equations to assess the impact of the various predictors on homicide rates. Next, since correlation is a necessary but insufficient condition for establishing causality, a more powerful statistical technique that allows for prediction of an interval/ratio dependent variable by a set of independent and control variables is needed. Thus, I employed Ordinary Least Squares (OLS) regression, a statistical technique for estimating the relationships between independent and dependent variables to test the eight hypotheses I developed in the Chapter 3. Showing the expected changes in the dependent variable due to changes in the independent variables is the primary use of OLS regression. OLS regression is arguably the most widely used method for fitting linear statistical models with a scale dependent variable (Hayes and Cai 2007).

It should also be noted that I checked for multicollinearity in the data with the use of Variance Inflation Factor (VIF) statistics. When modeling all predictors simultaneously, HDI provides a relatively high VIF (9.57), which suggests multicollinearity may be a problem with the HDI variable. I then removed HDI and re-estimated the model with all other independent variables predicting homicide rate and in this case the VIF for all variables were below four, which is an acceptable level. The results in the equation without HDI are extremely similar to those with HDI included, therefore I report the equation with HDI included, in order to fully test all the hypotheses.

CHAPTER V

ANALYSIS AND RESULTS

Table 1 lists the descriptive statistics for all the variables I used in the study, including the means and standard deviations. Also displayed is the data source for each variable.

Table 1. Descriptive Statistics of Variables in the Analysis

Variable *(Theory)*	*n*	Mean	St. Deviation	Source
Homicide Rate	85	8.238	12.536	United Nations
GDP per capita *(Modernization/Development)*	85	9291.754	11811.63	World Bank
Human Development Index *(Modernization/Development)*	85	.771	.136	United Nations
Gini Index *(Relative Deprivation)*	85	38.989	9.273	World Bank
Poverty *(Absolute Deprivation)*	85	4.167	1.178	World Bank
Urbanization *(Routine Activity Theory)*	85	60.998	19.953	World Bank
Unemployment *(Routine Activity Theory)*	85	10.009	6.259	World Bank
Police per capita *(Deterrence Theory)*	76	.003	.001	United Nations
Political Rights Index *(Political Structure)*	84	5.096	1.599	Freedom House
Corruption Perception Index *(Political Structure)*	85	4.520	2.314	Transparency International
Percent of population 15-64	85	63.326	5.406	World Bank
Total Population	85	4.167	1.178	World Bank

Table 2: Pearson Correlation Coefficients for Variables in the Analysis

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Homicide Rate	1.000	--	--	--	--	--	--	--	--	--	--	--
(2) Population Total	-.060	1.000	--	--	--	--	--	--	--	--	--	--
(3) Percent of Population 15-64	-.307*	-.031	1.000	--	--	--	--	--	--	--	--	--
(4) Urbanization	-.155	-.190	.563***	1.000	--	--	--	--	--	--	--	--
(5) Gini Index	.570***	-.025	-.474***	-.057	1.000	--	--	--	--	--	--	--
(6) Corruption Perception Index	-.285**	-.109	.491***	.627***	-.326**	1.000	--	--	--	--	--	--
(7) Political Rights Index	-.132	-.009	.543***	.518***	-.247*	.632***	1.000	--	--	--	--	--
(8) Human Development Index	-.239*	-.177	.800***	.790***	-.307**	.744***	.687***	1.000	--	--	--	--
(9) Unemployment	.258*	-.178	-.024	-.021	.078	-.277*	-.175	-.104	1.000	--	--	--
(10) Poverty	.162	.337**	-.591***	-.727***	.057	-.552***	-.338**	-.823***	-.119	1.000	--	--
(11) GDP per capita	-.301**	-.053	.465***	.557***	-.396**	.895***	.633***	.723***	-.304**	-.625***	1.000	--
(12) Police per capita	.004	-.168	.422***	.203	-.061	-.060	.176	.332**	.290*	-.350*	-.021	1.000

Note: *** Correlation is significant at the $p < .001$ level (2-tailed); ** Correlation is significant at the $p < 0.01$ level (2-tailed); * Correlation is significant at the $p < 0.05$ level (2-tailed)

The bivariate Pearson correlation coefficients displayed in Table 2 show that homicide and the Human Development Index are negatively correlated (r = -.239, p<.05). The correlation coefficients for the Human Development Index and the variables urbanization, Corruption Perception Index, Political Rights Index and the percent of the population aged 15-64 are significant and positively related (p<.001). GDP per capita also shows a significant negative correlation with homicide rates (r = -.301, p<.01), and has significant correlations with all the other variables except total population. As expected, the Gini Index, the indicator of relative deprivation, shows a very high positive correlation with homicide rates (r =.570, p<.001), but poverty, the indicator for absolute deprivation, does not have a significant correlation with homicide rates. However, a correlation does exist between poverty and many of the other variables, including percent of the population 15-64 (r = -.591, p<.001), urbanization (r = -.727, p<.001), CPI (r = -.552, p<.001), PRI (r = -.338, p<.01) and HDI (r = -.823, p<.001). As hypothesized, the Corruption Perception Index is correlated with homicide rates (r = -.285, p<.01), indicating that the lower the number on the index (highly corrupt) would lead to an increase in homicide rates. Contrary to my hypothesis, the Political Rights Index and homicide rates are not correlated, however, PRI is correlated with the urbanization (r = .518, p<.001) and the percent of the population 15-64 (r = .543, p<.001).

Table 3: Unstandardized Regression Coefficients (*b*) and Standard Errors (SE) for Determinants of Homicide Rates

	Population Structure	Mod./Dev.	Absolute Dep.	Relative Dep.	Routine Activity	Deterrence	Political Structure	Full Model
Variable	*b* (SE)	*b* (SE)	*b* (SE)	*b* (SE)	*b* (SE)	*b* (SE)	*b* (SE)	*b* (SE)
GDP per capita		-.0004*						.0007
		(.0002)						(.001)
HDI		33.720						14.532
		(22.035)						(50.862)
Poverty			.047					.217
			(.099)					(.147)
Gini Index				.737***				.841**
				(.140)				(.249)
Urbanization					.015			-.079
					(.080)			(.168)
Unemployment					.495*			.725*
					(.209)			(.316)
Police per capita						1792.547		1128.631
						(-119.609)		(1684.519)
Political Rights Index							1.522	.174
							(1.135)	(1.768)
Corruption Perception Index							-1.534*	.010
							(.757)	(2.328)
Percent of Population 15-64	-.718**	-.998*	-.574	-.117	-.731*	-1.123***	-.647*	.164
	(.243)	(.423)	(.457)	(.240)	(.289)	(.291)	(.298)	(.768)
Total Population	-7.411	-2.300	-1.344	-5.067	-2.233	-4.411	-1.033	-8.900
	(1.122)	(1.156)	(1.478)	(9.744)	(1.144)	(1.178)	(1.122)	(1.411)
R^2	.099	.157	.077	.329	.158	.174	.142	.444
Adjusted R^2	.077	.115	.026	.304	.116	.140	.098	.287
F	4.52*	3.73**	1.53	13.23***	3.76**	5.07**	3.26*	2.83**
n	85	85	59	85	85	76	84	51

Note: *p<.05; **p<.01; ***p<.001 significance

Table 3 reports the eight statistical models that have been constructed to determine which hypotheses are supported with the relevant control variables entered into the analysis.

The *population structure model* in Table 3 tests the effects of the control variables only, percent of population 15-64 and total population, on homicide. The regression shows that the percent of the population between ages 15-64 significantly predicts homicide rates (b = -.718, p<.001), while total population does not.

The regression results in the *modernization/development model* show that GDP per capita has a significant (negative) effect on homicide rates (b = -.0004, p<.001). This is the opposite of what I expected to find in regards to hypothesis 1. Based on theories of modernization and development, I hypothesize that as GDP per capita increased, homicide rates would increase; however, this model indicates that an increase in GDP per capita causes a decrease homicide rates. Additionally, there is not a significant relationship between HDI and homicide rates. The control variable percent of population 15-64 is also significant and negative (p<.05), indicating that an increase in individuals between the ages of 15 and 64 will lead to a decrease in the rates of homicide.

The *absolute deprivation model* contains the indicator for absolute deprivation, poverty, measured using the headcount ratio at $2 a day (PPP) by the percent of the population. I predicted that as levels of poverty increased in a country, this would lead to an increase in the homicide rate when controlling for population structure variables. The OLS regression model indicates, however, that there is no support for this hypothesis as poverty is an insignificant predictor of homicide. This finding suggests that, although a

link between poverty and homicide has been found in some criminological research, actual economic disparities within a country do not appear to predict an increase in homicide cross-nationally.

The results in the *relative deprivation model* show strong support for the relative deprivation hypothesis. The Gini Index is positive and significantly related to homicide (b = .736, p<.001), which indicates that, as hypothesized in the relative deprivation model, higher levels of income inequality are related to higher levels of homicide. This suggests that as a one-unit increase in Gini Index leads to about a 0.74 percent increase in the homicide rate, holding population structure variables constant.

Next, Table 3 reports the *routine activity model* predicting homicide rates. The regression coefficient shows that unemployment is positive and significantly related to homicide (b = .495, p<.05). However, it does not show a significant relationship between urbanization, the other indicator of routine activity, and homicide rates. The control variable percent of population 15-64 has a negative significant relationship with homicide (b = -.731, p<.05), suggesting that an increase in this population will lead to a decrease in homicide rates. Based on these findings, there is support for hypothesis 5 but not support for hypothesis 6.

The *deterrence model* contains the variable police per capita, which I use as an indicator of deterrence theory. I hypothesized that an increase in police per capita in a country will lead to a decrease in homicide. The regression analysis did not find a significant relationship between police per capita and homicide rates; therefore, there is

no support for the hypothesis. There was, however, a strong link between homicide and the percent of population 15-64 (b = -1.122, p<.001).

The last theoretical model tested in Table 3 is *political structure*. I use the indicators PRI and CPI to predict the impact of democracy and corruption on homicide, respectively. The regression coefficient for the indicator PRI suggests that there is no significant relationship between democracy and homicide. However, CPI is negative and significantly related to homicide (b = -1.534, p<.05). Based on these findings, I do not find support for hypothesis 7 but there is support for hypothesis 8. Again, there is a negative relationship between the percent of the population between 15 and 64 and homicide rates (p<.05).

The final model, the *full model*, tests all predictors on the homicide rate using OLS regression. The full model shows support for relative deprivation measured by the Gini Index (b = .841, p<.01) and routine activities theory based on the unemployment indicator (b = .725, p<.05). The other indicator for routine activities theory, urbanization, however, is not significant (b = -.079). Despite being statistically significant in the model with only population structure variables, the indicators GDP per capita (b = .0007) and CPI (b = .010) are no longer significant predictors in the full model. The remaining indicators HDI (b =14.532), poverty (b = .217), police per capita (b = 1128.631) and PRI (b = .174), all fail to show significance in either model. The control variable percent of population 15-64 is also insignificant in the full model (b =.164). In sum, I find support for hypotheses 3 and 5 based on the full model regression equation.

Summary of Results

The most significant findings, according to correlation coefficients and OLS regression analysis, are that the Gini Index and the unemployment have the largest influence on the cross-national rates of homicide. Using both correlation and regression analysis while holding population structure constant, GDP per capita shows a significant relationship with homicide. HDI, again, shows a significant correlation with homicide, but does not have a significant relationship in either of the regression models. This suggests that modernization/development theory is not a powerful explanation for changing homicide rates. When examining the deprivation indicators in both tables, relative deprivation appears to have the more significant relationship with homicide. In correlation and regression analysis, the Gini Index shows strong support for hypothesis 3. Conversely, poverty, the indicator of absolute deprivation, does not show a relationship with homicide rates in either the bivariate or multivariate results. The theoretical implications of this would suggest that cross-nationally, the notion of being poor, compared to others within your country, is more likely to lead to homicide than being in abject poverty. Additionally, relative deprivation shows the highest degree of model fit ($R^2 = 0.329$) of all the individual theoretical OLS models. Although one of the indicators of routine activities theory, unemployment, has statistical significance in correlation and both regression models, the other indictor, urbanization, never shows a significant relationship with homicide rates. Therefore, there is consistent support for the hypothesis that an increase in unemployment will lead to an increase in homicide rates, however, urbanization fails to show a relationship with the rate of homicide in a country. Another indicator that fails to show an empirically significant relationship with the dependent

variable is police per capita, the indicator for deterrence theory. CPI produces a significant correlation coefficient and a significant relationship with homicide rates in the *political structure model* in Table 3, but in the full model does not remain significant. Additionally, PRI fails to produce significant results, suggesting that there is not enough evidence to support the idea that higher levels of democracy lead to a decrease in homicide rates. Lastly, the control variable, percent of population 15-64, frequently appears to have a significant relationship with the dependent variable; however, it is not significant in the full regression model. Overall, the *full model* (the combination of all eleven independent variables) explains 44.4% of the variability in homicide rates.

CHAPTER VI

DISCUSSION & CONCLUSION

During the 1980s, crime rates were at record highs, but beginning in the early 1990s they plummeted to record lows. All types of criminal offenses were impacted by this drop in crime, but most notable to this study is that homicide rates alone decreased by 40 percent. Initially, researchers examining the crime drop focused only on the trends in the United States, but eventually noticed that its breadth reached much further. Researchers then set out to study the catalysts of the drop cross-nationally. Both US and cross-national studies have suggested numerous causes of the crime drop; however, empirical findings have been mixed. This study uses several of these variables, in addition to some others drawn from theory, to study the crime drop. Bivariate and multivariate analyses are used to test the impact of theoretical indicators on cross-national homicide rates from 1995-2006. Results indicate support for relative deprivation and routine activities theory having significant impacts on the cross-national homicide rates.

Theories of modernization and development are based on the phenomenon that occurs when a society moves from traditional to modernized. Social researchers are more specifically concerned with studying the social change that occurs during this transition and how individuals in the society cope with these changes. Many argue that the social instabilities during this time cause frustrations among individuals and inevitably lead to

increases in criminal behavior (Durkheim 1933; Durkheim 1950; Liu 2006). However, the association between measures of modernization/development and homicide appear to be negative rather than positive (Dicristina 2004; Kick and LaFree 1985; Nivette 2011). A possible explanation is that modernization will only impact property crimes, not homicide rates (Messner 1986; Wolf 1971). Opportunity-based interpretations suggest that modernization works to increase the level of available goods and motivated offenders for theft, while simultaneously breaking down interpersonal ties that consequently diminish interpersonal violence, such as homicide (Kick and LaFree 1985; Nivette 2011).

I assess modernization/development in a society using the indicators GDP per capita and HDI. GDP measures the economic activity, or the dollar value of goods produced within a country, to determine its financial prosperity. GDP does not measure the economic well-being of an individual, but rather, just the economic activity within a country. HDI, on the other hand, measures the well-being of the inhabitants of a country based upon several indicators (Abadie 2004). Due to the HDI's focus on individual resources and emancipative values working together to create a sense of human progress, it has often been preferred to GDP for its ability to capture the many different aspects of human development (Desai, Westendorff, and Ghai 1993; Noorbakhsh 1998; Ul Haq 1995). Based on previous research, I hypothesized that more modernized countries will have higher homicide rates. Bivariate correlations of both indicators, GDP and HDI, showed significant negative relationships with homicide rates. These results indicate that, contrary to my proposed hypothesis, as modernization increases in a country the homicide rates will decrease. Further, regression analyses between modernization/ development indicators and homicide rates suggest no significant relationships. Previous

research is mixed about the effects modernization/development will have on homicide rates. Because there is no support for my hypothesis, but other research remains divided on the subject, I suggest further research. Previous literature does suggest that social changes are more likely to lead to property offenses, rather than violent crimes; therefore, future research in this area should include property crimes.

Researchers have long thought that income inequalities instigate criminal activity. In US studies, Lafree (1998) suggests that economic stress is more predominate in predicting crime rates than other factors because it undermines legitimacy and weakens social bonds. Rosenfeld (2009) added that negative economic conditions will increase crime rates because individuals feel pressure to improve their financial situations through risky or criminal lifestyles. Cross-nationally, a large number of studies find positive associations between economic deprivation and homicide rates (Avison and Loring 1986; Braithwaite and Braithwaite 1980; Chamlin and Cochran 2006; Hansmann and Quigley 1982; Krahn, Hartnagel, and Gartrell 1986; Krohn 1976; Messner 1989; Messner, Raffalovich, and Shrock 2002; Neapolitan 1998; Pratt and Godsey 2003). Lastly, Chamlin and Cochran (2006) examined economic inequality and homicide among 44 nations and confirmed the findings of previous research that economic inequality significantly impacts cross-national homicide rates.

Further examinations on the impact of economic inequalities on a country include theories of absolute and relative deprivation. Absolute deprivation refers to an individual's level of economic well-being in comparison with a fixed poverty indicator (LaFree 1999). Poverty is typically regarded as a state of living in which individuals cannot afford to satisfy their basic needs (Misturelli and Heffernan 2008). Many

researchers have suggested that individuals in these situations become frustrated and ultimately aggressive, creating a link between poverty and homicide (Hsieh and Pugh 1993; Nivette 2011; Pratt and Cullen 2005; Pridemore 2002; Pridemore 2008). These ideas are very popular with Marxist scholars who argue that those living in poverty will be forced into criminal situations to improve their economic well-being (Sun, Chu, and Sung 2011).

These findings led me to hypothesize that as levels of absolute deprivation increase in a country, there would be a subsequent increase in homicide rates. However, neither bivariate nor multivariate results in this study finds evidence suggesting a significant relationship between poverty and homicide, indicating that an individual's economic well-being is not a strong predictor of homicide. Additionally, poverty shows the lowest degree of model fit (R^2 = .007) of all the individual theoretical OLS models. My findings are inconsistent with some previous research that suggests poverty influences homicide rates. However, as some other studies have shown, the impact of absolute poverty on crime rates, including homicide, remains unclear. It is reasonable to suspect that data availability is affecting the poverty results, as poorer countries are more likely to have missing or incorrect data.

Relative deprivation, on the other hand, suggests that individuals evaluate their economic success by comparing themselves with a reference group in a society, rather than the entire society (Yitzhaki 1979). Relative deprivation is often assessed by the Gini Index, an income distribution index that indicates the levels of inequality between income in a country. Although individuals experiencing relative deprivation might not actually be poor, researchers point out that crime is most prevalent in societies with large

disparities in material wealth (Hsieh and Pugh 1993; Kawachi, Kennedy, and Wilkinson 1999). Mertonian theorists introduced this concept to explain how a blocked opportunity to achieve what society defines as successful can cause aggression and frustration, eventually leading to homicide (Chamlin and Cochran 2006; LaFree 1999; Nivette 2011).

Perceptions of being considered poor by other groups in society have the potential to drive an individual to use any means to improve their status. Hypothesis 3 posits that as levels of relative deprivation increase in a country so will the levels of homicide. The indicator Gini Index consistently confirms this hypothesis by showing a significant positive relationship in bivariate and both multivariate models. This suggests that relative economic status in a society is a much stronger predictor of homicide than the individual's actual status. Additionally, the relative deprivation model has very high model fit (R^2 = .329). These findings are consistent with previous studies and empirical evidence.

Popular US and cross-national research often includes the variables age, drug trends, and unemployment. Beginning with age, many researchers agree that an individual's criminal activity is at its peak in their mid-teen years (Blumstein and Wallman 2006; Fox 2000; Gottfredson and Hirschi 1990; Phillips 2006; Trussler 2012). The strength of this relationship is similar across cultures, periods of time, and types of crime; with a strong relationship between age and homicide rates the typical finding (Hirschi and Gottfredson 1983; LaFree 1999; Marvell and Moody 1991). Despite these findings, cross-national studies yield something different. For example, a time-series analysis of five countries determined that the proportion of young males in a country does not exert significant influence on homicide rates (Gartner and Parker 1990). Decreasing

drug trends are also often associated with the crime drop in the US (Blumstein and Rosenfeld 1997; LaFree 1999). Interestingly, however, cross-nationally during the same period, data shows an increase in drug use (Aebi and Linde 2010; Killias and Aebi 2000; Kraus and Bauernfeind 1998; Savoie 2002). Lastly, research has shown that a decline in unemployment, such as that observed in the 1990s, will have an impact on crime rates (Blumstein 2006; Levitt 2004; Raphael and Winter-Ebmer 2001).

The routine activities theoretical tradition provides the basis for why these variables may be important predictors of declines in the crime rate. The premise of this theory is that it is the lifestyle choices, or daily activities, an individual engages in which lead him or her to criminal behavior. Changing structural patterns typically brought on by modernization processes, such as unemployment and urbanization, combined with potential offenders, such as the youth population and unemployed, significantly increase opportunities for crime (Nivette 2011). In the past routine activity theory has been found to account for a large proportion of the relationship between deviant behavior and age, sex, illicit drug/alcohol use, and socioeconomic status (Osgood et al. 1996). Analyses of this theory use urbanization and unemployment rates. Urbanization suggests more opportunities to commit crimes because larger cities offer increased opportunities for criminal behavior (Clinard 1942). Shelley (1981) suggests this might be because of greater availability of goods, an increased feasibility of crime commission, and increased feelings of relative deprivation. Unemployment rate is the second indicator used in this study. The idea behind unemployment motivating homicide rates is that once an individual becomes frustrated with being unemployed or desperate from money and

goods, he or she will seek unlawful means of obtaining resources (Raphael and Winter-Ebmer 2001).

I proposed two hypotheses based on routine activities theory, the first was that as urbanization increases in a country, so too will the homicide rates. However, I do not find any empirical evidence in my analyses to support this hypothesis. Although urbanization provides increased opportunities to commit crimes, perhaps the majority of these are property crimes. The second hypothesis is that as unemployment rates increase in a country, this leads to an increase in homicide. Both correlation and OLS regression results indicate that increasing unemployment rates will lead to an increase in homicide rates. Thus, it appears that the frustration that accompanies being out of work can lead to homicide.

Policing policies were also changing during the crime drop period and some studies have argued that the changes directly resulted in decreases in crime (Blumstein and Wallman 2006; LaFree 1999). The new policies included efforts by the police to be more available and involved in the community. They increased use of proactive, or "hotspot," policing to increase police visibility in high crime areas. Even homicide, which is often a spontaneous crime of passion, can be responsive to an increase in the number of police seen in the community (Blumstein and Wallman 2006; Eck and Maguire 2000; Levitt 2004).

Deterrence theory, or the idea that the threat of legal sanction deters crime (Matthews and Agnew 2008), is a popular theory among criminological researchers. Ideally, higher expected sanctions and the more frequent application of those sanctions

will lower crime rates. This idea originated with classical criminologists Cesare Beccaria (1764) and Jeremy Bentham's (1791) work with the rational calculation of costs and benefits. Beccaria argued that punishments should be proportional to the offense so that the costs of crime always exceed its reward (Bernard 2010). However, one popular study, the Kansas City policing study, examines the effects of increased police per capita in high crime areas and found that neither proactive or reactive policing is effective at deterring crime (Pages 1980). According to the results of this study, an increased threat of legal sanction does not deter crime.

Although the influence of increased police per capita produces mixed results, deterrence theory suggests that an increased threat of apprehension will decrease homicide rates; therefore, I hypothesized that as police per capita increased in a country, homicide rates would decrease. The empirical results from my study failed to support this hypothesis. I find no significant relationship between police per capita and homicide rates, which suggests that deterrence theory is not an important predictor of the crime drop.

The political structure of a country may also be related to the level of homicide in a country. The democratic process intends to create a free and equal society, one in which there is a collective, civilizing bond among its members that will reduce the risk of violence (Parsons 1971; Weber 1984). Other theorists, however, note that instead of this utopian society, democracy really creates an inequality among its people, which is likely to lead to conflict (Durkheim 1933; Marx 1986; Wright Mills 1956). To test this theory, I use the indicators Political Rights Index and Corruption Perception Index. Higher levels of PRI indicate higher levels of democracy (Aebi and Linde 2010; Milovanovich 2012)

and CPI tests the degree of corruption among those more powerful in a society (William De 2008), and is predicated on the idea that the stability within a country is based largely on the integrity of those with power.

Based on previous research, I constructed two hypotheses regarding political structure and homicide rates. The first is that an increase in democracy leads to a decrease in homicide. However, neither analysis produces enough empirical evidence to support this hypothesis. This suggests that democracy does not lead to an increase of homicide. The second hypothesis states that as corruption increases in a country, this leads to an increase in homicide. CPI is statistically significant in the bivariate analysis and the individual model of the multivariate analysis, but fails to hold its significance in the full model where all other variables are present. The results suggest that although presence of democracy does not influence homicide, increased government corruption may lead to increased homicide rates. Given the mixed findings of the CPI on homicide rates, I would suggest that additional research be conducted with different indicators of corruption to help clarify the cross-national relationship between government corruption and homicide.

In the beginning of the study, I posited: *What factors are important in explaining the cross-national decline in homicide rates that began in the early 1990s and continues into the present*. Based on the findings, I believe that future research on the crime drop should place increased emphasis on individual inequality indicators and a combination of the indicators. The Gini Index and unemployment are the two supported hypothesis in this study and both demonstrate that stress and frustrations associated with an individual who is unable to achieve socially prescribed economic goals effects homicide rates.

Additionally, GDP per capita and CPI showed some significance in the bivariate analysis and the individual models of the multivariate analysis, suggesting some importance of these two indicators when examining the crime drop. GDP and CPI also point to frustrations that accrue from perceived inequalities in terms of income or the actions (or inactions) of the government, respectively. In sum, the factors that are statistically significant in explaining the decline of homicide rates are predominately economic factors.

There are several limitations to this study, which, if addressed in future research, could strengthen the results. First, is the inexact nature of the crime indicators. Although this study uses the term *intentional homicide* as defined by the United Nations (United Nations 2010), the official definition of homicide is still subject to variation across countries. The different legal codes and cultural mores between countries create opportunities for various interpretations of crimes (Kalish 1988). Despite these issues, homicide is the most universally agreed-upon common law crime (Marshall and Block 2004). However, I was unable to examine other forms of violent crime and all types of property crimes because of the lack of data. Therefore, important aspects of the cross-national crime drop remain unexplained.

Despite my findings on what can increase homicide rates cross-nationally, the phenomenon of the crime decrease of the 1990s remains a mystery. There are still no known factors that undisputedly explain what made crime rates fall. For example, the finding that an increase in the Gini Index leads to an increase in crime fails to explain why crime rates fell so dramatically during the 1990s when the economy was thriving. Additionally, unemployment, which when increased is linked to rising homicide rates,

was also at record lows during this period. Neither indicator suggests that if they are decreased, this will lead to a decrease in homicide rates. Future studies should take into account the inability of previous studies to identify indicators that accurately explain the crime decrease.

The limitations in the availability of the data extend to the sample size. Although 85 countries can be considered a large sample in cross-national research, it leaves open questions of generalizability. The trend that seems most common with data on crime is that most available data sources come primarily from the more developed or industrialized nations (Ouimet 2012). The majority of the countries included in the sample are more developed than the ones that were left out. Lastly, there are limitations with looking at data over different time-periods because of problems with missing data. Several countries do not provide data on an indicator for several successive years. This limits my ability to analyze gradual crime patterns.

Conclusion

During the 1980s, the United States experienced a crime boom that researchers struggled to explain; leaving them even more perplexed with the crime drop that followed. Beginning in the early 1990s, crime rates plummeted to record lows, including homicide, which fell by approximately 40 percent. Initial research of the crime drop focused on the United States, however, further research discovered that the crime drop occurred cross-nationally (Levitt 2004).

Although the drop in crime occurred in most types of crime, the easiest to use for cross-national research purposes is homicide. Other crimes are subject to reporting

inconsistencies or cultural differences. Homicide is the most universally agreed upon crime, as virtually all societies include laws against homicide, regardless of their legal codes or cultural mores (Kalish 1988; Marshall and Block 2004). Therefore, this study used the United Nations definition of *intentional homicide*, or death deliberately inflicted on a person by another person (United Nations Survey 2010).

US studies produced a variety of explanations for the crime drop, including incarceration rates, economic conditions, age, drug trends, policing policies and changes in gun trends; however some variables such as policing policies and gun trends are country specific and cannot be extended to cross country research. In this study, I used several secondary sources including the United Nations, World Bank, Freedom House and Transparency International to test theoretically relevant cross-national variables.

Results from this study consistently showed support for the Gini Index and unemployment being significant predictors of homicide. Both of these indicators are linked to feelings of frustration due to economic inequalities. Additionally, the indicators GDP per capita and CPI showed some significance early in the study, but fail to maintain significance in the full model of OLS regression analysis. The positive relationship between decreasing homicide rates and various indicators of inequality suggests that increased disparities within a country play a large role in predicting rates of homicide. This supports the arguments of many conflict theorists, who insist that an increased division of power in a society will cause frustration and conflict among the citizens. These findings indicate a need for further research on the relationship between the cross-national crime rates and indicators of inequality; however, data limitations make this

difficult. There are definitional inconsistencies when studying measures of inequality, as well as limited data from less developed countries.

Several substantive and theoretical implications for future crime research and policies are provided in this study. Additionally, because inequality is more pervasive than just economic indicators, these findings can be beneficial for further examining the social costs of inequality as well. Social problems that can arise from economic inequalities can include educational deficiencies, increased issues within the family unit, a breakdown of social cohesiveness within communities, increased drug problems or overall health problems, just to name a few. Such problems cannot be addressed cross-nationally via a single policy; therefore, the findings of this study can also be used for developing country-specific social programs to alleviate the secondary problems associated with economic inequalities. Few quantitative cross-national studies look at such a wide variety of indicators for predicting crime trends. Future social programs can benefit from this evidence by incorporating more aggressive tactics for increasing equality, especially in areas with high rates of homicide. Researchers can also use these findings in future research on the crime drop. Many researchers in past studies fail to consider the impact inequality can have on homicide rates beyond strictly economic inequality; however, my results indicate that the frustrations that arise from social inequality also increase the risk of violence.

This study shows that when a society has a high degree of inequality among its members, there will be an escalation of homicide. This is an important finding because levels of equality are constantly fluctuating and policies focused on controlling these changes could help sustain the crime drop into the future. It is especially relevant cross-

nationally because levels of inequality exist in every country, making the potential impact of crime policy based on the reduction of inequality very large. Additionally, because many issues of equality vary cross-nationally, making the establishment of policies improbable, these findings can lend evidence to the development of various social programs to reduce inequality based on the legal and cultural rules within a country.

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APPENDIX A

LIST OF COUNTRIES USED IN ANALYSIS

1. Albania
2. Algeria
3. Argentina
4. Armenia
5. Austria
6. Azerbaijan
7. Bangladesh
8. Belgium
9. Bolivia
10. Bulgaria
11. Canada
12. Chile
13. Colombia
14. Costa Rica
15. Croatia
16. Czech Republic
17. Denmark
18. Dominican Republic
19. Ecuador
20. Egypt, Arab Rep.
21. El Salvador
22. Estonia
23. Finland
24. France
25. Georgia
26. Germany
27. Greece
28. Guatemala
29. Hong Kong SAR, China
30. Hungary
31. India
32. Indonesia
33. Ireland
34. Israel
35. Italy
36. Jamaica
37. Jordan
38. Kazakhstan
39. Kenya
40. Korea, Rep.
41. Kyrgyz Republic
42. Latvia
43. Lithuania
44. Macedonia, FYR
45. Malaysia
46. Mexico
47. Moldova
48. Mongolia
49. Morocco
50. Netherlands
51. New Zealand
52. Nicaragua
53. Norway
54. Pakistan
55. Panama
56. Paraguay
57. Peru
58. Philippines
59. Poland
60. Portugal
61. Romania
62. Russian Federation
63. Singapore
64. Slovak Republic
65. Slovenia
66. South Africa
67. Spain
68. Sri Lanka
69. Swaziland
70. Sweden
71. Switzerland
72. Syrian Arab Republic
73. Tanzania
74. Thailand
75. Tunisia
76. Turkey
77. Uganda
78. Ukraine
79. United Kingdom
80. United States
81. Uruguay
82. Venezuela, RB
83. Yemen, Rep.
84. Zambia
85. Zimbabwe

VITA

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Experience:

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- Collect and organize research data utilizing surveys, STATA, and Microsoft Excel and Word
- Assist in teaching classes
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Professional Memberships:

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