

ABSTRACT

FRAZEE, SHARON GLAVE. The Social Context of Inmate Misbehavior: A Contextual Analysis of Infractions in North Carolina Prisons. (Under the direction of Dr. William R. Smith.)

Inmate misbehavior is a relatively common phenomenon in correctional facilities throughout the United States. While many steps have been taken by correctional authorities to curb such behavior, their level of success is hampered by the lack of information on how social context affects inmate behavior. This research proposes to look at how context interacts with individual characteristics to affect rates of prison infractions in a variety of prison settings. Two major theories of inmate misbehavior, importation and prisonization, are tested and extended using hierarchical linear models on 1997 North Carolina prison population data.

**THE SOCIAL CONTEXT OF INMATE MISBEHAVIOR: A CONTEXTUAL
ANALYSIS OF INFRACTIONS IN NORTH CAROLINA PRISONS**

by
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DEDICATION

This dissertation is dedicated to my family and friends who have stood by me along the way and especially to my husband, Keith for his love and support.

PERSONAL BIOGRAPHY

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CHAPTER ONE

STATEMENT OF THE RESEARCH PROBLEM

Introduction

Sociologists have always been interested in why people conform or fail to conform to rules in society. This research looks at prison inmates and the context in which prison misbehavior occurs. By definition prison inmates have already failed to conform to at least one societal rule, that of obeying the law. However, past research on human behavior tells us that one rule violation does not necessarily preclude obeying other rules. Just as most offenders obey most laws most of the time, the majority of inmates comply with most prison rules most of the time. With this in mind, the following study attempts to discover in what circumstances noncompliance does occur.

Background of the Problem

Sociologists have a long-standing interest in prisons and inmate populations (e.g., Clemmer 1940; Irwin and Cressey 1962; Schrag 1944; Sykes 1958; Sykes and Messinger 1960). Prisons have existed in one form or another since at least biblical times, although their use today is greater than at any other time in history (Johnson 1996). This is particularly true for the United States, which incarcerates a higher percentage of its population than any other country in the world (Reiman 1995). While inmates have always violated prison rules, prison violence has increased dramatically since the 1990's (Douglas and Webster 1999). Increases in inmate violence create an even greater need for understanding of violent misbehavior and the context in which it occurs.

Flanagan and colleagues (1998) argue that prison can be seen as a unique form of society, with “its own distinctive set of social and cultural arrangements that include a dominant social structure, a special set of goals, norms and values, and a primitive yet serviceable economy” (Flanagan, Marquart and Adams 1998, p.91). However, the notion of prisons as unique societies is not a new one. For instance, in 1940 Clemmer published *The Prison Community*, which described how prisons are different from mainstream society. In this work, Clemmer portrayed the “inmate code” and coined the term “prisonization” to characterize the process of assimilation to that code, “the taking on in greater or less degree of the folkways, mores, customs and general culture of the penitentiary.” Several years later, Sykes (1958) characterized the “pains of imprisonment” suffered by inmates, viewing the deprivations of imprisonment as different from other types of suffering. Sykes and Messinger (1960) further developed this idea. They constructed a theory explaining the construction of the inmate social system as both a reflection of and accommodation for the deprivation and pains of prison life. Building on these works, Ohlin (1960) discussed how prisons are characterized by “goal conflict” stemming from the opposing mandates of treatment and custody, while Goffman (1961) described prisons as “total institutions,” a type of organization designed to transform people both socially and psychologically.

This interest in prison culture and behavior has led to the development of several theories. Theories help us make sense of many interrelated phenomenon and to predict behavior or attitudes that are likely to occur when certain conditions are met. Several theories have ties to prison life and the behavior of prisoners. This study will focus on only two theories: prisonization

and importation.

Theoretical Explanations

Since the early 1960's, two major theoretical factions have dominated the field of explaining prison behavior: prisonization and importation. These theories differ primarily on the order of causation for inmate behavior: prisonization supposes that behavior is a result of the prison experience while importation posits that behaviors are in place prior to prison and are merely 'imported' into the prison setting.

Prisonization, or adaptation theories as they are often called, argues that behavior emerges as an adaptation to prison society (Clemmer 1940; Goffman 1961). Inmates learn through socialization, the rules and regulations of the prison as well as the informal values, rules and customs of the prison culture (Clemmer 1940). The process of prisonization begins with a transformation of the inmates' status. They are given a number in lieu of their name and are made to wear uniforms, reminding inmates of their new status at the bottom of the institutional hierarchy. Prisoners must learn to operate under a new set of rules and even to understand a new language, prison slang. Clemmer argued that prisonization reinforces the inmates' criminal status, further deepening their commitment to the inmate ideology.

Sykes (1958) expanded on Clemmer's work by explaining the origin of the inmate subculture. Their reasoning was that inmate alienation and subsequent misbehavior are a reaction to the "pains of imprisonment", such as loss of liberty, material possessions, heterosexual contact, and personal autonomy and security. By its very nature, prison deprives inmates of basic needs, which in turn creates frustration, pressure, and strain, which can

occasionally lead to inmates violating prison rules. The shared sense of suffering unifies inmate populations to some degree, creating an inmate subculture (Sykes and Messinger 1960).

While most early research on prisons is consistent with the idea of prisonization (e.g., Berk 1966; Garabedian 1963; Goffman 1961; Sykes 1958; Tittle 1969), prisonization theories have only received mixed empirical support more recently (Akers, Hayner, and Gruninger 1974; Ellis 1984; Leger 1978; Poole and Regoli 1983; Smith 1984; Thomas and Zingraff 1976; Wooldredge and Carboneau 1998). Beginning in the 1960s and 1970s, prisonization theories came under considerable criticism because of their disregard for the ways in which individual life experiences, such as criminal history, race, age, and socioeconomic status, affect inmate behavior patterns. Researchers argued that inmates brought with them the code of the streets and applied this code to prison, thus importing values, behaviors and social structures into the prison environment (Carroll 1974; Irwin and Cressey 1962; Jacobs 1974, 1977). The models developed by these researchers are commonly referred to as “importation models.

Emerging from criticisms of the leading existing theory, one of the first tenets of prisonization to be critically assessed was the assumption that prisonization is directly related to time spent in the prison (i.e., the longer one spends in the institution, the greater the expected level of prisonization). In his study designed to test the processes described by Clemmer, Wheeler (1961) found that rather than a direct linear relationship between time in prison and changes in inmate attitudes, a U-shaped pattern emerged. That is, inmates’ attitudes changed over time in a cyclical fashion, from socially conformist, to antisocial and then back to conformist again. This pattern has been supported by other research (Garabedian 1963; Glaser

1964).

Importation theories posit that inmate behavior has less to do with the deprivations experienced (i.e., prisonization) and more with the characteristics of inmates. That is, prisoners import their ideas, attitudes and behaviors from their outside lives as street criminals into the prison rather than learning new behavior as a result of the prison experience as suggested by prisonization. For example, Wheeler (1961) found prison adjustment to be dependent on the degree to which individuals adhered to “criminal values” prior to incarceration. This was supported by Wellford (1967), who concluded that the level of prisonization is “chiefly determined by the characteristics of the individual prior to his commitment, particularly with regard to his prior involvement in what is often referred to as the ‘criminalistic subculture’.” (p. 202). Rose Giallombardo (1966) concluded that the same phenomenon occurs for female inmates, with inmate patterns reflecting cultural definitions brought into the institution and which “determine the direction and focus of inmate cultural systems” (p. 187).

Irwin and Cressey (1962) argue that inmate culture is a mix of three subcultures: thief, convict and conventional. The thief subculture is brought in by newcomers, “professional” criminals committed to the criminal subculture of the larger society. These inmates bring with them a set of behaviors, and social and attitudinal patterns that they apply to their new environment and thus, affect prison culture. Convict subculture emerges from inmates with extensive prison experience whose orientation is toward the institutional subculture. Those inmates who fall into neither of these categories are considered part of the conventional subculture. Jacobs (1977) illustrated the process by which street gangs import their

organizational roles and ideologies from the street into the prison. Similarly, Toch (1977) introduced the concept of prison “niches,” sub-environments with distinctive attributes. These niches are not unlike various cultural groups in free society. Importation models have also received some empirical support (Jacobs 1974; Poole and Regoli 1983; Schwartz 1971; Smith 1984; Tittle 1969).

However, an emerging group of researchers are proposing that neither prisonization nor importation alone is very useful in explaining the current dynamics of prison life. These arguments seem to be the result of an increasing recognition of the complexity and diversity of inmates and prison settings. For instance, Hunt and colleagues argue that prison behavior cannot be attributed solely to forces emanating from inside the prison nor from those outside the prison (Hunt, Riegel, Morales, and Waldorf 1993). Even Clemmer (1940) recognized the interaction of pre-prison experiences with prison culture in determining the character of the prison subculture. Today, more than ever before, studying prison behavior is complex due to factors such as increased gang presence, changes in prison population demographics, higher levels of prison disorder, and new developments in prison policy (Hunt et al. 1993; Zamble and Porporino 1988).

The Gap in Current Research

While prisonization and importation theorists have provided insight into identifying some of the macro- and micro-level factors that contribute to misbehavior among prisoners, they have fallen short of the mark by pitting one framework against another. However, because these theories are related, it is my contention that both theories should be considered. Prisonization

theories provide a basis for identifying conditions in prisons that increase the rate of misbehavior, whereas importation theories establish a set of individual characteristics that increase the risk of engaging in misbehavior. Inmates are neither solely driven to misbehavior by structural conditions and deprivations, nor are they only driven by imported norms and values. Discussing inmate misbehavior in either/or terms emphasizes structure at the expense of imported culture or vice versa, and we miss the dynamic, interactive process in which misbehavior emerges.

By combining importation and prisonization as an explanation for inmate misbehavior, we shift our attention to examining the contexts under which social action occurs. I define context here as the material and social conditions of one's daily living environment. Both structural and cultural factors come into play within one's social context. For instance, context is not limited to the physical locality within which inmates are imprisoned. Rather, context includes factors such as gender, race, and age, which simultaneously form a framework for organizing social relations. Context is an integral part of sociological theories in that social theories are premised on the assumption that social conditions (i.e., context) enable and constrain human activity. In this case, while individual factors influence adjustment to prison life, context has a direct impact on behavior independent of individual characteristics.

Moving away from the structure versus culture debate, and toward a discussion of context, allows us to more closely examine the environments where misbehavior occurs. While prisonization theory considers context to a point it is incomplete in that it does not allow for the interaction between personal characteristics imported into prison and the actual prison

environment. Inmates bring with them a host of social, personal and cultural characteristics that influence their reaction to the prison environment. In what follows, a more comprehensive model of misbehavior that not only incorporates contextual factors, but also specifies how they are related to each other is developed. The result is a framework that depicts misbehavior as a function of social context.

The study of context has played an integral role in increasing our understanding of determinants of street crime victimization (e.g., Miethe and Meier 1994; Rountree, Land and Miethe 1994; Rountree and Land 1996). It seems likely that prison misbehavior occurs in a similar fashion. That is, structural conditions such as population heterogeneity and density, inmate mobility, and lack of job/program opportunities can be identified as ‘criminogenic’ forces because they increase culture conflict, decrease available resources, or hamper the development of effective mechanisms of social control (Bursik 1988; Kornhauser 1978; Sampson and Groves 1989). Social context may also increase opportunities to misbehave by increasing or decreasing the amount of supervision over persons and things in an area (Miethe and Meier 1994).

Researchers have called for the need to look at context when identifying prison adjustment for the past three decades (Ellis 1984; Gaes and McGuire 1985; Owen 1998; Poole and Regoli 1983; Porporino and Zamble 1984; Smith 1984; Thomas 1973; Thomas and Foster 1972; Thomas and Zingraff 1976; Wooldredge and Carboneau 1998; Zingraff 1980). Inmate misbehavior has generally been studied at the micro- or macro-level of analysis. Macro-level is the widest approach, taking into account correctional system and organizational

factors, while micro-level analysis is normally restricted to the experiential features of imprisonment. Because both macro and micro forces are at work simultaneously, many researchers (Ellis 1984; Gaes and McGuire 1985; Owen 1998; Poole and Regoli 1983; Smith 1984; Thomas and Zingraff 1976; Wooldredge and Carboneau 1998) have considered both in their research. However, methods used in the past have been generally restricted to types of analyses that are unable to fully show how individual-level characteristics vary as a function of aggregate-level characteristics. This may explain the often-inconclusive results in past research (Gaes and McGuire 1985; Poole and Regoli 1983; Thomas and Zingraff 1976). In an attempt to overcome some of the difficulties encountered by earlier research this study employs hierarchical linear models.

Hierarchical linear models are one method used to perform contextual analyses. These types of models allow us to look at the interaction of individual and environmental characteristics, thus presenting a clearer picture of which factors and in what combinations of factors, misbehavior occurs. Contextual analysis has been widely endorsed as a research tool to bridge this macro-micro gap (Blalock 1984; Bryk and Raudenbush 1992; Flanagan et al. 1998; Miethe and Meier 1994; Miethe and McDowall 1993; Myers and Talarico 1987; Rountree and Land 1996). Research of this type has been limited by the lack of amenable data, although such data are becoming increasingly available. Most studies of prison behavior rely on official data, which is plagued by a number of well-recognized problems, especially under reporting (Bowker 1980; Lockwood 1980). However, even with these shortcomings, contextual studies are possible with the data and statistical methods available today.

Research Overview and Hypotheses

The overriding assumption of this research is that context is important to our understanding of inmate behavior. That is, we must take into account the interrelation of individual and environmental factors and how the outcomes of these interrelations create a situation where misbehavior is both possible and likely.

Two major theoretical traditions, prisonization and importation, are tested. First, each theory is analyzed singly, and then a contextual model looks at how factors supporting each of the theories interact and influence each other. This interaction seems particularly important to study because of today's prison climate. It is expected that looking at individual-context interactions will shed some light on misbehavior. We might find, for example, that inmate behavior is dependant on the proportion of inmates with particular characteristics. For instance, someone with violent pre-prison characteristics may act differently in a prison with many other violent offenders than in a prison with very few violent offenders.

Thus, this research looks at the context in which inmate misbehavior occurs. Two key questions are addressed in the analysis: first, does prison context affect rates of inmate misbehavior, and second, do these contexts affect the role inmate characteristics play in prison misbehavior? My hypothesis is that prison context interacts with individual correlates of misconduct to have a significant effect on misconduct. In other words, true context is created by both the physical and the social factors; and determining contextual effects on an outcome requires the consideration of both. Where this hypothesis is supported and cross-level interaction effects are found, the idea of theory integration can be supported. This hypothesis is

tested using data provided by the North Carolina Department of Correction for prisoners incarcerated during 1997.

Studying inmate misconduct is important from both a theoretical and an applied perspective. Discovering why inmates fail to comply, or perhaps more interesting, why they do comply, furthers our knowledge of human behavior. Sociologists have long known that rule conformity is necessary for the maintenance of the social system. The system (i.e., prison) is able to maintain its integrity only if the subsystems (i.e., prisoners) perform their designated roles and functions, thus promoting internal order. From this point of view, misconduct damages the effective operation of the correctional institution, detracting from its ability to provide the intended services to the larger society (Goetting and Howsen 1986). In addition, controlling the behavior of inmates is a major concern in most federal, state and local correctional facilities. While behavioral problems are expected due to the norm-violating history of the typical inmate, correctional agencies spend a considerable proportion of their resources on minimizing inmate misbehavior as well as incurring costs directly related to individual incidents of misbehavior (Lovell and Jemelka 1996; Wright 1994).¹

Overview of the Following Chapters

The remainder of this study will proceed as follows. Chapter Two will provide a brief review of the literature relevant to my research problem, as well as an overview of the theories to be tested. Chapter Three presents the research hypotheses along with a discussion the study design, data and analysis. Chapter Four tests the effects of prisonization on inmate misbehavior

¹ On average, the financial cost of each infraction is \$970, based on infractions incurred by medium

while Chapter Five tests the effects of importation on inmate misbehavior. Chapter Six then presents the contextual model of inmate misbehavior and the results of analysis of the effects of context on infractions. Chapter Seven provides the final discussion and conclusions.

CHAPTER TWO

THEORY AND LITERATURE REVIEW

General Prison Information

Prisons have served a variety of functions over time, from poorhouse to warehouse for criminals. Likewise, the purpose of imprisonment has also changed, generally alternating between retribution, incapacitation, deterrence and rehabilitation. Retribution is aimed at punishment, applied in proportion to the seriousness of the crime. Incapacitation is intended to prevent further criminal behavior by physically restraining the offender from engaging in further misconduct. Deterrence seeks to prevent the offender from committing further crimes by punishing them (specific deterrence) as well as deterring others from committing crime through the example being set (general deterrence). Rehabilitation takes the view that criminal behavior stems from social or psychological shortcomings and that the criminal justice system can work to correct these shortcomings. It is assumed that with effective treatment, offenders can be reformed into law-abiding citizens. In practice, correctional philosophy usually shows elements of all four functions, although one tends to dominate.

Regardless of the philosophy behind corrections, the most basic mandate of the prison is to contain and maintain offenders (Garland 1990). The growing numbers of Americans incarcerated in prisons makes this primary goal more difficult.

In the United States between 1980 and 1995, prison populations ballooned from 329,821 to 1,104,074, a rise of 235 percent (U.S. Department of Justice 1995). At the end of 1997, more than 1,131,500 inmates were held in state prisons alone, with over one thousand

inmates being added to state prison systems each week (BJS 1998). The South has been particularly affected by recent population increases since this region contains nearly 50% of state correctional facilities and more than 40% of all state prisoners. Not surprisingly then, the South also has the highest per capita incarceration rate in the country. There are 437 prisoners per 100,000 state residents in the South, compared to the Northeast which has only 293 prisoners per 100,000 residents (Stephan 1997).

Growth in prison populations is most frequently attributed to tougher crime legislation, especially for violent and drug offenses (Austin 1991; Austin and Irwin 1990; Irwin and Austin 1997; Josi and Sechrest 1998; Langan, Perkins and Chaiken 1994; Shichor and Sechrest 1996; Taggart and Winn 1993). However, the distributions of these offenders differ between the state and federal correctional systems. State facilities are more likely to house violent offenders while Federal prisons are more likely to contain drug offenders. Violent offenders account for fifty percent of the total growth in the number of state prison admissions since 1990 (BJS 1998) while the proportion of offenders in federal prisons convicted of drug crimes rose from 25% in 1980 to 61% in 1994 (Josi and Sechrest 1998). Using 1990 federal and state court data, Langan and colleagues (1994) found that drug crimes accounted for 32% of sentences to state prisons and 62% of federal prison sentences. Similarly, Skolnick (1995) found that 20% of federal inmates in 1994 were low-level drug offenders with no current or prior history of violence and no prior prison time.

Added to the increase in new admissions, new sentencing guidelines, “two- and three-strikes” laws, and the abolition of parole in many states have increased the length of time

actually served by inmates. This means that the inmates prisons are admitting today will be there longer than ever before. Evidence of this is already apparent with the average length of stay for first releases from prison increasing from 22 months in 1992 to 25 months in 1994 (Maguire and Pastore 1997).

Prison admissions come primarily in two forms: new court commitments and returnees, the latter usually are either probation or parole violators. Recently, an increase in the number of returnees has occurred. In 1980, 17% of admissions were parolee returnees compared to 29.5% in 1992 (Gilliard and Beck 1994). This accounts for more than one-third of prison population growth in state prisons during that period (Gilliard and Beck 1994).

Growth in prison populations now far surpasses growth in the general population, creating capacity problems and related difficulties in maintaining order within prisons. This trend is not expected to subside in the immediate future. In the mid-1990's, The National Council on Crime and Delinquency (NCCD) forecasted that under the then present criminal justice policies, the nation's prison population would reach 1.4 million by the year 2000 (Irwin and Austin 1997; Wunder 1995).² Growth comes at a considerable financial cost. For fiscal year 1996, the 50 states and the District of Columbia reported spending \$22 billion for adult prisons. The Federal Bureau of Prisons spent an additional \$2.5 billion (Stephan 1999). Average costs per inmate for state prisons are \$20,100 per year (Stephan 1999), and this is expected to increase. One factor contributing to the expected increase is that prison populations are growing older, both as the result of longer sentences and because increased numbers of older inmates are being admitted

² The 2000 prison population reached just over 1.3 million, slightly short of the estimated

to state and federal facilities.

Increases in the use of prison have not affected all segments of society equally. Two population groups have been especially affected: minorities and women. In 1992, African American males were incarcerated in prison at a rate of 2,678 per 100,000 black residents and African American females at a rate of 143 per 100,000 black residents, both more than seven times that of their white counterparts (Gilliard and Beck 1994). Apart from race, the number of women in prison has risen rapidly. In 1997, women comprised 21.6% of people arrested in the United States and 6.4% of the prison population, up from 19% of arrests and 5.4% of prison populations in 1991 (BJS 1998, 1994). Shifts in the proportion of minority and female offenders can at least partially be explained by the nationwide war on drugs. Since the 1980's, the war on drugs has targeted urban areas where minority representation is highest. In addition, females represent a disproportionate share of drug commitments, at least partially explaining the rise in female inmate populations (Maurer and Huling 1995; Steffensmeier 1992).

These changes are likely to affect the way prison is experienced by inmates. Prison construction has not been able to keep up with inmate population growth, leading to overcrowding. This in turn, changes the quality of inmate life as well as the level of control that must be implemented by prison officials to keep burgeoning populations contained. Likewise, the offenses that inmates are incarcerated for affect prison life. The increase in drug offenders being sentenced to prison has immediate implications: more inmates with substance abuse problems, younger inmates, and longer sentences. This combination creates a more volatile

population growth (BJS, 2001).

population than in the past.

Prison Misbehavior

Prison populations are diverse and complex. Inmates come not only with a variety of criminal sentences but also with a wide range of personal, social and psychological problems. This makes controlling inmates a challenge. While maintaining custody of prisoners and protecting the public is the primary responsibility of prison administrators, they must also provide an environment that protects prisoners from each other (Austin 1983). To accomplish these goals, inmates must be controlled and guidelines for appropriate behavior delineated.

Infraction Prevalence

Prisons are institutions geared to rules and regulations designed to control behavior in order to ensure their safe and orderly operation (Irwin 1980; Stephan 1989). Prison rules prohibit criminal offenses and other behaviors that are not criminal but rather tend to be disruptive or dangerous such as failing to obey an order or possessing a weapon. However, failing to obey prison rules is fairly common. A national survey of state prison inmates found that 53% of inmates had been charged with a rule violation, an average of 1.5 rule violations per inmate per year (Stephan 1989). While most rule violations are minor, such as disobeying an order, serious misbehavior is not uncommon. In 1995, approximately 5 percent of the nation's state prison populations were assigned to some form of segregation, a common punishment for serious misbehavior (Criminal Justice Institute 1995).

Actual rates of prison misbehavior are probably much higher since recorded rates of misbehavior suffer the same problems as other official statistics. Many violations are not

observed by or reported to staff. Of those that are, not all are recorded. It has even been suggested that correctional officers often allow some misconduct, including violent behavior, in order to obtain inmate cooperation (Hewitt, Poole and Regoli 1984). It should be noted though that when prison staff charge an inmate with violating prison rules, the inmate is quite likely to be disciplined in some way. Stephan (1989) found that more than 90% of inmates charged with violating prison rules were found guilty in prison administrative proceedings, regardless of race, age or gender.

We also know from previous research that misbehavior is not evenly distributed among inmates. Both individual and institutional factors have been shown to affect the incidence of misbehavior. Individual misconduct rates vary with type of crime, length and intensity of criminal careers (Bondeson 1989; Flanagan 1983; Stephan 1989; Zamble 1992) and history of drug use (Flanagan 1983; Stephan 1989). Gender (Craddock 1996; Stephan 1989) and age (Bondeson 1989; Carey, Garske and Ginsberg 1986; Cooper and Werner 1990; Flanagan 1983; Gaes and McGuire 1985; Hanson, Moss, Hosford and Johnson 1983; Porporino and Zamble 1984; Stephan 1989; Toch and Adams 1989; Wolf, Freinek and Shaffer 1966) are commonly cited as affecting misconduct rates. Other factors linked to misconduct include education level (Proctor 1994), family history of incarceration (Stephan 1989), and past institutional misbehavior (Flanagan 1983; Hanson et al. 1983; Morris and Miller 1985). Institutional factors such as prison size and security (Flanagan 1983; Stephan 1989), the utilization of prison programs and jobs (Flanagan, Thornberry, Maguire, and McGarrell 1988; Petersilia and Honig 1980; U.S. Department of Justice 1991) and institutional crowding (Call 1995; Camp and

Camp 1997; Dooley 1986; Megargee 1976; Walters 1998; Wooldredge 1989) have also been shown to affect levels of inmate misbehavior.

Theories of Prison Misbehavior

As discussed in the previous chapter, two major theories have been applied to prison misbehavior: importation and prisonization. The importation theory of prison social structure essentially posits that lower class offenders bring to prison a set of subcultural attitudes and meanings, including those related to the use of violence and opposition to authority (Irwin and Cressey 1962). Importation models have generally been applied only to individual-level misbehavior (McCorkle, Miethe and Drass 1995). Alternatively, prisonization theories suggest that inmate misbehavior is the product of the stressful and oppressive conditions within the prison itself, lending itself to macro-level analyses.

Prisonization theory lends itself to looking at the ways in which prison structures and processes influence inmate adaptation to incarceration. Institutions that emphasize custody, with stricter disciplinary rules and physically harsher environments, may contribute to increased inmate misbehavior (Berk 1966). Importation researchers however, point to behaviors in prison as a reflection of behaviors being exhibited outside the prison walls by the groups to which the prisoners once belonged. Increased gang activity, lack of respect for authority figures in schools and the community, and deviant activities are simply transferred to a new location, that of the prison.

Correlates of Misbehavior

While the theoretical debate is yet unresolved, past research has shown that not all inmates react to prison in the same manner. A variety of factors seem to affect adjustment to prison life and subsequent rates of misbehavior. These can be broadly broken into demographic, criminal history and facility correlates of misbehavior. With the exception of facility correlates, predictors of institutional misconduct and general recidivism are very similar (Gendreau, Little and Goggin 1996).

Demographic Correlates

Individual or demographic correlates have been studied perhaps more frequently than the other factors. Key factors include age, gender, race, and drug use history.

Age

Age is probably the most frequently cited and stable correlate of prison misbehavior. In their 1966 study, Wolf and colleagues determined that both the frequency and severity of disciplinary infractions were negatively correlated with age. The finding that younger inmates almost invariably have more disciplinary infractions has been replicated many times since (Adams 1981; Bondeson 1989; Bowker 1980; Carey et al. 1986; Cooper and Werner 1990; Ellis, Grasmick and Gilman 1974; Flanagan 1980, 1983; Fox 1982, 1984; Gaes and McGuire 1985; Hanson et al. 1983; Harer and Steffensmeier 1996; MacKenzie 1987; Moss and Hosford 1982; Porporino and Zamble 1984; Stephan 1989; Toch and Adams 1986, 1989; Toch, Adams and Greene 1987; Wolfgang 1961; Wooldredge 1994; Wooldredge and Carboneau 1998). Younger inmates commit more inmate on inmate assaults (Eckland-Olson, Barrick and Cohen 1983), inmate on staff assaults (Wright 1991) and report more conflicts with

others than older inmates (Wright 1991). This relationship is consistent with the more general age-criminality literature (Ellis et al. 1974; Greenberg 1985; Hirschi and Gottfredson 1983).

Younger inmates pose several other risks. Inmates under the age of 30 are a much higher escape risk than their over thirty counterparts (Gaes and McGuire 1985). They are also more likely to be involved in organized security threat groups, or gangs, within the prison (Trout 1992). Membership in security threat groups is particularly attractive to younger inmates who may have a previous affiliation with national or regional groups prior to prison. These groups provide protection, status, and access to prison contraband and gambling rings (Gaes and McGuire 1985). Security threat groups pose significant problems for institutional security as illustrated by Federal Bureau of Prisons research that suggests security threat group members are five times more likely to be involved in serious institutional misbehavior than non-group members (Trout 1992).

The age-misconduct correlation has not been found in all research however. Unlike most other studies, MacKenzie (1987) failed to find a direct linear decline between age and aggressive behavior in prison. MacKenzie did find that younger inmates tend to respond to fear of victimization or the need to assert oneself in interactions with others in a manner that is more likely to lead to punishment by the institution. In essence, he found that all ages have interpersonal conflicts but the types of conflicts engaged in by younger inmates tend to be those most visible to prison authorities. Similarly, Holland and Holt (1980) failed to find a relationship between age and disciplinary adjustment in a sample of minimum-security state prisoners.

Gender

While most research has focused primarily on male inmates, some studies have looked at differences between male and female inmates in their adjustment and subsequent misbehavior. Several studies have shown that women experience prison in a fundamentally different way than do men (Giallombardo 1966; Heffernan 1972; Owen 1998; Tittle 1969; Ward and Kassebaum 1965). Not surprisingly then, prison behavior differs by gender. Stephan's (1989) study found that a higher percentage of male inmates (53%) had been charged with infractions than female inmates (47%) but women seemed to incur infractions at a higher annual rate than men. That is, women who misbehave in prison do so at a higher rate than men who misbehave. This accounts for the higher average annual infraction rate for female prisoners (2.0 versus 1.4 for men).

Race

Race is a variable that has been tested often, but with inconsistent results. While some studies find evidence of higher misbehavior rates for nonwhites (Bowker 1980; Harer and Steffensmeier 1996; Poole and Regoli 1980), most research fails to find significant race differences on infraction rates (Craddock 1996; Finn 1995; Flanagan 1983; Hewitt, Poole and Regoli 1984; Stephan 1989; Van Voorhis 1993). Even in studies that show Black inmates receive significantly more disciplinary reports than White inmates, it is unclear whether Black inmates actually violate more rules or if there is simply a greater willingness for official reports of misconduct to be made on non-Whites (Hewitt et al. 1984).

However, it has been suggested that whatever effects race has on misbehavior is more due to socio-economic status than actual race effects. African Americans and other minorities are more likely to come from poverty-stricken environments where crime is common (Ellis et al.

1974; Hewitt et al. 1984; Johnson 1966; Toch et al. 1987; Wolfgang 1961; Wolfgang and Ferracuti 1967). Therefore, prison misbehavior may simply demonstrate the influences of importing lower-class focal concerns such as toughness, physical integrity and manliness into the prison environment (Thomas 1973; Wellford 1967). It is suggested that variations in prior social experiences may differentially prepare inmates to resort to violent or other unacceptable behavior as a response to the problems posed by incarceration (Poole and Regoli 1983).

This does not mean that race doesn't matter in prison life. Race is often a source of conflict in prisons. Even in early research such as Gresham Sykes' (1958) classic study of prison life, Sykes observed "the inmate population is shot through with a variety of ethnic and social cleavages" that kept prisoners from acting in concert or maintaining a high degree of solidarity (p. 81). Today, racial and ethnic imbalances are more pronounced than ever and can lead to serious problems. Prisons communities are frequently split along racial and ethnic lines, with groups and gangs defined in terms of race and ethnicity (Carroll 1988; Jacobs 1977; McCall 1995).

Drug Use

Drug use is a complex phenomenon to study. The use of drugs changes over the life cycle of the individual and is affected by variables such as age, race and class. However, large proportions of prison inmates in this country have a history of drug use and/or abuse (BJS 1998, 1994). Furthermore, drug use is often what leads to incarceration, either directly for drug crimes or indirectly as drug related property or violent crimes. Female inmates in particular have high rates of drug use. According to self-report data, women are more likely than men to

have used cocaine or heroin in the month prior to the offense for which they were incarcerated occurred. They are also more likely to have been using these drugs daily, and are more likely to have been under the influence of major drugs at the time they committed the crime (Maguire, Pastore, and Flanagan 1993). This supports other research that indicates increasing female drug use in recent decades it is a factor in the increased involvement in criminal behavior by women (Merlo and Pollock 1995).

Several studies show that inmates who used drugs prior to admission to prison are more likely to violate prison rules than non-drug users (Flanagan 1983; Stephan 1989). In addition, those inmates with more extensive drug histories are the most likely to violate prison rules (Stephan 1989).

However, like many other factors believed to be related to prison misbehavior, drug use has not been validated as a correlate in all studies. In their study of federal prisoners, Morris and Miller (1987) did not find drug/alcohol abuse to be predictive of overall misconduct and prison violence. Similarly, research by Cooper and Werner (1990), Hanson et al. (1983), and Wooldredge and Carboneau (1998) failed to validate the effect of drug use on prison adjustment and behavior.

Other Demographic Correlates

Other demographic correlates of misbehavior that have been mentioned in the literature include family factors, educational level, employment status, and mental health factors.

Sociologists have long recognized the effect of family experiences on individual behavioral outcomes (Hirschi 1969; Hotaling, Straus, and Lincoln 1990; Messner and Sampson

1991; Wilson 1978). While it is beyond the breadth of this study to discuss the general area of family and crime, several studies have looked at the influence family background has on prisoners. For instance, Stephan (1989) found that many prison inmates have other family members who have served a prison or jail sentence. In his sample, nearly two-fifths of all inmates had an immediate relative (sibling, parent, spouse or child) who had served or was serving a term in jail or prison. Of these inmates approximately 58% had a rule violation compared to 49% of inmates from families with no other member ever in jail or prison (Stephan 1989). Marital and parental status has also been studied in conjunction with inmate behavior. Many researchers (Flanagan 1983; Johnson 1966; Jones 1986; Toch and Adams 1989; Wolfgang 1961; Wooldredge 1994; Wooldredge and Carboneau 1998) found married inmates have fewer disciplinary problems than unmarried inmates. Likewise, inmates who are childless have higher rates of misbehavior than those with children (Bondeson 1989).

Educational level and employment factors have been found to affect subsequent adjustment to prison. Not surprisingly, these two variables are often linked, with higher levels of education decreasing both unemployment and rates of misbehavior (Caspi, Wright, Moffit and Silva 1998; Coleman 1988). Both education and employment serve multiple functions: material, psychological, socialization and social control, and by increasing ones “stake in conformity” (Caspi et al. 1998; Toby 1957). A study of Nebraska inmates by Proctor (1994) found that age and education levels were the best predictors of adjustment to prison. Inmates who were unemployed prior to arrest had higher rates of disciplinary infractions than those who were employed (Finn 1995; Flanagan 1983; Toch and Adams 1989). Type of employment also

seems to be important, with those engaged in skilled employment prior to incarceration being less likely to engage in misbehavior (MacKenzie 1987; Wooldredge and Carboneau 1998).

Some current research suggests that emotionally disturbed inmates are disproportionately involved in prison infractions (Adams 1986; Lovell and Jemelka 1996; Toch and Adams 1986). One study found that inmates who had either been hospitalized or had received outpatient care for mental health problems had a 20% higher annual infraction rate than inmates who had not received mental health services (Toch and Adams 1986). Related to this, research shows that the degree to which an inmate fears being the victim of prison violence is the strongest predictor of his mental health (Maitland and Sluder 1996; McCorkle 1993). Mental health issues are of particular concern as the complexities of managing inmates effectively are amplified when offenders suffer from even minor mental health problems (Maitland and Sluder 1996). Prison staff is placed in the precarious position of trying to balance their custodial duties (which demand disciplinary responses) with their mental health role (which suggests that referrals to treatment staff are in order). While both options can be exercised, mentally ill inmates can be particularly disruptive, reducing staff enthusiasm for recognizing the relevance of mental health issues (Toch and Adams 1988).

Criminal History Correlates

One of the key principles of human behavior is that past behavior is highly predictive of future behavior. Thus, when trying to identify inmates who are likely to have difficulty conforming to prison rules, we need to look to their prior criminal history and behaviors. Research in this area has pointed to several key factors including past prison misbehavior and

prior prison experience, as well as the length of an inmate's prison sentence and the amount of time already served on that sentence.

Past Criminal and Institutional Behavior

One of the best-documented empirical regularities in criminology is the positive association between past and future criminal behavior (Akers 1985; Andrews 1983; Cook 1986; Cornish and Clarke 1975; Farrington and West 1990; Gottfredson and Hirschi 1990; Hill 1985; Hirschi 1969; Lemert 1972; Sutherland and Cressey 1974; Tittle 1980; Williams and Hawkins 1986). Thus, it can be supposed that inmates with longer criminal histories and prior incarcerations and those who have had problems in prison in the past will have higher rates of misbehavior than inmates with shorter criminal histories and no prior problems in prison. This has been validated by research showing that inmates serving their first prison sentence have a lower average annual rate of infractions than recidivists, regardless of the amount of time already served on their current sentence (Bondeson 1989; Flanagan 1983; Stephan 1989).

Similarly, the prisoner's conduct record within the institution has traditionally been viewed as an indicator of adjustment or maladjustment to the prison situation (Wolf, Freinek, and Schaffer 1966). Some studies have shown that past violent behavior and previous institutional behaviors are positively correlated with institutional adjustment problems and recidivism (Flanagan 1983; Hanson et al. 1983; Hill 1985; Morris and Miller 1985). Other research, however, has shown neither variable to be correlated with adjustment problems (Buchanan and Whitlow 1987; Cooper and Werner 1990). Clark, Fisher and McDougall (1993) suggest that the strong relationship between prior and future misconduct may be due

primarily to the fact that prison misconduct is the most extensively documented behavioral factor and that other, less often documented, factors may in fact, be accounting for this relationship.

Sentence Length and Amount of Time Already Served

The effect of sentence length also has had mixed results. In a study of federal prisoners, those with longer sentences had greater difficulty in adjusting to prison than inmates with shorter sentences (Morris and Miller 1985). This has been explained as a result of greater frustration and emotional stress for inmates with long sentences (Brown and Spevacek 1971; Ellis et al. 1974; Flanagan 1980; Jones 1986; McCorkle 1992; Proctor 1994; Van Voorhis 1993; Zink 1958) and by the decreased psychological threat of disciplinary action on inmates who face very long sentences (Leeke and Mohn 1986). However, another study by Cooper and Werner (1990) found that inmates with longer sentences actually had fewer adjustment problems than inmates with shorter sentences.

Time already served on a period of incarceration seems to have some effect on misbehavior. Irwin (1970) to describe the movement through the stages of imprisonment has used the term “prison career”. As an inmate gains experience in prison they learn to adapt to prison life, avoid trouble and ‘do their own time’ (Sykes 1958; Brown and Spevacek 1971). However, prisonization theory includes the idea of socialization to a code of conduct that accepts (or even requires) deviance so it is possible that misbehavior would be expected to increase over time. Clemmer (1940) discovered that the longer an inmate remains incarcerated, and the more he associates with his peers, the greater the chances he will adhere to anti-staff attitudes. These anti-staff attitudes may be evidenced in greater amounts of rule breaking.

However, other research supports a nonlinear socialization process for inmates. For instance, Wheeler (1961) found that inmates incarcerated for six months or less, as well as those who had six months or less remaining prior to release from prison, expressed more pro-social attitudes than other inmates. This inverted U-shaped curve for prison misbehavior has garnered considerable support in the literature (Craddock 1996; Garabedian 1963; Glaser 1964; Tittle 1969; Tittle and Tittle 1964; Toch and Adams 1989; Toch, Adams and Grant 1989; Wellford 1967; Wheeler 1961; Zamble 1992). However, some research has supported neither a linear, nor a U-shaped pattern of misbehavior and antisocial attitudes over the course of incarceration. Flanagan's (1980) study found similar rates of infractions throughout the course of a sentence and Garabedian's (1963) study found the effects of time on prisonization depended upon the type of inmate. Garabedian found that professional street criminals ("square johns" or "right guys") conform to Wheeler's U-shaped curve, but different patterns emerge for other types of inmates.³ Of course, sentence length and time served do not occur in a vacuum. Inmates who have served more time tend to be older, thus a considerable portion of the time effect may be due to aging.

Facility Correlates

The correlates discussed thus far have focused on individual-level factors such as demographics and criminal history. These factors tend to be those that proponents of importation theories consider. However, other researchers have looked at how the prison

³ "Politicians" or leaders of officially recognized prisoner organizations held mostly prostaff attitudes throughout their incarceration; "dings" or eccentric prisoners develop stronger prostaff attitudes over the course of their incarceration; and "outlaws", conspicuously antisocial "loner" inmates conform to Clemmer's progressive prisonization model. It should be noted that Leger (1978) attempted a replication of

experience itself affects inmate behavior (Thomas and Zingraff 1976; Wooldredge and Carboneau 1998). Key factors in this type of research are the availability of jobs and programs, prison security and size, treatment or custody orientation, crowding, transiency of the inmate population, and the racial mix of inmates.

Jobs and Programs

Prisons tend to be full-service institutions, providing a range of activities for inmates, many of which are comparable to those available in the larger society. Inmate activities serve multiple purposes including relief of boredom, rehabilitation, incentives for good behavior, and, in the case of inmate jobs, defraying some of the costs of housing inmates by having inmates provide some of the labor necessary for the day-to-day operation of the prison. Perhaps most importantly, prison jobs and programs reduce idleness and provide structure. Since idleness is a major cause of prison disorder, prison administrators use prison jobs and programs to keep inmates occupied (Gaes and McGuire 1985; McCorkle et al. 1995). This is supported by research that shows institutions with a greater percentage of inmates involved in educational, vocational and industrial programs experience lower rates of assaults on inmates and on staff (McCorkle et al. 1995). There is also empirical support for the proposition that involvement in prison work programs is related to a reduction in overall inmate misconduct (Flanagan et al. 1988; Petersilia and Honig 1980; U.S. Department of Justice 1991). When looking at participation in work versus non-work programs however, Rhodes and colleagues (2001) found that inmates participating in non-work activities such as vocational training and

Garabedian's work and refuted Garabedian's findings.

rehabilitative programs had higher rates of misconduct than those who participate in work activities. While at face value, it appears that all activities are not equal in their ability to reduce misbehavior; the relationship between work and non-work programs to misconduct is perhaps due more to the type of inmates assigned to work versus non-work programs. Many prison systems place inmates in non-work programs such as GED, drug treatment or rehabilitative programs prior to inmates being eligible for work programs.

Prison Security Level and Size

Differences in security level affect the level of supervision over inmate behavior. Inmates in more secure facilities are offered fewer opportunities for clandestine misbehavior than those in less secure facilities (Bidna 1975; Kratcoski 1988; Toch 1977). Thus, it is not surprising that more misbehavior is reported for inmates in maximum-security facilities (an average of 1.9 infractions per inmate) than prisoners in either medium (1.4) or minimum (1.2) (Stephan 1989).

Minimum-security prisons are facilities designed to house low-risk, non-violent offenders. Housing is often of a dormitory-like quality, with the grounds and physical plant features allowing for a great deal of inter-inmate contact. Usually a wider variety of educational, vocational, and treatment programs are available than in higher security prisons (Camp and Camp 1999). The most common type of prison facility are medium-security prisons. About 60% of all state and federal prisons in the United States fall into this security classification (Camp and Camp 1999 p.19). A wide variety of offenders are housed in medium-security facilities, usually with violent and nonviolent offenders placed in common living areas (Wooldredge and Carboneau 1998). Medium-security prisons offer less freedom than

minimum-security facilities and access to programs tends to be more limited. Maximum-security prisons are characterized by many stringent rules and restrictions and inmates are more likely to be isolated from one another for long periods in single-cell accommodations (Farmer 1994). Frequently, maximum-security institutions are strictly custodial and make little or no effort to rehabilitate inmates (Van Voorhis 1997).

Facility size also has been correlated with inmate misbehavior. Stephan (1989) found that small prisons of 500 or fewer inmates contained a smaller percentage of inmates charged with infractions (47%) than did either medium-size prisons of 500-999 inmates (56%) or large institutions of 1,000 or more (55%). This may be due to other factors such as the security level of smaller prisons. Smaller facilities tend to house lower-risk inmates than larger 'warehouse' type prisons.

However, others have discussed the need to look further than just the size and security level of a prison. Prisons of the same security level and size can vary in structure, including the number, clarity and consistency of rules; the degree to which one is able to control these rules; and the amount and type of support provided by the structuring agent (Miller 1981; Reitsma-Street and Leschied 1988). While we can speculate that more secure and larger prisons will, on the whole, provide more structure than smaller and less secure facilities, we rarely measure these factors directly. Rather, we tend to use size and security level as a measure of environmental structure, a situation that is less than ideal (Reitsma-Street and Leschied 1988).

Prison Treatment or Custody Orientation

There is some evidence that the orientation or general philosophy of a facility is

important in inmate behavioral outcomes. When comparing inmate organization in three types of prison settings, Berk (1966) found support for prisonization theory. Inmates in the most treatment-oriented facilities displayed the most positive attitudes toward staff, the prison itself and the treatment program while inmates in the most custody-oriented facilities, displayed the most negative attitudes. Street, Vinter, and Perrow (1966) also found similar findings for juveniles in their research. A study of federal inmates incarcerated in treatment-oriented prisons showed an inverse relationship between the length of imprisonment and prisonization and misbehavior (Atchley and McCabe 1968). That is, attitudes and behavior improved over time for inmates in treatment-oriented facilities. While differences in behavior seem to be clear in these early studies, we should not assume that all treatment-oriented prisons would have lower infraction rates. Street and colleagues (1966) caution us to temper assumptions that inmate social systems operate equally in all institutional contexts. What they seem to be stressing is the necessity for looking at the prison holistically rather than focusing on one factor or another.

Crowding and Transiency

Population crowding is yet another possible aggregate-level influence. Prison overcrowding has become quite commonplace in state and federal facilities and has created problems for inmates and prison staff (BJS 1998; Camp and Camp 1993, 1997, 1999; Furniss 1996; Ruback and Carr 1993; Vaughn 1993). Researchers have noted that levels of prison violence have risen rapidly in years when overcrowding has increased (Maitland and Sluder 1996; Ruback and Carr 1993; Wooldredge 1989).

Greater population density may contribute to misbehavior in several ways.

Overcrowding increases psychological and emotional strain for both inmates and staff (Cox, Paulus and McCain 1984; Klofas, Stojkovic, and Kalinich 1992). Crowding makes it more difficult for staff to supervise inmates effectively (Cobb 1985; Ellis et al. 1974; Gaes 1985; Gaes and McGuire 1985; Paulus and Dzindolet 1993). It may also influence inmate misbehavior and aggression as inmates are unable to control or avoid unwanted interaction or stimulation, increasing inmate fears for their personal safety, and reducing the means to maintain personal identity (Dooley 1986; Megargee 1976). A strong relationship between crowding and inmate rule violations has been supported in the literature (American Correctional Association 1981; Clayton and Carr 1984; Cox et al. 1984; Eckland-Olson et al. 1983; Ellis 1984; Farrington and Nuttall 1980; Gaes 1985; Gaes and McGuire 1985; Jan 1980; Jayewardene, McKay and McKay 1976; Kratcoski 1988; Leger 1988; Martin and Zimmerman 1990; Nacci, Teitelbaum, and Prather 1977; Paulus, McCain and Cox 1981; South Carolina Department of Corrections 1973; Toch and Adams 1986). Like most possible correlates however, not all research has supported a positive relationship between crowding and misbehavior (Walters 1998).

It has also been suggested that crowding affects not only inmate behavior but staff behavior as well. In overcrowded prisons, staff may find themselves spread too thinly and because of this, engage in compensatory actions such as reacting more harshly to misbehavior in anticipation of other behavioral difficulties (Poole and Regoli 1980; Walters 1998). The inability to control for characteristics of prison staff, those who are the official 'referees' of inmate misbehavior, is a commonly cited problem in the literature when trying to determine the direct affects of crowding. Prison staff members differ in training received, experience, their ability to

communicate with inmates and overall morale, all of which have been found to significantly impact behavior. Unfortunately, data to measure these factors are rarely available (Cooke 1992; Davies and Burgess 1988a, 1988b). Experienced staff tends to take a different approach to prisoners than inexperienced staff and they are usually better able to judge the mood of prisoners (Davies and Burgess 1988b). This leads to better communication and fewer problems with inmates. Some have also suggested that poor staff morale may increase aggressive inmate behavior (Cooke 1991; Kingdon and Bakewell 1988; Lion, Madden and Christopher 1976). Implications of this finding are exacerbated by research that shows that the job of the prison guard is often alienating (Johnson 1996) and that approximately two-thirds of prison guards would rather be in a different job (Cullen, Link, Cullen and Wolf 1989; Toch and Grant 1982).

For this and several other probable reasons, research on prison overcrowding and its relationship to inmate violence, health, stress, prison disciplinary problems, and recidivism are not conclusive. Other possible confounding factors are the difficulty in finding comparable control groups and problems involved with comparing one inmate population with another based simply on population density. For instance, while Gaes and McGuire (1985) found higher rates of inmate violence in overcrowded state prisons, they were unable to replicate these findings in federal prisons.

Inconsistencies in the effect of overcrowding on inmates in different age groups have also plagued researchers. Several studies have found overcrowding to increase misconduct in juvenile or youth facilities but failed to find the same relationship in adult institutions (Eckland-

Olsen et al. 1983; Jan 1980; Nacci et al. 1977). However, other research has found the opposite effect: that crowding has a significant impact on the misbehavior of older inmates but not for younger ones (Gaes and McGuire 1985).

Other researchers contend that it is not crowding per se that fuels inmate behavioral problems, but rather the rate of turnover, or transiency, of the prison population (Ellis 1984; Gendreau and Keyes 2001; Porporino 1986). They contend that rapidly changing prison populations hamper the development of normal prison social structures, leading to a greater number of challenges to prisoner hierarchy and increased wariness by inmates and staff alike. In fact, Porporino's (1986) study found that the most crowded prisons were the least violence-prone because they had the lowest transiency rate. Ellis (1984) also suggests the relationship between crowding and behavioral problems are mediated by several factors other than transiency including age, institutional size, level of institutional violence and scarcity of institutional resources. Today's prison populations are more transient than ever before, with prisoners often moving from one prison to another every few months (Perkins, Stephan and Berk 1995).

We should keep in mind that crowding and transiency cannot be isolated as directly causing behavior problems. Overcrowding exacerbates existing institutional problems and makes prison life even more irritating for inmates (Clements 1979). For instance, lack of bed space often requires that inmates be held in custody levels inconsistent with the level for which they are classified (Austin 1983; Duffee 1989; Porporino 1986). This makes it difficult to control the mix of prisoners, which can be critical in controlling inmate populations (Miller,

Kruttschnitt, and Gartner 1998; Quay 1983). Inmates in need of treatment for a variety of problems may also be unable to receive such treatment in a timely manner because of lack of resources (Van Voorhis 1994). Overcrowding places additional strain on the ability of prisons to offer adequate work, recreational and educational programs as well as basic services such as health care and food service. All of these factors may fuel behavior problems in inmates. Because of this, overcrowding and transiency are best seen as having an interactive yet indirect association with inmate misbehavior.

Racial Composition

Another related problem is the ethnic and racial composition of inmates within a prison. This problem was recognized even in Gresham Sykes' (1958) classic study of prison life where he observed friction caused by the housing of different ethnic and racial groups in the same prison (1958, p. 81). While Sykes' concern was that this prevented collective behavior and made it difficult to maintain a high degree of solidarity, others have recognized that racial and ethnic imbalances can be a source of conflict within prisons, often giving rise to inmate-on-inmate violence (Carroll 1988; Jacobs 1977; McCall 1995). Prison gangs, or as they are often referred to in the literature 'security threat groups', are often defined in terms of race and ethnicity (Carroll 1988). McCall (1995) writes that prison is perhaps the only place where men of color wield disproportionate power, partially because of the power wielded by prison gangs. While prison administrators may recognize this problem and attempt to keep a balance of racial and ethnic groups, doing so becomes particularly difficult with overcrowded and transient prison populations.

Problems with Correlates of Misbehavior

It is clear that there is no overall consensus as to exactly what factors impact inmate misbehavior. There are several possible reasons for this, including lack of adequate data, improperly specified models, differences in operationalizing key concepts, and confounding factors yet unmeasured such as those mentioned in the previous sections (e.g., the actual structure of prisons, staff behavior).

One of the limitations often cited in prediction literature is the general exclusion of environmental factors from predictive efforts (see Gabor 1986; Monahan 1981, 1984). Even with comprehensive data on individual characteristics of inmates, we have only been able to explain misbehavior in a limited way. For instance, even those inmates presumed to be the most problematic to prison officials may or may not actually misbehave in various contexts.

With this in mind, several researchers have looked at how context affects inmate behavior. Context has been operationalized in many different ways including factors such as time of day, temperature, inmate activity structure level, prison crowding level, institutional size, and whether the facility leaned more toward treatment or control (Dietz and Rada 1983; Gaes and McGuire 1985; Harris and Varney 1986; Henderson 1986; Kratcoski 1988; Steinke 1991; Thomas and Zingraff 1976). Most research that examines prison context has concluded similarly to Harris and Varney (1986) that inmate behavior is “due to the interaction of environmental and internal factors” (p. 188). Researchers have also noted the complexity of the interaction between inmates, the prison environment, and staff behavior (Flanagan 1983; Steinke 1991; Wooldredge and Carboneau 1998). As Flanagan (1983) notes, “the processes

that lead to charging an inmate with a disciplinary infraction are situational in nature--involving a complex interplay between inmate, officer, and the setting in which the interaction occurs" (p. 37).

The Importance of Context

Context allows us to see prisons not as inert institutions, but rather, as dynamic environments, which condition the role that individual characteristics play in determining behavior (Miller et al. 1998). Currently, the variables used in predicting prison adjustment or incidents of violence have been heavily weighed in the direction of background variables such as race, age, and commitment offense (Austin 1993). Researchers are still unable to identify which inmates perceive prison as stressful and act out accordingly, and which environmental conditions support this behavior (Bonta and Gendreau 1990; Gendreau and Keyes 2001). The usefulness of studies that focus primarily on inmate characteristics has been questioned on a number of grounds (Henderson 1986; Shawver, Clanon, Kurdys and Friedman 1985; Solomon and Camp 1993).

Recent research has emphasized the complementary nature of macro-social (group, contextual, or aggregate) and micro (individual-level) factors in the explanation of variation in crime and delinquency (see e.g., Bursik 1988; Simcha-Fagan and Schwartz 1986). That is, we need to look at the way individual-level factors vary in different aggregate contexts. Not doing this often results in attribution error, the tendency to attribute behavior to individual differences without considering the importance of the larger social forces that influence and shape such behavior (Ross 1977; Steinke 1991).

Therefore, we should make explicit the assumption that misbehavior and its predictors vary by characteristics of the wider social context. These contextual effects can take various forms. Being assigned to a facility that has excessively high rates of infractions may be especially harmful because of one's proximity to a large number of misbehavers. Likewise, an individual with all the characteristics generally thought of as putting them at risk for increased misbehavior may not misbehave when put in an environment that does not support such behavior. As mentioned earlier, prisonization (macro-level) theories can provide a basis for identifying conditions in prisons that increase the rate of infractions, whereas importation (micro-level) theories of inmate behavior can establish a set of individual characteristics that increase the risk of misbehavior. When we integrate these in a multi-level analysis several types of contextual effects are possible.

There are several reasons why it is important to include both measures of individual predictors and contextual variables in studies of prison misbehavior. First, a major premise of sociological theory is that social conditions enable and constrain human activity. Although not denying those individual predictors influence adjustment to prison life, most sociological theories assume that the community context has a direct impact on risk independent of individual characteristics. Second, it is possible that many of the presumed individual-level effects are actually reflective of prison dynamics. For example, the impact of age on infraction risk has received strong support (e.g., Cooper and Werner 1990; Ellis et al. 1974; Flanagan 1980, 1983; MacKenzie 1987; Stephan 1989; Wooldredge 1994; Wooldredge and Carboneau 1998); yet, the influence of age may stem from the fact that younger inmates are more likely to

be assigned to prisons with more mobile populations, lower structural control, and less access to meaningful work. Under these conditions, failing to include measures of the prison context would mis-specify the true relationship between individuals' characteristics and infraction risk.

Contextual Effects

Context takes into account individual differences, the effect of the environment, and interactions between individuals and their environment. Therefore, three kinds of effects are expected: individual-level effects; main-level effects at the prison level; and cross-level interaction effects. A brief discussion of each type of effect follows below.

Individual-level, or Level-1 (L1), effects are the effects of individual differences on the outcome variable independent of the aggregate-level effects. These effects are thought to be indicative of importation processes.

Prison-level effects are those main effects of Level-2 (L2), the prison, on individual's risks of misbehavior net of their personal characteristics. For example, we might discover that inmates placed in a highly transient, violent prison population might react to the context of being in a group of very violent inmates by behaving in a violent fashion. Effects of this type exemplify the prisonization hypothesis.

Most published contextual studies of crime are limited to tests of main effects. This study seeks to explore the interactions between individual- and aggregate-level influences on prison misbehavior. Cross-level effects are the interaction between individual and prison-level effects. Previous research has supported the relationships between personal and prison situational factors on prison misconduct (Gendreau, Goggin and Law 1997).

Two types of cross-level effects are possible, depending upon whether the interaction has a positive or negative effect. Positive effects are seen when individual effects (the L1 slope) become more pronounced (i.e., the slope becomes steeper) under certain prison-level (L2) conditions such as transiency or overcrowding. The second type of cross-level effect is a negative or leveling effect, and it is consistent with a general prisonization hypothesis: individual-level propensity for violence has a weak effect where violence is prevalent (or a strong effect where violence is less prevalent). The L1 slope of past and future violence would be flattened under violent prison conditions.⁴ That is, it is the institutional context that dominates rather than individual propensity toward violence as importation theory suggests. An intuitive example of this is when many inmates with high levels of prior violence are placed in a prison together; there may be a leveling effect on individual violence: no one of them can dominate, so violence is minimized.

Chapter 3 discusses the data and methods used to measure the effect of context on inmate misbehavior, including a discussion of how context will be measured.

⁴ While it is also possible to find a negative slope this would be inconsistent with the literature on the relationship between past and future behavior and is not hypothesized.

CHAPTER THREE

DATA AND METHODS

Introduction

This study addresses two key questions: first does prison context affect rates of inmate misbehavior, and second, do these contexts affect the role inmate characteristics play in prison misbehavior? Past research has shown that context does indeed have an effect on inmate responses to imprisonment (Ellis 1984; Gaes and McGuire 1985; Owen 1998; Poole and Regoli 1983; Thomas and Zingraff 1976; Wooldredge and Carboneau 1998). However, the types of analysis and data available have limited past research. This study attempts to correct for some of these problems through the use of hierarchical linear modeling on a statewide prison sample.

As mentioned in the first chapter, contextual analysis has played an integral role in increasing our understanding of determinants of street crime victimization (e.g., Miethe and Meier 1994; Rountree et al. 1994; Rountree and Land 1996). Researchers interested in inmate behavior have suggested that context plays an essential role in inmate behavior. Structural conditions provide the framework within which individual characteristics are maximized or minimized. In addition, individual characteristics condition the structure of the prison itself.

We know that individuals bring their own unique characteristics to any given situation or environment. That is, we cannot assume homogeneity within a group of people in any given set of material and social conditions that make up their daily living environment. Since prison

inmates each bring with them a unique package of individual characteristics, any single characteristic is probably insufficient to explain behavior, even when present in the same environment.

In this chapter, I describe the data used to answer these questions. I also present measures of individual and contextual variables. The chapter concludes with a discussion of analytic procedures and strategy.

General Research Design

Social systems typically have a hierarchical organization in which ‘units’ at one ‘level’ are grouped within units at the next higher level (Bryk and Raudenbush 1992). Thus, human beings (Level-1 units) live in groups (Level-2 units), and usually work within well-structured hierarchies (units at Level-2 and higher). This hierarchical arrangement can be applied to inmate structures within prisons where individual inmates (Level-1) live in groups of inmates, usually at the prison level (Level-2), depending upon the particular prison. Inmates can also be grouped into units to reflect work, program, and/or other assignments.

The starting point for this research, therefore, is the proposition that the existence of a hierarchically organized social system implies that we should take that hierarchy into account when we analyze data. Indeed, aggregate data is in its very nature hierarchical in that the aggregate is comprised of smaller units. Thus units at Level-1 are nested in Level-2. Alternatively, if we were to look only at individual-level data, aggregate-level influences inevitably occur since individuals live in social groups and it is nearly impossible to separate out

all higher order unit effects.

In order to address the problem of aggregation bias and the influence of micro-level variables on inmate misbehavior, I use hierarchical linear models. This type of analysis combines previously distinct lines of individual- and aggregate-level analyses in social research into comprehensive analytic models. In a two-level hierarchical analysis, it is possible to decompose the variation in the dependent variable into within- and between-prison components, thus obtaining intra-variable correlations that are estimates of the proportion of total variance in the outcome variable that lies between and within prisons. The relative percentage of variance between and within prisons can then be used as the initial diagnostic information about the extent to which causal processes in a model predicting aggregate outcomes can be assumed to be operating at various analytical levels (Bryk and Raudenbush 1992).

In the analysis there are two levels of analysis: Level-1, individual inmates, and Level-2, the prison. Analyses estimate the amount of variation in the dependent variable, individual-level prison misbehavior between and within prisons; incorporate individual inmate level demographic variables into the explanation of misbehavior; and model the interactions between individual- and macro-level factors in the explanation of prison misbehavior.

The overall directional research hypothesis

Specific hypotheses to be tested include what factors and in which contexts prison misbehavior is more likely to occur. The two major theories used to explain prison behavior, prisonization and importation, provide the starting point for this analysis. In general, it is

hypothesized that the effects of prisonization will vary with the variables measured at the prison (L-2) level while the effect of importation on misbehavior will vary with the variables measured at the individual (L-1) level. For instance, we would expect larger, more crowded prisons to provide for closer contact between inmates, increasing adaptation into prison culture (prisonization). Likewise, younger, violent inmates with a history of substance abuse are expected to bring with them cultural values in opposition to prison administration, increasing the likelihood of misbehavior (importation). It should be noted however that in reality the delineation between importation and prisonization is not as clear-cut as this. Environment is partially formed by the characteristics of the offenders, not something that exists as a static entity. Culture can be imported into the prison (e.g. male or female culture, black culture, gang culture) and as the mix of inmates and non-prison culture changes this is reflected in the culture of the prison itself. For instance, during times of racial unrest in society in general, tensions between racial groups in prison are acerbated. This study focuses more on how variation in misbehavior is affected by L-1 and L-2 factors than in drawing parameters around which factors affect prisonization or importation alone. Thus, where context affects individuals it is assumed that prisonization is the major cause.

Earlier empirical studies have concluded that an integration of importation and prisonization theories is possible and explain differences in individual behavior better than models using only one perspective (Schwartz 1971, 1973; Smith 1984; Thomas 1973; Thomas and Foster 1972; Zingraff 1980). Thus, it is expected that by taking context into account, we

will be able to better explain misbehavior than with individual- or prison-level variables alone. Alternatively, we can then look at context and its effect on prison misbehavior. It is expected that the environment in which the inmates find themselves will condition individual propensities for misbehavior. For instance, in prisons with higher than average infraction rates, inmates who are at relatively low risk for misbehavior based on individual characteristics will misbehave more than expected. Conversely, the misbehavior of high-risk inmates in low infraction rate prisons will flatten out (i.e., high-risk inmates will misbehave less than expected). In either of these situations we can assume that the cross-level interactions of individual- and prison-level factors affect prisonization. Support for this hypothesis would suggest the need for theory integration.

Study Population and Sample Design

Data

Data for my analysis were derived from North Carolina Department of Correction (NCDOC) inmate computer records. These data are collected by the state of North Carolina and accessed through the Offender Population Unified System (OPUS), a management information system. These data contain a wealth of information about persons under the supervision of the NCDOC, their movements and activities while being supervised, and the institutions that house them.

The NCDOC data were obtained through an agreement between the Office of Research and Planning and the North Carolina Center for Crime and Justice Research under the direction of Dr. William R. Smith. The data were received in their original OPUS DB2 table

format and were then converted into SAS data files prior to processing the data. These files came in two basic types: event files and non-event files. A list of the files used is contained in Appendix A. Considerable data processing was required to prepare the data for analysis, especially for the event files. Data processing was further complicated by the fact that many of these files are extremely large. For instance, the Custody Classification file had 503,633 observations prior to processing the data and was over 217MB in size. The other event files are similarly large as each inmate has multiple observations.

Data from the various files were linked by the offender identification number (CIDORNUM). All persons supervised by the North Carolina Department of Corrections have a unique identification number assigned to them. This number is retained throughout the course of one's life so an inmate who enters prison (or any other type of correctional supervision) multiple times will keep the same identification number. As with any empirical investigation, a crucial decision point involves choosing the appropriate sample and analytic technique. For this project, the sample consisted of the 1997 prison population. This included all felons incarcerated in the NCDOC Division of Prisons at any time during calendar year 1997, meaning that individual inmates are included in the study for differing lengths of time. For instance, any particular inmate could be incarcerated for the entire year, or 365 days, for only one day (in the case of an inmate released from prison on January 1, 1997 or incarcerated on December 31, 1997), or any length of time in between. The year (1997) was chosen because the data were more complete for 1997 than for previous years and it was the latest complete

calendar year data available at the time of the data request.

The NCDOC data offer quite a rich source of both demographic information and correctional experience for individual inmates. Demographic information includes age, race, height, weight, educational level, and marital status. Correctional experience include the number of times incarcerated, the number of times on probation, length of current sentence, and offense classification.

To simplify the test of my hypothesis, this study limits the sample to male inmates. Males made up 91.75% of the North Carolina prison population during the study period. In addition, North Carolina prisons for female offenders differ from those designed for male offenders in that, female prisoners are not usually placed in separate facilities based on custody classification. The vast majority of female prisoners are housed at Women's Prison in Raleigh. This facility houses female prisoners of all custody levels together with no physical separation of the various types of prisoners. For instance, it is very common for a housing unit to have a mixture of minimum, medium and maximum-security inmates living, socializing and working together. In fact, in this prison, custody level can only be visually ascertained by the color of the shirt worn by the inmate. This makes testing my hypotheses difficult. Prior studies have also shown that female inmates differ in rates of misbehavior (Craddock 1996; Stephan 1989) and in the way they experience prison (Giallombardo 1966; Heffernan 1972; Owen 1998; Tittle 1969; Ward and Kassebaum 1965). Because of this, the female inmates are removed from the sample and reserved for future studies. A comparison of male and female inmates is briefly discussed in

Appendix B

North Carolina Prisoners

This study looks at North Carolina prison inmates. Like other prison systems in the United States, incarceration rates in North Carolina are on the rise. In 1997 the incarceration rate was 370 per 100,000 state residents, an increase from 267 a decade earlier and from 234 per 100,000 in 1977 (BJS 1998). Even though North Carolina has built new prisons to accommodate this rapidly growing population, at the end of 1997 the average prison was being operated at 117% of capacity (BJS 1998).

Prison populations fluctuate on a daily basis, with inmates moving into and out of the correctional system as well as within the prison system from one prison to another. One problem encountered when analyzing data such as these is deciding on what period of time to use to capture people in order to get a 'snapshot' of the prison that is both representative of the population and is practical for use in analysis. To do this, I looked at the aggregate data at three points in time; on the first day of the third, sixth, and ninth months of 1997. Differences between descriptive statistics and correlations were not statistically significant over the three points in time so it is assumed that the characteristics of the prison and the aggregate population are fairly stable. Because of this, July 1, 1997 was the date selected for the 'snapshot' of prison context. All descriptive data and analyses that follow are based on the prison population (n=26,034) selected on this date. Note that the sample size for July 1, 1997 is smaller than the full 1997 male prison population shown in Appendix B (N=44,695) because not all inmates were in

prison on July 1, 1997.

Variable Selection and Operationalization of Major Concepts

Dependent Variables

Inmate misbehavior, the main dependent variable in this study, is defined as the total number of infractions with which an inmate has been charged during the tenure of his current stay. That is the number of infractions that occur at the particular continuous period time during which July 1, 1997 fell, in one prison facility, and during the inmate's current period of incarceration. As discussed earlier, inmates who were not in a North Carolina prison on July 1, 1997 are not included in the study. Because inmates move from one prison to another quite frequently in North Carolina, using infractions per stay allows behavioral differences that are the result of prison context to be investigated.

Infractions can range from criminal behaviors (such as assault or drug offenses) to relatively minor rule violations such as using profanity or failing to obey and order. A list of the infractions which inmates could be charged with during the study period is shown in Appendix C.

A second dependent variable, the number of serious infractions is also studied. Serious infractions are defined as infractions falling into the A or B Class of Offenses (see Appendix C for a complete list). These include offenses that are particularly dangerous, violent or create an atmosphere in which control is difficult for prison staff. Also included in the B Class of offenses are substance related offenses. Offenses in the A and B categories carry the strongest penalties

and are of the gravest concern to prison officials.

As seen in Table 1, the average total number of infractions during their current stay is 2.63 while the average number of serious infractions is 0.63. Approximately 1 of every 4 infractions falls into an A or B infraction. Both dependent variables are highly skewed (8.18 skewness for all infractions and 8.60 skewness for serious infractions) and the interquartile range for serious infractions is zero. While the interquartile range for all infractions is greater than zero, this is driven by inmates in the top 25th percentile. The median number of infractions is zero but inmates who do have infractions tend to have more than one, leading to an interquartile range of 3.⁵

Independent Predictor Variables

Independent variables include age, race, marital status, educational level, substance abuse problems, job skills and employment status prior to incarceration, past institutional behavior, sentence length, type of offense, and percentage of sentence already served. Age can be used in a variety of ways, either by coding into discrete age categories or using a continuous variable. For this study age is used as a continuous variable with a mean age of 31.55 years. Age varies widely as seen by the standard deviation of 9.82 and the interquartile range of 13 as well as the minimum and maximum for age (14 and 88 respectively). Race was recoded into a dummy variable, indicating white or black. Including other race/ethnic categories is not practical as whites and blacks make up approximately 98% of the North Carolina prison population. As

⁵ 56.04% of inmates have zero infractions and 80.38% have no serious infractions.

seen in Table 1, 65% of the male inmates are black. Marital status has been shown to have some effect on the number of disciplinary problems. For this study, inmates are coded as either married or unmarried, with only those who report being currently married being coded as married while those reporting being divorced, widowed, separated, single, or unknown coded as unmarried. As shown in Table 1, only 16% of the inmates in this study report being currently married.

Education level and job skills have been found to influence inmate behavior. As shown in Table 1, the average inmate has completed 10.59 years of formal education. This does not vary particularly widely however. The top 75% of inmates have at least 12 years of education (i.e., completed high school) and the bottom 25% average 9 years. Relatively few inmates (5%) have a college education. Forty-two percent of inmates reported their job skill level as skilled or semi-skilled. In addition, 69% of inmates reported being employed at the time of arrest for their current sentence offense.

Inmates who have mental health problems or difficulties with drugs and/or alcohol severe enough to warrant treatment are expected to have more difficulty adjusting to prison than inmates without such problems. As seen in Table 1, 10% of inmates have a mental health problem indicated in their records. In addition, 50% of inmates were flagged as in need of treatment and more than 42% were under the influence of drugs and/or alcohol at the time of arrest.

Prior criminal and institutional experience can affect future behavior. Twelve percent of

the inmates in this study report having been in training school and the vast majority (80%) have at least one prior incarceration as an adult. For those with prior adult incarcerations, the average number of prior incarcerations was 2.32. Most inmates only had one prior incarceration (median of 1) but at the 75th percentile the number of prior incarcerations is 3. This can also be seen by looking at the standard deviation of 1.98. Prior institutional behavior is operationalized as a count of infractions received in past incarcerations. On average, inmates with a prior incarceration had a record of 2.67 total infractions. However, like the number of infractions for the current stay and number of prior incarcerations, the mean number of infractions during prior incarcerations varies widely and is driven by the minority of prisoners. This can be seen in the standard deviation of 7.33 and by looking at the interquartile range. The median number of infractions during prior incarcerations is zero but at the 75th percentile the number is 2. This leads to the interquartile range of 2 shown in Table 1. In addition, 49% of inmates in the study are incarcerated for a violent offense.

Table 1: Individual-Level Variables (n=26,034)

Variable	Mean	SD	Min	Max	IQR⁶
<i><u>Dependent Variables</u></i>					
Total Infractions per Stay	2.63	6.32	0	273	3
Total Serious Infractions per Stay	0.63	1.96	0	70	0
<i><u>Demographic</u></i>					
Age	31.55	9.82	14	88	13
Black (0=Non-black, 1=Black)	0.65	0.48	0	1	1
Married (0=Not Married, 1=Married)	0.16	0.36	0	1	0
<i><u>Education/Job</u></i>					
Years Education	10.59	2.07	0	16	3
Skilled Job (0=Unskilled, 1=Skilled)	0.42	0.49	0	1	1
Employed at Time of Arrest (0=No, 1=Yes)	0.69	0.46	0	1	1
<i><u>Special Problems</u></i>					
Mental Health Problem Indicated (0=No, 1=Yes)	0.10	0.31	0	1	0
Substance Abuse Treatment Need Indicated (0=No, 1=Yes)	0.50	0.50	0	1	1
Under Influence at Time of Offense (0=No, 1=Yes)	0.42	0.49	0	1	1
<i><u>Criminal History</u></i>					
Training School (0=No, 1=Yes)	0.12	0.33	0	1	0
Prior Prison (0=No, 1=Yes)	0.80	0.40	0	1	0
N Prior Prison Terms ⁷	2.32	1.98	1	23	2
N Infractions During Prior Incarcerations ⁸	2.67	7.33	0	277	2
Current Sentence for Violent Offense (0=No, 1=Yes)	0.49	0.50	0	1	1

Contextual Variables

The most common measures of prison context include prison size (Gaes and McGuire 1985; Poole and Regoli 1983), organizational powerlessness/alienation (Thomas and Zingraff

⁶ Interquartile ranges of zero are due to either the infrequency of some characteristics (i.e., more than 75% of inmates has no serious infractions, are unmarried) or that little variability exists (i.e., more than 75% of inmates have a prior incarceration).

⁷ For those with prior incarcerations (n=20,816).

⁸ Inmates with prior incarcerations only (n=20,816).

1976; Wooldredge and Carboneau 1998), crowding (Farrington and Nuttall 1980; Gaes and McGuire 1985; Jan 1980; McCain, Cox and Paulus 1980), treatment/custodial orientation (Gaes and McGuire 1985; McCain and McNally 1981; Poole and Regoli 1983), transiency (Gaes and McGuire 1985), and staff-inmate ratio (Gaes and McGuire 1985).

This research includes many of these previously used contextual factors plus several others. Prison size, crowding and transiency data are available for this sample.

Treatment/custody orientation information can only be inferred from the percentage of inmates involved in some type of treatment program at the prison. It should be noted however, that the number and types of programs available differ by security level. For instance, DART, the main substance abuse treatment program for North Carolina inmates, is generally only available in medium security facilities.

Attitudinal information such as that collected by Thomas and Zingraff (1976) are not accessible for this study. However, the number and nature of prison infractions is available. This provides an objective measure of inmate behavior. Gaes and McGuire (1985) used a similar measure. As they point out, by using institutional levels of misbehavior, we can make rather direct inferences about staff and other institutional characteristics without drawing conclusions about the individual characteristics of the inmate and staff involved.

Institutional contextual variables to be considered are prison size, security level, and average age of inmates. Also considered are institutional crowding, population transiency, treatment or custody-orientation, mean rate of infractions, the percent of inmates incarcerated

for violent offenses, and racial composition within the institution.

In 1997 there were 126 total facilities for housing North Carolina felons. However, 15 of these were not being used (0 capacity), 5 were jails, 8 were facilities for female inmates, and 4 are too specialized to be included in this study. Institutions with no inmates⁹ are of no interest to the current research. Because jails house a variety of offenders not included in the study population they too, will be excluded. Female institutions will also be excluded since this study focuses on male inmates. The four institutions with specialized missions do not necessarily contain inmates reflective of general prison populations or typical prison surrounding so they will be excluded. These specialized facilities include three privately run residential substance abuse treatment centers and a prison hospital. The remaining 94 institutions will be used in this study.

Table 2 summarizes descriptive variables for the North Carolina prisons included in this study. Many variables such as institutional size and security levels are fairly static since prisons are designed for a particular population. However, others change with changes in prison sentencing practices and other correctional and societal demographics, attitudes and practices. All characteristics are reflective of facility conditions on July 1, 1997.

Prison size is defined by the normal operating capacity of each prison. Prisons designed to house fewer than 200 number of inmates is defined as small, those designed for 200 to 800 inmates, medium, and those designed for more than 800, large. There were 48 small, 41 medium, and 5 large-sized prisons. Because larger prisons hold more inmates, a larger

⁹ Institutions can have zero capacity for many reasons including closed institutions, prisons converted to training and/or other non-housing DOC use, and institutions under construction.

proportion of inmates are housed in medium or large prison even though the mean prison size is between medium and small (median of 3 – small prison size). It is perhaps more meaningful to look at what percentage of inmates were housed in the various sized prisons for the study period. For the inmates included in this study only 15% of inmates were housed in a small prison, while nearly 65% were housed in a medium-sized prison. The remaining 20% of inmates were in a large prison.

Prisons are classified by security level. The security levels used by North Carolina Division of Prisons are close, medium and minimum. In addition, specific cell areas within close security prisons may also be designated as maximum security. The design and unique features of the prison, the level of staffing, and the operating procedures determine security levels. The security level of the facility significantly affects several aspects of the day-to-day life of the inmate including the type of housing they live in, how much freedom of movement they have and how much interaction with other inmates is permitted. Of the prisons included in the study, 12 are classified as close, 31 as medium and 51 as minimum security. The mean security level is 2.42 but like institutional size, this is not particularly meaningful. Because of prison size the distribution of inmates looks much different than the distribution of security level. Minimum-security prisons housed only 27.94% of inmates while close security prisons housed over 35%. Minimum-security prisons tend to be more numerous but smaller while close security prisons tend to large.

Table 2: Characteristics of North Carolina Prisons (n=94)

Variable	Mean	SD	Min	Max	IQR
<i><u>Size and Security Level</u></i>					
Prison Size -% prison population (1=large, 3=small)	2.46	0.60	1.00	3.00	1.00
Highest Security Level -% prison population (1=Close, 3=Minimum)	2.42	0.71	1.00	3.00	1.00
<i><u>Age</u></i>					
Average Age at Prison Level	32.95	5.19	18.42	47.55	2.70
Youth Facility	0.08	0.28	0	1	0.00
<i><u>Density and Turnover</u></i>					
Rated (standard) Prison Capacity	280.29	240.83	30	942	354.00
Institutional Crowding Ratio	.97	0.77	0.04	3.73	0.66
Transiency Rate – Average LOS*	424.13	283.68	67.53	2054.18	149.22
<i><u>Activity</u></i>					
Average Prison Program Capacity Ratio	5.41	12.45	0	83.25	3.59
Prison Designated as Tx-Oriented	0.20	.40	0	1	0.00
Average Prison Job Capacity Ratio	1.62	2.07	0	12.29	1.47
Average Prison Activity Capacity Ratio (Sum of Jobs and Programs : n inmates)	7.03	13.13	0	83.25	4.52
Prison Designated as Activity-Oriented	0.22	.42	0	1	0.00
<i><u>Infractions</u></i>					
Average N All Infractions/Inmate	2.03	1.65	0	9.25	1.51
Monthly N All Infractions/Inmate/Stay	0.16	0.11	0	0.55	0.12
Average N Serious Infractions/Inmate	.50	.42	0	2.49	0.39
Monthly N Serious Infractions/Inmate/Stay	.04	.03	0	.15	0.03
<i><u>Inmate Mix</u></i>					
Average Proportion Violent Offenders	0.51	0.16	0.08	0.91	0.24
Average Proportion Black Offenders	0.61	0.12	0.22	0.78	0.14

* LOS=Length of Stay

Average prison population age for each prison is used to account for possible differences in the age of prisoners. As shown in Table 2, the average age of all inmates is about 33 years old. The standard deviation of average age at the prison level is not as large as that of individual inmates (9.82, shown in Table 1), nor is the interquartile range as large (only 2.7 for

average age at prison level compared to 13 for individual inmates). Since age is strongly correlated with misbehavior it is possible that older inmates housed in prisons with a younger average age will behave differently than those housed in prisons with an older average age. It is unclear whether this is due to the mix of inmates of different ages or to an interaction effect between the age of the individual inmate with the average age of inmates in a prison. In addition, we can examine misbehavior in prisons designated as Youth facilities. North Carolina statute requires the separation of youthful offenders, generally defined as prisoners' age 21 and younger, and that an investment in work and educational training opportunities is made to help them at release. The concentration of young offenders is likely to affect behavioral outcomes. Youth facilities range in security level from minimum to close and also include boot camps at two locations (IMPACT East and IMPACT West). Boot camps are designed for short-term offenders serving a split sentence consisting of a short exposure to prison in a military-style camp, followed by supervised probation in the community. During the study period, 8 (8%) North Carolina prisons were designated as Youth facilities and housed 10% of North Carolina inmates.

Prisons operate most efficiently when they are not at 100% of capacity as dormitories and cells need to be maintained and repaired, special housing is needed for administrative and disciplinary segregation, and space may be needed to handle emergencies (Beck and Mumula 1999). Because of this the actual number of beds a prison contains is usually higher than the number of inmates the facility is designed for. Institutional crowding is operationalized as the

ratio of the average population of the prison to its rated capacity as defined by the State of North Carolina. Rated capacity refers to the number of beds or inmates assigned by a rating official to various state institutions. Prison capacity information is readily available in public documents such as the Department of Correction web page and is also in the Facility Description table (FACT8AA1) received from the DOC. The average rated capacity of the prisons included in this study is approximately 280 inmates. However, rated capacity ranges from 30 to 942, illustrating the vast differences in the number of inmates prisons are designed to hold. This variation can also be seen in the standard deviation (240.83) and interquartile range (354).

According to State prison population figures published by the BJS, the North Carolina prison population was 117% of capacity at year-end 1997 (BJS 1998). At mid-year however, the average prison was at 97% of rated capacity. This too, widely varied by prison with some prisons holding almost no inmates (rated capacity to actual prison population ratio of 1:0.04¹⁰) and some being extremely overcrowded (rated capacity to actual prison ratio of 3.73). Notice that the standard deviation and interquartile range are both more than two-thirds of the value of the mean, another indicator that crowding varies dramatically from one prison to another. At the first quartile the ratio is .49 (about half of standard capacity) but at the third quartile the ratio is 1.15 (15% over standard capacity).

Transiency is operationalized as the turnover per month of the inmate population of the

¹⁰Prisons with such low percent capacity are probably those either being built or in the process of being closed.

prison. This includes both transfers in and out of the prison as changes in the inmate population are assumed to undermine stable social networks. Analysis of the data for this project indicates that inmates move in and out of facilities on a regular basis. The average length of stay (LOS) for inmates at any one facility is 424.13 days, just over 14 months. However, this varies considerably as seen with the minimum average LOS of 67.53 days and the maximum of 2,054 days. The standard deviation and interquartile range for this variable (283.67 and 149.22 respectively) also show the variability in average length of stay.

The treatment or custody orientation of a prison is determined by computing the program capacity for each prison divided by the number of inmates in that prison on July 1st. Programs can be either educational or treatment. Prisons with a program capacity ratio of less than the mean of 5.41 were designated as having a custody orientation while those above the mean are designated as more treatment oriented. The ratio of programs to inmates differs considerably by prison (standard deviation of 12.45 and interquartile range of 3.59). For instance, at the first quartile, prisons have a program capacity ratio of 0.81 program slots for every inmate. However, at the 3rd quartile, this increases to 4.40 program slots for every inmate. As shown in Table 2, 20% of the prisons are designated as treatment oriented. It should be noted that some prisons contain housing areas that are dedicated totally to treatment, creating a different type of prison environment than housing areas where little to no treatment is offered. Treatment only housing areas are commonly used for DART and SOAR programs in North Carolina prisons. DART (Drug/Alcohol Recovery Treatment) is a 35-day substance abuse

program while SOAR (Sex Offender Accountability and Responsibility) is a 20-week sex offender treatment programs. Inmates assigned to these programs are housed together as part of the treatment philosophy. However, the data available does not allow designation by housing area so the unit of analysis for treatment or custody orientation is limited to the prison level.

In addition to treatment or custody orientation, having job activities to keep inmates busy have been shown to reduce misbehavior rates by reducing idleness and providing structure (Flanagan et al.1988; Gaes and McGuire 1985; McCorkle et al.1995; Petersilia and Honig 1980; U.S. Department of Justice 1991). In addition, prison jobs can teach work skills to inmates who may have never had regular employment.¹¹ The mean job capacity ratio is 1.62 jobs for every inmate. This can vary by prison quite a bit (standard deviation of 2.07 and an interquartile range of 1.47). To get a complete picture of the number of activities available for inmates in a prison, jobs and programs were added together and then divided by the number of inmates in the prison on July 1, 1997 to create the activity capacity ratio. Here we see that there are seemingly enough activities to provide some activity level for all inmates (activity capacity per inmate averages 7.03). This, like many of the prison-level variables varies widely, as shown by the standard deviation of 13.13 and the interquartile range of 4.52. Only 22% of the prison facilities provide activity at this average level with the other 78% providing fewer activities per inmate. It should also be noted that the activity capacity is driven primarily by educational and treatment programs. Jobs are also not appropriate for all inmates including those engaged in full-

¹¹ Many prison jobs are not skilled so do not necessarily teach work skills that can be used to obtain meaningful employment after prison but they do teach inmates skills such as regular attendance and how to manage relationships with co-workers.

time treatment programs, inmates with serious physical or mental health problems, and inmates who are dangerous to staff, other inmates or themselves.

The average infraction rate for a prison is also computed as it is expected that prisons where high rates of misbehavior occur actually beget even more misbehavior. High levels of infractions could be indicative of low levels of social control and negative attitudes toward staff or might be simply due to other factors such as age or offense type. Only infractions for the current stay are counted so that only those infractions occurring in that particular prison context are included. As shown in Table 2, the mean rate of infractions on the stay of interest is 2.03 infractions. This too varies widely with a range of 9.25, standard deviation of 1.65, and an interquartile range is 1.51. To account for differing average lengths of stay at various prisons, the average number of infractions per stay is also shown (.16). This was created by dividing the average number of infractions for the stay of interest (July 1, 1997) at each prison by the average number of months on this stay for the same prison. Similarly, the average number of serious infractions per inmate per stay is .50 with the rate of serious infractions at .04. Rates of serious infractions vary from 0 to 2.49 per inmate during the stay of interest. Again the interquartile range is fairly large for this variable (.39 and .03) when compared to the means.

Prisons with a high percentage of inmates serving a sentence for violent offenses may lead to staff that are quicker to report and punish misbehavior among inmates whom they perceive as are more of a threat to other inmates, staff and society. On average, 51% of inmates in a given prison are incarcerated for a violent offense. However, this also varies greatly by

prison with some prisons having a very low percentage of violent offenders (8%) while others house nearly mainly violent offenders (91%).

Racial composition also varies by prison. At any given prison, the average percent Black is 61%. However, percent Black ranges from 22% to 78% (standard deviation of .12 and interquartile range of .14). Imbalances in racial composition can be a source of conflict within prisons, possibly increasing the number of infractions for inmates housed in prisons that deviate from the average racial composition.

Bivariate Relationships between Independent and Contextual Variables

The zero-order correlation results for all the variables used in this study are presented in Table 3. Findings from the bivariate analysis of the independent variables are generally concurrent with the literature. The only variables with moderate to strong relationships are those for whom this relationship was expected. It should also be noted that no one variable is strongly correlated with the main dependent variable, number of infractions per stay except the number of serious infractions (.77). This relationship is due to serious infractions being included in the all infractions variable.

Independent variables used to test the hypothesis supporting importation were not highly correlated at all. The strongest relationship is between the being under the influence of drugs and/or alcohol at the time of the offense and an indicator for the need for substance abuse treatment (.35). The second strongest relationship is between having job skills reported as 'skilled' and being employed at the time of arrest (.33).

Independent variables used to test the prisonization hypothesis were more highly correlated than those variables used to test importation. Prison security level and prison size have a moderate relationship (.54) while the relationship between standard capacity and prison size is quite strong (-.88). That is, standard capacity decreases as prison size decreases.¹² Prison security level is also moderately correlated with average length of stay (-.53), standard capacity (-.67), average number of all infractions per inmate (-.73), monthly infraction rate (-.55), average number of serious infractions per inmate (-.71), and the average proportion of violent offenders (-.64). Average ages are lower for prisons designated as youth facilities (-.77). As the average age of a given prison's inmates increases there is a statistically significant, negative relationship with the average number of all infractions per inmate in prison (-.50), the rate of all infractions per inmate (-.71), and the rate of serious infractions per inmate (-.56). The proportion of black inmates also increases as average age of inmates decreases (-.49). Monthly infraction rates at the prison level are higher when the proportion of black offenders increases. This is probably due to the proportion of black offenders being higher in prisons with a younger average age. Related to this, youth facilities have a moderate relationship with increased average numbers of all infractions (.50), the monthly rate of all infractions (.51), and the monthly rate of serious infractions (.42). Not unexpectedly, as the average length of stay increases, the prison proportion of violent offenders (.85) and the average of all infractions per inmate (.52) increase. Lastly, treatment-oriented and activity-oriented prisons are highly correlated (.73). This too was expected since, as mentioned earlier, activity orientation is driven primarily by educational and

¹² Prison size is coded so that small prisons have a value of 3 and large prisons have a value of 1.

treatment programs. These two variables are also correlated at the .94 level. Related correlations to treatment and activity-orientation include that between the prison program capacity ratio and a prison being designated as treatment-oriented (.70), and the prison program capacity ratio and a prison being designated as activity-oriented (.68).

As expected, the average rates of all infractions and serious infractions (.96) as well as their monthly averages (.93) are highly correlated. Also, not surprisingly, as the proportion of violent offenders in a prison increases, the average number of all infractions (.71) and serious infractions (.76) increases. There is a smaller correlation between increased proportions of black offenders and all infractions (.40) and the monthly average of all infractions (.49).

Several Level-1 and Level-2 variables are correlated. Age and average age at the prison level are correlated (.52) as are age and youth facility (-.40), and age with the prison's monthly rate of infractions. None of these correlations are surprising since prison policy dictates the housing of younger offenders in youth facilities whenever possible and the older an individual inmate is the more likely he is to be housed in a prison with a higher average age. As the average age of the inmate population increases so does the likelihood that any individual inmate was employed at the time of arrest (.30). As seen in Table 1, 69% of all inmates indicated that they were employed at the time of arrest. We can presume from the bivariate correlation that those not employed are largely the younger inmates. Being a violent offender is correlated with increased security level (-.22), prisons with higher average length of stays (.29), and the average proportion of violent offenders housed in a particular prison (.35). These relationships are also

not surprising since violent offenders are usually considered a greater risk so are placed under higher security and because of this would be in prisons with longer average length of stays and be with other violent offenders. Looking at the bivariate relationships at the prison-level discussed above provide additional support for the relationship between violent offender status and age with prison-level variables.

TABLE 3

CORRELATION COEFFICIENTS OF INDEPENDENT VARIABLES (Listwise Deletion of Missing Data) N=26,034

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1.00																
2	.77***	1.00															
3	-.15***	-.10***	1.00														
4	.05***	.01	-.12***	1.00													
5	-.07***	-.05***	.24***	-.13***	1.00												
6	-.07***	-.06***	.02**	.10***	.01*	1.00											
7	-.10***	-.06***	.22***	-.15***	.11***	.14***	1.00										
8	-.06***	-.03***	.22***	-.10***	.10***	.06***	.33***	1.00									
9	.04***	.04***	.03***	-.13***	.01	-.05***	.04***	.01	1.00								
10	.02*	.02**	.03***	-.02***	-.01	-.00	.09***	.09***	.06***	1.00							
11	.01	.03***	.06***	-.10***	-.00	-.06***	.07***	.06***	.08***	.35***	1.00						
12	.09***	.08***	.01	-.01	-.10***	.01	.04***	.09***	.02**	.06***	.06***	1.00					
13	.08***	.07***	.15***	.03***	.03***	-.03***	.03***	.10***	.03***	.12***	.09***	.09***	1.00				
14	.15***	.13***	.10***	.02**	.00	-.04***	.01*	.05***	.05***	.07***	.05***	.15***	.16***	1.00			
15	.12***	.10***	.01*	.05**	-.01	-.10***	-.06***	.03***	.05***	-.05***	.04***	.06***	.15***	-.04***	1.00		
16	-.06***	-.04***	-.00	-.04***	.01*	.01*	.00	.05***	-.02**	.04***	.02**	.01	-.09***	-.03***	-.08***	1.00	
17	-.20***	-.15***	.11***	-.05***	.05***	.09***	.05***	.09***	-.06***	.02***	.01	-.06***	-.16***	-.06***	-.22***	.54***	1.00
18	-.13***	-.07***	.52***	-.08***	.15***	.14***	.20***	.30***	-.01*	.08***	.08***	-.02***	.18***	.11***	-.01	-.00	.21***
19	.13***	.08***	-.40***	.05***	-.12***	-.15***	-.17***	-.25***	.06***	-.05***	-.06***	.05***	-.14***	-.08***	.07***	.10***	-.14***
20	.09***	.07***	-.03***	.04***	-.02**	-.03***	-.01	-.05***	.04***	-.04***	-.02**	.01	.10***	.04***	.09***	-.88***	-.67***
21	-.00	-.00	.02***	-.04***	-.01	.01	.06***	-.00	.05***	-.01*	.04***	-.01	-.02***	.00	-.04***	-.08***	-.07***
22	.14***	.12***	.10***	-.00	.00	-.07***	-.01	.02***	.06***	.01*	.03***	.08***	.19***	.05***	.29***	-.30***	-.53***
23	-.05***	-.04***	-.04***	-.04***	-.01	-.00	.02	-.02***	-.00	-.04***	-.04***	-.00	-.11***	-.03***	-.04***	.25***	.22***
24	-.04***	-.03***	-.01*	-.04***	.00	-.00	.02***	.00	-.00	-.04***	-.03***	-.00	-.10***	-.03***	-.02**	.29***	.20***
25	-.04***	-.03***	.07***	-.00	.02***	.02**	.00	.05***	-.03***	.04***	.01*	.00	.02**	-.01	.01*	.22***	.24***
26	-.05***	-.04***	-.02***	-.04***	-.00	-.00	.01	-.01	-.00	-.03***	-.03***	-.01	-.10***	-.03***	-.03***	.28***	.25***
27	-.04***	-.03***	-.01	-.04***	.00	-.00	.02***	.01	-.00	-.03***	-.03***	-.00	-.09***	-.02***	-.02**	.28***	.19***
28	.27***	.20***	-.26***	.07***	-.10***	-.15***	-.16***	-.17***	.06***	-.01*	-.01	.09***	.09***	.02**	.24***	-.22***	-.73***
29	.22***	.14***	-.37***	.08***	-.12***	-.13***	-.17***	-.21***	.02***	-.03***	-.02***	.06***	-.00	-.02***	.10***	-.17***	-.55***
30	.26***	.20***	-.18***	.05***	-.08***	-.13***	-.13***	-.11***	.06***	.00	.00	.09***	.13***	.04***	.26***	-.20***	-.71***
31	.23***	.17***	-.29***	.06***	-.10***	-.12***	-.17***	-.17***	.03***	-.01*	-.00	.06***	.04***	.00	.13***	-.13***	-.05***
32	.19***	.16***	-.01	.02***	-.02***	-.10***	-.07***	-.02***	.06***	.02***	.02***	.09***	.20***	.05***	.35***	-.22***	-.64***
33	.11***	.06***	-.26***	.17***	-.09***	-.06***	-.16***	-.15***	-.02***	-.02***	-.07***	.01*	-.00	-.03***	.04***	-.21***	-.28***

p<.05 **p<.01 ***p<.001

*

TABLE 3 (cont.)

	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
18	1.00															
19	-.77***	1.00														
20	-.05***	-.01	1.00													
21	.04***	-.02***	.16***	1.00												
22	.20***	.03***	.31***	.00	1.00											
23	-.08***	.18***	-.25***	-.16***	-.12***	1.00										
24	-.02***	.11***	-.26***	-.20***	-.07***	.70***	1.00									
25	.14***	-.07***	-.27***	-.53***	-.04***	.31***	.40***	1.00								
26	-.04***	.15***	-.29***	-.27***	-.12***	.98***	.73***	.51***	1.00							
27	-.02**	.10***	-.25***	-.23***	-.07***	.68***	.94***	.52***	.74***	1.00						
28	-.50***	.50***	.35***	-.00	.52***	-.18***	-.17***	-.16***	-.21***	-.17***	1.00					
29	-.71***	.51***	.30***	.04***	.00	-.21***	-.21***	-.22***	-.24***	-.21***	.82***	1.00				
30	-.34***	.37***	.32***	-.00	.60***	-.19***	-.17***	-.13***	-.20***	-.17***	.96***	.70***	1.00			
31	-.56***	.42***	.26***	.06***	.10***	-.22***	-.23***	-.18***	-.24***	-.23***	.85***	.93***	.82***	1.00		
32	-.02**	.21***	.26***	-.12***	.85***	-.12***	-.06***	.04***	-.09***	-.06***	.71***	.28***	.76***	.37***	1.00	
33	-.49***	.31***	.25***	-.24***	-.02**	-.25***	-.26***	-.05***	-.24***	-.24***	.40***	.49***	.30***	.36***	.12***	1.00

*p<.05 **p<.01 ***p<.001

Key

- | | | | |
|-------------------------------|---|-------------------------------------|--|
| 1 All Infractions/month | 9 Mental Health Problem Indicated | 17 Highest Security Level | 25 Prison Job Capacity Ratio |
| 2 Serious Infractions/month | 10 Substance Abuse Treatment Need Indicated | 18 Average Age at Prison Level | 26 Prison Activity Ratio |
| 3 Age | 11 Under Influence at Time of Offense | 19 Youth Facility | 27 Prison Designated as Activity-Oriented |
| 4 Black | 12 Training School | 20 Rated Prison Capacity | 28 Average N All Infractions/Inmate |
| 5 Married | 13 Prior Incarceration | 21 Institutional Crowding Ratio | 29 Monthly N All Infractions/Inmate/Stay |
| 6 Years Education | 14 N Infractions during Prior Incarceration | 22 Transiency Rate – Average LOS | 30 Average N Serious Infractions/Inmate |
| 7 Skilled Job | 15 Violent Offender | 23 Prison Program Capacity Ratio | 31 Monthly N Serious Infractions/Inmate/Stay |
| 8. Employed at time of arrest | 16 Prison Size | 24 Prison Designated as Tx-Oriented | 32 Average Proportion Violent Offenders |
| | | | 33 Average Proportion Black Offenders |

Analysis Procedures

Analyzing the data involves first aggregating individual characteristics (Level-1) at the prison level (Level-2). This allows the creation of group characteristics such as percent with an infraction, the proportion of inmates with prior prison terms and percent violent offenders.

It would be ideal to aggregate all prisoners by individual housing areas within prisons but this is difficult at best considering the number of internal movements and the fact that the individual housing areas (or 'units' as they are commonly called) used by various prisons differ considerably in both size and meaning. Thus, inmates are aggregated at the prison level. As mentioned earlier in this chapter, the stay period to be analyzed is the prison stay of July 1, 1997. Whichever prison an inmate was assigned to on this date becomes the prison-stay to be analyzed.

Multilevel Analysis

Two types of multilevel analysis are presented; ordinary least squares (OLS) regression analysis and hierarchical linear modeling. SAS version 8.2 was used for all analyses.

OLS Regression

The initial analysis uses OLS regression. Ordinary least squares regression is the most commonly used statistical technique used in social science for models with continuous dependent variables and two or more independent variables.

The dependent variables, number of all infractions and number of serious infractions, are operationalized as counts of all infractions per stay for each inmate and counts of serious

infractions per stay for each inmate. Both dependent variables are strongly skewed. Over 56% of the inmates have zero infractions on a given stay and when looking specifically at serious infractions, the percentage having zero Class A or B infractions is even greater, at 72.51%. To compensate for this and lessen the problem of heteroskedasticity, the dependent variables are logged using natural logs when using OLS regression analysis (Cook and Weisberg 1982). This allows the distribution to take on a more “normal” shape. It should be noted that both dependent variables have a constant of “1” added to them prior to computing the natural log. Descriptive statistics for the logged and unlogged dependent variables are shown in Table 4 below.

Table 4: Descriptive Statistics for Unlogged and Logged Dependent Variables (n=26,034)

Variable	Mean	SD	Min	Max	IQR
Total Infractions per Stay	2.63	6.32	0	273	3.00
LN Total Infractions per Stay	.70	.94	0	5.61	1.39
Total Serous Infractions per Stay	0.63	1.96	0	70	0.00
LN Total Serious Infractions per Stay	0.25	.55	0	4.26	0.00

The independent variables are not logged. Therefore a unit change in an independent variable results in a proportionate change in the dependent variable. In the regression models, I also control for the number of days on a stay. This is expected to reduce bias between inmates with differing lengths of stay at a particular prison.

Goodness of fit and regression diagnostic statistics were also run for the models. The Homer-Lemeshow goodness of fit test was obtained using the LACKFIT option (Homer and Lemeshow 1989). Diagnostic statistics for identifying poorly predicted or very influential observations were employed using the INFLUENCE option in SAS as suggested by Pregibon (1981).

In order to reduce problems due to multicollinearity, highly correlated variables from the bivariate analysis¹³ were dropped if not theoretically relevant. However, several highly correlated variables are included in the models because of their relevance to our study. The variables dropped due to multicollinearity are rated (standard) prison capacity, average age at the prison level, and the variable designating a prison as activity oriented. Rated capacity is highly correlated with both prison size and custody level and plays a large role in determining which prisons are considered crowded. The inmate average age variable is highly correlated with youth facility designation. Preliminary analysis showed that being housed in a youth facility is more predictive of infractions than the average age of inmates in a prison. Lastly, activity orientation will be dropped. As noted in the discussion of bivariate relationships, activity orientation is in large part accounted for by treatment orientation, and treatment orientation seems more theoretically relevant. Models including these variables were run and are discussed briefly in Appendix D.

Hierarchical Linear Models

Hierarchical linear models, also called random coefficient models, empirical Bayes

¹³Correlations of 0.6 and higher are considered to be 'highly correlated'.

models and multilevel linear models (see Bryk and Raudenbush 2002, 1992; Goldstein 1987; Laird and Ware 1982; Mason, Wong and Entwistle 1983; Rutter and Elashoff 1994; Strenio, Weisberg and Bryk 1983), are a family of statistical models that are designed to analyze nested data. The basic structure of hierarchical linear models build on analysis of covariance models discussed earlier. There, linear regression models are used to include continuous variables as independent variables. The regression coefficients for the covariates are assumed to be fixed effects, unknown fixed parameters that are estimated from the data.

In hierarchical linear models, one or more covariates are assumed to be a random sample from some population of possible coefficients. Since the data arise from independent subjects or a cluster of subjects, the regression model for each subject or cluster can be assumed to be a random deviation from some population regression model. These models express relationships among variables at a given level, and specify how variables at one level influence correlations occurring at another (Bryk and Raudenbush 1992 p. 4). This is important when studying social context since Level-1 data (individual prisoners) are nested in Level-2 (prison). Typical regression models assume that the intercept and beta are the same for the entire sample. This is not just unrealistic, but inaccurate, given that errors are likely to be not random but rather systematic based on the prison that inmates are in. In other words it can be surmised that prisoners from the same prison might be more similar in their infraction prevalence than prisoners from different prisons. The violation of independence is the main reason for not using traditional regression models. To avoid violating the independence assumption some

researchers have aggregated to the higher level (prison) and simply not considered individual outcomes. However this means a loss of individual-level information and can create problems of misestimation and aggregation bias.

With hierarchical linear modeling we estimate multiple intercepts and betas for the higher-level units (e.g., prisons) and thus pay attention to the fact that errors are hierarchically structured. A simplified way to look at how this process would look is shown below.

$$\begin{aligned} n \text{ infractions} &= \text{intercept} + b * X + \text{error} && \text{for Prison A} \\ n \text{ infractions} &= \text{intercept} + b * X + \text{error} && \text{for Prison B} \\ n \text{ infractions} &= \text{intercept} + b * X + \text{error} && \text{for Prison C} \end{aligned}$$

Variance of the errors is the residual variance while the variance of the intercept terms (variation by prisons) is the parameter variance. Using PROC MIXED they are estimated in one equation: $n \text{ infractions}_{ij} = \text{intercept} + b_j * X_{ij} + \text{error}_i + \text{error}_{ij}$ where i is an individual and j is a prison. The intercept is a single value assigned to all cases. If the covariates are centered on the grand mean, the intercept is a typical value of a typical inmate in the sample. Individual deviance is captured by error_{ij} and prison deviance from it is captured by error_j . The last error_j is also called the Level-2 intercept because it is a constant term, although only constant among the inmates that belong to the same prison.

Hierarchical models are thus able to separate between-group from within-group effects. This can improve the estimation of effects within individual units as well as allowing us to test for and measure interaction effects (Bryk and Raudenbush 1993). Therefore, the use of such a method allows us to explain individual-level dependent variables (misbehavior) using

combinations of individual- and aggregate-level independent variables.

In this application the model explains inmate misbehavior (Y_{ij}) of the (i th) individual inmate in each prison (the j th group) by combining individual-level independent variables (X_{ij} 's) and either the aggregate mean (μ_j or Y_j) representing aggregate averages on the dependent variable (Blalock 1984). However, it should be noted that interrelations may be additive or nonadditive and there may be multiple contexts that are either nested or overlapping (Blalock 1984)

The SAS PROC MIXED procedure was used to run the hierarchical linear models for this study. Other software packages, namely HLM 5 and MlwiN have the capability to run hierarchical linear models. SAS PROC MIXED was chosen since it allowed data reduction, management and analysis within a single statistical package while providing identical substantive results as HLM (Littell, Milliken, Stroup and Wolfinger 1996; Singer 1998).

Limitations of Data and Methods

While it is expected that using hierarchical linear modeling will improve upon previous research on prison misbehavior, the data have some limitations that must be considered. A major limitation of the data is that which plagues all official data: undetected and/or unreported misbehavior (Bowker 1980; Lockwood 1980). While other studies have tried to remedy this problem by using self-report or staff data, every data source has both advantages as well as its own source of measurement error. However, like most research using official data, this research assumes that measurement error is random.

Another data limitation is the inability to consider the effects of prison staff attitudes, reactions and behaviors. Like official crime data, measures formed from prison records of disciplinary citations may “tell us as much about reactions of guards as they do about the activity of inmates” (Poole and Regoli 1980 p.945). As shown in other studies, staff has a significant effect on inmate behavior. Prison guards often feel alienated (Johnson 1996) and nearly two-thirds in surveys indicate they would prefer to have a different job (Cullen et al. 1989 p.97; Toch and Grant 1982 p.199). Staff also comes with their own prejudices and perceptions about different types of inmates and this can influence staff behavior in the face of similar behavior by different inmates (Hewitt et al. 1984; Poole and Regoli 1980). Some types of misbehavior, such as insubordination, are so vague that their application is likely to be arbitrary and perhaps even unjust at times (Flanagan 1980). Unfortunately there is no practical way to control for this effect with the present data.

Some interesting variables are not included due to problems with the data. For instance, parental status of an inmate is not systematically available since OPUS does not record number of children unless the inmate is married.¹⁴ This seriously limits the utility of such information. In addition, some of the social background variables have insufficient levels of variation to be used or have excessive amounts of missing data, usually because prison staff does not consistently collect the information. These variables include parental criminality,

¹⁴ National statistics estimate that in 1999, 721,500 prisons were parents of almost 1.5 million children. The same source indicates that 55.4% of State prisoners and 63.0% of Federal prisoners have minor children. Males incarcerated in State prisons are slightly less likely than females to have minor children (54.7% versus 65.3%) but Federal prisoners show the opposite trend (63.4% of males versus 58.8% of females) (BJS, 2001).

socioeconomic status of inmates prior to entering prison, and religious affiliation.

We should also remember that there is no random assignment to prisons. Inmates are selected using some criterion (classification) and are then sent to various prisons at the approved custody level based on things such as available bed space, job or program assignment needs (either the inmates or the prisons), health requirements, geography,¹⁵ or other practical considerations. While this research is expected to show that the specific prison environment makes a difference in inmate behavior, not all influential factors are measured.

Prior to testing the hypothesis that prisonization and importation interact to produce effects in addition to those influenced by either prisonization or importation alone, factors measuring each theoretical model will be looked at separately. Chapter Four provides a discussion of the results of prisonization factors alone on inmate behavior while Chapter Five provides a similar discussion for importation factors. Chapter Six then discusses the results of the nested model.

¹⁵There is an unofficial policy to try to keep the inmate as close to home as possible.

CHAPTER FOUR

A TEST OF PRISONIZATION THEORY ON INMATE MISBEHAVIOR

Prisonization effects refer to inmate characteristics that are a consequence of incarceration (e.g., such as inmate perceptions of a facility's environment). Thus, these characteristics would be determined by aggregate characteristics and by the prison facilities themselves. Using prisonization theory, I would expect that the greater the deprivation posed by the institution, the higher the level of misbehavior, regardless of the characteristics of inmates (Poole and Regoli 1983).

As discussed in the previous chapter, in addition to modeling for the effects of prisonization variables on the number of all infractions per stay, models looking at the effects of prisonization measures the number of serious infraction during the stay are also presented. OLS regression was used to test the effects of variables thought to influence prisonization on the rate of inmate misbehavior. Because inmates differ considerably on lengths of stays, the inmate's length of stay for the current stay is controlled for.

The results of the regression equations are shown in Table 5. From the R^2 we can see that the prisonization model explains approximately 16% of the variance for all infractions and 8% of the variance for serious infractions. Both models are statistically significant at the $p < .001$ level allowing us to reject the null hypothesis that prisonization has no effect on rates of misbehavior.

Table 5 presents the unstandardized OLS regression coefficients, the standard error and

the interquartile range ratio (IQR) effects for each variable included in the model. These show us the impact of the different independent variables on prison infractions for a movement from the 25th to the 75th percentile on each of the variables (Quillian 1995 p. 605). The interquartile range ratio effect is computed by multiplying the coefficient of statistically significant independent variables by the interquartile range associated with that variable. For example, for the interquartile range effect of transiency rate on the log of all infractions the OLS coefficient of -.005 was multiplied by the interquartile range of 149.22 for an interquartile range effect of -.0747. Variables with an interquartile range of zero have the coefficient multiplied by a value of 1 to allow for comparisons of these variables.

Looking at the coefficients for both Model 1 (all infractions) and Model 2 (serious infractions) shown in Table 5, we can see that security level, institutional crowding, and prison treatment orientation are not significantly different from zero for either model when the alpha level is set at $p < .05$. In the model for all infractions, prison size, youth facility, and the proportion of black offenders are also non-significant. In the model for serious infractions the only additional non-significant variable is the proportion of violent offenders.

The statistical control variable, time on current stay is positively related to the number of all infractions and serious infractions. That is, the longer the length of stay, the more likely infractions are to occur. This makes sense as longer lengths of stay afford a longer window of opportunity for misbehavior. The interquartile effects give us similar information as we move from low to high values of the number of days on the stay. That is, we can look at the impact of

days on stay on the number of infractions as we move from the 25th (low) to the 75th (high) percentiles in the number of days on a stay. A 382-day difference in the number of days on a stay is predicted to have the effect of increasing the number of infractions by .1910. Here we can see that in the metric of the variable, number of days on a stay, the effect is fairly substantial. The effect is smaller but still notable in the model for serious infractions where the IQR effect is .0764, the second largest effect in the model.

Transiency rate and the average number of infractions per inmate at the prison level are also statistically significant in both models. The direction is the same but the strength of these two variables is greater on the model for all infractions when controlling for all other variables in the model. For each percentage increase in the transiency rate, the numbers of infractions decrease by .0005. The interquartile effects give us similar information, indicating that a 149.22 difference in average length of stay is associated with a -.0746 change in the number of all infractions and a -.0298 change in the number of serious infractions. On the other hand, as the average number of prison infractions increase, the logged number of all infractions also increases by .18 for all infractions and .08 for serious infractions. Looking at the interquartile range ratio we can see that the prison-level average infraction rate has the largest effect on both the number of all infractions and the number of serious infractions (a 1.51 difference in average infractions is associated with a .2765 increase in all infractions and a .1167 increase in serious infractions). This points to the effects of prisonization as inmates housed in prisons populated with large numbers of misbehavers, misbehave themselves more frequently.

In the model for all infractions, the proportion of violent offenders has a positive and statistically significant influence on the number of infractions. However, this same effect is not seen in the model for serious infractions. This is interesting, as one would expect prisons with a higher proportion of violent offenders to be places where more serious infractions occur. It is possible that the lack of relationship between serious infractions and the proportion of violent offenders is due to violent offenders being in prisons providing closer supervision and less access to the means of committing serious offenses. For instance, inmates in close security facilities likely have much less opportunity to be involved in an assault than inmates in a medium or minimum security facility where inmates have more direct contact with one another and with staff.

When looking at the model for serious infractions, prison size, being in a youth facility and the proportion of black offenders have a statistically significant impact not seen on the overall infraction rate.

As prison size moves from larger to smaller sized prisons the likelihood of a serious infraction increases by .0151. While this effect is relatively small, it is perhaps as much a combination of size and security level since they often go hand-in-hand, with smaller prisons being of lower security than larger prisons.

Being housed in a facility designated for youth have a negative effect on the number of serious infractions but no statistically significant effect on the number of all infractions. A possible reason for the lack of statistically significant effect for youth facilities as inmates housed

in these facilities who present behavioral challenges, may be quickly moved to a non-youth facility as a form of punishment and to provide a more secure environment (since youth facilities are predominately minimum security). This would be particularly true for inmates who are assaultive (the predominant serious offense), who may be moved to a non-youth facility after serious misbehavior occurs, limiting their opportunity to commit other infractions of a lesser nature. The negative relationship between youth facilities and serious infractions may be explained in the same way. It is also possible that a certain level of misbehavior is simply better tolerated in youth facilities than in prisons with older inmates.

Similarly, an increased proportion of black offenders have a negative effect on the number of serious infractions but no effect on all infractions. From the bivariate correlations, we saw that the proportion of black inmates increases as the average age decreases so the negative relationship between both variables and serious infractions is not surprising. Notice however, that in the metric of the variable, the effect is quite small. For every .14 difference in the ratio of black offenders, the number of serious infractions is only predicted to decrease by .0142. This is lack of effect on all infractions is also perhaps not completely inconsistent with the literature since the majority of research looking at racial imbalances and misbehavior have focused on more serious behavioral problems such as rioting and gang-related misbehavior than on the more mundane infractions such as disobeying an order (e.g. Carroll 1998; Jacobs 1997).

None of the other variables are statistically significant. However, it is quite possible that their effects are masked due to interactions with other variables. Specifically, security level and

prison size are likely to influence one another quite strongly since, in the North Carolina prison system, large prisons are almost always close or medium security while small prisons are much more likely to be minimum security.

It was somewhat surprising that crowding had no statistically significant effect as the majority of prior research has shown that inmate misbehavior increases in response to increased crowding (Eckland-Olsen et al. 1983; Jan 1980; Nacci et al. 1977). However, this does support the argument that it is the rate of inmate turnover rather than overcrowding that fuels behavioral problems (Ellis 1984; Porporino 1986). The lack of relationship between treatment orientation and infractions might be due to several things. First, treatment is often short term or part-time such as DART or Alcoholic Anonymous meetings and may have little impact on the overall behavior of inmates for the entirety of their stay. Second, the problem of differentiating housing areas where treatment is the main priority (such as DART or SOAR) is quite likely lessening the effect of the treatment-orientation variable.

Table 5: OLS Regression: Effect of Prisonization Factors Predicting All Infractions and Serious Infractions during Current Prison Stay (n=26,034)

Variables	Model 1: All Infractions			Model 2: Serious Infractions		
	Coef.	B	IQR Effects	Coef.	B	IQR Effects
<i><u>Size and Security Level</u></i>						
Prison Size	.0175	.0120		.0151*	.0074	.0151
Security Level	.0111	.0129		.0054	.0080	
<i><u>Age</u></i>						
Youth Facility	-.0271	.0237		-.0373*	.0147	-.0373
<i><u>Density and Turnover</u></i>						
Institutional Crowding	-.0014	.0079		-.0029	.0049	
Transiency Rate	-.0005***	.0001	-.0746	-.0002***	.0000	-.0298
<i><u>Activity</u></i>						
Tx-Oriented	-.0396	.0319		-.0238	.0197	
<i><u>Infractions</u></i>						
Average Infraction Rate	.1831***	.0070	.2765	.0773***	.0043	.1167
<i><u>Inmate Mix</u></i>						
Proportion Violent Offenders	.2310**	.0792	.0554	.0898	.0489	
Proportion Black Offender	.0584	.0829		-.1016*	.0512	-.0142
<i><u>Control Variable</u></i>						
Time on Current Stay	.0005***	.0000	.1910	.0002***	.0000	.0764
R ²	.1624***			.0831***		
Adjusted R ²	.1621***			.0828***		

*p ≤ .05 **p ≤ .01 ***p ≤ .001

CHAPTER FIVE

A TEST OF IMPORTATION THEORY ON INMATE MISBEHAVIOR

In contrast to prisonization, importation posits that the demographic/background characteristics ascribed to inmates prior to incarceration have a greater impact on behavioral outcomes than characteristics of the prison itself. The assumption of behaviors being imported into the prison environment means that variables related to committing street crimes (e.g., misbehavior outside the institution) are expected have the same relationship with institutional misbehavior (Carroll 1974; Irwin and Cressey 1962; Jacobs 1974, 1977; Wooldredge and Carboneau 1998). These would include factors such as race and age but also prior incarcerations, having spent time in training school and not being employed.

As in the test of prisonization, the dependent variables will be the logged number of all infractions and the logged number of serious infractions. Serious infractions are of particular interest since if importation has the most significant effect on prison misbehavior, we would expect that inmates having a history of violent behavior would behave more violently in prison (measured by serious infractions, many of which are violent behaviors) than would inmates not having these characteristics, regardless of the institutional setting (Poole and Regoli 1983).

Also, as in the test of prisonization, OLS regression was used to test the effects of variables thought to influence importation on inmate misbehavior. Length of stay for the current stay is again used as a control variable to account for inmate differences in the amount of time they have to commit infractions during the stay of interest. The coefficient and error terms for

each predictor variable are shown in Table 6 as well as the interquartile range ratio effects.

The R^2 for importation models indicate that this model explains nearly 20% of the variance for all infractions and nearly 11% of the variance for serious infractions. Both models are statistically significant at the $p < .001$ level allowing us to reject the null hypothesis that importation has no effect on rates of misbehavior.

Looking at the coefficients for Model 3 (all infractions) shown in Table 6, we can see that only being under the influence of drugs and/or alcohol at the time of arrest is not significantly different from zero when the alpha level is set at $p < .05$ level. In Model 4 (serious infractions) all variables are statistically different from zero at $p < .05$ level.

The statistical control variable, time on current stay is positively related to the number of both all infractions and serious infractions. For each day increase in an inmate's length of stay, the likelihood of having an infraction increases by .0006 and the likelihood of having a serious infraction increases by .0003. Like in the prisonization model discussed earlier, the longer a person is in a prison the longer their window of opportunity to commit an infraction. The interquartile range ratio effect provides a way to compare the magnitude of coefficients as you move from the 25th to the 75th percentile. For the control variable, number of days on a stay, a 382-day difference (the IQR) is predicted to increase the number of all infractions by .2292 and serious infractions by .1146. Looking at all the interquartile effects we can see that this variable has the second largest effect.

Age, being married, and years of education have a negative influence on the probability

of infractions, controlling for the other variables in the model. For each additional year in age, the number of all infractions is expected to decrease by 03 and by .01 for serious infractions. This coincides with the majority of the findings in the literature on the relationship between age and prison misbehavior. The effect is even more apparent if we look to the interquartile range ratio effect where in the model for all infractions, a difference of 13 years of age is predicted to decrease the number of infractions by nearly .34. For serious infractions the effect is -.1326. Note that age has the largest IQR effect in these models. As anticipated, being married and having more years of education have a negative effect on the number of both all and serious infractions. Being married versus unmarried decreases the logged number of all infractions by .09 and serious infractions are reduced by .04 when controlling for all other variables in the model. Also, for each additional year of education, the number of infractions decreases by .01.

Interestingly, for serious infractions, being black has a negative effect while for all infractions it has a positive effect. This would indicate that (holding all other variables constant) while black inmates may have more infractions in general, they are slightly less likely to engage in serious misbehavior.

Reporting skilled job skills and being employed at the time of arrest have a negative effect on the number of both all and serious infractions. The impact of job skills and prior employment has a stronger effect on all infractions than they do on serious infractions. An indication of mental health problems has a positive influence on the number of all and serious infractions. Similarly, being in need of substance abuse treatment has a positive effect on

misbehavior. Inmates who are flagged as needing substance abuse treatment have .04 infractions (.02 for serious infractions) than inmates who are not flagged as in need of substance abuse treatment. Being under the influence of drugs and/or alcohol is only statistically significant for the number of serious infractions. Inmates who report that they were under the influence at the time of the offense for which they are currently incarcerated incur .02 more serious infractions than inmates who report they were not under the influence at the time of the presenting offense.

Having been in training school also has a statistically significant, positive effect on the number of all and serious infractions. Inmates who have been adjudicated delinquent and subsequently spent time in training school have increased numbers of all infractions (.15) and of serious infractions (.07) when compared to inmates who have not been to training school. Similarly, having spent time in prison prior to the current sentence has a positive effect on the number of all infractions and serious infractions. Inmates with a prior prison term have .17 more infractions (and .08 serious infractions) than inmates serving their first prison sentence.

As expected infractions incurred during prior prison sentences increases the number of infractions during the current sentence. Each additional infraction incurred during a prior incarceration increases the number of all infractions during the current sentence by .02 and the number of serious infractions by .01. A difference of 2 infractions during a prior incarceration is predicted to increase the number of all infractions on the current stay by .0456 and the number of serious infractions by .023. Lastly, serving a current sentence for a violent offense has a

positive effect on both all infractions and serious infractions (.14 for all infractions and .06 for serious infractions).

Table 6: OLS Regression: Effect of Importation Factors Predicting All Infractions and Serious Infractions during Current Prison Stay (n=26,034)

Variables	Model 3: All Infractions			Model 4: Serious Infractions		
	Coef.	B	IQR Effects	Coef.	B	IQR Effects
<i>Demographic</i>						
Age	-.0259***	.0006	-.3367	-.0102***	.0004	-.1326
Black	.0441***	.0114	.0441	-.0172*	.0071	-.0172
Married	-.0887***	.0148	-.0887	-.0383***	.0092	-.0383
Years Education	-.0124***	.0026	-.0372	-.0076***	.0016	-.0228
<i>Education and Job</i>						
Skilled Job	-.0844***	.0116	-.0844	-.0316***	.0072	-.0316
Employed at Time of Arrest	-.0657***	.0122	-.0657	-.0191*	.0076	-.0191
<i>Special Problems</i>						
Mental Health Problem	.0642***	.0173	.0642	.0265*	.0108	.0265
Substance Abuse Treatment Needed	.0444***	.0113	.0444	.0211**	.0070	.0211
Under Influence at Time of Offense	.0028	.0114		.0210**	.0071	.0210
<i>Criminal History</i>						
Training School	.1519***	.0164	.1519	.0672***	.0102	.0672
Prior Prison	.1754***	.0137	.1754	.0788***	.0085	.0788
N Infractions During Prior Incarceration	.0228***	.0008	.0456	.0115***	.0005	.0230
Current Sentence for Violent Offense	.1360***	.0111	.1360	.0631***	.0069	.0631
<i>Control Variable</i>						
Time on Current Stay	.0006***	.0000	.2292	.0003***	.0000	.1146
R ²	.1983***			.1082***		
Adjusted R ²	.1979***			.1077***		

*p ≤ .05 **p ≤ .01 ***p ≤ .001

Comparison of Importation to the Prisonization Model

When comparing the importation models to the prisonization models we see that the R²

for modeling all infractions and serious infractions are larger for the importation models. However the difference is not great enough for a conclusive statement for which model best explains prison infractions. The main hypothesis of this study is that the combination of importation and prisonization measures will better explain misbehavior than either model alone. This hypothesis will be tested and discussed in the next chapter. Moreover, each of the separate models is misspecified since each omits the variables of the other theory. This is especially problematic in the prison-level analysis since the effects there clearly may be due to the individual-level effects discussed in this chapter. So, we turn to a combined model in the Chapter Six.

CHAPTER SIX

A CONTEXTUAL MODEL OF INMATE MISBEHAVIOR

In the previous two chapters the effect of prisonization and importation factors were modeled separately on inmate infractions. These analyses showed that inmate characteristics most closely linked to importation theory explained slightly more of the variance for all infractions and serious infractions. This was not unexpected as individual characteristics vary more than prison characteristics. While inmates housed together in a particular prison are likely to be more similar than inmates housed in different prisons, individuals within a prison are still unique individuals with their own characteristics. Thus, the answer to our first key question (as mentioned in Chapter Three) is that prison and temporal contexts do affect rates of inmate misbehavior although the inmate characteristics play a slightly greater role. The following section is mainly devoted to answering the second key question, ‘Do these contexts affect the role inmate characteristics play in prison misbehavior?’ Put more simply, we can ask whether or not prisonization contributes to models predicting inmate misbehavior over and above the effects of known individual-level risk factors and control variables.

Combined Regression Model

The main analysis to test the added benefit of combining importation and prisonization factors in a model for prison misbehavior will be done using hierarchical linear modeling. Prior to using hierarchical linear models, OLS regression models that combine Level-1 and Level-2 factors are discussed. The results from these models are shown in Table 7. Like in the separate

models shown in the previous chapters, interquartile range ratio effects are computed so we can compare variables to one another using a standard metric.

As seen in Table 7, the R^2 increases to .24 in the combined model for all infractions and .13 for serious infractions. This indicates that the combined model explains an additional 4% of the variance (slightly less than 2% for serious infractions) as compared to the highest R^2 for the separate models.

The statistical significance and relative impact of some variables change when entered into the model together. In the model for prisonization alone, security level was not statistically significant for all infractions. However, in the combined model as you move from minimum to medium and medium to close security the number of infractions increases by .03. In the separate model for prisonization, being in a youth facility had a statistically significant impact on serious infractions but not on all infractions. Now, when controlling for both prisonization and importation factors, being in a youth facility versus not being a youth facility has a negative and statistically significant effect on both the number of all infractions and the number of serious infractions. The coefficient for youth facility on serious infractions also increased from .04 to .09 in the combined model. Similarly, the proportion of black offenders on the number of all infractions is negative and becomes statistically significant in the combined model.

When looking at the importation measures, in the combined model, educational level on all infractions is no longer statistically significant when controlling for all other variables in the model for any infraction. In the model for importation alone, educational level was statistically significant for both all and serious infractions. Likewise, in the combined model, being

employed at the time of arrest and having a flag for mental health problems are no longer statistically significant in the model for serious infractions.

If we look to the IQR effects we can see the relative importance of each variable as we move from low to high. In both the model for all infractions and the model for serious infractions, age has the greatest impact as we move from the 25th to the 75th percentile. For every 13 year difference in age, the predicted number of all infractions drops by .2756 and serious infractions by .1118. The second largest effect is seen in the average infraction rate for the prison. This provides additional support for a combined model since the largest effects are seen in factors measuring each theoretical viewpoint rather than the all the larger effects being from either prisonization or importation.

As expected, the variable coefficients and interquartile range ratio effects are generally reduced in the combined model compared to their counterparts in the separate models. Overall, we can see that the combined model provides a more complete explanation of inmate misbehavior than either model singly. The results of the combined regression model also suggest that multilevel analyses are a potentially powerful method for informing theories of inmate misbehavior. Modeling these multilevel relationships using a hierarchical approach might provide more reliable test than a pooled regression approach as pooled regression models may mask potential aggregate-level effects.

Table 7: OLS Regression: Effect of Importation and Prisonization Factors Predicting All Infractions and Serious Infractions during Current Prison Stay (n=26,034)

Variables	Model 5: All Infractions			Model 6: Serious Infractions		
	Coef.	B	IQR Effects	Coef.	B	IQR Effects
<u>Importation (Level-1)</u>						
<i>Demographic</i>						
Age	-.0212***	.0006	-.2756	-.0086***	.0004	-.1118
Black	.0374***	.0112	.0374	-.0293**	.0071	-.0293
Married	-.0785***	.0145	-.0785	-.0345***	.0091	-.0345
Years Education	-.0048	.0026		-.0049**	.0016	-.0147
<i>Education and Job</i>						
Skilled Job	-.0678***	.0114	-.0678	-.0251***	.0072	-.0251
Employed at Time of Arrest	-.0261*	.0121	-.0261	-.0058	.0077	
<i>Special Problems</i>						
Mental Health Problem	.0453**	.0170	.0453	.0202	.0107	
Substance Abuse Tx Needed	.0356**	.0110	.0356	.0172*	.0069	.0172
Under Influence at Time of Offense	.0028	.0112		.0201**	.0071	.0201
<i>Criminal History</i>						
Training School	.1237***	.0160	.1237	.0562***	.0101	.0562
Prior Prison	.1239***	.0136	.1239	.0583***	.0086	.0583
N Infractions During Prior Incarceration	.0216***	.0008	.0432	.0110***	.0005	.0220
Current Sentence for Violent Offense	.0700***	.0112	.0700	.0378***	.0071	.0378
<i>Control Variable</i>						
Time on Current Stay	.0001***	.0000	.0382	.0002***	.0000	.0764
<u>Prisonization (Level-2)</u>						
<i>Size and Security Level</i>						
Prison Size	.0193	.0115		.0143*	.0072	.0143
Security Level	.0269*	.0124	.0269	.0128	.0078	
<i>Age</i>						
Youth Facility	-.1761***	.0239	-.1761	-.0887***	.0151	-.0887
<i>Density and Turnover</i>						
Institutional Crowding	.0013	.0076		-.0021	.0048	
Transiency Rate	-.0003***	.0001	-.0448	-.0001**	.0000	-.0149

Table 7 (cont.)

Variables	Model 5: All Infractions			Model 6: Serious Infractions		
	Coef.	B	IQR Effects	Coef.	B	IQR Effects
<i>Activity</i>						
Tx-Oriented	-.0438	.0306		-.0209	.0193	
<i>Infractions</i>						
Average Infraction rate	.1478***	.0068	.2232	.0626***	.0043	.0945
<i>Inmate Mix</i>						
Proportion Violent Offenders	.1694*	.0770	.0407	.0395	.0487	
Proportion Black Offenders	-.1769*	.0802	-.0248	-.1477**	.0507	.0207
R ²	.2367***			.1256***		
Adjusted R ²	.2360***			.1248***		

*p ≤ .05 **p ≤ .01 ***p ≤ .001

Hierarchical Linear Models

As discussed earlier, SAS PROC MIXED was used to create the two-level prison effects models. This model has data at two levels within an organizational hierarchy: inmates within prisons. The two-level model allows us to examine the behavior of the Level-1 outcomes (number of all infractions and of serious infractions) as a function of both Level-1 and Level-2 predictors. Inmate-level covariates are the measures of importation and the prison-level covariates are measures of prisonization.

Unconditional Means Models

The first set of equations estimated the unconditional means models. This can be thought of as a one-way random effects ANOVA model (Littell et al. 1996; Raudenbush and Bryk

2002; Singer 1998). This model expresses the inmate-level outcome using a pair of linked models; one at the inmate-level (Level-1) and another at the prison-level (Level-2). These models provide a baseline against which more complex models can be compared.

At Level-1, an inmate's outcome is shown as the sum of an intercept for the inmate's prison and a random error associated with the i^{th} inmate from the j^{th} prison:

$$Y_{ij} = \beta_{oj} + \epsilon_{ij} \text{ where } \epsilon_{ij} \sim N(0, s^2)$$

At Level 2, the prison-level intercepts are expressed as the sum of an overall mean (γ_{00}) and a series of random deviations from that mean (u_{oj}):

$$\beta_{oj} = \gamma_{00} + u_{oj} \text{ where } u_{oj} \sim N(0, t_{00})$$

By substituting the Level-2 model into the Level-1 model, the multilevel model can then be then expressed as:

$$Y_{ij} = \gamma_{00} + u_{oj} + \epsilon_{ij} \text{ where } u_{oj} \sim N(0, t_{00}) \text{ and } \epsilon_{ij} \sim N(0, s^2)$$

The covariance parameter estimates for the unconditional means model are show in Table 8 below. Variance components for both the mean and Level-1 are significantly different from zero for both all infractions and serious infractions. These estimates suggest that prisons differ in their average overall infraction and serious infraction rates and that there is even more variation among inmates within prisons. The variance component within a prison is approximately 9 times the variance component between prisons in the number of all infractions while the variance component within a prison is over 18 times that of the variance component between prisons for

the number of serious infractions. While the unconditional means model itself does not support one theory over another¹⁶ it does show that variation in infractions (all and serious) exists both between and within prisons. This is another indication that a combined contextual model is needed to correctly specify a model of prison misbehavior.

Table 8: Hierarchical Linear Models of All Infractions and Serious Infractions during Current Prison Stay: Unconditional Means (n=26,034)

	Model 7: All Infractions		Model 8: Serious Infractions	
<i>Fixed Effect</i>	<i>Coefficient</i>	<i>se</i>	<i>Coefficient</i>	<i>se</i>
Intercept	.6037***	.0339	.2150***	.0147
<i>Random Effect</i>	<i>Variance Component</i>	<i>se</i>	<i>Variance Component</i>	<i>se</i>
Intercept	.0962***	.0153	.0165***	.0028
Level-1 Effect	.7717***	.0068	.2890***	.0025

*p_≤ .05 **p_≤ .01 ***p_≤ .001

Models Including Effect of Level-2 Predictors

Since the unconditional means models indicated that variation exists between prisons, the next set of models includes the prison-level (Level-2) variables. This combined model is the sum of the fixed effects and the random effects. By including the prison predictors, the individual outcome (number of all infractions and number of serious infractions) is now expressed as a function of the Level-2 measures. Unlike the unconditional effects model, this model is conditional on the fixed effects of the prison and can be expressed as:

¹⁶The model is too limited to draw any specific conclusions about other than to note the variation

$$Y_{ij} = \gamma_{00} + \gamma_{01} + \gamma_{02} + \gamma_{03} \dots + u_{oj} + \gamma_{ij} \text{ where } u_{oj} \sim N(0, t_{00}) \text{ and } \gamma_{ij} \sim N(0, s^2)$$

The results of the effects of Level-2 predictors are shown in Table 9.

For the fixed effects, the estimated intercept value of -.0067 for all infractions refers to the γ_{00} , the prison mean of all infractions when the remaining predictors are 0. The estimates for the other predictors refer to the $\gamma_{01} + \gamma_{02} + \gamma_{03} \dots$ and each presents the relationship between mean prison infraction probability and each of the other predictors. For example, the estimated value of .2516 for violent offenders tells us about the relationship between the proportion of violent offenders and the logged number of all infractions. Prisons that differ by 1% in the proportion of violent offenders differ by .2516 infractions. The standard error for proportion of violent offenders of .0956 yields an observed t-statistic of 2.63 ($p < .011$), which indicates that we can reject the null hypothesis that there is no relationship between a prison's proportion of violent offenders and the number of all infractions committed by its inmates. Notice however, that like in the OLS model for prisonization (shown in Table 5), prison size, security level, youth facilities, institutional crowding, treatment orientation, and the proportion of black inmates have no significant effect on the mean rates of infractions. In the model for serious infractions youth facilities has a statistically significant effect on the mean number of serious infractions. All other non-significant variables in the all infraction model apply to the serious infraction model.

Table 9: Effects of Prison Characteristics (Level-2) on All Infractions and Serious Infractions

<i>Fixed Effect</i>	Model 9: All Infractions		Model 10: Serious Infractions	
	<i>Coefficient</i>	<i>se</i>	<i>Coefficient</i>	<i>se</i>
Intercept	-.0067	.0764	.0004	.0442
<u><i>Size and Security Level</i></u>				
Prison Size- Large	-.0219	.0313	-.0271	.0173
Prison Size – Medium	-.0113	.0221	.0092	.0127
Security Level – Close	-.0222	.0337	-.0036	.0186
Security Level - Medium	-.0066	.0206	-.0187	.0116
<u><i>Age</i></u>				
Youth Facility	-.0396	.0304	-.0461**	.0170
<u><i>Density and Turnover</i></u>				
Institutional Crowding	.0095	.0111	.0011	.0061
Transiency Rate	-.0005***	.0001	-.0002***	.0000
<u><i>Activity</i></u>				
Tx-Oriented	-.0284	.0358	-.0102	.0213
<u><i>Infractions</i></u>				
Average Infraction rate	.1781***	.0092	.0734***	.0051
<u><i>Inmate Mix</i></u>				
Proportion Violent Offenders	.2516*	.0956	.1288*	.0551
Proportion Black Offenders	.0844	.0989	-.0928	.0567
<u><i>Control Variable</i></u>				
Time on Current Stay	.0005***	.0000	.0002***	.0000
<u><i>Random Effect</i></u>				
	<i>Variance Component</i>	<i>se</i>	<i>Variance Component</i>	<i>se</i>
Intercept	.0011*	.0005	.0002	.0002
Residual	.7363***	.0065	.2811***	.0025

*p ≤ .05 **p ≤ .01 ***p ≤ .001

The covariance parameter estimates tell us about the random effects. We now estimate t_{00} to be .0011 and s^2 to be .7363 in the model for all infractions. These are now conditional

components, quite different from the unconditional components shown in Table 8 as they are now conditioned on the inclusion of the Level-2 predictor variables. The conditional component for the variance within prisons (the residual component representing s^2) has not changed a great deal, going from .7717 to .7363. However, the variance component representing variation between prisons has diminished considerably; going from .0962 to .0011. This tells us that the Level-2 predictors explain a large portion of the between prison variation in mean rates of all infractions.

Using the formula discussed by Bryk and Raudenbush (1992, p.65) we can measure how much of the variation in prison means is explained by the Level-2 factors by computing how much the variance component has diminished between the two models. This can be computed as $(.0962 - .0011) / .0962$ which yields .9886 or 98.86%. We can interpret this by saying that nearly 99% of the explainable variation in prison mean infraction rates is explained by Level-2 measures. This is not the same as a traditional R^2 statistic however. This percentage only addresses the fraction of explainable variation that is accounted for. If the amount of variations between prisons is small, the model might be explaining a large amount of a little difference (Snijders and Bosker 1994).

Models Including Effect of Level-1 Predictors

Now that the Level-2 models have shown that variation exists between prisons we can compute models that include a random intercept and slope. These are then compared to models that contain the same fixed effects but the random effect is reduced to contain only the intercept.

Using the model fit information provided by PROC MIXED, we can compare the Akaike's Information Criterion (AIC), Schwarz's Bayesian Criterion (SBC), and the -2 REML Log Likelihood (-2LL) to see which is the better fitting model.¹⁷ The results of this comparison indicated that the addition of random slopes do not significantly improve the model. Therefore, the final hierarchical linear model will contain only random intercepts and not random slopes. The results of this model are shown in Table 10 and discussed below.

Looking at the fixed effects for all infractions in Table 10 we see that all of the Level-1 predictors except being under the influence of drugs and/or alcohol at the time of arrest are statistically significant. However, for the Level-2 factors, only youth facilities, transiency rate, the average rate of infractions per inmate, and the proportion of violent offenders are significantly different from zero. In the model for serious infractions, all Level-1 predictors except being employed at time of arrest and having an indicator for mental health problems are significantly different from zero. With the exception of the proportion of violent offenders, the same Level-2 predictors that are significant in the model for all infractions remain significant when looking specifically at serious infractions.

The variance component for intercept remains significantly different from 0, suggesting that there is additional variation in prison misbehavior levels not explained by the factors included in the model.

¹⁷ The model with the larger AIC and SBC values is considered to be the model with the better fit.

Table 10: Hierarchical Linear Models of All Infractions and Serious Infractions during Current Prison Stay: Conditional Effects

<i>Fixed Effect</i>	Model 11: All Infractions		Model 12: Serious Infractions	
	<i>Coefficient</i>	<i>se</i>	<i>Coefficient</i>	<i>se</i>
Intercept	.7900***	.0863	.3646***	.0531
<u>Level-1</u>				
<i><u>Demographic</u></i>				
Age	-.0218***	.0006	-.0090***	.0004
Black	.0365**	.0112	-.0189**	.0071
Married	-.0802***	.0145	-.0347***	.0091
<i><u>Educational/Job</u></i>				
Years Education	-.0054*	.0026	-.0053**	.0016
Skilled Job	-.0666***	.0115	-.0236**	.0072
Employed at Time of Arrest	-.0285*	.0233	-.0085	.0077
<i><u>Special Problems</u></i>				
Mental Health	.0451**	.0170	.0191	.0107
Substance Abuse Tx Needed	.0322**	.0111	.0156*	.0070
Under Influence at Time of Offense	.0012	.0112	.0195**	.0071
<i><u>Criminal History</u></i>				
Training School	.1240***	.0160	.0571***	.0101
Prior Prison	.1210***	.0137	.0572***	.0087
N Infractions During Prior Incarceration	.0216***	.0008	.0109***	.0005
Current Sentence for Violent Offense	.0670***	.0112	.0376***	.0071
<i><u>Control Variable</u></i>				
Time on Current Stay	.0006***	.0000	.0002***	.0000
<u>Level-2</u>				
<i><u>Size and Security Level</u></i>				
Prison Size - Large	-.0139	.0328	-.0216	.0198
Prison Size - Medium	.0218	.0224	.0202	.0137
Security Level - Close	-.0563	.0352	-.0179	.0213
Security Level – Medium	-.0099	.0213	-.0196	.0130
<i><u>Age</u></i>				
Youth Facility	-.2141***	.0324	-.1102***	.0198

Table 10 (cont.)

<i>Fixed Effect</i>	Model 11: All Infractions		Model 12: Serious Infractions	
	<i>Coefficient</i>	<i>se</i>	<i>Coefficient</i>	<i>se</i>
<u><i>Density and Turnover</i></u>				
Institutional Crowding	.0149	.0116	.0028	.0070
Transiency Rate	-.0003***	.0001	-.0001**	.0000
<u><i>Activity</i></u>				
Tx-Oriented	.0015	.0355	.0045	.0220
<u><i>Infractions</i></u>				
Average Infraction Rate	.1442***	.0095	.0597***	.0058
<u><i>Inmate Mix</i></u>				
Proportion Violent Offenders	.2283*	.0977	.0864	.0600
Proportion Black Offenders	-.1322	.1011	-.1265*	.0620
<i>Random Effect</i>	<i>Variance Component</i>	<i>se</i>	<i>Variance Component</i>	<i>se</i>
Intercept	.0015**	.0006	.0005*	.0002
Residual	.6707***	.0059	.2679***	.0023

*p ≤ .05 **p ≤ .01 ***p ≤ .001

Overall, the analysis has shown that using hierarchical linear models improves our ability to correctly model inmate misbehavior. While the results of the hierarchical linear model are not dramatically different from the OLS regression model shown in Table 7, there are some differences that can be attributed to using hierarchical linear models. Specifically, in the OLS model on all infractions, prison security level and the proportion of black offenders were statistically significant but in the hierarchical linear model they are not. In the model for serious infractions, prison size becomes non-significant in the hierarchical linear model whereas it was significant in the OLS model. The Level-2 effects in the hierarchical linear models are more

similar to those in the OLS models for prisonization factors alone shown in Table 5.

The Level-1 effects in the hierarchical linear model differ from the OLS model only in the significance of education. In the hierarchical linear model years of education is statistically significant while in the OLS model it was not. In Table 6, the OLS model for importation factors alone, we saw that when excluding prisonization factors, education was significant.

Using hierarchical linear models allow us to separate higher order unit effects from lower order unit effects, reducing possible errors from the blending of these effects. The Level-2 effects explain the differences between prisons while the Level-1 effects explain differences within prisons (between inmates). Here we can see that all increased infraction rates between prisons can be attributed at least in part to non-youth facilities, lower transiency rates, higher average prison infraction rates, and increased ratios of violent offenders. Between prison differences in serious infractions are nearly the same with the exception of no effect for proportion of violent offenders and that when racial balances are more even (the proportion of black offenders is smaller), serious infractions are increased.

CHAPTER SEVEN

DISCUSSION AND CONCLUSIONS

The purpose of this study was to advance criminological research by providing a logical extension of previous research. This investigation began where a number of studies left off, by examining how context more fully explains inmate misbehavior than has been done in past research. This investigation of context was accomplished by combining prisonization and importation models into a single model that considers the importance of both sets of factors. While the main purpose of the study was to examine differences between and within prisons in overall infraction rates, the additional examination of serious infractions in separate models allowed us to see which factors affected more serious inmate misbehavior in a greater or lesser degree than they affect infraction rates in general. Most prior research has only looked at one or the other.

The debate in the criminological literature between prisonization and importation theories has produced a vast amount of research over the years. Recently, the general consensus has been that neither the pressures of the incarceration experience nor pre-prison experiences alone can explain inmate behavior. Integration of these models has been called for many times (e.g., Ellis 1984; Gaes and McGuire 1985; Owen 1998; Poole and Regoli 1983; Porporino and Zamble 1984; Smith 1984; Thomas 1973; Thomas and Foster 1972; Thomas and Zingraff 1976; Wooldredge and Carboneau 1998; Zingraff 1980) as the prison experience is much too complex to be simplified under a single model. This premise is supported by the

findings of the current study.

Prior to combining the prisonization and importation models, this research looked at separate models for each theory. This allows us to see how models compare to one another and how integration can change the effects of variables when controlling for factors associated with both theories. Even though the prisonization model contained only four statistically significant variables for all infractions and six for serious infractions, the model for prisonization alone was able to explain over 16% of the variance in all inmate infractions and over 8% for serious infractions. While nearly all variables in the importation model were statistically significant, the improvement in explanation of the variance was not particularly large. The importation model explained nearly 20% of the variance for all infractions and more than 11% for serious infractions.

By combining the models, we were able to explain an additional 4% of the variance for all infractions and an additional 2% for serious infractions over the importation model alone and an additional 8% and 5% respectively for all infractions and serious infractions over the prisonization models alone. Most variables had approximately the same relative effect and significance level in the combined models as in the single models although the coefficients were reduced since the model included a larger number of explanatory variables. As expected, the hierarchical linear model provided results similar to, but not exactly like, the combined OLS model. The hierarchical linear model is judged to be the most appropriate model as it is more correctly specified.

The overall finding of this study is that context as measured by aggregate measures of all inmates in a given prison on July 1, 1997, contributes significantly to the explanation of overall variance in infraction rates between inmates. Determining the importance of each independent variable in predicting misbehavior helps us to better understand what inmate characteristics contribute to misbehavior. In addition, Level-2 predictors explain the majority of the variation between prisons in mean infraction rates. Taken together, Level-1 and Level-2 predictors present a clearer picture of what contributes to infractions between and within prisons as well as which inmate characteristics increase the likelihood of infractions.

The integrated, contextual model shows that most of the variables traditionally associated with importation have a statistically significant effect on both all infractions and serious infractions. Age, race, marital status, education level, job skill level, employment status prior to arrest (for all infractions only), mental health status (for all infractions only), substance abuse status, being under the influence at the time of the offense (for serious infractions only), having been to training school, having a prior incarceration, behavior during prior incarcerations, and being currently incarcerated for a violent offense have a statistically significant impact on the number of infractions an inmate incurs during a stay, controlling for Level-2 effects and for the amount of time an inmates spends during the prison stay. The direction of these effects are generally consistent with the findings in the importation literature that essentially finds that behaviors indicative of misbehavior outside of prison (such as criminal behavior) are imported into prison and result in misbehavior in prison as well.

The only non-significant Level-1 variable in the model for all infractions was being under the influence at the time of offense. There are at least three possible explanations for this lack of effect. First, the indication of the need for substance abuse treatment may override any potential effect of being under the influence at the time of offense. Second, it is possible that the combination of having a substance abuse problem and being under the influence at the time of the offense may indicate a greater problem with drugs and/or alcohol that predisposes an inmate to more serious infractions but does not have a great enough effect on inmates who commit more common infractions such as disobeying an order to be statistically significant. Third, given the commonly cited deficiencies of official data, it is quite possible that the measurement of who is in need of substance abuse treatment is less than optimal. The lack of conclusive evidence on the effect of drug use on prison misbehavior should also be taken into account. While research by Flanagan (1983) and Stephan (1989) has shown a positive relationship between drug use and rule violation, other research has failed to find this relationship (Cooper and Werner 1990; Hanson et al. 1983; Morris and Miller 1987; Wooldredge and Carboneau 1998). Further research is needed to discover the reason for this lack of effect.

In the model for serious infractions, two variables expected to have an effect were non-significant: being employed at the time of arrest and being flagged as having a mental health problem. While both of these variables have shown promise as predictors of prison misbehavior in previous research, their lack of statistical significance is not of particular concern here mainly because there is very little variation in the variables themselves. Like the measure for being in

need of substance abuse treatment, official measures of having a mental health problem are likely flawed. In the univariate descriptions of the individual-level variables, we saw that 69% of inmates were employed at the time of arrest and only 10% had been flagged as having mental health problems. In addition, in the bivariate analysis a negative relationship between employment status at the time of arrest and serious infractions existed but the correlation was very small (-.03). A similar relationship existed between mental health problems and serious infractions, with a bivariate correlation coefficient of .04. When testing importation alone using the OLS regression model, both mental health problems and employment at the time of arrest showed a statistically significant relationship but even there, when comparing the interquartile range ratio effects to those of the other variables we see that the relative effect is quite small. Once we control for Level-2 factors the relationship goes away. For inmates with mental health problems, this may be due to either housing them in prisons where security is higher, reducing their exposure to serious infraction opportunities or one where the context is more supportive and less threatening, thus eliminating the independent effect of having a mental health problem when all other factors are taken into account. Any effect of inmate employment status at the time of arrest is probably discounted once we include youth facilities since the majority of unemployed inmates are also younger in age (note the bivariate correlation between youth facilities and employment status of -.25). It should be noted that these three variables (being under the influence at the time of arrest on all infractions and mental health status and employment at time of arrest on serious infractions) were non-significant in both the OLS and

the hierarchical linear models.

Looking at the Level-2 factors traditionally associated with prisonization, we saw that youth facility designation, transiency rate, the average infraction rate, the proportion of violent offenders (on all infractions only), and the proportion of black offenders (on serious infractions only) had statistically significant effects in the contextual model. That these variables are significant is consistent with the majority of the research on prisonization. Inmates housed in prisons with unstable (i.e., more transient) populations have to constantly reassess the people around them, both other inmates and the prison staff, leading to the potential for violation of rules. Transiency could be seen as one of the 'pains of imprisonment' Sykes discussed in his research since the inmate loses all sense of security in an ever-changing environment. Inmates in prisons with a larger proportion of misbehavers and a larger proportion of violent offenders may learn that misbehavior is acceptable.

However, the relationship between youth facilities and infractions is inconsistent with prior research. One would expect prisons with a large concentration of young offenders to show an increase in the number of infractions. This research does not show this effect however, either in the prisonization only model or in the contextual model. In both models, youth facilities either have no effect (prisonization model on all infractions) or a negative effect on the number of all infractions and serious infractions. This may be due to prison policies more than anything else. For instance, inmates in youth facilities who misbehave are quite likely to be transferred to non-youth facilities quickly. As discussed earlier, prison staff may also tolerate a higher level of

misbehavior from younger inmates who may be perceived as less dangerous and as simply 'acting their age' while similar behavior might not be as well tolerated in non-youth facilities. It is also possible that individual inmate age is more important than whether or not they are housed in a youth facility. This is supported in the integrated OLS model where we see that age has the largest relative effect (IQR of -.2756 for any infraction and -.1118 for serious infractions).

The lack of relationship between several variables and misbehavior observed in this study are also inconsistent with prior research. These include prison size, security level, crowding, treatment orientation, the proportion of violent offenders (on serious infractions), and the proportion of black offenders (on all infractions).

It was somewhat surprising that prison size and security were not statistically significant as previous research has shown larger numbers of infractions for larger prisons and more secure prisons. Perhaps this is due to differences in the way infractions are counted. That is, this study restricts the number of infractions to those that are incurred during a particular stay rather than simply providing counts for a particular size or security level. In addition, it is likely that North Carolina prisoners move from prison to prison more often than inmates in states with fewer prison facilities. The sheer frequency of movement may have some effect on how prison size and security influences inmate behavior. Prison policies might also have some influence here in that inmates in less secure prisons are often moved to more secure facilities following an infraction as both punishment and as a security measure in the case of serious infractions. Moving these prisoners effectively stops the count of infractions on this study since they are no longer on the

stay being studied. It is possible then, that the inmates most likely to misbehave spend the least amount of time on a stay, reducing the effect of these and other variables.

Prisonization research has found a fairly strong relationship between crowding and misbehavior, either by increasing misbehavior (Eckland-Olsen et al 1983; Jan 1980; Nacci et al. 1977) or by decreasing it (Walters 1998). That this study found no relationship whatsoever was surprising although not completely unique (Bonta and Nanckivell 1980). A prison's transiency rate had a statistically significant and relatively large effect providing further support for Ellis (1984) and Poporino's (1986) argument that inmate turnover, not overcrowding is what destabilizes prisons and increases problem behavior. Another potential factor is compensatory behavior by the prison system itself. North Carolina prisons have experienced overcrowding for over 20 years, even to the degree that the system was under court order to limit the number of inmates who could be housed in the system at any given time. Because of this it is quite plausible that the system has made changes to either prison physical structure and/or operational guidelines that make misbehavior less likely.

The literature on treatment orientation and its relationship to prisonization is fairly limited when compared to other factors included in the model. In addition, problems with operationalizing 'treatment-oriented' make it difficult to compare one study to another. Determining the size or custody level of a prison is fairly straightforward but attempting to measure correctional philosophy is quite problematic. The lack of relationship between treatment-orientation in this study in any of the models may be due to the way in which it was

measured. At best, the measure used here was a proxy measure based on the number of program slots available at a given prison rather than a test of actual philosophical orientation. In addition, that many of these treatment-oriented prisons have treatment focused units within the prison. Data limitations made it impossible to differentiate these units from the more general population units quite possibly diluting any effect. Better measures of this concept would be expected to produce more conclusive results.

It is also interesting to note that contrary to assumptions made about potential effects of being housed with many violent offenders, the proportion of violent offenders has no effect on serious (i.e. violent) misbehavior but it has a positive and statistically significant effect on overall misbehavior. This may be because inmates who commit serious infractions are housed together in a smaller number of prisons than inmates who commit any infraction. Contextual homogeneity may then partially account for this lack of proportion violent effect. Additional analysis to address this found that 91 of the 94 prisons had at least one inmate who committed a serious infraction while 93 prisons contained at least one inmate who committed any infraction. The mean proportion violent offenders were slightly higher for prisons containing inmates with at least one serious infraction than that of prisons containing inmates with at least one infraction of any kind (.56 versus .54). When looking at the prisons containing the largest number of inmates with a serious infraction, I found that 10 prisons account for 51% of all serious infractions.¹⁸ On average, 60% of the inmates in these ten prisons are violent offenders. These high-density serious misbehavior prisons are generally medium-sized (80%) and close security (70%).

¹⁸ Larger prisons have a greater likelihood of being included since they hold more offenders.

Inmates who commit any infraction tend to be housed in more heterogeneous prison environments. Fifty percent of inmates with any infraction are housed in 11 prisons.¹⁹ In these prisons violent offenders only make up 55% of the population, which is closer to the overall mean shown in Table 2. In addition, only 73% are medium-sized and only 54% are close custody. All three custody levels are represented as well whereas for serious infractions, the top prisons were either close or medium only.

The proportion of black offenders showed the opposite effect as the proportion of violent offenders. Racial imbalances seem to decrease serious misbehavior but had no effect on overall misbehavior. That is, as the proportion of black inmates increases the number of serious infractions decrease (controlling for all other variables). Alternatively, as the proportion of black offenders decrease, serious infractions are expected to increase. This seems to indicate that racial imbalances create an environment in which violent/serious misbehavior occurs but does not affect misbehavior in general. Some of the literature supports the idea that racial imbalances fuel tensions and can lead to rioting and other violent behavior (American Correctional Association 1981; Carroll 1988; Jacobs 1997; McCall 1995). In prisons where the proportion of black inmates is high, the struggle for power may be less necessary than in prisons where the split along racial lines is more even. This might be particularly true for gang-related misbehavior (which also tends to be more serious).

The findings of this research, although preliminary, have potential implications for both

¹⁹ Many of the 11 'any infraction-prevalent' prisons are the same as the 'serious infraction-prevalent' prisons. Three prisons included in the 11 for any infraction are different from the 10 included in the serious infraction prevalent group.

prison research and more generally, for correctional practice. First, this study has shown that both importation and prisonization variables are directly related to inmate misbehavior. In addition, while both importation and prisonization theories taken separately contribute to our understanding of prison misbehavior, taken together as an integrated model they better explain the context in which inmates misbehave. That is, whether it is importation or prisonization occurring becomes less important as institutional context mediates the impact of inmates' characteristics on levels of misbehavior. By integrating theoretical traditions we see that importation and prisonization factors combined create a more complete picture of what influences inmate behavior. Integration of theories has a long-standing tradition in sociology and this study points to the need to further integrate these and other theories. Integrating these theories also has practical implications since prison officials are interested in what effect behavior both between and within prisons. Integrating theories has been shown to improve rather than diminish the importance of the theoretical tenets they spring from because they allow us to provide more complete explanations of social phenomenon.

This research has also shown that context has an effect on the type of misbehavior that occurs in prisons. In general we see that contextual effects have less impact on serious misbehavior than they do on all infractions. The coefficients are markedly smaller, usually half or one-third that of the coefficients for all infractions. The same can be generally noted for individual-level variable coefficients. In addition, when looking at the OLS regression R^2 in Tables 5-7 we see that the models explain less of the variance in serious infractions than all

infractions (again about half of the explained variance for all infractions). Perhaps this is due to some other unmeasured factors that impact serious misbehavior. Alternatively, serious misbehavior may simply be more random and less able to be modeled using these techniques because of the infrequency of its occurrence. If this is the case, another statistical method may be called for. A third possibility is that inmates who commit serious infractions may be housed in prisons so similar that the effects of Level-2 factors are less important due to a greater contextual homogeneity. This idea was at least partially supported in the discussion of proportion violent offenders on serious infractions above. The real cause of this difference however, will need further in-depth research.

Looking ahead, future research should examine more systematically the way prisonization and importation measures interact to affect inmate behavior. In addition, future studies may be able to improve on the measures used in this research. In particular, a better measure of treatment-orientation would perhaps provide support for the idea that correctional philosophy has an impact on prisonization and then, by extension, perhaps to a contextual model that contains both prisonization and importation factors. Including data on prison staff and additional prison physical plant features might greatly improve upon the models shown here. Staff behavior has been noted many times as an integral determinant of how inmates react to various situations (Flanagan 1983; Steinke 1991; Wooldredge and Carboneau 1998). Having information on things such as staff turnover, the level of training they receive, and how experienced staff is may help explain some of the inconsistencies in the present and past

research. For instance, prisons that have a high rate of staff turnover or have staff who feel highly alienated may have higher rates of infractions than similar prisons housing similar prisoners through staff reporting more infractions or acting out by inmates who may feel threatened by staff. Having information on staff attitudes toward inmates of various ages might help explain the counter-intuitive findings of the effect of youth facilities on infractions as well.

The physical features of the prison facility might also have an impact much like that of physical features of neighborhoods on other types of crime (Miethe and Meier 1994; Rountree, Wilcox and Land 1996; Smith, Frazee and Davidson 2000). For instance the presence or lack thereof of dayrooms²⁰ may increase contact between inmates and thus increase opportunities for infractions to occur. Likewise, the lack of adequate recreational facilities may increase inmate stress and increase misbehavior. Future studies might also be able to use three or more levels in the models by aggregating inmates into housing, work and/or program groups as an interim level between individual- and prison-levels.

Future studies should also look to new ways to integrate theories of social behavior, perhaps even looking beyond traditional theoretical explanations of inmate behavior. Incorporating theories more common to social psychology such as theories of group dynamics or even theories of management could provide useful insight into how the inmate misbehavior arises and is fostered by individual characteristics and the wider social context that inmates live in. The need for integration springs from the historical and contemporary reality in which there

²⁰ The NCDOC prison data included an indicator of how many dayrooms were present in a given prison but did not indicate whether the dayroom was being used for recreational purposes. Many prisons use dayrooms for housing rather than for their original purpose in order to provide inmate bed spaces when

are many disciplinary routes to both social behavior and criminology.

In closing, the primary strength of using hierarchical linear models over other more established methods is that hierarchical linear models produce more valid estimates of aggregate-level influences on individual-level behavior once individual-level factors are controlled for. While the substantive differences between the hierarchical linear models and the OLS models were not dramatic, they did exist. Specifically, in the hierarchical linear model for all infractions, prison security level and proportion of black offenders were not statistically significant where they were significant in the OLS model. Similarly, in the hierarchical linear model for serious infractions, prison size was no longer statistically significant. Using the results of the OLS regression model alone would lead us to make invalid assumptions on the effect of these factors. In the hierarchical linear model only the differentiation between youth and adult facilities, transiency rate, the average infraction rate and the proportion of violent offenders provide statistically significant aggregate-level influences on infractions.

More importantly, using more appropriate statistical methods can lead to better decisions made by those who use these results to influence correctional policy. For instance, using the OLS regression model alone, policy-makers might increase the number of small prisons, thinking that this would reduce misbehavior. Since smaller prisons are more expensive to operate per inmate than larger prisons, this would unnecessarily cost the state additional money. Likewise, population shifts might be made to increase the proportion of black offenders in prisons, resulting in de facto segregation in our prison system. It is my hope then that more

the prison is over capacity or to provide housing while other housing areas are being renovated or repaired.

widespread use of such modeling techniques will become the trend and that the use of these will produce findings with implications that reach much further than the scientific community.

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APPENDIX A
NCDOC DATA FILES

DB2 Table Name	Data Type	File Type
INMT9CF1	Infraction	Event
INMT4BX1	Inmate Custody Classification	Event
INMT4BC1	External Movement	Event
INMT4CH1	Performance Rating	Event
INMT4BF1	Disciplinary Investigation	Event
INMT4BHI	Internal Assignments	Event
OFNT4BQ1	Offender Test Scores	Event
OFNT4BY1	Substance Abuse Assessment	Event
OFNT4BS1	Certificate Issued	Event
INMT9BE1	Prior Incarceration	Event
OFNT3BB1	Court Commitment	Event
OFNT3BS1	Arrest Record	Event
OFNT9BB1	Family/Other History	Non-event
FACT8AA1	Facility Description	Non-event
INMT4AA1	Offender Profile	Non-event
FACT8BU1	Housing Area	Non-event
FACT8BL1	Activity Offered	Non-event
FACT8CU1	Bed Description	Non-event
OFNT3AA1	Offender Profile 2	Non-event
INMT4CN1	Medical History	Non-event
INMT4CQ1	Mental Health Diagnosis	Non-event
OFNT3CQ1	Parent Background	Non-event
OFNT3BU1	Military	Non-event
OFNT3CR1	Spouse Background	Non-event

APPENDIX B
CHARACTERISTICS OF NORTH CAROLINA PRISONERS: COMPARISON OF
MALE AND FEMALE INMATES

Measure	All Prisoners (N=48,713)	Male Prisoners (n=44,695)	Female Prisoners (n=4,018)
% Male	91.75%	100%	0%
Mean Age on July 1, 1997	31.16	31.05	32.33
% African American	63.92%	64.41%	58.44%
% Married	15.03%	14.96%	15.85%
Mean Years Education	10.70	10.67	11.07
Substance Abuse Treatment Need Indicated	49.87%	48.83%	61.42%
Developmental Disability Indicated	2.70%	2.72%	2.49%
History of Prison Escape Indicated	5.14%	5.47%	1.42%
Under Influence of Drugs/Alcohol at Time of Offense	45.48%	45.07%	50.14%
Mental Health Problem Indicated	13.46%	11.66%	32.40%
Training School Indicated	12.04%	12.37%	8.52%
Employed at Time of Arrest	68.94%	70.85%	47.43%
Skilled or Semi-Skilled Job Skill Level	41.24%	42.35%	28.92%
% Current Sentence for Violent Offense	36.95%	38.34%	21.50%
Mean N Prior Incarcerations ²¹	2.31	2.32	2.21
Mean N Infractions During Prior Incarceration ²²	2.56	2.63	1.44
Mean N Prison Stays During Current Incarceration	7.14	7.36	4.71
Mean Sentence Length in Days ²³	3044.22	3170.48	1689.51
Mean % Sentence Served on July 1, 1997 ²⁴	9.99%	10.21%	7.61%
Mean N Infractions During Current Incarceration	5.32	5.49	3.39
Mean N Infractions/Year During Current Incarceration	2.56	2.56	2.50

²¹ For prisoners with prior incarcerations only (N=34,740, n males=32,519, n females=2,221)

²² For prisoners with prior incarceration only (N=34,740, n males=32,519, n females=2,221)

²³ Excludes prisoners with a life or death sentence (N=45,830, n males=41,902, n females=3,927)

²⁴ Excludes prisoners with a life or death sentence (N=45,830, n males=41,902, n females=3,927)

As seen in the table above, male and female inmates only differ significantly on a few characteristics. Males are more likely to be African American (64.41% versus 58.44%), spent time in training school (12.37% versus 8.52%), have a history of prison escape (5.47% versus 1.42%), and be currently incarcerated for a violent offense (38.34% versus 21.50%) while females are more likely to report being under the influence of drugs or alcohol at the time of committing the offense for which they are currently serving a prison sentence (50.14% females versus 45.07% males). Females are also more likely to have a need for substance abuse treatment (61.42% versus 48.83%) and to have mental health problems indicated on their records (32.40% versus 11.66%). Male inmates are much more likely than females to report being employed at the time of arrest (70.85% versus 47.43% females) and are more likely to rate their job skills as skilled or semi-skilled (42.35% versus 28.92%). Males are more likely to have been in prison prior to their current incarceration (66.76% versus 55.28% for females) and for those with prior incarcerations, have a larger number of infractions during their prior incarceration (2.63 versus 1.44). As expected because of the larger number of prison facilities available for males, men had an average of 7.36 stays while women only had an average of 4.71 stays. In addition, the average sentence length is nearly twice as long for males (3170 days versus 1690 days) but males on average had served a greater proportion of their current sentence on July 1, 1997 than females (10.21% versus 7.61%). Not surprisingly since sentences for females tend to be shorter and that they have on average, served a smaller percentage of their sentence, the average number of infractions on the current sentence for males was higher than for females (5.49 versus 3.39). However, when controlling for the

number of infractions per year, males and females were nearly identical.

APPENDIX C
INFRACTIONS APPLICABLE TO 1997 NORTH CAROLINA PRISON
POPULATION

A01	Taking Hostage(s)	C05	Bribe Staff
A02	Active Rioter	C06	Unauthorized Leave
A03	Assault Staff with Weapon	C07	Verbal Threat
A04	Assault Person with Weapon	C08	Theft of Property
A05	Sexual Assault	C09	Barter, Trade, or Loan Money
A06	Escape	C10	Self Injury
A07	Detonating Explosives	C11	Misuse/Unauthorized Use of Phone or Mail
A08	Threat by Fire	C99	Attempt Class C Offense
A09	Assault Staff by Throwing Liquids		
A10	Fight Involving Weapons	D01	Unauthorized Location
A99	Attempt Class A Offense	D02	Negligently Perform Duties
		D03	No Threat Contraband
B01	Weapon Possession	D04	Gambling
B02	Non Threatening Fire	D05	Create Offensive Condition
B03	Lock Tampering	D06	Bed Violation
B04	Substance Possession	D07	Illegal Clothing
B05	Inhale Substance	D08	Forgery
B06	Sexual Act	D09	Property Tampering
B07	Provoke Assault	D10	Unauthorized Funds
B08	Interfere with Staff	D11	Possession of Money
B09	Violate NC Law	D99	Attempt Class D Offense
B10	High Risk Act		
B11	Refuse to Submit to Drug or Breath Test	E01	Unkempt Room
B12	Leave or Quit Community Based Program	E02	Unclean Body
B99	Attempt Class B Offense	E03	Fake Illness
		E04	Misuse Supplies
C01	Misuse Medicine	E05	Legal Assistance
C02	Profane Language	E99	Attempt Class E Offense
C03	Disobey Order		
C04	Fighting		

APPENDIX D

DISCUSSION OF OLS REGRESSION MODELS INCLUDING VARIABLES DROPPED DO TO MULTICOLLINEARITY

As noted in Chapter 3, several variables were dropped to reduce problems of multicollinearity from highly correlated independent variables. These include rated (standard) prison capacity, average age at the prison level, and the variable designating a prison as activity oriented. OLS regression models including these variables were run and major differences between these models and the models shown in Table 4 are briefly discussed below.

In the model for the natural log of all infractions, including rated capacity, average age and the activity-orientation variables increased the R^2 to .1627 (versus .1624) and the adjusted R^2 to .1623 (versus .1621). However, it did change the direction and size of the coefficient for prison size to -.0051 (from .0175) and the size of the coefficient for security level to .0036 from .0111. None of these variables were statistically significant in the model including them. Including this variable also changes the size and direction of the coefficient for institutional crowding to .0012 (from -.0014) but does not change crowding to a statistically significant variable.

Including the variable for average inmate age at the prison-level changes the coefficient for youth facility to -.0629 from -.0271 but does neither variable is statistically significant. Another model was run using forward selection techniques in which the youth facility variable was more predictive than average age of a prison on the number of infractions. Similarly, including the activity-orientation variable changed the coefficient for treatment-orientation from -

.0396 to -.0801 but neither variable was statistically significant. Models using forward selection showed that treatment-orientation is more predictive than activity-orientation.

In the OLS regression model for serious infractions including rated capacity, average age and the activity-orientation variables increased the R^2 to .0833 (versus .0831) but did not change the adjusted R^2 (.0828). However, including rated capacity did change the size of the coefficient for prison size to .0046 (from .0151) and prison both prison size and standard capacity become non-significant whereas prison size was statistically significant in the model not including these variables. The size of the coefficient for security level was reduced from .0054 from .0017 but was still non-significant. Including this variable had very little effect on the coefficient for institutional crowding (change from -.0021 to -.0029) and does not change crowding to a statistically significant variable.

Including the variable for average inmate age at the prison-level changes the coefficient for youth facility to -.0085 from -.0373 but does not have an effect on statistical significance. Similarly, including the activity-orientation variable changed the coefficient for treatment-orientation from -.0238 to -.0490 but neither variable was statistically significant.