PRISONERS' PERCEPTIONS OF PROCEDURAL JUSTICE AND LEGITIMACY:

EXAMINING CONSTRUCTS AND EFFECTS ON RECIDIVISM

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Kallee Anna McCullough

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ABSTRACT

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This dissertation explores whether and how perceived procedural justice and legitimacy of the law and legal authorities relate to imprisoned men's attitudes and behaviors within prison and in the community after release. Over a period of nine months in 2016, face-to-face interviews were conducted with 802 male prisoners within one week of their scheduled release from a prison in Huntsville, Texas. Official data were gathered from the Texas Department of Criminal Justice and the Texas Department of Public Safety. With these data, key constructs proposed in the process-based model of regulation are examined to determine consistency, validity, and empirical relationships among measures that previous correctional research inconsistently measured or neglected. Results from confirmatory factor analyses indicate reference group differentiation in respondents' perceptions of procedural justice and legitimacy of police, correctional officers, and the law; showing that study participants demonstrated a nuanced understanding of procedural justice and dimensions of legitimacy. Structural equation modeling and multivariate regressions reveal differences in procedural justice and legitimacy measures based on respondent characteristics. Independent effects and mediators in the paths among procedural justice and legitimacy variables are assessed with structural equation models. Three main endogenous variables are evaluated: (1) compliance measured as self-reported prison misconduct and official records of post-release rearrest; (2) cooperation operationalized as willingness to provide information to authorities, violence/non-acceptance of state power, and general support of prison staff;

and (3) engagement in prosocial activities. Significant relationships among endogenous variables and indicators of procedural justice and legitimacy are observed in the structural equation models, but variation in effects on outcome variables are revealed. Important implications for procedural justice research as well as policy and practice regarding the management and treatment of prisoners are derived from this dissertation.

KEY WORDS: Procedural justice, Legitimacy, Prison, Reentry, Law, Police.

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CHAPTER I

Introduction

A fundamental goal of social control institutions is to effectuate compliance. Motivations to comply may be external or internal. When social control agencies are legitimate, subordinates demonstrate an internal moral obligation to the agency because they accept, trust, and identify with the organization. Without consensual acceptance and moral investment from subordinates, a superordinate would need to rely on force, sanctions, and supervision for control. External forces are the primary control mechanisms in U.S. correctional facilities. Should we rely on such external forces to manage law-breakers in our society or can we cultivate legitimacy in prisons?

At yearend 2016, there were over 1.5 million adults confined in U.S. prisons. The national adult imprisonment rate that year was 582 per 100,000 adults age 18 or older (Carson, 2018). With 163,703 individuals confined in Texas prisons, the imprisonment rate for the state in 2016 was slightly higher than the national estimate at 761 per 100,000 adults (Carson, 2018). Nearly all prisoners will be released (Hughes & Wilson, 2002; Jonson & Cullen, 2015; Travis, 2005). In fact, from 2000 to 2015, more than 600,000 individuals annually reentered communities from state and federal prisons in the United States (Carson, 2015; Carson & Anderson, 2016; Carson & Golinelli, 2013). Current research suggests that most of these individuals will return to prison. With data from 30 states, one study found that 30% of state prisoners released in 2005 returned to prison within one year of release, increasing to 55% after five years in the community (Durose, Cooper, & Snyder, 2014).

As recidivism estimates suggest, prisons can be criminogenic and delegitimizing environments (Bonta & Gendreau, 1990; DiIulio, 1990; Franke, Bierie, & Mackenzie, 2010; Sparks & Bottoms, 1995; Tyler, 2010). Part of the issue is that prison rules may be enforced inconsistently or inequitably across prisons and prisoners (Cressey, 1959; Kauffman, 1988). Prison officials may choose to selectively enforce rules as a strategy to gain compliance and reward certain inmates (Hewitt, Poole, & Regoli, 1984; Poole & Regoli, 1980; Sykes, 1958), but this approach may also be indicative of bias and abuse of power (Jurik, 1985; Marquart, 1986; Poole & Regoli, 1980; Van Voorhis, Cullen, Link, & Wolfe, 1991). Other factors like disorder (e.g., auditory overstimulation or unsanitariness) and deprivation (e.g., of privacy, autonomy, or safety) contribute to prisoners' overall negative impressions of prison authority (Brunton-Smith & McCarthy, 2016; Franke et al., 2010). In speaking about the nature of prisons, Sparks and Bottoms (1995) write:

> Every instance of brutality in prisons, every casual racist joke and demeaning remark, every ignored petition, every unwarranted bureaucratic delay, every inedible meal, every arbitrary decision to segregate or transfer without giving clear and well founded reasons, every petty miscarriage of justice, every futile and inactive period of time—is delegitimizing. The combination of an inherent legitimacy deficit with an unusually great disparity of power places a peculiar onus on prison authorities to attend to the legitimacy of their actions. (p. 60)

As this quote demonstrates, prison officials set the standard of care in their institutions and the decisions they make on a daily basis speak to the legitimacy of their authority.

A sense of procedural injustice among prisoners can negatively impact their adjustment to prison and overall mental health (Beijersbergen, Dirkzwager, Eichelsheim, van der Laan, & Nieuwbeerta, 2014). Research finds that disrespect and unfair treatment are related to distress, anxiety, and depression (Gover, Mackenzie, & Armstrong, 2000; Liebling, 2011; Liebling & Arnold, 2012; Liebling, Durie, Stiles, & Tait, 2005). Perceived injustice can also strain an individual, increasing their risk of violence (Agnew, 1992, 2001). This possibility is especially troubling in prisons, which house individuals who are already more prone to antisocial, aggressive, and violent behavior (Blevins, Johnson Listwan, Cullen, & Lero Jonson, 2010; Useem, 1985) and who tend to lack the resources, skills, and positive stimuli (e.g., law-abiding relationships, autonomy, goods and services, privacy, etc.) to cope in a peaceful manner (Agnew, 2001).

Without institutional and officer legitimacy, prisoners may choose to disregard institutional rules and expectations. When prisoners lack opportunities to invest in conventional social capital (e.g., educational, employment, or religious programs) and when they believe that prison staff are unjust, then prisoners may resort to rule-breaking, violence, resistance, or riots (Bierie, 2013; Colvin, 2000, 2007; Day, Brauer, & Butler, 2015; Feld, 1981; Franke et al., 2010; Henderson, Wells, Maguire, & Gray, 2010; McCorkle, Miethe, & Drass, 1995; Poole & Regoli, 1983; Reisig & Mesko, 2009; Sparks & Bottoms, 1995; Useem, 1985; Useem & Reisig, 1999). In this erratic environment, prisoner conflict among themselves, organized delinquent groups, or prison staff would threaten the safety and security of the entire institution.

In searching for a viable strategy for compliance in prison, external or instrumental sanctions are not as effective as employing internal or normative motivators

(Bottoms, 1999; Bradford, 2014; Jackson, Tyler, Bradford, Taylor, & Shiner, 2010; Maguire, Atkin-Plunk, & Wells, 2017; Reisig & Mesko, 2009; Sparks, Bottoms, & Hay, 1996; Tyler & Fagan, 2008; Tyler & Jackson, 2013). Control strategies relying on self-interest are not the most effective because official rewards are lacking in prisons and sanctions have limited influence in restrictive or maximum security housing (Reisig & Mesko, 2009). Prisoners' perceptions of the law, fairness of decisions, and treatment by police and corrections officers is particularly important because these experiences and attitudes can affect behavior during and after incarceration. Research maintains that perceived procedural justice of criminal justice officials predicts compliance with the law, cooperation with police, and engagement with the community (Fagan & Tyler, 2005; Henderson et al., 2010; Kochel, 2012; Kochel, Parks, & Mastrofski, 2013; Sargeant, Wickes, & Mazerolle, 2013; Sunshine & Tyler, 2003). If prisoners see the law, police, and correctional officers as legitimate, then they may be less likely to commit crimes themselves and more likely to cooperate with legal officials. Alternatively, if prisoners see the law and legal officials as illegitimate, then they may be more likely to commit crime and less likely to cooperate with police or correctional officers. These assumptions fit within the process-based model of regulation framework.

The purpose of this dissertation is to examine and test the process-based model of regulation, which relates perceptions of legal authority to compliance (i.e., desistence), cooperation, and engagement, as it applies to a sample of Texas offenders. In recent years, scholars debated about the validity of key constructs in this model, namely procedural justice and legitimacy, and how these normative judgments relate to other normative and instrumental constructs like distributive justice, effectiveness, and legal

cynicism (e.g., Bottoms & Tankebe, 2012; Gau, 2011; Henderson et al., 2010; Maguire et al., 2017; Tankebe, 2013). Prisoners are an appropriate sample to measure nuanced concepts of the process-based model of regulation. Due to their frequent, intense, and proximal interactions with police and correctional officers, prisoners' impressions about these legal authorities are well-established compared to the general public who typically encounter the criminal justice system on a superficial basis (Henderson et al., 2010; Johnson, Maguire, & Kuhns, 2014; Maguire et al., 2017).

Data analyzed in this dissertation are derived from the LoneStar Project, a longitudinal study of gangs and reentry funded by the National Institute of Justice. The data were gathered from official sources (i.e., Texas Department of Criminal Justice and Texas Department of Public Safety) and computer-assisted personal interviews conducted with 802 men who were incarcerated and scheduled for release within one week from a release center in Huntsville, Texas. Respondents were presented with 1,190 structured interview items about their individual characteristics and attitudes, experiences before and during imprisonment, social bonds, and preparedness for reentry. Related to the purposes of this dissertation, the interviews included indicators of respondents' perceptions of procedural justice of police and correctional officers and legitimacy of police, correctional officers, and the law.

These reliable data from prisoners measuring key components of the process-based model of regulation and related constructs inform the dissertation objectives of exploring dimensions and validity of theoretical inferences and examining the relationship between procedural justice perceptions and success in the community after reentry. The results inform policies, programs, and future research designed to enhance

prisoners' perceptions of legal legitimacy and ultimately law-abiding behavior. This dissertation proceeds with a review of the literature defining and examining the concepts of procedural justice and legitimacy in Chapter II. Following this comprehensive review, the methods, sample, and measures utilized in this study are described in Chapter III. Findings from psychometric analyses of procedural justice and legitimacy scales are presented in Chapter IV. Results from tests of the measurement model are described in Chapter V. Concluding this work, main findings, policy implications, limitations, and suggestions for future research are discussed in Chapter VI.

CHAPTER II

Literature Review

The process-based model of regulation argues that the actions of legal officials influence subordinates' perceptions of their legitimacy, which then affect subordinates' behavioral outcomes (Tyler, 2006; Tyler & Huo, 2002). The conceptual and empirical manifestations of this basic principle are complicated, contributing to discrepancies in measurement and results. What exactly is "legitimacy" and does it mediate the relationship between a superordinate's actions and behavioral outcomes? When researchers claim to measure the same latent construct (e.g., legitimacy) while utilizing multifarious psychometric scales, this casts doubt on the objectivity of reported legitimacy effects and makes it impossible to compare studies to determine theoretical reliability. For research and practice to move forward, the underlying concepts in the process-based model of regulation must be refined. Accordingly, presented in this chapter is a review of the development of the process-based model of regulation with a focus on competing conceptual interpretations and a discussion of findings from research testing this model. Concluding this chapter is a description of the contributions of the current dissertation to this body of literature.

The Process-Based Model of Regulation

The process-based model of regulation focuses on how actions of a superordinate can impact subordinates' feelings toward authority, propensity to accept authority, and willingness to conform behavior accordingly. The basic structure of assumptions in the process-based model of regulation is that procedurally just actions influence subordinates' perceptions of legitimacy, which then effect behavioral responses that are

favorable to the authority (Tyler, 2003, 2006; Tyler & Huo, 2002). Figure 1 outlines this

conceptual model based on recent iterations employed by the model's pioneer, Tom

Tyler. The development and meaning of each of the concepts and subconstructs depicted

in the model are described below. Following this review, alternative interpretations and

tests of the process-based model of regulation are presented and analyzed. The

overarching goal of this chapter is to take stock of the literature that explores procedural

justice and legitimacy, with emphasis on studies that test this model in correctional

settings. A detailed appraisal of the conceptualization and operationalization of

procedural justice and legitimacy will reveal considerable confounding, which

underscores measurement discrepancies seen in prevailing research.
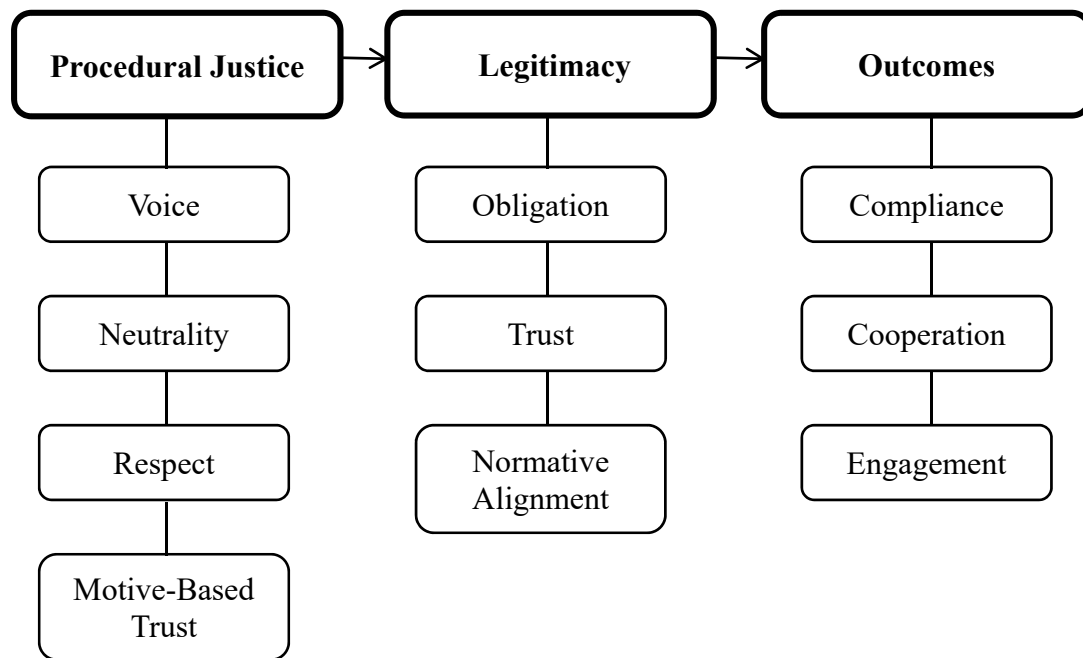
Figure 1. Foundational concepts in the process-based model of regulation. This model was constructed on the basis of Tom Tyler's work (e.g., Tyler, 2006; Tyler & Huo, 2002; Tyler & Jackson, 2014).

Procedural justice. Sunshine and Tyler (2003) define procedural justice as "the

fairness of the processes through which the police make decisions and exercise authority"

(p. 513). According to this definition, procedural justice is concerned with how authorities wield their power in the treatment of subordinates and in their decisions. Procedural justice is a social value orientation (Sunshine & Tyler, 2003) or normative concept concerned with value judgments and ethical appropriateness (Tyler, 2006). In other words, procedural justice is a latent concept developed by the perceiver's impression of treatment and decisions on a spectrum of fairness. Procedural justice does not pertain to the effectiveness, favorability, or fairness of the outcome. Rather, people observe the procedures used by authorities to establish their views of the individual or institutional authority's values, intentions, and character (Tyler & Lind, 1992).

Psychological research in the 1970s examined how participants judged the fairness of legal processes. Specifically, Thibaut and Walker (1975) studied two aspects of formal dispute resolution: an individual's perceived ability to control the outcome and the process used to reach the outcome. Perceptions of a fair process were described as "the belief that the techniques used to resolve a dispute are fair and satisfying in themselves" (Walker, Lind, & Thibaut, 1979, p. 1402). Thibaut and Walker (1975) found that having control over the outcome (i.e., direct participation in decision-making) had a greater effect on the perceived fairness of outcomes. Process mattered only when the outcomes were favorable (Thibaut & Walker, 1975; Walker et al., 1979). This research was limited to courtroom settings and dispute resolution interactions.

Expanding on the work of Thibaut and Walker, Leventhal (1980) identified additional considerations that may factor in to procedural fairness judgments in general social relationships: *accuracy* (i.e., reliable information gathering to inform open discussion and decisions), *bias-suppression* (i.e., neutral decisions not based on self-

interest), *consistency* over time and across people, *correctability* (i.e., opportunities to appeal decisions), *ethicality* (i.e., decision matches beliefs and morals), and *representativeness* of values and concerns of subgroups. All of these dimensions of procedural justice judgments are not necessary for an individual to reach an opinion about the fairness of the legal decision and the weight of each of these considerations will vary depending on the circumstances (Leventhal, 1980).

Tyler (1988) operationalized and tested Leventhal's (1980) theoretical dimensions of procedural justice as reported by 652 Chicago citizens who had recent personal experience with police or courts, finding statistically significant relationships between perceptions of procedural justice (i.e., fairness of procedures and treatment) and the following six variables: *accuracy* (i.e., quality of decisions evaluated by authority gathering information and openly talking about the issue), *bias-suppression* (i.e., honesty, effort to be fair, and neutral decisions not based on self-interest), *correctability* (i.e., knowing who to file a complaint with), *ethicality* (i.e., authority was polite and showed concern for rights), and *representativeness* measured as control over the process and outcome. The authority's judgment and treatment *consistency* were not correlated with perceived fairness (Tyler, 1988). Tyler's (1988) measures of *bias suppression* and *ethicality* arguably departed from to Leventhal's (1980) postulates. Specifically, Tyler (1988) included honesty (i.e., "did the authority do anything that was improper or dishonest?" and "did officials lie to you?") and effort to be fair (i.e., "how hard did the police or judge try to show fairness?") as components of *bias-suppression* in addition to neutral decisions. As for *ethicality*, Leventhal (1980) emphasized the extent to which the authority's decisions correspond with the beliefs and morals of the perceiver, whereas

Tyler (1988) measured politeness (i.e., "was the authority polite?") and concern for rights (i.e., "did the authority show concern for your rights?"). Although Tyler (1988) and Leventhal (1980) identified the same notion of procedural justice, a comparison of their conceptualizations indicates that procedural justice is comprised of many aspects that express the fairness of an authority's actions. The multitudinous nature of the procedural justice concept contributes to disagreement over conceptualization and measurement that continues today.

In Tyler's most recent work (see Figure 1), perceptions of procedural fairness are shaped by four factors: voice, neutrality, respect, and motive-based trust (Tyler, 2006; Tyler & Huo, 2002). Similar to Thibaut and Walker's (1975) measurement of control, *voice[1]* refers to opportunities for subordinates to express their concerns and participate in decision-making processes (Jackson et al., 2010). For example, research on police-citizen interactions indicates that individuals feel they were treated fairly when they had a chance to tell their side of the story before the police took action (Tyler & Huo, 2002). *Neutrality* is defined as procedures of decision making characterized by the consistent application of rules without bias. Authorities are viewed as legitimate when they apply rules consistently across people and time (Jackson et al., 2010; Tyler & Jackson, 2014). This definition of neutrality incorporates Leventhal's (1980) concepts of accuracy, bias-suppression, and consistency. *Respect* involves authorities treating subordinates with respect, courtesy, and dignity. Disrespect, dehumanization, and degradation contribute to

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[1] Folger (1977) introduced the term "voice" to describe an individual's ability to express concerns about payment allocation. This operationalization is very similar to the concept of "process control" identified by Thibaut and Walker (1975) and Tyler's earlier work (Tyler, 1988) and "correctability" defined by Leventhal (1980).

a sense of worthlessness, whereas courtesy and acknowledgment of individuals' rights promote perceptions of fairness (Jackson et al., 2010; Tyler & Jackson, 2014). This conceptualization of respect is similar to Tyler's (1988) measure of ethicality. *Motive-based trust* is conceptualized as perceptions of authorities' intentions and character. If individuals believe that authorities are acting with sincere intentions to do what is right, then authorities are viewed as more legitimate. Conversely, people will react negatively (e.g., violence, rebellion) if they think that an authority is not concerned with their well-being (Tyler, 1988, 2006; Tyler & Lind, 1992). Authorities can communicate motive-based trust by providing opportunities for people to voice their concerns, meaningfully considering those concerns, and explaining the reasoning and processes of the decision (Jackson et al., 2010). Motive-based trust is similar to Leventhal's (1980) representativeness and ethicality.

Researchers debate whether the subconstructs of procedural justice are distinct or measure one latent construct. The multiple elements of procedural justice are conceptually distinct, but with high correlations among measures, procedural justice is often measured as a single dimension (e.g., Gau, 2011; Reisig, Bratton, & Gertz, 2007) or two dimensions typically identified as quality of treatment and quality of decision-making (e.g., Tyler, 1988; Tyler & Jackson, 2014). Procedural justice can be measured as general attitudes toward authorities or personal experience with authorities. General attitudes would be measured, for example, with survey items that ask respondents how they feel about an agency's decisions and treatment overall, whereas items measuring personal experiences would ask how respondents view a particular agent's handling of their interaction. The consequences of these conceptual and operational complexities are

discussed in further detail in a later section reviewing correctional studies with procedural justice measures.

Legitimacy. Tyler and colleagues define legitimacy as a property or quality of an authority, law, or institution that leads others to feel an obligation to obey and defer to the authority voluntarily (Sunshine & Tyler, 2003, p. 514; Tyler & Huo, 2002, p. 102; Tyler & Lind, 1992, p. 118). Thus, legitimacy imparts voluntary obedience as opposed to involuntary control through fear or intimidation. Legitimacy represents people's understanding of the need to behave in accordance with the mandates of external authorities (Tyler, 2006). This "feeling of responsibility reflects a willingness to suspend personal considerations of self-interest and to ignore personal moral values because a person thinks that an authority or a rule is entitled to determine appropriate behavior" (Tyler, 2006, p. 309). In this sense, legitimacy is a normative concept developed by the perceiver that motivates a sense of obedience to and acceptance of authority even when the perceiver disagrees with the authority. Legitimate authorities enjoy stable support from subordinates because established legitimacy begets acceptance of decisions as long as the authority is believed to be legitimate (Tyler & Lind, 1992, p. 118). This conceptualization of legitimacy can apply to individual power-holders or systems of control. In the realm of criminal justice, "legitimacy is the widespread belief among members of the public that the police, the courts, and the legal system are authorities entitled to make decisions and who should be deferred to concerning matters of criminal justice" (Tyler, 2010, p. 127).

As shown in Figure 1, the four elements of procedural justice form the foundation for perceptions of legitimacy, which include three components: obligation, trust, and

normative alignment (Tyler & Fagan, 2008; Tyler & Huo, 2002; Tyler & Jackson, 2014).

Obligation is defined as an individual's sense of commitment to obey laws and legal

authorities beyond their personal moral beliefs (Tyler, 2006). Under the process-based

model of regulation, obligation is not a result of a rational cost-benefit calculation, but

rather a feeling of responsibility to accept authority (Tyler & Jackson, 2014). *Trust* is

conceptualized as support and confidence in legal authorities. Importantly, this definition

of trust does not include perceptions about the effectiveness of a legal authority's ability

to deliver services or safety (Tyler & Jackson, 2014). *Normative alignment* refers to the

belief that authorities express values, goals, and intentions that are similar to subordinates

(Jackson, Bradford, Stanko, & Hohl, 2013). The concept of normative alignment was

proposed and tested as a subconstruct of legitimacy only recently (Bradford, 2014;

Jackson et al., 2013; Tyler & Jackson, 2013, 2014), but it reflects Leventhal's (1980)

notion of ethicality (i.e., procedural justice indicator).

The conceptualization of legitimacy varies among studies. In 1984, Tyler

measured legitimacy with the following items: "how fair would you rate the performance

of the judge in terms of: overall performance of duties; courtesy; honesty; fairness?";

"Overall, how fairly was your case handled?"; "How good of a job do you think the

courts are doing in handling cases such as yours?" (Tyler, 1984). These items seem to

conceptually overlap with procedural justice and contain elements of effectiveness and

trust. In his 1990 book, Tyler revised the concept of legitimacy to encompass

subconstructs of obligation to obey (e.g., "People should obey the law even if it goes

against what they think is right.") and trust as support or confidence (e.g., "I feel that I

should support the police/courts."). Trust has also been conceived of as trust in abilities

and intentions; when conceptualized this way, it is typically not included as a subconstruct of legitimacy, but rather as an antecedent to legitimacy (Tyler & Jackson, 2013). When trust is operationalized as a subconstruct of legitimacy, then it should measure support, confidence, or moral validity as "an appropriate sense of legality, lawfulness, and the embodiment of right and wrong" (Tyler & Jackson, 2013, p. 94). Depending on how it is operationalized, trust could measure specific or general legitimacy.

Other relevant exogenous variables. Although not represented in Figure 1, researchers have examined instrumental factors (i.e., distributive justice, perceived effectiveness, risk of sanctions) as antecedents to legitimacy like procedural justice (Sunshine & Tyler, 2003; Wolfe, Nix, Kaminski, & Rojek, 2016). While procedural justice is an internal normative factor, instrumental factors express reactions to external forces through assessments of costs and benefits (Tyler, 2006). Conceptually distinct from procedural justice, distributive justice is concerned with the fairness, favorability, and distribution of outcomes (Tyler, 2006; Tyler & Lind, 1992; Walker et al., 1979). Distributive and procedural justice are often highly correlated, however, suggesting that judgments of outcomes and procedures may be indistinguishable concepts (Maguire, 2017).

Outcomes. According to the process-based model of regulation presented in Figure 1, perceptions of legitimacy influence behavioral outcomes, including compliance, cooperation, and engagement (Tyler & Jackson, 2014). *Compliance* with the law is substantiated by law-abiding behavior. *Cooperation* involves aiding legal authorities, such as being an informant or witness. *Engagement* refers to an individual's efforts to

participate in social, political, and economic development activities in one's community.

Compliance is reactive, whereas cooperation and engagement are proactive (Tyler &

Jackson, 2014). A sense of legitimacy has contributed to positive reactions among

subordinates even when the outcome of the authority's action is less favorable

(Henderson et al., 2010; Tyler, 2006).

The subconstructs of legitimacy do not exert equal force on these three outcomes.

Analyzing data from a citizen survey, Tyler and Jackson (2014) found that obligation

exerted the strongest effect on compliance, trust/confidence had the strongest relationship

with cooperation, and normative alignment was the strongest correlate of engagement.

Results also depend on how outcomes are measured. For example, Papachristos et al.

(2012) found that probationers and parolees who saw the law as more legitimate were

less likely to report ever carrying a gun, but legitimacy did not have a statistically

significant effect on self-reported physical fights or confrontations in the last year. The

researchers suggested that legitimacy considerations may be more effective at regulating

prospective behavior rather than reactive behavior (Papachristos, Meares, & Fagan,

2012).

Alternative Interpretations and Tests of the Process-Based Model of Regulation

Researchers have proposed and examined variations to the process-based model

of regulation. Disagreements over conceptual models and discrepancies in measurements

prompted one scholar to remark: "The meaning and measurement of legitimacy in the

social sciences is currently in an intense state of uncertainty and debate" (Maguire, 2017).

For example, legitimacy may mediate the relationship between outcomes and exogenous

variables such as procedural justice, distributive justice, effectiveness, risk of sanctions,

and social identity, but these exogenous variables may exert a direct effect on outcomes (e.g., Penner, Viljoen, Douglas, & Roesch, 2014; Pryce, Johnson, & Maguire, 2017; Šifrer, Meško, & Bren, 2015).

Some scholars find that legitimacy and procedural justice are distinct concepts (e.g., Reisig et al., 2007), but others find an overlap between them (e.g., Gau, 2011; Johnson et al., 2014). Tankebe (2013) proposed an alternative model where obligation to obey mediates the relationship between legitimacy and compliance instead of being a subconstruct of legitimacy. In this alternative model, legitimacy is conceptualized as respect, distributive justice, and effectiveness (Tankebe, 2013). Beyond duty to obey, Bottoms and Tankebe (2012) identify two additional types of obligation: dull compulsion (i.e., obedience from powerlessness) and obligation from fear of punishment. The concept of legitimacy developed by Tyler incorporates elements of legal cynicism (Tyler & Huo, 2002), a concept that has been examined as independent from the process-based model of regulation (Fagan & Tyler, 2005; Kirk & Papachristos, 2011; Piquero, Fagan, Mulvey, Steinberg, & Odgers, 2005).

Examining the Process-Based Model of Regulation in Correctional Settings

Research has extensively tested perceived procedural justice and legitimacy of police (see Mazerolle, Bennett, Davis, Sargeant, & Manning, 2013, for systematic review) and courts (e.g., Burke & Leben, 2008; Casper, Tyler, & Fisher, 1988; Rottman, 2007; Tatar, Kaasa, & Cauffman, 2012; Tyler, 1984, 2008; Tyler & Jackson, 2014), but less is known about procedural justice and legitimacy in corrections. Similar to police and courtroom professionals (e.g., judges, attorneys, prosecutors), corrections officials interpret rules and determine how individuals under their supervision are treated on a

daily basis (Hewitt et al., 1984). Compared to police and court officials, the power differential between correctional officers and prisoners is greater (Maguire et al., 2017; Marquart, 1986; R. Sparks et al., 1996; Sykes, 2007) and prison officials are not subjected to the same level of scrutiny from the media or civil rights organizations (Howard, Winfree, Mays, Stohr, & Clason, 1994). Prison settings are starkly different from courtrooms and neighborhoods in terms of supervision and privacy, which influences how correctional officers interact with prisoners (Crouch, 1985; Fisher-Giorlando & Jiang, 2000; Lombardo, 1981; Poole & Regoli, 1980; Sykes, 1958).

The quality of the environment and relationships between the staff and residents may impact the behavior of prisoners while incarcerated and after release. Prisoner cooperation increases order and safety (Jackson et al., 2010), while cynicism of prison staff can increase disciplinary, control, and safety concerns and undermine rehabilitative programs (Sedlak & McPherson, 2010). Research has found that procedurally unjust actions are associated with adverse mental health effects (e.g., depression, rage), whereas procedurally just prison staff can promote feelings of safety (Liebling, 2011).

Prisoners' experiences in correctional facilities could also influence their behavior after release (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016). Perceptions of legitimacy and positive outcomes upon release may be shaped by the degree to which correctional officers help prisoners learn meaningful skills and prepare for reentry (Brunton-Smith & McCarthy, 2016; Franke et al., 2010; Jackson et al., 2010). Sampson and Laub (2005) studied career criminals, finding that some continued offending to deliberately resist authority. Many offenders were motivated by "a perceived sense of injustice resulting from a pattern of corrosive contacts with officials of the criminal

justice system, coupled with a general sense of working-class alienation from elite

society. Many persistent offenders see 'the system' (criminal justice and work alike) as

unfair and corrupt" (R. J. Sampson & Laub, 2005, p. 37).

Table 1 summarizes important aspects of procedural justice and legitimacy studies

in correctional institutions, including the author(s) and publication year, location and year

of data collection, study site location, sample, study design, and method of data

collection. Detailed descriptions and a synthesis of these studies follow with a focus on

the limitations and gaps in the literature that this dissertation addresses.

Table 1

Summary of Studies Measuring Perceived Legitimacy and Procedural Justice in Correctional Institutions

Authors (date)	Location	Year	Facility	Sample	Study design	Method
Baker et al., (2014, 2015); Baker & Gau (2017)	Florida	2010	Private correctional facility; medium security	694 females	Cross-sectional	Self-administered survey
Beijersbergen et al. (2015, 2016)	Netherlands	2010-2011	Pretrial detention centers	1,241 males	Longitudinal	Self-administered survey, interview, and official data
Bierie (2013)	United States	2000-2007	Federal Bureau of Prisons facilities	226,057 inmate complaints	Longitudinal	Official data
Brunton-Smith & McCarthy (2016)	England and Wales	2005-2006	Prisons	3,111 males and females	Longitudinal	Interviews
Franke et al. (2010)	Baltimore, MD	2002-2004	Pre-release prison and boot camp	202 males	Longitudinal	Self-administered survey
Henderson et al. (2010); Maguire et al. (2017)	Chicago. IL	2006	Work-release center; lowest security	213 males	Cross-sectional	Paper-and-pencil survey
Klahm et al. (2017)	United States	2004	State prisons	12.032 male and female	Cross-sectional	Interview

Authors (date)	Location	Year	Facility	Sample	Study design	Method
Piquero et al. (2005)	Philadelphia, PA Phoenix, AZ	2000-2003	Juvenile facilities	1,354 male and female	Longitudinal	Interview
Reisig & Mesko (2009)	Slovenia	2005	Maximum security facility	103 males	Cross-sectional	Interview and official data
Tatar et al. (2012)	California	2007	High security juvenile facility	94 females	Cross-sectional	Interview

Most prior research testing the process-based model of regulation with correctional samples observed a relationship between procedural justice and legitimacy (Baker et al., 2014; Baker & Gau, 2017; Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Brunton-Smith & McCarthy, 2016; Maguire et al., 2017; Piquero, Fagan, Mulvey, Steinberg, & Odgers, 2005), but one study reported a null relationship (Reisig & Mesko, 2009). There is also evidence of correlations between other variables and perceptions of legitimacy, including risk of sanctions, legal cynicism, disposition to violence, and prison experiences (Brunton-Smith & McCarthy, 2016; Franke et al., 2010; Maguire et al., 2017; Piquero et al., 2005; Reisig & Mesko, 2009). For example, in a longitudinal study of 202 adult male offenders, Franke and colleagues (2010) reported that impressions of criminal justice system legitimacy changed during incarceration; adverse experiences (e.g., violence, unsafe environment, lack of privacy) reduced perceived legitimacy, whereas favorable experiences (e.g., helpful staff and programs) increased legitimacy (Franke et al., 2010). A separate longitudinal study of 3,111 male and female prisoners indicated that respect and clear communication positively influenced prisoners' views about prison staff legitimacy during admissions, paid work and educational classes in prison, and cleanliness of the facility (Brunton-Smith & McCarthy, 2016). Due to the quasi-experimental design of Brunton-Smith and McCarthy's (2016) study, it is impossible to determine whether work and educational programs affected legitimacy or whether prisoners who participated in these programs already viewed the prison as legitimate beforehand. With an experimental design, Franke et al. (2010) observed a positive relationship between programs and legitimacy, however. Using a different scale than Franke et al. (2010), Brunton-Smith and McCarthy (2016) also found that negative

experiences (i.e., operationalized as more time in cell and more sanctions) were related to lower perceived legitimacy.

Aside from exploring relationships among key independent variables, studies of procedural justice and legitimacy in correctional facilities also examined the outcomes of cooperation with correctional staff (Maguire et al., 2017), compliance in prison (Beijersbergen, Dirkzwager, Eichelsheim, Van der Laan, & Nieuwbeerta, 2015; Bierie, 2013; Klahm IV, Steiner, & Meade, 2017; Maguire et al., 2017; Reisig & Mesko, 2009; Tatar et al., 2012) and post-release compliance (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; McCarthy & Brunton-Smith, 2017). Researchers discovered significant relationships between procedural justice and cooperation, but legitimacy was not associated with cooperation (Maguire et al., 2017; Reisig & Mesko, 2009),[2] meaning procedural justice may directly affect cooperation with correctional officials and legitimacy may not mediate this relationship. This finding is contrary to the proposed causal mechanisms of the process-based model of regulation, but the cross-sectional nature of the data makes this inference inconclusive. It may be that cooperative prisoners are treated more justly instead of fair procedures creating a sense of cooperation.

Turning attention to compliance within prison, research measuring procedural justice and legitimacy either found that procedural justice exerted an indirect effect on misconduct through legitimacy (Maguire et al., 2017) or procedural justice had a direct relationship with misconduct while legitimacy was not significant (Reisig & Mesko, 2009). The divergent findings may be a function of methods and study location.

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[2] Although Reisig and Mesko (2009) did not identify a measure of "cooperation," their social distance scale comprised items that could indicate concepts of normative alignment (subconstruct of legitimacy), cooperation, and support.

Maguire et al.'s (2017) compliance scale was operationalized as self-reported institutional rule-breaking (e.g., disobeying orders, noise, fighting, curfew, stealing, gambling), which may exclude more serious offending and misconduct, and the sample consisted entirely of low-security offenders in a Chicago work release center. Conversely, Reisig and Mesko (2009) measured self-reported and official misconduct including serious offenses (e.g., actual and threatened violence against inmates, theft, damage to property, refusal to obey orders, possession of contraband) with a sample of high-security offenders in a maximum-security Slovene prison.

Significant relationships between compliance in prison and procedural justice were reported in correctional research using psychometric scales of procedural justice, but these studies did not measure legitimacy (Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Tatar et al., 2012). Studies using proxy measures of procedural justice also find significant associations with compliance in prison (Bierie, 2013; Klahm IV et al., 2017). Analyzing federal inmate grievance records from 2000 to 2007, Bierie (2013) concluded that prison violence was predicted by procedural injustice measured as late responses to grievance requests and grievance rejections (i.e., favorability of outcome). Although this study did not measure individual perceptions of procedural justice or indicators of legitimacy, the findings still provide partial support for the process-based model of regulation in grievance procedures, which are means for prisoners to voice their concerns. Another study examining police use of force and misconduct in prison found that prisoners who were arrested by force without resistance were more likely to break rules in prison compared to those arrested without force and those arrested with force who resisted (Klahm IV et al., 2017). Prisoners who were arrested by force without resisting

might view their arrest as unfair or procedurally unjust, then influencing their legitimacy perceptions and behavior. This study did not control for individual propensity to commit crime, which could be a stronger predictor of misconduct.

Focusing on post-release non-compliance operationalized as reconviction, studies show that offenders' perceptions of legitimacy were not associated with reconviction at 12 months (McCarthy & Brunton-Smith, 2017) and 18 months (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016) after release. Increased procedural justice in pretrial detention centers was associated with lower reconviction 18 months after release, however (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016). Both of these studies were conducted in other countries; thus, it is undetermined how prisoners' perceptions of procedural justice and legitimacy may affect post-release desistence in the United States. It is reasonable to expect differential effects in the United States as one study reported that perceptions of procedural justice and legitimacy of police varied greatly among European countries (Hough, Bradford, Jackson, & Roberts, 2013). Although return to prison is a more common measure of recidivism in prisoner reentry research (Durose et al., 2014), it is unclear if the results reported here would be replicated if compliance was measured as re-arrest.

The findings from this body of research must be interpreted with caution. Single-source bias limits the majority of prior correctional studies of procedural justice and legitimacy. Prior research measured compliance with official data (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Bierie, 2013; McCarthy & Brunton-Smith, 2017), self-reported data (Klahm IV et al., 2017; Maguire et al., 2017; Tatar et al., 2012), or both self-reported and official data (Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015;

Reisig & Mesko, 2009). The studies with both official and self-reported measures were conducted in the Netherlands and Slovenia. While insightful, it is important to study similar data sources in different cultural and legal settings, such as the United States. With self-reported and official data on Texas prisoners, the current dissertation overcomes limitations of single source bias exhibited in prior studies and explores generalizability of findings to the United States.

Although institutional corrections studies treat procedural justice and legitimacy as unidimensional scales, there is considerable variation in how procedural justice and legitimacy are operationalized. The procedural justice scales in these studies include measures for *voice* (Beijersbergen et al., 2014; Brunton-Smith & McCarthy, 2016; Henderson et al., 2010; Maguire et al., 2017; Reisig & Mesko, 2009; Tatar et al., 2012),[3] *neutrality* (Baker et al., 2014; Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Brunton-Smith & McCarthy, 2016; Henderson et al., 2010; Maguire et al., 2017; Reisig & Mesko, 2009; Tatar et al., 2012), *respect* (Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Brunton-Smith & McCarthy, 2016; Henderson et al., 2010; Maguire et al., 2017; Reisig & Mesko, 2009; Tatar et al., 2012), and *motive-based trust* (Tatar et al., 2012). Only one study had a procedural justice scale that comprised items for all four procedural justice subconstructs, but the scale only measured courts (i.e., excluding correctional officers or police) and measures of effectiveness were incorporated in the scale (Tatar et al., 2012). Procedural justice scales constructed in correctional studies

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[3] Baker et al. (2014) treat voice (i.e., "Did you get a chance to describe your problem before police made decisions about how to handle it?") as an independent construct, not as part of procedural justice.

included offenders' perceptions of the procedural justice of police (Baker et al., 2014), courts (Baker et al., 2014; Tatar et al., 2012), or correctional staff and facilities (Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Brunton-Smith & McCarthy, 2016; Henderson et al., 2010; Reisig et al., 2007). No study measured offenders' perceptions of procedural justice of both prison authorities and police. Two studies did not employ procedural justice scales, but items that may be considered as procedural justice indicators were included in their legitimacy index (Franke et al., 2010; Piquero et al., 2005), further elucidating the problems with discriminant validity seen in research testing the process-based model of regulation.

Legitimacy scales in correctional studies typically measure the obligation to obey subscale (Baker et al., 2014; Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Maguire et al., 2017; Piquero et al., 2005; Reisig & Mesko, 2009) or the trust subscale (Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Brunton-Smith & McCarthy, 2016; Franke et al., 2010; Piquero et al., 2005). No correctional study has constructed and tested the legitimacy subscale of normative alignment.[4] The legitimacy scales in correctional research measured offenders' perceptions of the legitimacy of police and courts (Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Franke et al., 2010; Piquero et al., 2005), correctional staff or prison rules (Brunton-Smith & McCarthy, 2016; Maguire et al., 2017; Reisig & Mesko, 2009), or law (Baker & Gau, 2017; Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015). Some studies included effectiveness in their legitimacy scales (Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Brunton-Smith

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[4] Reisig and Mesko (2009) employed a social distance scale, which included an item (i.e., "I have more in common with the prison staff than I do with most of the inmates") that arguably measures normative alignment, but this distinction was not examined.

& McCarthy, 2016; Franke et al., 2010), whereas one study utilized an independent scale measuring institutional effectiveness (Maguire et al., 2017). One study had a legal cynicism scale (Piquero et al., 2005), but another included cynicism items in a legitimacy scale (Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015). Brunton-Smith and McCarthy's (2016) legitimacy index contained items that could indicate procedural justice (e.g., "I am being looked after with humanity here"). Potentially overlapping constructs in procedural justice and legitimacy scales could produce artificial relationships, making any reported connections between the scales less reliable (Reisig et al., 2007).

The studies reviewed here paint an incomplete picture of the viability of the process-based model of regulation in correctional settings. There was disagreement with the overall conceptualization, causal process, and dimensionality of key constructs in the model. The number of items in procedural justice and legitimacy scales varied among studies with correctional samples. Procedural justice scales had anywhere from 4 to 15 items and legitimacy scales had 3 to 12 items. All but one study demonstrated a meaningful relationship between procedural justice and legitimacy. Studies discovered that procedural justice had a direct effect on cooperation, but legitimacy was not associated with cooperation. The same conclusion may be true for post-release compliance, but only one study had measures of both procedural justice and legitimacy and this study was conducted in the Netherlands. Based on findings from correctional research, procedural justice either directly affects compliance in prison or is mediated by legitimacy. The disparate and inconclusive nature of the literature leaves correctional practitioners and future researchers without guidance.

The Current Study

Previous limitations are addressed in this dissertation to advance our understanding of the process-based model of regulation during a significant transition period from prison to the community. The following three main research questions guide this study:

(1) What are the empirical relationships between perceived legitimacy and potentially overlapping constructs (e.g., procedural justice, effectiveness of authorities) among a sample of prisoners?

Included in this dissertation are measures of subconstructs within procedural justice (i.e., voice, neutrality, respect, motive-based trust) and legitimacy (i.e., obligation to obey, trust, normative alignment). Internal consistency and discriminant validity of procedural justice and legitimacy scales are assessed with exploratory and confirmatory factor analysis using principal factor analyses and structural equation modeling. Independent effects and mediators of procedural justice and legitimacy are examined with multivariate regressions and structural equation models. The use of structural equation modeling to test the process-based model of regulation conforms with previous research (Baker et al., 2014, 2015; Baker & Gau, 2017; Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Maguire et al., 2017).

From these analyses, general perceptions of the procedural justice of police and correctional officers, as well as legitimacy of the law, police, and correctional officers are assessed. These comprehensive data allow for investigation into previously unexamined relationships. Do perceptions of police influence perceptions of correctional officers or do offenders have a general impression about criminal justice system legitimacy? It is

possible that individuals develop stable beliefs or heuristics of criminal justice system legitimacy (Piquero et al., 2005; Tyler, 1989). Alternatively, Tyler (2006) recognized that "[i]n different situations people evaluate the fairness of procedures against different criteria of procedural justice" (p. 164). Indeed, the causal mechanisms laid out in the process-based model of regulation may fluctuate depending on the authority of focus (Baker et al., 2014; Leventhal, 1980; Tyler, 1988).

It is reasonable to expect that people who are familiar with the criminal justice system would be in a better position to distinguish opinions of different criminal justice system actors. Prisoners likely express different outlooks about the criminal justice system than other citizens, especially citizens who do not have experience with the system (Maguire et al., 2017; Tyler, 2006). This dissertation examines a sample of 802 adult offenders who arguably had more interactions with correctional officers and police than the average citizen. Prisoners' frequent, intense, and recent interactions with legal authorities can better inform impressions of procedural justice and legitimacy (Henderson et al., 2010; Johnson et al., 2014). A large sample size also allows for more model complexity and confidence in findings.

Most correctional studies measuring procedural justice and legitimacy with psychometric scales found differences in perceptions of procedural justice and/or legitimacy based on race and ethnicity (Baker et al., 2014; Baker & Gau, 2017; Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Brunton-Smith & McCarthy, 2016; Maguire et al., 2017; Piquero et al., 2005; Tatar et al., 2012), but one study reported a null relationship (Franke et al., 2010). Some research used a binary measure of race (Baker & Gau, 2017; Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015;

Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Franke et al., 2010; Maguire et al., 2017), others had multiple categories for race and ethnicity (Baker et al., 2014; Brunton-Smith & McCarthy, 2016; Piquero et al., 2005; Tatar et al., 2012), and some had no measure of race or ethnicity (Otto & Dalbert, 2005; Reisig & Mesko, 2009). Although prior research testing the process-based model of regulation in correctional settings incorporates indicators of race and ethnicity, this dissertation measures race, ethnicity, and color of skin. Racial categories and skin color may intersect, but measures of skin tone can produce unique insight into potential differences in how criminal justice officials treat offenders (See e.g., Blair, Judd, & Chapleau, 2004; Eberhardt, Davies, Purdie-Vaughns, & Johnson, 2006; Hannon & DeFina, 2014). Disproportionate or unfair treatment based on race or skin color could contribute to an awareness of discrimination and procedural injustice, which could induce negative views and behaviors within the correctional institution and post-release (Jackson et al., 2010; Rocque, 2011; Sunshine & Tyler, 2003; Tyler, 2001, 2010).

Research examining racial differences in prison misconduct produce mixed results with some studies revealing that compared to White prisoners, racial minorities are cited more (e.g., Berg & DeLisi, 2006; Drury & DeLisi, 2011; Gaes, Wallace, Gilman, Klein-Saffran, & Suppa, 2002) or race differences in misconduct are mixed or not significant (e.g., Camp, Gaes, Langan, & Saylor, 2003; Griffin & Hepburn, 2006; Harer & Steffensmeier, 1996; Steiner & Wooldredge, 2008, 2015). A systematic review of prison misconduct studies found that race was not a statistically significant predictor in the majority of studies (Steiner, Butler, & Ellison, 2014). Could the contradictory findings in this research be attributed to measurement? In other words, could skin tone

produce different findings in racially disparate treatment compared to standard racial categories?

(2) Is perceived legitimacy of legal authorities and the law predictive of prisoner cooperation or engagement?

This dissertation is unique in that the data measure all three outcomes identified in the process-based model of regulation, allowing for a thorough analysis of key tenets. The data include this full suite of outcome measures: compliance in prison and post-release, cooperation in providing information to correctional officers, cooperation as acceptance of state power, cooperation as general support for prison staff, pre-incarceration community engagement, and in-prison engagement. Prior correctional research explored compliance and cooperation (Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Bierie, 2013; Klahm IV et al., 2017; Maguire et al., 2017; McCarthy & Brunton-Smith, 2017; Reisig & Mesko, 2009; Tatar et al., 2012), but the research to date does not adequately examine relationships among prisoners' perceptions of procedural justice, legitimacy, and the outcome of engagement. This is a notable omission because engagement is theoretically relevant, but not empirically established in correctional studies. Can perceptions of procedural justice and legitimacy in prisons motivate prisoners to be more engaged and productive in confinement? Correlations, multivariate analyses, and structural equation modeling are employed to determine the effect of legitimacy on cooperation and engagement outcomes and examine the empirical pathways of the process-based model of regulation.

(3) Is perceived legitimacy of legal authorities and the law predictive of misconduct in prison and recidivism (i.e., rearrest) among prisoners reentering the community?

In this dissertation, generalized structural equation models are estimated to examine associative pathways from legitimacy measures to self-reported prison misconduct outcomes. Logistic regression and multinomial logistic regressions are used to evaluate rearrest in the community following reentry while considering multiple predictors from interview responses and official records, specifically perceptions of procedural justice and associated factors. The recidivism model controls for community exposure time.

CHAPTER III

Methods

The methods employed in this dissertation are detailed in this chapter, including data collection procedures, sample summary statistics, and measures.

Data

To analyze the dissertation's research questions, this study used data from wave one of the LoneStar Project, a National Institute of Justice funded, longitudinal study of gangs and reentry. Baseline structured interviews were conducted from April to December 2016. Interviewers were Sam Houston State University graduate and undergraduate students. Data were entered on network-disabled laptops equipped with survey software. Interviews took place at two male correctional facilities in Huntsville, Texas: the Huntsville Unit release center and the Estelle Unit administrative segregation wing. Interviewers read consent forms to sampled prisoners. The consent form indicated that participation was voluntary, and responses would be confidential, but not anonymous. All efforts were made to conduct interviews without prison staff present; however, prison staff frequently walked by interview areas and sometimes sat within earshot when the participant was flagged as a higher security risk.[5]

In addition to self-report data collected via face-to-face interviews in prison, two agencies (i.e., Texas Department of Criminal Justice and Texas Department of Public Safety) provided official record data. These data include prior arrests and incarcerations, among other valuable information.

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[5] See Mitchell et al. (2018) for detailed documentation of prison interviewing procedures.

Sample

Data were collected from 802 adult males imprisoned at two prisons located in

Huntsville, Texas within one week before their release. Participants were selected using

a disproportionate stratified random sampling technique. This dissertation stems from a

larger project in which gangs were the primary focus. As such, prisoners identified as

gang members were oversampled to allow for meaningful comparisons between gang and

non-gang groups.[6] Summary statistics for the sample are presented in Table 2.

The average age was about 39 and ranged from 18 to 73; thus, all participants

were adults at the time of the interview. The average age for the sample was the same as

the average age of all individuals imprisoned in Texas prisons during the study period

(Texas Department of Criminal Justice, 2016). Color of skin measures the interviewers'

self-reported determination of the respondents' skin tone (Massey & Martin, 2003).

Spanning from 0 to 8, lower numbers represent lighter skin tone, whereas higher numbers

indicate darker skin tone. On average, interviewers observed respondents' skin tone to be

closer to the lighter end of the spectrum. The sample self-reported mostly as Latino

(39.9%), Black (28.8%), or White (27%), with fewer as Native American (2.4%) or Other

race (2%). The distribution of race/ethnicity observed in this sample was slightly

different from the 2016 estimates of the Texas prisoner population (Latino/a [33.9%],

Black [34.0%], White [31.5%], Other [0.5%]; Texas Department of Criminal Justice,

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[6] To adjust for design effects, sampling weights based on the reciprocal of the sampling
fraction were calculated as follows: gang weight = 1/(45%[sample]/9%[population]) and
non-gang weight = 1/(55%[sample]/(91%[population]). These weights are used in all
subsequent analyses unless otherwise noted. "When weights are not used, the results can
only be generalized to the sample…because more weight is provided in the analyses to
the oversampled groups, thus distorting the true population" (Hahs-Vaughn & Lomax,
2006, p. 184).

2016) and the national male prisoner population (Latino [21.1%)], Black [34.9%], White [30.6%], Native American [1.3%], and Other [12.1%]; Carson, 2018). More than half of the participants were never married, reporting their marital status as single (54.56%), whereas others were married (23.85%), divorced or widowed (14.23%), or separated (7.37%) at the time of the interview.

Table 2

Descriptive Statistics for Sample of Male Prisoners (n = 802)

	Unweighted				Weighted				
	N	%	Mean	SD	%	Mean	SD	Min.	Max.
Age	802		39.05	11.22		40.22	12.10	18.50	73.26
Color of skin	796		2.74	1.78		2.69	1.87	0	8
Race/Ethnicity									
Latino	319	39.88			32.81				
Black	230	28.75			29.20				
White	216	27.00			33.07				
Native American	19	2.38			2.68				
Other	16	2.00			2.24				
Marital status									
Single	437	54.56			53.63				
Married	191	23.85			22.38				
Divorced/widowed	114	14.23			16.61				
Separated	59	7.37			7.38				
Education pre-prison									
8th grade or less	117	14.61			11.71				
9th to 11th grade	359	44.82			41.42				
High school	207	25.84			27.82				
College	118	14.73			19.04				
Employed pre-prison									
No	232	32.27			30.82				
Yes	487	67.73			69.18				
Employed in-prison									
No	234	29.21			26.10				
Yes	567	70.79			73.90				
Custody level									
General pop.	656	81.80			80.02				
Restrict./Ad. Seg.	54	6.73			9.03				
Trustee	37	4.61			3.32				
Other	55	6.86			7.63				

		Unweighted			Weighted				
	N	%	Mean	SD	%	Mean	SD	Min.	Max.
Gang									
No	434	54.11			89.51				
Yes	368	45.89			10.49				
Criminal history									
Prior arrests	802		9.77	8.51		8.80	7.99	1	129
Age first arrest	799		19.19	6.76		20.45	7.85	10	65
Offense of record									
Violent	317	39.53			39.43				
Property	158	19.70			18.90				
Drug	135	16.83			14.87				
Other	192	23.94			26.80				
Time served (years)	802		4.91	5.64		4.42	5.39	0.04	34.98
Post-release arrest									
No	623	77.68			81.92				
Yes	179	22.32			18.08				

Most of the sample reported completing some high school (44.82%) or graduating high school (25.84%). Fewer had an eighth grade or less education (14.61%) or had attended college (14.73%). The majority of respondents were employed at some point within the six months before their incarceration (67.73%) and most had a job in prison within six months prior to the interview (70.79%).

The majority of individuals in the sample were classified as general population (81.80%). Fewer respondents were classified as administrative segregation or restrictive custody (6.73%). Prisoners housed in administrative segregation and high security are not allowed to freely associate with other prisoners (i.e., in housing or work assignments) and are restricted in movement and privileges (e.g., commissary purchases, recreation, and visitation). Prisoners classified as trustees can live outside security fences in dormitory-style housing and work outside security fences periodically with unarmed supervision (Texas Department of Criminal Justice, 2017b). A small portion of the sample was classified as trustees (4.61%).

Slightly less than half (45.89%) of respondents were identified as gang-involved by the Texas Department of Criminal Justice (TDCJ). Gang involvement included current, former, and suspected gang status determined by TDCJ investigators. Studies estimate the prevalence of gang membership to be around 20% in correctional facilities (e.g., Gaston & Huebner, 2015; Winterdyk & Ruddell, 2010). As for criminal history indicators, participants had an average of 10 arrests on record and the mean age of first arrest was about 19 years old. A plurality of the sample was imprisoned for a violent offense of record (39.5%). The remaining people in the sample were imprisoned for property (19.7%), drug (16.8%), or other offenses (23.9%). This distribution is similar to estimates observed in the entire Texas prisoner population (violent [60.1%], property [11.8%], drug [14.0%], other [14.1%]; Texas Department of Criminal Justice, 2016) and the national male prisoner population (violent [55.9%], property [17.3%], drug [14.4%], other [12.4%]; Carson, 2018). The average time served for the sample was five years, ranging from 16 days to 35 years. Most study participants were not arrested within nine to eighteen months after returning to the community (77.68%).

Survey Instrument and Measures

The survey instrument consisted of 1,190 items measuring several domains. The instrument contained both closed and open-ended questions. The survey was carefully planned before implementation. Sections encapsulating legitimacy and procedural justice items proceeded as follows: legitimacy of the law (9 items), police legitimacy (12 items), police procedural justice (7 items), personal experience with police (3 items), correctional officer legitimacy (12 items), cynicism of prison (3 items), correctional officer procedural justice (7 items), and personal experience with correctional officers (3 items). Procedural

justice and legitimacy items were grouped according to the entity of focus (i.e., law, police, or correctional officers) to reduce the risk of respondents confounding their views of these separate entities. The procedural justice and legitimacy section first asked respondents to report their general impressions of the law. Next, the police and correctional officer question sets also began with items measuring general impressions and followed with questions about personal experiences with officers. The questions were organized in this way to reduce potential reporting bias. If the section alternatively began with questions about personal experiences with police or correctional officers before general opinions, then respondents' general impressions could be influenced by their recollection of the personal experience.

All of the measures utilized in this study match items used in previous research (Gau, 2011; Kirk & Papachristos, 2011; Reisig & Mesko, 2009; Tankebe, 2013; Tyler & Jackson, 2014) verbatim or were adapted to fit the current study objectives and population. The measures subsequently discussed in this section are categorized based on the traditional process-based model of regulation, but Chapter IV presents the results of factor analyses and structural equation modeling examining dimensionality of these latent constructs.

Outcome measures. Three outcomes identified in the process-based model of regulation serve as dependent variables: compliance, cooperation, and engagement. The following text details each outcome.

Compliance. This dependent variable includes self-reported misconduct in prison and official measures of post-release arrest. Descriptive statistics for the compliance items are presented in Table 3.

Table 3

Descriptive Statistics for Compliance Indicators, Unweighted

	N	%
Non-violent prison misconduct		
No	373	46.51
Yes	429	53.49
Violent prison misconduct		
No	603	75.19
Yes	199	24.81
Post-release arrest		
No	623	77.68
Yes	179	22.32
Rearrest offense		
Violent	30	16.76
Property	39	21.79
Drug	49	27.37
Other	61	34.08

The Texas Department of Public Safety (DPS) provided official arrest data
through September 29, 2017, representing a range of community exposure time from 9 to
18 months. Self-reported misconduct data were collected in wave one interviews and
included 17 items of serious and minor rule infractions in prison: theft, theft with a
weapon, trespassing, forgery, fraud, destruction of property, carrying weapons for
protection, assault against correctional officer with a weapon, assault against correctional
officer without a weapon, assault against inmate with a weapon, assault against inmate
without a weapon, threatened violence, sexual assault, possession of obscene materials,
paying for sex, illicit sales, and refusing to obey prison staff orders.[7] Participants were

[7] Measures of substance use misconduct were not approved during initial agency reviews
of the survey instrument. Substance use variables are also absent from prior correctional
studies measuring prison misconduct, procedural justice, and legitimacy (Maguire, Atkin-
Plunk, & Wells, 2017; Reisig & Mesko, 2009). This is a limitation that future research
should address because substance use misconduct may demonstrate unique relationships

asked if they had engaged in the offending behavior during their current incarceration. If an affirmative response was given, then participants were asked how many times they engaged in that offending behavior in the last six months during their incarceration. Two dummy variables were coded to represent non-violent and violent prison misconduct reported within six months before the respondent's prison release date.

Cooperation. Three aspects of cooperation are captured in the data: willingness to provide information, violence/non-acceptance of state power, and general support of prison staff. Descriptive statistics for the cooperation scales and items are presented in Table 4, which is followed by an explanation of the latent constructs that the items are measuring. The item descriptions are shortened in the table; see the Appendix for phrasing of items as delivered in the survey.

Table 4

Rotated Factor Loadings and Descriptive Statistics for Cooperation Scales

Scales and items	λ	α	Mean	SD
Willingness to provide information – intentional		0.79	1.34	0.69
Do not leak information to a correctional officer about an inmate (R)	0.58			
Do your time, never let staff know anything is getting you down (R)	0.42			
Never talk to staff about personal problems (R)	0.45			
Regularly share thoughts/concerns with prison staff	0.48			
Sometimes telling prison staff what another person is up to is better than fighting	0.76			
Inform prison staff if people are doing things out of line	0.78			

(continued)

with predictor variables that are different from the types of misconduct reported here (see e.g., Camp et al., 2003).

Scales and items	λ	α	Mean	SD
Cooperate with prison staff if it will prevent another inmate getting hurt	0.66			
Willingness to provide information – actual				
During this incarceration, you provided information to authorities [a]			0.05	0.23
Violence/non-acceptance of state power		0.76	1.58	0.86
Use physical force/aggression to teach others not to disrespect you	0.64			
Use violence to get even	0.63			
Participate in a public protest even if it might turn violent	0.51			
Attack police/security forces if you saw them beating members of your group	0.56			
Retaliate against people who had attacked your group, even if not sure they were guilty	0.42			
It is more important to follow the rules that gangs set than the rules of the prison staff	0.64			
It is more important to follow the rules that prisoners set for themselves than the rules of the prison staff	0.58			
General support of prison staff		0.58	1.59	0.82
It is important to help prison staff when they need it	0.66			
You look for ways to help prison staff	0.68			
Likelihood inmates would do something if someone is disrespecting a correctional officer [b]	0.31			

Note. λ = factor loadings; (R) = reverse scored. Item response options were strongly disagree = 0, disagree = 1, neutral = 2, agree = 3, strongly agree = 4.
[a] Item response options were no = 0, yes = 1. [b] Item response options were very unlikely = 0, unlikely = 1, neutral = 2, likely = 3, very likely = 4.

Willingness to provide information. Seven statements measured participants'

agreement with providing information to authorities. The items identify general

disposition to provide information to prison staff about personal problems or concerns

about other inmates and, more specifically, willingness to provide information to prevent

violence or victimization. These items are aggregated into a mean summative scale ranging from 0 to 4, where higher values represent greater willingness to provide information to prison authorities. The scale reliability coefficient is excellent ($\alpha = 0.79$), and the average interitem covariance (0.39) is within the acceptable range of 0.20 to 0.40, indicating the items are homogenous, but not isomorphic (Piedmont, 2014). In addition to the willingness to provide information scale, one item asked whether the respondent provided information to authorities during their incarceration. This standalone variable reflects actual (i.e., instead of intentional) cooperation in providing information.

Violence/non-acceptance of state power. Seven items measure acceptance of violence as a proxy for non-acceptance of state power. This latent construct denotes agreement with exercising violence for respect, revenge, retaliation, or protest, as well as repudiation of prison authority. Three of the seven items were skipped if respondents did not identify an affiliation that was important to them (i.e., country, religion, racial or ethnic group, or some other political group); however, the majority of the sample ($n = 680$, 84.8%) provided answers to these questions. Response categories for these three questions were on a 7-point scale of agreement, which was collapsed into a 5-point scale of agreement during data cleaning because few people responded with moderate or slight agreement or disagreement. The remaining four questions were presented to the entire sample. Violence/non-acceptance of state power is calculated as a mean summative scale ranging from 0 to 4, where higher scores represent greater disposition toward violence and repudiation of prison authority. The scale reliability coefficient was satisfactory ($\alpha = 0.76$), but the average interitem covariance (0.49) was slightly above the acceptable range

of 0.20 to 0.40, indicating the items may not be capturing the full extent of the construct (Piedmont, 2014).

　　　General support. Three items capture an inmate's willingness to help prison staff with non-specific examples. These items were combined in a mean summative score ranging from 0 to 4, where higher values indicate more support for prison staff. The scale reliability coefficient was satisfactory ($\alpha = 0.58$), and the average interitem covariance (0.39) was within the acceptable range of 0.20 to 0.40, indicating the items are homogenous, but not isomorphic (Piedmont, 2014).

　　　Engagement. Participants were asked several questions to assess their level of engagement in the community before they were incarcerated and in prison. Descriptive statistics for the engagement indicators are reported in Table 5.

Table 5

Descriptive Statistics for Engagement Indicators, Unweighted

Index and items	Mean	SD
Pre-prison community engagement	**1.89**	**1.64**
Volunteered in any programs in the community	0.33	0.47
Mentored peers/youth/other community members	0.28	0.45
Voted in any political election	0.17	0.37
Church, mosque/temple/other religious group	0.60	0.49
Served in a neighborhood watch or tenant patrol program	0.06	0.24
Ethnic or nationality club in the neighborhood	0.04	0.19
Business or civic group	0.04	0.19
Neighborhood ward/local political group	0.03	0.16
Local sports teams	0.36	0.48
In-prison engagement		
Worked with someone to plan your release	0.40	0.49

Note. Items were measured as $0 =$ no, $1 =$ yes. Pre-incarceration community engagement summative index ranges from $0 – 8$.

Pre-prison engagement is a summative index created from responses to nine items. The summative index ranged from 0 to 8, where higher scores reflect more engagement in the community. In-prison engagement is represented by a single item determining whether the respondent had worked with someone to plan his community reentry.

Procedural justice. Interview items that measured this concept are detailed in the Appendix. The conceptualization of procedural justice included the four aspects identified in the process-based model of regulation (i.e., voice, neutrality, respect, and motive-based trust) and measured respondents' perceptions of police and correctional officers. Psychometric analysis results and implications of these findings for future research are detailed in Chapter IV.

Legitimacy. The items that represented this concept are listed in the Appendix. Legitimacy was conceptualized to include all three elements of the process-based model of regulation: obligation, trust, and normative alignment. This study included multiple measures of obligation to capture three distinct concepts: (1) fear of punishment as a rational calculation,[8] (2) dull compulsion (i.e., obligation without choice), and (3) general sense of duty to obey, the latter of which is traditionally used in the process-based model of regulation. Dull compulsion and fear of punishment are distinct concepts under the umbrella of obligation (Bottoms & Tankebe, 2012) that are relevant to the population of prisoners. It is reasonable to expect that at least some prisoners may be compelled to follow prison rules because they fear punishment from correctional officers (e.g., loss of

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[8] Fear of punishment was measured with a single survey item: "How fearful would you be of punishment if you violated the rules that prison staff set?" (n = 802; mean = 0.60, standard deviation = 0.69, range 0 – 2).

privileges, increased restrictions, disciplinary segregation). Additionally, prisoners may feel that they have no choice but to follow the directives of correctional officers because they are under a higher level of control and supervision than a free citizen. The legitimacy items measured respondents' perceptions of the law, police, and correctional officers. The psychometric analysis results for legitimacy measures are presented in Chapter IV.

Effectiveness. Perceived effectiveness and accuracy of police and correctional officers was measured with four items as presented in the Appendix. Some researchers previously incorporated effectiveness as measures of procedural justice or legitimacy (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Brunton-Smith & McCarthy, 2016; Franke et al., 2010; Piquero et al., 2005; Tatar et al., 2012), whereas others treat effectiveness as an independent variable (Maguire et al., 2017). Psychometric analysis evaluating effectiveness measures are detailed in Chapter IV.

Personal experience with legal authorities. Perceptions of specific experiences with police and correctional officers measured: (1) fairness of treatment, (2) favorability of outcome, and (3) fairness of outcome. These items capture a respondent's individual experiences, whereas the previously described procedural justice and legitimacy measures quantify opinions of the law, police, and correctional officers in general. Respondents were asked to report their ratings of the fairness of treatment, favorability of outcome, and fairness of outcome in their interactions with police before their incarceration. The correctional officer items measured respondents' perceptions of the fairness of treatment by correctional officers during their incarceration and a subset of the sample who had received a write-up or disciplinary report from a correctional officer

during their incarceration (n = 646) were asked to report their ratings of the fairness and

favorability of the outcomes of the write-ups. Descriptive statistics for these items are

reported in Table 6.

Table 6

Descriptive Statistics for Personal Experience with Police and Correctional Officers,

Unweighted

Items	N	Mean	SD
Police before prison			
Fair treatment [a]	801	1.84	0.92
Favorable outcome [b]	802	0.88	0.85
Fair outcome [b]	801	1.47	0.92
Correctional officers during prison			
Fair treatment [a]	801	1.93	0.75
Favorable outcome [b]	646	0.67	0.93
Fair outcome [b]	644	1.23	1.06

Note. [a] Item response options were very unfairly = 0, somewhat unfairly = 1, somewhat fairly = 2, very fairly = 3. [b] Item response options were never = 0, sometimes = 1, most of the time = 2, always = 3.

Low self-control. This scale includes thirteen items identified in the Brief Self-

Control Scale (Tangney, Baumeister, & Boone, 2004), encapsulating the concepts of

impulsivity, self-discipline, and healthy habits. Factor loadings and descriptive statistics

for the low self-control scale are presented in Table 7. The scale measures the mean

score and ranges from 0 to 4, where higher values represent lower levels of self-control.

The scale reliability coefficient was excellent ($\alpha = 0.81$), but the average interitem

covariance (0.41) was slightly above the acceptable range of 0.20 to 0.40, indicating the

items may not be capturing the full extent of the construct (Piedmont, 2014). Prior

research includes low self-control as a mediator among the procedural justice and

legitimacy models (Maguire et al., 2017; Reisig, Wolfe, & Holtfreter, 2011; Wolfe,

2011).

Table 7

Rotated Factor Loadings and Descriptive Statistics for Low Self-Control Scale

Items	λ	α	Mean	SD
		0.81	1.40	0.72
Good at resisting temptation (R)	0.47			
Hard time breaking bad habits	0.54			
Lazy	0.36			
Say inappropriate things	0.43			
Do things that are bad for you if they are fun	0.62			
Refuse things that are bad for you (R)	0.46			
Wish you had more self-discipline	0.39			
Iron self-discipline (R)	0.46			
Pleasure and fun sometimes keeps you from getting work done	0.55			
Trouble concentrating	0.54			
Able to work effectively toward long-term goals (R)	0.46			
Sometimes cannot, even if you know it is wrong	0.62			
Act without thinking through alternatives	0.56			

Note. λ = factor loadings; (R) = reverse scored. Item response options were not like me = 0, a little like me = 1, somewhat like me = 2, more so like me = 3, very much like me = 4.

Anger. Combining four items, anger represents respondents' self-reported feelings of general anger in the past month. Factor loadings and descriptive statistics for the anger scale are presented in Table 8. The scale is a mean score ranging from 0 to 3 where higher values indicate higher levels of anger and irritability. The scale reliability coefficient was adequate ($\alpha = 0.65$), but the average interitem covariance (0.17) was slightly below the acceptable range of 0.20 to 0.40 (Piedmont, 2014). Previous research found anger to be an important mediator among procedural justice and legitimacy models

(Barkworth & Murphy, 2015; Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Maguire et al., 2017; Tatar et al., 2012).

Table 8

Rotated Factor Loadings and Descriptive Statistics for Anger Scale

Items	λ	α	Mean	SD
		0.65	0.82	0.51
Felt calm and peaceful (R)	0.53			
Felt angry or irritable	0.67			
Had urges to beat or hurt someone	0.48			
You feel angry at the people around you quite often [a]	0.51			

Note. λ = factor loadings; (R) = reverse scored. Item response options were none of the time = 0, sometimes = 1, most of the time = 2, all of the time = 3.
[a] Item response options were strongly disagree = 0, disagree = 1, neutral = 2, agree = 3, strongly agree = 4.

Control variables. Descriptive statistics for key control variables are reported in Table 2. Important control variables include demographics (i.e., age, race/ethnicity, marital status, education, employment), custody level, criminal history, offense of record, and time served in TDCJ prison for offense of record. Controlling for criminal history is particularly important because numerous prior contacts with the criminal justice system could influence perceptions of procedural justice and legitimacy.

Analytic Plan

The focus of Chapter IV is on the results from psychometric analyses of procedural justice and legitimacy indicators. Psychometric analyses are used to determine whether the individual items conceptualized to represent procedural justice and legitimacy group together to reflect these latent constructs. A series of exploratory factor analyses are estimated to delineate the main procedural justice and legitimacy factors

from their correlations matrix. This statistical approach assesses shared variance to reduce potential variance inflation (Brown, 2015; Costello & Osborne, 2005). Following each exploratory factor analysis, confirmatory factor analyses with structural equation modeling determine whether the identified set of factors can account for those correlations. This analytic method allows each factor to have its own unique item-response variance while isolating the shared variance of all items (Acock, 2013; Brown, 2015). The purpose of this analysis is to evaluate the convergent and discriminant validity of procedural justice and legitimacy subconstructs among different reference groups (i.e., police, correctional officers, and law), contributing to further refinement of the process-based model of regulation.

Before a causal model can be verified, researchers must agree upon the meaning of "procedural justice" and "legitimacy." Conceptual consensus is needed to inform the development and evaluation of measures and to evaluate research findings (Singleton & Straits, 2010). The results reported in Chapter IV contribute to the salient task of testing the theoretical assumptions of the process-based model of regulation. The results build upon previous literature and support modifications to the theory.

Previous correctional research assessed the performance of global scales combining indicators of the procedural justice or legitimacy of multiple authorities (Baker, 2017; Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Franke et al., 2010; Piquero et al., 2005; Tatar et al., 2012) or collected limited data measuring perceptions of one authority (Baker, 2017; Baker et al., 2015; Baker & Gau, 2017; Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Brunton-Smith & McCarthy, 2016; Henderson et al., 2010; Maguire et al., 2017; McCarthy & Brunton-Smith, 2017; Reisig & Mesko,

2009). The problem with these approaches is that global scales assume that perceptions of the actions and character of distinct authorities are indistinguishable, whereas limited data preclude the researcher from testing whether perceptions are indistinguishable. If people make distinctions among their perceptions of different criminal justice authorities, as opinion polls suggest they do (Hough et al., 2013; Norman, 2016), then global scales would be insufficient, internally inconsistent measures and studies with limited data would only be testing a portion of the theoretical assumptions. Clarifying concepts and reference group variations is important for research and policy. Such elucidation guides research developments in defining, measuring, and evaluating key concepts and apprises policies designed to allocate resources to instilling procedural justice and legitimate authority among criminal justice professionals.

Following the psychometric evaluations presented in Chapter IV, the structural model proposed in the process-based model of regulation is tested and discussed in Chapter V. The results reported in Chapter V contribute to the debate about the empirical pathways of key constructs outlined in the process-based model of regulation to inform future research and policy development. First, a generalized structural equation model (GSEM) and linear regressions are estimated to determine respondent differences in procedural justice and legitimacy indicators. The GSEM is estimated to model effects of 11 variables measuring respondent characteristics as predictors of each subconstruct of procedural justice and legitimacy. GSEMs allow for the inclusion of categorical exogenous variables (e.g., race/ethnicity, marital status, etc.). Separate individual multivariate linear regressions are estimated for each procedural justice and legitimacy

continuous scale outcome. Multivariate linear regressions produce standardized coefficients and estimates of explained variance, which are not produced in GSEMs.

Second, independent effects and mediating relationships among procedural justice predictors and legitimacy outcomes are tested with structural equation models (SEMs) to develop a parsimonious model explaining the structure of associations among these indicators. The purpose of these SEMs is to determine whether relationships between procedural justice and legitimacy are direct (see e.g., Tyler & Jackson, 2014) or if there are mediating effects among legitimacy variables (see e.g., Gau, 2014; Tankebe, 2013). Direct effects from police and correctional officer procedural justice to legitimacy of the law, police, and correctional officers are modeled. Legitimacy measures are tested as predictors of other legitimacy outcomes to test for any potential mediating effects that should be modeled. The data analyzed in this dissertation include a spectrum of legitimacy measures allowing for examination of potential mediating effects. This measurement variation advances previous correctional research with limited measures of legitimacy. Direct and mediating relationships among procedural justice and legitimacy indicators are examined to produce the final structural equation model.

Third, procedural justice and legitimacy measures are modeled with other theoretically-relevant exogenous (i.e., low self-control and personal experiences with police and correctional officers) and endogenous (i.e., dull compulsion and fear of punishment) variables. These variables are added to the final SEM measurement model to rule out spurious relationships and establish the best model fit.

Lastly, structural equation models and multivariate regressions are employed to determine the effects of procedural justice and legitimacy on ten different outcome

measures of cooperation, engagement, and compliance. SEMs or GSEMs are estimated

depending on whether the outcome variable is continuous or categorical. One prior

correctional study examined cooperation (Maguire et al., 2017), and none have explored

engagement. The variety in measures of cooperation and engagement allow for

examination of the effects of procedural justice and legitimacy beyond what has been

observed in past research. Two previous correctional studies examined effects of

procedural justice and legitimacy on misconduct (i.e., non-compliance) (Maguire et al.,

2017; Reisig & Mesko, 2009), one of which was conducted outside of the United States.

Prior studies modeling effects of procedural justice and legitimacy on recidivism after

reentry were also carried out in other countries (Beijersbergen, Dirkzwager, &

Nieuwbeerta, 2016; McCarthy & Brunton-Smith, 2017). In testing the generalizability of

the process-based model of regulation to a correctional population in the United States,

this dissertation work informs this dearth of knowledge.

All statistical analyses are conducted with Stata version 14 (StataCorp, 2015b).

Unless otherwise noted, sampling weights are included in all statistical analyses to

account for the oversampling of gang members, providing results that are closer to what

would be expected in the population of imprisoned men who were scheduled for release

from one Texas prison during the study period.

CHAPTER IV

Psychometric Analysis Results

Procedures used to assess the psychometric properties of procedural justice and legitimacy measures are presented in this chapter. This chapter begins with a review of item responses and data screening. Following this appraisal are the results of the exploratory factor analysis and confirmatory factor analysis using structural equation modeling to examine each subconstruct of procedural justice and legitimacy dimensions.

Item Responses and Data Screening

Descriptive statistics for procedural justice and legitimacy item responses are presented in Table 9 and Table 10. The item descriptions are shortened in the tables; see the Appendix for phrasing of items as delivered in the survey. A set of seven main questions were adapted to measure respondents' perceptions of police and correctional officer procedural justice, totaling 14 procedural justice items. Legitimacy was measured with a total of 35 items. Eleven main statements were adapted to measure respondents' impressions of police and correctional officer legitimacy and ten items gauged views of the legitimacy of the law. Police legitimacy included one additional question and correctional officer legitimacy included two questions in addition to the main statements. The Appendix identifies the items that were reverse coded so that higher scores would represent more favorable views of procedural justice and legitimacy.

Table 9

Descriptive Response Statistics for Procedural Justice Items, Unweighted

	Responses							
	Never		Sometimes		Most of the Time		Always	
Domain/Items	n	%	n	%	n	%	n	%
Procedural Justice – Police Officers								
Give people a chance to tell their story	89	11.10	372	46.38	249	31.05	92	11.47
Treat people fairly	43	5.37	369	46.07	339	42.32	50	6.24
Respect people's rights	68	8.50	350	43.75	322	40.25	60	7.50
Make decisions that are good for community	38	4.74	310	38.65	362	45.14	92	11.47
Clearly explain reasons for actions and decisions	156	19.48	361	45.07	209	26.09	75	9.36
Treat people with dignity and respect	58	7.23	411	51.25	259	32.29	74	9.23
Try to do what is best for people	48	5.99	353	44.01	328	40.90	73	9.10

(continued)

	Responses							
	Never		Sometimes		Most of the Time		Always	
Domain/Items	n	%	n	%	n	%	n	%
Procedural Justice – Correctional Officers								
Give inmates chance to tell their story	154	19.20	438	54.61	143	17.83	67	8.35
Treat inmates fairly	104	12.97	482	60.10	188	23.44	28	3.49
Respect inmate's rights	181	22.57	436	54.36	165	20.57	20	2.49
Make decisions that are good for prison	145	18.08	445	55.49	177	22.07	35	4.36
Clearly explain reasons for actions and decisions	332	41.50	346	43.25	90	11.25	32	4.00
Treat inmates with dignity and respect	156	19.45	491	61.22	131	16.33	24	2.99
Try to do what is best for inmates	136	17.00	452	56.50	179	22.38	33	4.13

Table 10

Descriptive Response Statistics for Legitimacy Items, Unweighted

	Responses							
	Strongly Disagree		Disagree		Agree		Strongly Agree	
Domain/Items	n	%	n	%	n	%	n	%
Legitimacy – Law								
Represents values of people in power	37	4.64	231	28.98	356	44.67	173	21.71
Obeying it benefits community	14	1.75	58	7.23	384	47.88	346	43.14
People in power use it to control people	44	5.49	285	35.54	313	39.03	160	19.95
Usually match your feelings about what is right and just	46	5.75	254	31.75	408	51.00	92	11.50
Sometimes doing the right thing means breaking it.	101	12.63	353	44.13	278	34.75	68	8.50
Protects your interests	31	3.88	180	22.50	484	60.50	105	13.13
Generally consistent with community views	31	3.88	137	17.17	518	64.91	112	14.04
Some are made to be broken.	116	14.48	389	48.56	252	31.46	44	5.49
Represents moral values of people like yourself	25	3.13	208	26.00	495	61.88	72	9.00
Prison rules made to be broken	110	13.73	472	58.93	182	22.72	37	4.62

(continued)

	Responses							
	Strongly Disagree		Disagree		Agree		Strongly Agree	
Domain/Items	n	%	n	%	n	%	n	%
Legitimacy – Police								
You should accept decisions even if wrong	97	12.09	286	35.66	339	42.27	80	9.98
Same sense of right and wrong as you	64	7.98	238	29.68	417	52.00	83	10.35
Do what they tell you even if you do not understand or agree	30	3.75	169	21.10	476	59.43	126	15.73
Generally honest	103	12.86	304	37.95	348	43.45	46	5.74
Almost always behave according to the law	75	9.35	306	38.15	376	46.88	45	5.61
Stand up for values important to you	43	5.39	220	27.57	469	58.77	66	8.27
You should do what they tell you even if you do not like how they treat you	23	2.87	121	15.11	555	69.29	102	12.73
Usually act in ways that match your ideas about right and wrong	49	6.11	298	37.16	415	51.75	40	4.99
Most do their job well	30	3.75	141	17.63	548	68.50	81	10.13
People like you have no choice but to obey their orders	31	3.87	125	15.59	471	58.73	175	21.82
Take bribes	30	3.87	249	32.09	392	50.52	105	13.53
Often arrest people for no good reason	45	5.63	339	42.43	323	40.43	92	11.51

Domain/Items	Strongly Disagree		Disagree		Agree		Strongly Agree	
	n	%	n	%	n	%	n	%
Legitimacy – Correctional Officers								
You should accept decisions even if wrong	111	13.93	245	30.74	352	44.17	89	11.17
Same sense of right and wrong as you	96	12.02	292	36.55	347	43.43	64	8.01
Do what they tell you even if you do not understand	48	6.02	172	21.55	492	61.65	86	10.78
Generally honest	156	19.52	363	45.43	256	32.04	24	3.00
Almost always behave according to rules	133	16.65	353	44.18	274	34.29	39	4.88
Stand up for values important to you	136	17.04	391	49.00	245	30.70	26	3.26
You should do what they tell you even if you do not like how they treat you	47	5.88	149	18.65	507	63.45	96	12.02
Usually act in ways that match your ideas about right and wrong	81	10.11	357	44.57	331	41.32	32	4.00
Most do their job well	64	7.99	252	31.46	440	54.93	45	5.62
People like you have no choice but to obey their orders	26	3.24	99	12.34	478	59.60	199	24.81
Take bribes	25	3.20	213	27.24	393	50.26	151	19.31
Good job preventing misconduct	85	10.60	289	36.03	384	47.88	44	5.49
Maintain order in prison	70	8.73	205	25.56	461	57.48	66	8.23

Header spanning: Responses

Out of 49 total procedural justice and legitimacy items, 47 were missing less than 1% of responses. One item measuring legitimacy, "police/correctional officers take bribes," was missing 3.24% of responses for police and 2.49% of responses for correctional officers. The missing responses were attributed to participants responding that they did not know whether police or correctional officers take bribes. With less than 5% of the values missing, nonresponse is not an issue for procedural justice and legitimacy measures (Hill, 2012).

Preliminary Tests of Procedural Justice and Legitimacy Measures

The 49 procedural justice and legitimacy items were first tested for factorability. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.95 and Bartlett's test of sphericity was statistically significant ($\chi^2 = 17013.43$, $p < 0.001$), meaning the null hypothesis that variables are not intercorrelated is rejected (Comrey & Lee, 1992; Reisig et al., 2007). Next, weighted bivariate correlations between the items were assessed. All Pearson correlation coefficients (r) were consistent with the direction of relationships hypothesized and observed in prior research. There was a moderate statistically significant association between items measuring the concept of dull compulsion (i.e., "People like you have no choice but to obey the orders of police/correctional officers;" $r = 0.45$, $p < 0.05$). This relationship could mean that dull compulsion is a concept outside of legitimacy as a sense of moral obligation to obey authority, instead of representing an individual sense of powerlessness that is not brought about differently depending on the authority of focus (i.e., police vs. correctional officers). The dull compulsion items were also non-trivially associated with other obligation measures: "You should do what police/correctional officers tell you even if you do not understand [or agree with] the

reasons" (police $r = 0.33$, correctional officer $r = 0.37$, $p < 0.05$); "You should do what police/correctional officers tell you even if you do not like how they treat you" (police $r = 0.22$, correctional officer $r = 0.37$, $p < 0.05$). These associations may indicate that dull compulsion is connected with other indicators of duty to obey police or correctional officers. This relationship will be tested in later analyses.

Bivariate correlations also revealed interesting reference group differences in legitimacy items. Perceptions of the legitimacy of the law, specifically normative alignment with the law (i.e., whether laws represent your interests and beliefs), were slightly correlated with views of police legitimacy, namely normative alignment and trust. Yet, the legitimacy of the law items were essentially uncorrelated with correctional officer legitimacy (i.e., Pearson correlation coefficients were all below 0.30). Lastly, there were moderate correlations among police and correctional officer legitimacy corresponding items. These findings could potentially indicate a causal relationship where feelings about the law influence opinions of police legitimacy, which then condition assessments of correctional officer legitimacy. Results presented in Chapter V explore this proposed model further. All correlations among independent variables measuring procedural justice and legitimacy were below 0.70, indicating that collinearity is not an issue (Bachman & Paternoster, 2016; Reisig et al., 2007; Tabachnick & Fidell, 2007).

Dimensionality and Initial Exploratory Factor Analysis

Dimensionality of procedural justice and legitimacy items was assessed with principal factor analysis (PFA). This extraction method was chosen instead of principal components analysis (PCA) because PCA conflates shared and unique variance, which

can inflate variance estimates, whereas PFA only assesses shared variance, reducing potential variance inflation (Costello & Osborne, 2005). Oblique promax rotation is applied with PFA because the factors are correlated (Costello & Osborne, 2005; Kline, 1998). The purpose of this and subsequent exploratory factor analyses is to delineate the main procedural justice and legitimacy factors from their correlations matrix. Following each exploratory factor analysis, confirmatory factor analyses with structural equation modeling determine whether the identified set of factors can account for those correlations.

The initial PFA analyzed all 49 procedural justice and legitimacy items. Several indicators were reviewed to identify the number of unique factors (Costello & Osborne, 2005; Hayton, Allen, & Scarpello, 2004). The eigenvalues and scree plot suggest retaining five factors.[9] Close inspection of the factor loading plot indicates a clear separation of at least three factors: all seven police procedural justice items, six correctional officer procedural justice items, and all legitimacy items. Parallel analysis and factor loading values point to as many as 15 retained dimensions with clear distinctions between police and correctional officer procedural justice and the subconstructs of legitimacy (i.e., obligation to obey, trust, and normative alignment) of the law, police, and correctional officers. Because the theoretical model distinguishes these subconstructs, further PFAs were conducted to parse out these dimensions.

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[9] When evaluating the scree plot, the number of factors to be retained is determined as one less than the factor number at a clear flattening point (Furr, 2011, p. 30).

Procedural Justice of Police: Exploratory Factor Analysis

The initial PFA with all 49 procedural justice and legitimacy items indicated that police procedural justice items were separable from other dimensions and measures; thus, a PFA was conducted with all seven police procedural justice items. The results from the PFA of police procedural justice items are presented in Table 11. Eigenvalues, scree plot, parallel analysis, and factor loadings supported a unidimensional construct. All seven factors loaded onto one dimension. The scale reliability coefficient was excellent ($\alpha = 0.89$), and the average interitem covariance (0.31) was within the acceptable range of 0.20 to 0.40, indicating the items are homogenous, but not isomorphic (Piedmont, 2014). The eigenvalue was 3.83; thus, the latent factor explains 54.69% of the variance in the set of police procedural justice items. The item-test correlations were similar and all items were highly correlated with the overall scale. The item-rest correlations measure correlation between an item and the scale that is formed by the other six items. All seven items were highly correlated with the overall scale, suggesting that each item is measuring the same construct as the others. Removing any of the seven items would cause the alpha to decrease, reducing internal scale reliability.

Table 11

Rotated Factor Loadings and Reliability Estimates for Seven-Item Police Procedural Justice Scale

Items	Factor loading	Uniqueness	Item-test correlation	Item-rest correlation	Avg. interitem covariance	Alpha when removed
PPJ1: Give people a chance to tell their story	0.65	0.58	0.73	0.61	0.32	0.885
PPJ2: Treat people fairly	0.78	0.40	0.80	0.73	0.32	0.872
PPJ3: Respect people's rights	0.81	0.35	0.83	0.75	0.31	0.867
PPJ4: Make decisions that are good for community	0.70	0.50	0.76	0.67	0.32	0.878
PPJ5: Clearly explain reasons for actions and decisions	0.64	0.59	0.73	0.61	0.31	0.887
PPJ6: Treat people with dignity and respect	0.79	0.38	0.82	0.74	0.31	0.869
PPJ7: Try to do what is best for people	0.79	0.37	0.82	0.75	0.31	0.868
Overall scale					0.31	0.891

Procedural Justice of Police: Confirmatory Factor Analysis

According to the Shapiro-Wilk univariate normality test, all but one police procedural justice variables were relatively normally distributed; thus, maximum likelihood estimation was appropriate for this CFA. Robust variance estimation and robust chi-square were required, however, because sample weights must be accounted for in the analysis (Asparouhov, 2005).[10] Sampling weights were employed in the structural equation model (SEM) to avoid inaccurate estimation of standard errors and bias parameters, delivering results that are closer to what you would expect to see in the population (Kaplan & Ferguson, 1999). Accounting for sample weights with robust variance calculation requires a quasi-maximum likelihood estimation, in which standard error estimation is not restricted to assume normality (Acock, 2013).

The SEM was specified so that the covariance of the seven police procedural justice items is fully explained by the single latent variable (i.e., police procedural justice) plus the unique variance of each individual item. There are $\{k(k + 1)\}/2$ elements in the covariance matrix, where k is the number of observed variables in the model. In the police procedural justice model, there were $\{7(7 + 1)\}/2 = 28$ elements. The number of parameters is calculated as loadings + error variances; thus, 7 loadings + 7 error variances = 14 parameters. Subtracting the parameters from the elements results in 14 degrees of freedom. The model for police procedural justice was overidentified, meaning there was enough information to identify parameters and test the model fit (Acock, 2013).

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[10] Sampling weights account for the oversampling of gang members. See Chapter III for further explanation.

Standardized factor loadings and error variances for the final police procedural justice model are depicted in Figure 2 and Table 12; Table 12 also provides unstandardized values. The reference indicator in the SEM was set to the item with the strongest factor loading (i.e., PPJ3: police respect people's rights). Four observations with missing values were excluded, resulting in 798 total observations. The model was assessed for goodness of fit.[11] The standardized root mean squared residual (SRMR) was 0.029, which is within the acceptable cutoff criteria of < 0.08 (Brown, 2015; Hu & Bentler, 1999). The coefficient of determination (CD) was 0.904, suggesting that the model fits the data well, explaining about 90% of the variance.

Figure 2. Confirmatory factor analysis for seven-item police procedural justice scale with standardized values. All loadings are significant at the *p* < 0.001 level. SRMR = 0.029; CD = 0.904; N = 798; *ρ* reliability = 0.89.

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[11] When weighting in SEM, the only appropriate goodness of fit statistics are the standardized root mean squared residual (SRMR) and coefficient of determination (CD) (Brown, 2015; Hu & Bentler, 1999). The SRMR measures the "average discrepancy between the correlations observed in the input matrix and the correlations predicted by the model" (Brown, 2015, p. 70). The CD is the percentage of variance explained by the estimated model.

Table 12

Factor Loadings and Error Variances for Seven-Item Police Procedural Justice Scale

	Unstandardized value	Standardized value
Loadings		
PPJ3: Respect people's rights	1.00 (fixed)	0.82
PPJ1: Give people a chance to tell their story	0.88	0.65
PPJ2: Treat people fairly	0.87	0.78
PPJ4: Make decisions that are good for community	0.85	0.71
PPJ5: Clearly explain reasons for actions and decisions	0.91	0.64
PPJ6: Treat people with dignity and respect	0.99	0.79
PPJ7: Try to do what is best for people	0.99	0.80
Variances		
PPJ3	0.18	0.33
PPJ1	0.39	0.58
PPJ2	0.18	0.40
PPJ4	0.26	0.33
PPJ5	0.44	0.50
PPJ6	0.21	0.59
PPJ7	0.20	0.37
Police Procedural Justice	0.36	1.00 (fixed)

Note. All factor loadings are statistically significant at the $p < 0.001$ level.

In sum, the seven police procedural justice items loaded significantly and strongly on one police procedural justice dimension. All factor loadings were statistically significant and ranged from 0.64 to 0.82, which is well above the minimum requirement of 0.30 (Costello & Osborne, 2005). The data support a unidimensional police procedural justice scale. This finding is consistent with prior studies (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Brunton-Smith & McCarthy, 2016; e.g., Gau, 2011; Henderson et al., 2010; Reisig et al., 2007; Tatar et al., 2012), but contrary to studies treating procedural justice as quality of treatment and quality of decision-making (e.g., Tyler, 1988; Tyler & Jackson, 2014). The final police procedural justice scale was calculated as a mean summated scale. If the seven incorporated items produced unequal factor loadings, then generating a scale from weighted factor scores would be more appropriate. The weighted factor score was predicted as the weighted sum of the items using the scoring coefficient as the weight for each item. The correlation between the summative score and factor score was 0.99, meaning that the loadings are similar. Because the factor loadings did not range greatly (0.64 to 0.82), a summative scale should be acceptable (Acock, 2013).

Procedural Justice of Correctional Officers: Exploratory Factor Analysis

The initial PFA with all 49 procedural justice and legitimacy items indicated that correctional officer procedural justice items were separable from other dimensions and measures; thus, a PFA was conducted with all seven correctional officer procedural justice items. The results from the PFA of correctional officer procedural justice items are presented in Table 13. Eigenvalues, scree plot, parallel analysis, and factor loadings supported a unidimensional construct. All seven factors loaded onto one dimension, but

one item (i.e., CPJ1: correctional officers give inmates a chance to tell their side of the story) was not a perfect fit. Removing CPJ1 would slightly increase scale reliability, but CPJ1 was retained in the scale because this item is the only indicator of the theoretically-relevant concept of voice and the factor loading was well above the minimum required of 0.30 (Costello & Osborne, 2005). The seven-item scale reliability coefficient was excellent ($\alpha = 0.89$) and the average interitem covariance (0.30) was adequate. The eigenvalue was 3.84; thus, the latent factor explains 54.86% of the variance in the set of correctional officer procedural justice items. The item-test correlations were similar and all items were highly correlated with the overall scale. According to the item-rest correlations, all seven items were moderately or highly correlated with the overall scale, meaning that each item is measuring the same latent construct as the others.

Table 13

Rotated Factor Loadings and Reliability Estimates for Seven-Item Correctional Officer Procedural Justice Scale

Items	Factor loading	Uniqueness	Item-test correlation	Item-rest correlation	Avg. interitem covariance	Alpha when removed
CPJ1: Give inmates chance to tell their story	0.56	0.69	0.66	0.53	0.32	0.895
CPJ2: Treat inmates fairly	0.76	0.43	0.80	0.72	0.31	0.871
CPJ3: Respect inmate's rights	0.80	0.37	0.82	0.75	0.30	0.867
CPJ4: Make decisions that are good for prison	0.77	0.40	0.80	0.72	0.30	0.870
CPJ5: Clearly explain reasons for actions and decisions	0.67	0.56	0.74	0.63	0.30	0.883
CPJ6: Treat inmates with dignity and respect	0.80	0.35	0.82	0.75	0.30	0.867
CPJ7: Try to do what is best for inmates	0.80	0.36	0.82	0.75	0.30	0.867
Overall scale					0.30	0.891

Procedural Justice of Correctional Officers: Confirmatory Factor Analysis

The Shapiro-Wilk univariate normality test indicated that all correctional officer procedural justice variables were moderately nonnormally distributed; thus, quasi-maximum likelihood estimation with robust variance calculation was appropriate for this CFA. The SEM was specified so that the covariance of the seven correctional officer procedural justice items is fully explained by a single latent variable (i.e., correctional officer procedural justice) plus the unique variance of each individual item. In the correctional officer procedural justice model, there were $\{7(7 + 1)\}/2 = 28$ elements. Adding the number of loadings and error variances together equals 14 parameters. Subtracting the parameters from the elements results in 14 degrees of freedom. The model for correctional officer procedural justice was overidentified, meaning there was enough information to identify parameters and test the model fit (Acock, 2013).

Standardized factor loadings and error variances for the final model are depicted in Figure 3 and Table 14; Table 14 also provides unstandardized values. The reference indicator in the SEM was set to the item with the strongest factor loading (i.e., CPJ6: correctional officers treat inmates with dignity and respect). Three observations with missing values were excluded, resulting in 799 total observations. The model was assessed for goodness of fit. The standardized root mean squared residual (SRMR) was an acceptable value of 0.025 (Brown, 2015; Hu & Bentler, 1999). The coefficient of determination (CD) was 0.907, suggesting that the model explains about 91% of the variance.
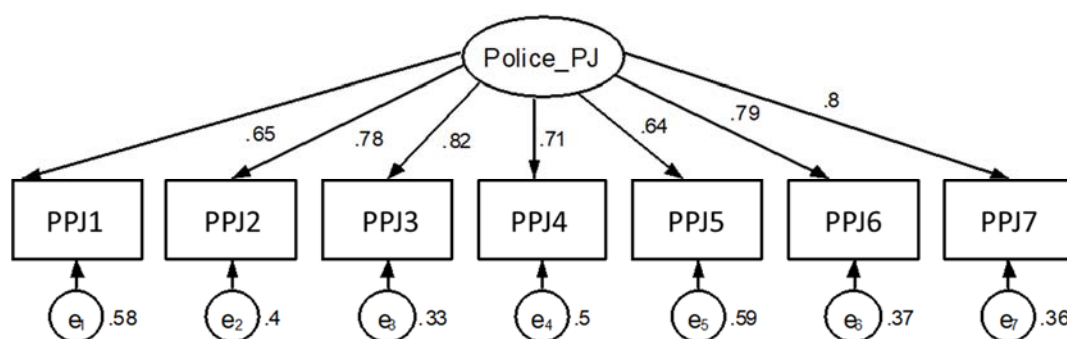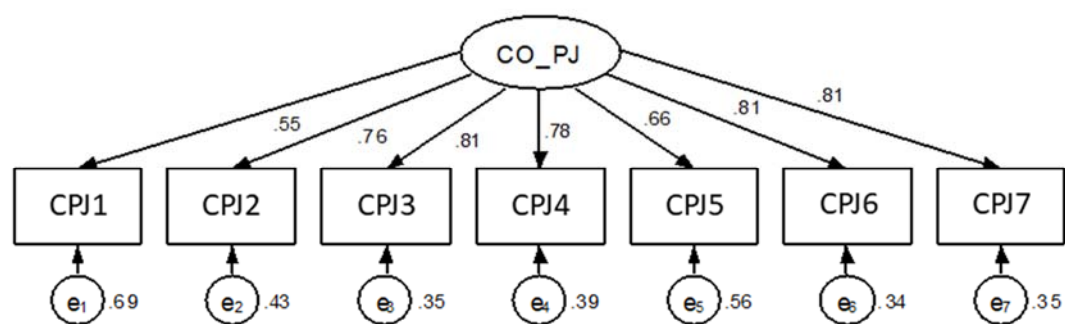
Figure 3. Confirmatory factor analysis for seven-item correctional officer procedural justice scale with standardized values. All loadings are significant at the $p < 0.001$ level. SRMR = 0.025; CD = 0.907; N = 799; ρ reliability = 0.89.

Table 14

Factor Loadings and Error Variances for Seven-Item Correctional Officer Procedural

Justice Scale

	Unstandardized value	Standardized value
Loadings		
CPJ6: Treat inmates with dignity and respect	1.00 (fixed)	0.81
CPJ1: Give inmates chance to tell their story	0.82	0.55
CPJ2: Treat inmates fairly	0.95	0.76
CPJ3: Respect inmate's rights	1.06	0.81
CPJ4: Make decisions that are good for prison	1.05	0.78
CPJ5: Clearly explain reasons for actions and decisions	0.98	0.66
CPJ7: Try to do what is best for inmates	1.07	0.81

(continued)

	Unstandardized value	Standardized value
Variances		
CPJ6	0.16	0.34
CPJ1	0.47	0.69
CPJ2	0.21	0.43
CPJ3	0.19	0.35
CPJ4	0.22	0.39
CPJ5	0.37	0.56
CPJ7	0.19	0.35
CO Procedural Justice	0.31	1.00 (fixed)

Note. All factor loadings are statistically significant at the $p < 0.001$ level.

In sum, the seven correctional officer procedural justice items loaded significantly and strongly on one dimension representing correctional officer procedural justice. All factor loadings were statistically significant and ranged from 0.55 to 0.81, which is well above the minimum requirement of 0.30 (Costello & Osborne, 2005). The data support a unidimensional correctional officer procedural justice scale. This finding is consistent with prior studies (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Brunton-Smith & McCarthy, 2016; Gau, 2011; Henderson et al., 2010; Reisig et al., 2007; Tatar et al., 2012), but contrary to studies treating procedural justice as quality of treatment and quality of decision-making (e.g., Tyler, 1988; Tyler & Jackson, 2014). The final correctional officer procedural justice scale was calculated as a mean summated scale. If the seven incorporated items produced unequal factor loadings, then generating a scale

from weighted factor scores would be more appropriate. The weighted factor score was predicted as the weighted sum of the items using the scoring coefficient as the weight for each item. The correlation between the summative score and factor score was 0.99, meaning that the loadings are similar.

Legitimacy of the Law: Exploratory Factor Analysis

The legitimacy of the law items were assessed separately from the items measuring legitimacy of police and correctional officers because law legitimacy items appeared to not overlap with legitimacy of police or correctional officers in the initial PFA with all 49 items. The results from the PFA of law legitimacy items are presented in Table 15 and Table 16. Eigenvalues, scree plot, parallel analysis, and factor loadings supported a multidimensional construct. Three factors loaded onto an *obligation to the law* dimension ($\alpha = 0.74$), five factors loaded onto a *normative alignment* dimension ($\alpha = 0.70$), and two factors loaded onto a *trust* dimension ($\alpha = 0.58$). The average interitem covariance for the obligation (0.28) and trust (0.27) scales were acceptable (Piedmont, 2014). The average interitem covariance for the normative alignment scale (0.15) was slightly below the recommended range, meaning the items may not be homogenous enough to be representing the same content domain (Piedmont, 2014). The eigenvalue for trust was 0.575, meaning the latent factor explains 28.7% of the variance in the items. With an eigenvalue of 1.515, normative alignment explained 30.3% of the variance in the inclusive items. The eigenvalue for obligation to the law was 1.321, explaining 44.0% of the variance in the set of law legitimacy items. The item-test correlations were similar and all items were highly correlated with their overall scales, suggesting that each item is

measuring the same subconstruct as the others. Removing any of the items from their subconstructs would cause the alpha to decrease, reducing internal scale reliability.[12]

The results of this exploratory factor analysis delineate three subconstructs of law legitimacy. The latent construct of obligation to the law represents prisoners' perceptions about the authority of the law and their obligation to behave in accordance with the law and prison rules. The obligation to the law items were reverse coded to represent obligation. If the items were not reverse scored, then the construct would represent legal cynicism. In other words, higher values represent more obligation to the law, whereas lower values represent more cynicism of the law. Normative alignment measures prisoners' assessments of whether the law substantiates their personal moral beliefs and the concerns of their community. The latent variable of trust signifies prisoners' impressions that the law is not used as a tool of oppression for the powerful to control people.

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[12] Item-test correlations, item-rest correlations, average interitem covariance, and alpha value when item is removed are not available for the trust dimension because it is comprised of only two items.

Table 15

Rotated Factor Loadings for Legitimacy of the Law Items

Items	Pattern coefficients			Structure coefficients		
	1	2	3	1	2	3
lglw5: Sometimes doing right means breaking law	**0.61**	-0.09	0.15	0.64	0.22	0.41
lglw8: Some laws are made to be broken	**0.69**	0.06	0.02	0.73	0.38	0.35
lglw10: Prison rules are made to be broken	**0.67**	0.00	-0.06	0.64	0.28	0.24
lglw2: Obeying laws benefits community	0.16	**0.44**	-0.07	0.33	0.50	0.10
lglw4: Match your feelings of right and just	0.05	**0.49**	-0.14	0.21	0.48	-0.01
lglw6: Protects your interests	-0.05	**0.61**	0.15	0.30	0.62	0.27
lglw7: Consistent with community views	-0.10	**0.61**	0.03	0.18	0.57	0.11
lglw9: Represents your moral values	0.08	**0.55**	0.04	0.35	0.60	0.19
lglw1: Represents values of people in power	0.05	-0.02	**0.54**	0.28	0.12	0.55
lglw3: People in power use it to control people	0.07	0.16	**0.51**	0.37	0.30	0.57

Note. Pattern coefficient loadings above 0.30 are bolded.

Table 16

Reliability Estimates for Legitimacy of the Law Scales

Scales and items	Uniqueness	Item-test correlation	Item-rest correlation	Avg. interitem covariance	Alpha when removed
Obligation scale (3 items)				0.28	0.741
lglw5: Sometimes doing right means breaking law	0.57	0.81	0.54	0.29	0.695
lglw8: Some laws are made to be broken	0.46	0.85	0.63	0.23	0.581
lglw10: Prison rules are made to be broken	0.59	0.78	0.54	0.32	0.686
Normative alignment scale (5 items)				0.15	0.699
lglw2: Obeying laws benefits community	0.73	0.63	0.40	0.16	0.671
lglw4: Match your feelings of right and just	0.76	0.65	0.40	0.15	0.677
lglw6: Protects your interests	0.60	0.72	0.51	0.14	0.626
lglw7: Consistent with community views	0.67	0.68	0.47	0.15	0.644
lglw9: Represents your moral values	0.64	0.70	0.50	0.14	0.632
Trust scale (2 items)				0.27	0.580
lglw1: Represents values of people in power	0.69				
lglw3: People in power use it to control people	0.64				

Legitimacy of the Law: Confirmatory Factor Analysis

The Shapiro-Wilk univariate normality test indicated that some law legitimacy variables were normally distributed while others were non-normally distributed; thus, quasi-maximum likelihood estimation was appropriate for this CFA. Two models were estimated: one for obligation to the law and one for normative alignment with the law.[13] The SEMs were specified so that the covariance of the legal legitimacy items is fully explained by their corresponding latent variables (i.e., obligation to the law or normative alignment with the law) plus the unique variance of each individual item. In the obligation model, there were $\{3(3 + 1)\}/2 = 6$ elements.[14] The number of parameters is calculated as loadings + error variances; thus, 3 loadings + 3 error variances = 6 parameters. Subtracting the parameters from the elements results in 0 degrees of freedom. The model for obligation to the law was just identified, meaning there was enough information to identify parameters, but not enough information to test the model fit (Acock, 2013). In the normative alignment model, there were 15 elements, 10 parameters, and 5 degrees of freedom. The model for normative alignment with the law was overidentified, meaning there was enough information to identify parameters and test the model fit (Acock, 2013).

Standardized factor loadings and error variances for the final legal obligation model are depicted in Figure 4 and Table 17; Table 17 also provides unstandardized values. The reference indicator in the SEM was set to the item with the strongest factor

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[13] The trust dimension cannot be modeled with only two items because the model would be unidentified.

[14] Calculated as $\{k(k + 1)\}/2$, where k is the number of observed variables in the model (Acock, 2013).

loading (i.e., lglw8: some laws are made to be broken). Four observations with missing

values were excluded, resulting in 798 total observations. Goodness of fit statistics are

not provided for this just identified model.
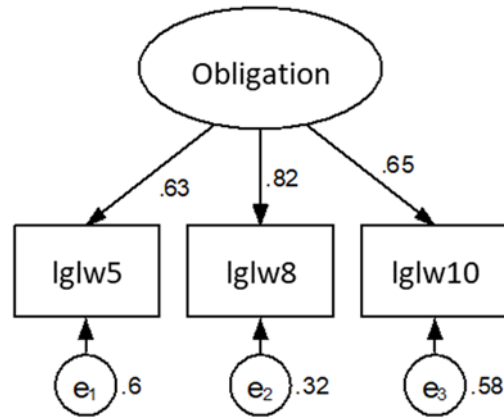
Figure 4. Confirmatory factor analysis for three-item obligation to the law scale with standardized values. All loadings are significant at the $p < 0.001$ level. N = 798; ρ reliability = 0.75.

Table 17

Factor Loadings and Error Variances for Three-Item Obligation to the Law Scale

	Unstandardized value	Standardized value
Loadings		
lglw8: Some laws are made to be broken	1.00 (fixed)	0.82
lglw5: Sometimes doing right means breaking law	0.80	0.63
lglw10: Prison rules are made to be broken	0.72	0.65
Variances		
lglw8	0.19	0.32
lglw5	0.37	0.60
lglw10	0.28	0.58
Obligation to the Law	0.40	1.00 (fixed)

Note. All factor loadings are statistically significant at the $p < 0.001$ level.

Standardized factor loadings and error variances for the final normative alignment model are depicted in Figure 5 and Table 18; Table 18 also provides unstandardized values. The reference indicator in the SEM was set to the item with the strongest factor loading (i.e., lglw6: the law protects your interests.). Ten observations with missing values were excluded, resulting in 792 total observations. The model was assessed for goodness of fit. The standardized root mean squared residual (SRMR) was acceptable with a value of 0.021 (Brown, 2015; Hu & Bentler, 1999). The coefficient of determination (CD) was 0.714, suggesting that the model fits the data adequately, explaining about 71.4% of the variance.
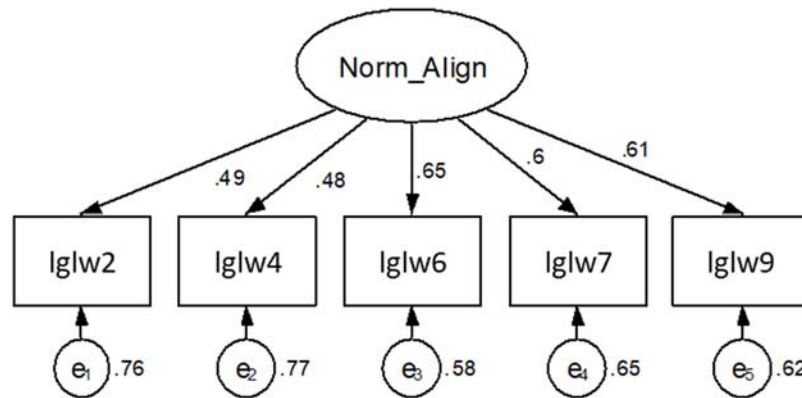
Figure 5. Confirmatory factor analysis for five-item normative alignment with the law scale with standardized values. All loadings are significant at the $p < 0.001$ level. SRMR = 0.021; CD = 0.714; N = 792; ρ reliability = 0.70.

Table 18

Factor Loadings and Error Variances for Five-Item Normative Alignment with the Law

Scale

	Unstandardized value	Standardized value
Loadings		
lglw6: Protects your interests	1.00 (fixed)	0.65
lglw2: Obeying laws benefits community	0.72	0.49
lglw4: Match your feelings of right and just	0.79	0.48
lglw7: Consistent with community views	0.89	0.60
lglw9: Represents your moral values	0.89	0.61
Variances		
lglw6	0.28	0.58
lglw2	0.33	0.76
lglw4	0.42	0.77
lglw7	0.29	0.65
lglw9	0.26	0.62
Normative Alignment with Law	0.20	1.00 (fixed)

Note. All factor loadings are statistically significant at the *p* < 0.001 level.

In sum, results from the exploratory and confirmatory factor analysis indicate that the 10 law legitimacy items loaded significantly and strongly on three dimensions representing obligation, trust, and normative alignment. All factor loadings were statistically significant and well above the minimum requirement of 0.30 (Costello & Osborne, 2005). The data support a multidimensional law legitimacy concept. Prior

correctional studies only measured obligation to the law or legal cynicism (Baker & Gau, 2017; Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Piquero et al., 2005). The data in this dissertation demonstrate that obligation, trust, and normative alignment with the law are distinct constructs.

The final law legitimacy scales were calculated as mean summated scales. If the incorporated items produced unequal factor loadings, then generating a scale from weighted factor scores would be more appropriate. The weighted factor score was predicted as the weighted sum of the items using the scoring coefficient as the weight for each item. The correlation between the summative scores and factor scores was 0.99 or higher, meaning that the loadings are similar.

Legitimacy of Criminal Justice Agents: Exploratory Factor Analysis

All police and correctional officer legitimacy items are first analyzed together because the initial PFA with all 49 procedural justice and legitimacy items revealed potential overlap in these constructs. The results from the PFA of criminal justice agent legitimacy items are presented in Table 19. Eigenvalues, scree plot, parallel analysis, and factor loadings support multiple dimensions. Did respondents provide different responses depending on the reference group (i.e., police vs. correctional officers)? Most items loaded onto separate indicators of opinions of either police or correctional officers. The only exception was the dull compulsion scale ($\alpha = 0.62$), which contains one police legitimacy item and one correctional officer legitimacy item (i.e., lgpo10 and lgco10: people like you have no choice but to obey the orders of police/correctional officers). When tested as components of obligation, these items reduced reliability and loaded poorly onto the obligation dimension of legitimacy for their respective reference group.

Police legitimacy. Focusing on the police legitimacy dimensions, six items loaded onto a *trust and normative alignment with police* dimension ($\alpha = 0.84$), three items loaded onto a *police obligation* dimension ($\alpha = 0.66$), and two items loaded onto a *police discretion* dimension ($\alpha = 0.73$). The average interitem covariance for all three scales were acceptable (Piedmont, 2014). The eigenvalue for trust was 2.799, meaning the latent factor explains 46.7% of the variance in the items. With an eigenvalue of 1.131, obligation explained 37.7% of the variance in the inclusive items. The eigenvalue for police discretion was 0.907, explaining 45.4% of the variance in the set of police legitimacy items. The item-test correlations were similar and all items were correlated with their overall scales, suggesting that each item is measuring the same subconstruct as the others. Removing any of the items from the police trust and normative alignment scale would cause the alpha to decrease, reducing internal scale reliability.[15] For the police obligation scale, removing lgpo1 would slightly increase scale reliability, but lgpo1 was retained in the scale because this item is a theoretically-sound concept of obligation and the factor loading was above the minimum required of 0.30 (Costello & Osborne, 2005).

Correctional officer legitimacy. Turning attention to the correctional officer legitimacy items, five items loaded onto a *trust and normative alignment with correctional officers* dimension ($\alpha = 0.85$), three items loaded onto a *correctional officer obligation* dimension ($\alpha = 0.76$), and three items loaded onto a *correctional officer effectiveness* dimension ($\alpha = 0.73$). The average interitem covariance for all three scales

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[15] Item-test correlations, item-rest correlations, average interitem covariance, and alpha value when item is removed are not available for the police discretion dimension because it is comprised of only two items.

were acceptable (Piedmont, 2014). The eigenvalue for trust was 2.621, meaning the latent factor explains 52.4% of the variance in the items. With an eigenvalue of 1.517, obligation explained 50.6% of the variance in the inclusive items. The eigenvalue for effectiveness was 1.278, explaining 42.6% of the variance in the set of correctional officer legitimacy items. The item-test correlations were similar and all items were correlated with their overall scales, suggesting that each item is measuring the same subconstruct as the others. Removing any of the items from the correctional officer effectiveness or trust and normative alignment scales would cause the alpha to decrease, reducing internal scale reliability. Similar to the police obligation scale, removing lgco1 from the correctional officer obligation scale would slightly increase scale reliability, but lgco1 was retained in the scale because this item is a theoretically-sound indicator of obligation and the factor loading was above the minimum required of 0.30 (Costello & Osborne, 2005). One correctional officer legitimacy item (lgco11: correctional officers take bribes) did not fit well with any scales and was dropped from the analyses.

The results of this exploratory factor analysis delineate three subconstructs of police legitimacy, three subconstructs of correctional officer legitimacy, and one scale measuring forced obligation to criminal justice agents. The latent construct of trust and normative alignment represents prisoners' perceptions about the honesty, integrity, and morality of police or correctional officers. Police or correctional officer obligation measures prisoners' feelings of responsibility to accept and comply with the police or correctional officers. The police discretion items were reverse scored to represent an unobserved construct that signifies prisoners' impressions of the appropriate use of police

authority. The correctional officer effectiveness scale measures prisoners' ratings of

correctional officers' job performance.

Table 19

Rotated Factor Loadings and Reliability Estimates for Legitimacy of Criminal Justice Agent Items

Items	Factor loading	Uniqueness	Item-test correlation	Item-rest correlation	Avg. interitem covariance	Alpha when removed
Police trust and normative alignment (6 items)					0.23	0.842
lgpo2: Same sense of right and wrong	0.59	0.66	0.69	0.53	0.24	0.835
lgpo4: Generally honest	0.72	0.48	0.79	0.66	0.22	0.809
lgpo5: Behave according to law	0.72	0.49	0.77	0.66	0.23	0.810
lgpo6: Stand up for your values	0.73	0.46	0.78	0.67	0.23	0.807
lgpo8: Actions match your ideas about right and wrong	0.70	0.50	0.77	0.65	0.23	0.811
lgpo9: Most do their job well	0.62	0.61	0.69	0.56	0.25	0.827
Police obligation (3 items)					0.19	0.660
lgpo1: Accept decisions even if wrong	0.48	0.77	0.77	0.39	0.22	0.705
lgpo3: Do what they tell you even if you do not understand/agree	0.70	0.51	0.82	0.56	0.14	0.440
lgpo7: Do what they tell you even if you do not like how they treat you	0.64	0.58	0.74	0.50	0.21	0.552

(continued)

Items	Factor loading	Uniqueness	Item-test correlation	Item-rest correlation	Avg. interitem covariance	Alpha when removed
Police discretion (2 items)					0.31	0.730
lgpo11: Take bribes	0.67	0.55				
lgpo12: Arrest people for no good reason	0.67	0.55				
Correctional officer trust and normative alignment (5 items)					0.31	0.850
lgco2: Same sense of right and wrong	0.66	0.57	0.76	0.60	0.31	0.836
lgco4: Generally honest	0.72	0.49	0.79	0.65	0.30	0.821
lgco5: Behave according to rules	0.74	0.46	0.80	0.67	0.30	0.816
lgco6: Stand up for your values	0.80	0.36	0.84	0.74	0.29	0.798
lgco8: Actions match your ideas about right and wrong	0.71	0.50	0.77	0.65	0.32	0.823
Correctional officer obligation (3 items)					0.28	0.765
lgco1: Accept decisions even if wrong	0.61	0.63	0.83	0.54	0.29	0.789
lgco3: Do what they tell you even if you do not understand	0.79	0.37	0.86	0.69	0.25	0.589
lgco7: Do what they tell you even if you do not like how they treat you	0.72	0.48	0.81	0.60	0.31	0.689

Items	Factor loading	Uniqueness	Item-test correlation	Item-rest correlation	Avg. interitem covariance	Alpha when removed
Correctional officer effectiveness (3 items)					0.23	0.729
lgco9: Most do their job well	0.57	0.68	0.76	0.48	0.28	0.720
lgco12: Good job preventing misconduct	0.71	0.49	0.84	0.61	0.19	0.569
lgco13: Maintain order	0.67	0.55	0.82	0.56	0.22	0.628
Dull compulsion (2 items)					0.21	0.621
lgpo10: No choice but to obey police orders	0.57	0.67				
lgco10: No choice but to obey correctional officer orders	0.57	0.67				

Legitimacy of Police: Confirmatory Factor Analysis

According to the Shapiro-Wilk univariate normality test, some police legitimacy variables were normally distributed while others were non-normally distributed; thus, quasi-maximum likelihood estimation was appropriate for this CFA. Two models were estimated: one for *police trust and normative alignment* and one for *police obligation*.[16] The SEMs were specified so that the covariance of the police legitimacy items is fully explained by their corresponding latent variables (i.e., trust and normative alignment or obligation) plus the unique variance of each individual item. In the police trust and normative alignment model, there were $\{6(6 + 1)\}/2 = 21$ elements. The number of parameters is calculated as loadings + error variances; thus, 6 loadings + 6 error variances = 12 parameters. Subtracting the parameters from the elements results in 9 degrees of freedom. The model for police trust and normative alignment was overidentified, meaning there was enough information to identify parameters and test the model fit (Acock, 2013). In the police obligation model, there were 6 elements, 6 parameters, and 0 degrees of freedom. The model for police obligation was just identified, meaning there was enough information to identify parameters, but not enough information to test the model fit (Acock, 2013).

Standardized factor loadings and error variances for the final police trust and normative alignment model are depicted in Figure 6 and Table 20; Table 20 also provides unstandardized values. The reference indicator in the SEM was set to the item with the strongest factor loading (i.e., lgpo6: the police stand up for values that are important to

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[16] The police discretion dimension cannot be modeled with only two items because the model would be unidentified.

you). Six observations with missing values were excluded, resulting in 796 total observations. The model was assessed for goodness of fit. The standardized root mean squared residual (SRMR) was acceptable with a value of 0.026 (Brown, 2015; Hu & Bentler, 1999). The coefficient of determination (CD) was 0.852, suggesting that the model explains about 85% of the variance.

Figure 6. Confirmatory factor analysis for six-item police trust and normative alignment scale with standardized values. All loadings are significant at the $p < 0.001$ level. SRMR = 0.026; CD = 0.852; N = 796; ρ reliability = 0.85.

Table 20

Factor Loadings and Error Variances for Six-Item Police Trust and Normative

Alignment Scale

	Unstandardized value	Standardized value
Loadings		
lgpo6: Stand up for your values	1.00 (fixed)	0.75
lgpo2: Same sense of right and wrong	0.89	0.58
lgpo4: Generally honest	1.17	0.74

(continued)

	Unstandardized value	Standardized value
lgpo5: Behave according to law	1.06	0.73
lgpo8: Actions match your ideas about right and wrong	0.99	0.71
lgpo9: Most do their job well	0.80	0.63
Variances		
lgpo6	0.19	0.44
lgpo2	0.37	0.66
lgpo4	0.28	0.46
lgpo5	0.24	0.47
lgpo8	0.24	0.50
lgpo9	0.24	0.60
Police Trust	0.24	1.00 (fixed)

Note. All factor loadings are statistically significant at the $p < 0.001$ level.

Standardized factor loadings and error variances for the final police obligation model are depicted in Figure 7 and Table 21; Table 21 also provides unstandardized values. The reference indicator in the SEM was set to the item with the strongest factor loading (i.e., lgpo3: you should do what the police tell you even if you do not understand or agree with the reasons). Two observations with missing values were excluded, resulting in 800 total observations. Goodness of fit statistics are not provided for this just identified model.
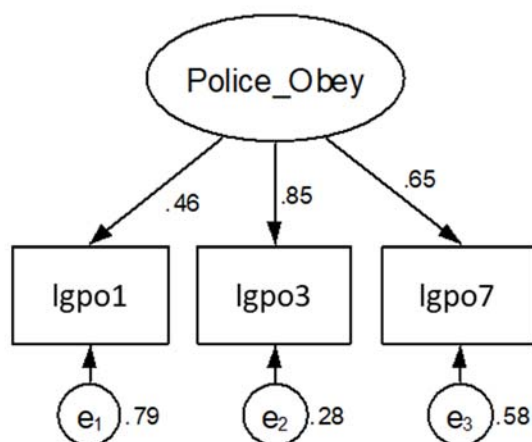
Figure 7. Confirmatory factor analysis for three-item police obligation scale with standardized values. All loadings are significant at the $p < 0.001$ level. N = 800; ρ reliability = 0.68.

Table 21

Factor Loadings and Error Variances for Three-Item Police Obligation Scale

	Unstandardized value	Standardized value
Loadings		
lgpo3: Do what they tell you even if you do not understand/agree	1.00 (fixed)	0.85
lgpo1: Accept decisions even if wrong	0.64	0.46
lgpo7: Do what they tell you even if you do not like how they treat you	0.65	0.65
Variances		
lgpo3	0.13	0.28
lgpo1	0.52	0.79
lgpo7	0.19	0.58
Police Obligation	0.34	1.00 (fixed)

Note. All factor loadings are statistically significant at the $p < 0.001$ level.

In sum, 11 police legitimacy items loaded significantly and strongly on three dimensions representing trust and normative alignment, obligation, and discretion. All factor loadings were statistically significant and well above the minimum requirement of 0.30 (Costello & Osborne, 2005). The data support a multidimensional police legitimacy concept. Prior correctional studies treated police legitimacy indicators as components of composite legitimacy scales of police and courts (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Piquero et al., 2005) or police, prison, and the criminal justice system (Franke et al., 2010). Police legitimacy scales in prior research also combine indicators of trust, effectiveness, and fairness as unidimensional legitimacy measures (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Franke et al., 2010; Piquero et al., 2005). The data in this dissertation demonstrate that police obligation, trust, and discretion are distinct constructs. The final police legitimacy scales were calculated as mean summated scales. The correlations between the summative scores and factor scores were 0.98 or higher, meaning that the loadings are similar and summative scales should be acceptable for analysis.

Legitimacy of Correctional Officers: Confirmatory Factor Analysis

The Shapiro-Wilk univariate normality test indicated that some law legitimacy variables were normally distributed while others were non-normally distributed; thus, quasi-maximum likelihood estimation was appropriate for this CFA. Three models were estimated: one for *correctional officer trust and normative alignment*, one for *correctional officer obligation*, and one for *correctional officer effectiveness*. The SEMs were specified so that the covariance of the correctional officer legitimacy items is fully explained by their corresponding latent variables (i.e., trust and normative alignment,

obligation, or effectiveness) plus the unique variance of each individual item. The correctional officer trust and normative alignment model had 15 elements, 10 parameters, and 5 degrees of freedom. The model for correctional officer trust and normative alignment was overidentified, meaning there was enough information to identify parameters and test the model fit (Acock, 2013). In the correctional officer obligation and effectiveness models, there were 6 elements, 6 parameters, 0 degrees of freedom. The models for correctional officer obligation and effectiveness were just identified, meaning there was enough information to identify parameters, but not enough information to test model fit (Acock, 2013).

Standardized factor loadings and error variances for the final correctional officer trust and normative alignment model are depicted in Figure 8 and Table 22; Table 22 also provides unstandardized values. The reference indicator in the SEM was set to the item with the strongest factor loading (i.e., lgco6: correctional officers stand up for the values that are important to you). Five observations with missing values were excluded, resulting in 797 total observations. The model was assessed for goodness of fit. The standardized root mean squared residual (SRMR) was 0.040, which is within the acceptable cutoff criteria of < 0.08 (Brown, 2015; Hu & Bentler, 1999). The coefficient of determination (CD) was 0.862, suggesting that the model fits the data well, explaining about 86% of the variance.
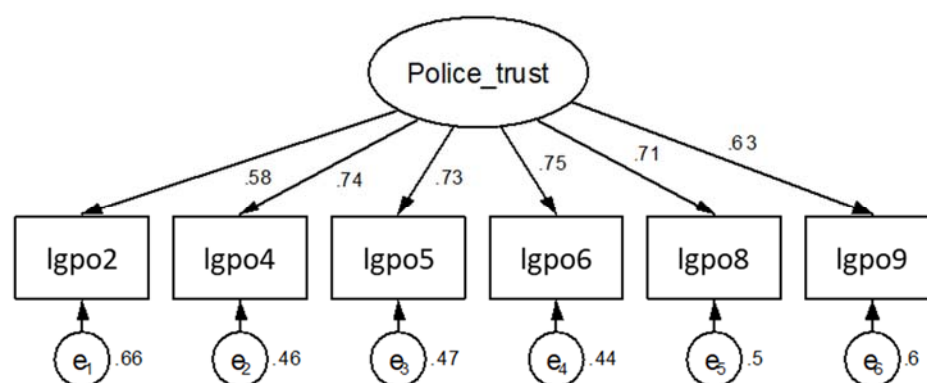
Figure 8. Confirmatory factor analysis for five-item correctional officer trust and normative alignment scale with standardized values. All loadings are significant at the *p* < 0.001 level. SRMR = 0.040; CD = 0.862; N = 797; ρ reliability = 0.85.

Table 22

Factor Loadings and Error Variances for Five-Item Correctional Officer Trust and Normative Alignment Scale

	Unstandardized value	Standardized value
Loadings		
lgco6: Stand up for your values	1.00 (fixed)	0.83
lgco2: Same sense of right and wrong	0.85	0.65
lgco4: Generally honest	0.92	0.72
lgco5: Behave according to rules	0.95	0.75
lgco8: Actions match your ideas about right and wrong	0.82	0.70

(continued)

	Unstandardized value	Standardized value
Variances		
lgco6	0.17	0.31
lgco2	0.37	0.58
lgco4	0.29	0.48
lgco5	0.26	0.44
lgco8	0.25	0.50
Correctional Officer Trust	0.37	1.00 (fixed)

Note. All factor loadings are statistically significant at the $p < 0.001$ level.

Standardized factor loadings and error variances for the final correctional officer obligation model are depicted in Figure 9 and Table 23; Table 23 also provides unstandardized values. The reference indicator in the SEM was set to the item with the strongest factor loading (i.e., lgco3: you should do what correctional officers tell you even if you do not understand the reasons). Six observations with missing values were excluded, resulting in 796 total observations. Goodness of fit statistics are not provided for this just identified model.
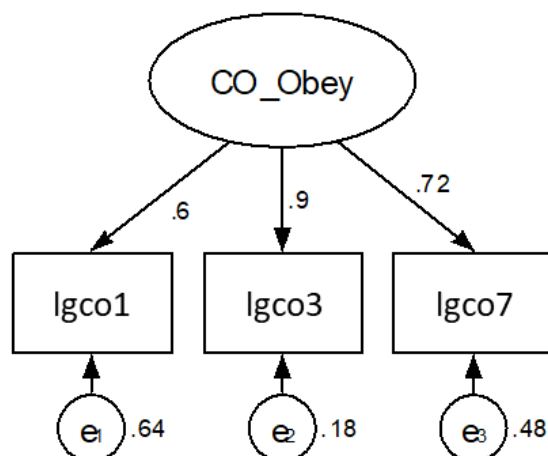
Figure 9. Confirmatory factor analysis for three-item correctional officer obligation scale with standardized values. All loadings are significant at the *p* < 0.001 level. N = 796; *ρ* reliability = 0.77.

Table 23

Factor Loadings and Error Variances for Three-Item Correctional Officer Obligation

Scale

	Unstandardized value	Standardized value
Loadings		
lgco3: Do what they tell you even if you do not understand	1.00 (fixed)	0.90
lgco1: Accept decisions even if wrong	0.85	0.60
lgco7: Do what they tell you even if you do not like how they treat you	0.78	0.72
Variances		
lgco3	0.08	0.18
lgco1	0.47	0.64
lgco7	0.21	0.48
Correctional Officer Obligation	0.37	1.00 (fixed)

Note. All factor loadings are statistically significant at the *p* < 0.001 level.

Standardized factor loadings and error variances for the final correctional officer effectiveness model are depicted in Figure 10 and Table 24;

Table 24 also provides unstandardized values. The reference indicator in the SEM was set to the item with the strongest factor loading (i.e., lgco12: correctional officers are doing a good job in preventing misconduct). One observation with missing values was excluded, resulting in 801 total observations. Goodness of fit statistics are not provided for this just identified model.

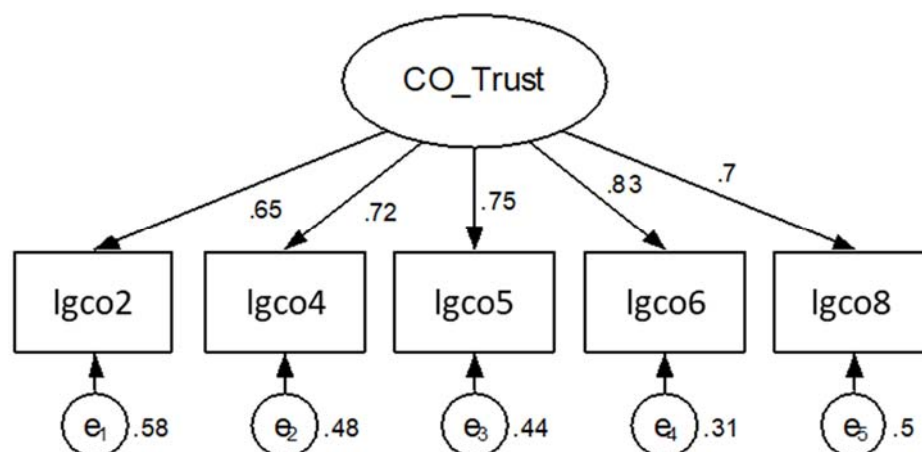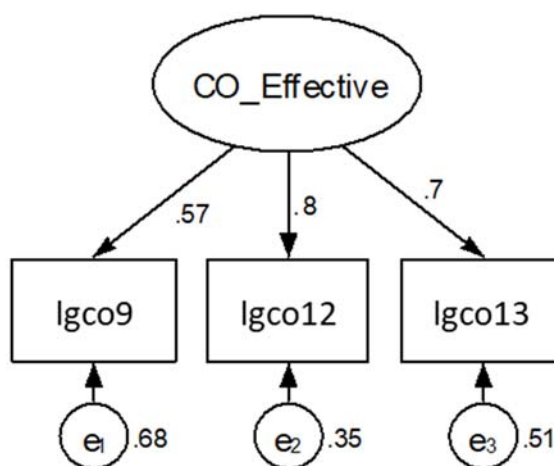*Figure 10.* Confirmatory factor analysis for three-item correctional officer effectiveness scale with standardized values. All loadings are significant at the $p < 0.001$ level. N = 801; ρ reliability = 0.74.

Table 24

Factor Loadings and Error Variances for Three-Item Correctional Officer Effectiveness Scale

	Unstandardized value	Standardized value
Loadings		
lgco12: Good job preventing misconduct	1.00 (fixed)	0.80
lgco9: Most do their job well	0.69	0.57
lgco13: Maintain order	0.89	0.70
Variances		
lgco12	0.17	0.35
lgco9	0.31	0.68
lgco13	0.26	0.51
Correctional Officer Effectiveness	0.32	1.00 (fixed)

Note. All factor loadings are statistically significant at the $p < 0.001$ level.

In sum, 11 correctional officer legitimacy items loaded significantly and strongly on three dimensions representing trust and normative alignment, obligation, and effectiveness. All factor loadings were statistically significant and well above the minimum requirement of 0.30 (Costello & Osborne, 2005). The data support a multidimensional correctional officer legitimacy concept. Correctional officer legitimacy scales in prior research either measured only obligation (Maguire et al., 2017; Reisig & Mesko, 2009) or combined indicators of trust, effectiveness, and fairness as a unidimensional legitimacy scale (Brunton-Smith & McCarthy, 2016). The data in this dissertation demonstrate that correctional officer obligation, trust, and effectiveness are distinct constructs. The final correctional officer legitimacy scales were calculated as

mean summated scales. The correlations between the summative scores and factor scores were 0.98 or higher, meaning that the loadings are similar and summative scales should be acceptable for analysis.

Summary and Discussion of Psychometric Analysis Findings

The data analyzed in this dissertation contained 49 items measuring prisoners' perceptions of procedural justice and legitimacy among police, correctional officers, and the law. This array of measures allowed for evaluation of the convergent and discriminant validity of subconstructs among different reference groups, contributing to further refinement of the process-based model of regulation. Table 25 presents summary statistics for the final 11 procedural justice and legitimacy scales.

Table 25

Summary Statistics of Final Procedural Justice and Legitimacy Scales

Scale	N	Mean	SD
Procedural Justice			
Police ($\alpha = 0.89$)	802	1.46	0.61
Correctional officers ($\alpha = 0.89$)	802	1.06	0.58
Legitimacy			
Obligation to the law ($\alpha = 0.74$)	802	1.71	0.62
Trust in law ($\alpha = 0.58$)	802	1.22	0.69
Normative alignment with law ($\alpha = 0.70$)	802	1.90	0.46
Police obligation ($\alpha = 0.66$)	802	1.76	0.57
Police trust ($\alpha = 0.84$)	802	1.61	0.53
Police discretion ($\alpha = 0.73$)	801	1.35	0.65
Correctional officer obligation ($\alpha = 0.77$)	799	1.70	0.64
Correctional officer trust ($\alpha = 0.85$)	802	1.31	0.60
Correctional officer effectiveness ($\alpha = 0.73$)	802	1.57	0.61
Dull compulsion ($\alpha = 0.62$)	802	2.02	0.61

Note. All scales range from 0 – 3.

Procedural justice. Exploratory and confirmatory factor analyses affirm a unidimensional procedural justice scale, encompassing all sub-concepts (i.e., voice, respect, neutrality, and motive-based trust) outlined in the process-based model of regulation. The data did not support a procedural justice concept split into quality of treatment and quality of decision-making. Although this dissertation is the first correctional study to include indicators of all four subconstructs of procedural justice of both police and correctional officers, prior correctional research also identified unidimensional procedural justice scales (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Brunton-Smith & McCarthy, 2016; Henderson et al., 2010; Maguire et al., 2017; Reisig & Mesko, 2009; Tatar et al., 2012).

Reference differentiation. Another important finding from the psychometric analysis was that procedural justice perceptions differed depending on the reference group (i.e., police vs. correctional officers). A paired t-test revealed that police procedural justice (M = 1.46, SD = 0.61) and correctional officer procedural justice (M = 1.06, SD = 0.58) were significantly different ($t = 20.95$, $p < 0.01$). Prisoners reported more favorable views of the procedural justness of police compared to correctional officers, on average. Why would prisoners tend to perceive police as more procedurally just than correctional officers? Prior correctional research does not inform this question about reference differentiation because studies either measured procedural justice as composites of actors (Baker et al., 2014; Tatar et al., 2012) or studies only identified one reference group (Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Brunton-Smith & McCarthy, 2016; Henderson et al., 2010; Maguire et al., 2017; Reisig & Mesko, 2009).

Similar reference distinctions were observed among the legitimacy scales. Prisoners reported having the most trust and normative alignment with the law (M = 1.90, SD = 0.46), then police (M = 1.61, SD = 0.53), and lastly correctional officers (M = 1.31, SD = 0.60). The differences among the means were statistically significant. Police obligation (M = 1.76, SD = 0.57) and correctional officer obligation (M = 1.70, SD = 0.64) were also significantly different ($t = 3.01$, $p < 0.01$). Why would there be differences in prisoners' perceptions of the legitimacy of law, police, and correctional officers? Again, prior correctional research does not inform this question about reference differentiation because studies either measured legitimacy as composites of authorities (Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Franke et al., 2010; Piquero et al., 2005) or only as obligation to obey correctional officers (Maguire et al., 2017; Reisig & Mesko, 2009), and legal legitimacy was only measured as obligation to the law or legal cynicism (Baker & Gau, 2017; Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Piquero et al., 2005). The research design in this dissertation also prevents an adequate explanation. A longitudinal study design is needed to demonstrate the stability or change in perceptions of procedural justice and legitimacy of police and correctional officers. In such a study, prisoners could be surveyed at different time points in their imprisonment (e.g., intake, sentence midpoint, and before release) to determine if police are viewed more favorably over time or if prisoners view police more favorably than correctional officers at the start of their imprisonment when their interactions with police would be more recent. The differences in perceptions of police compared to correctional officers may be attributed to recall effects because the average time served in the sample was about five years.

Qualitative comments from respondents shed some light on the reference differentiation between police and correctional officers. When asked about his agreement with obeying the police, one respondent remarked: "If a police officer tells you to do something you have to do it otherwise they will shoot you." Another respondent commented: "The police are killing us out there. Hands up, don't shoot! I used to hate the law, but they are just doing their job." Similarly, when asked whether police protect people's rights, one respondent remarked: "Depends on the call they received. If it's an aggressive call, all rights are out the window. They have to take a protective stance." Comparatively, when one respondent was asked whether correctional officers protect inmates' rights, he stated: "The COs told me years ago that I left my rights on Highway 40." However, another respondent recognized that "They [correctional officers] are only trying to make things safer." It may be that police are more procedurally just and legitimate than correctional officers, but these differences may also be an artificial result of recent interactions with correctional officers compared with distant interactions with police. At the very least, it is not appropriate to combine indicators of police and correctional officers into unidimensional procedural justice or legitimacy scales.

The only exception to reference differentiation findings is the dull compulsion scale (i.e., people like you have no choice but to obey the orders of police/correctional officers). The dull compulsion items did not converge with obligation dimensions of legitimacy in their respective reference groups. Rather, it appears that this concept of powerlessness against authority, in general, is different from obligation as feelings of responsibility to accept and comply with police or correctional officers specifically. Dull compulsion may represent an acquiescence to authority through a sense of "weakness and

helplessness because there is no acceptable alternative" (Weber, 1978, p. 214) or "the internalization of an ideology that explains why [prisoners'] inferiority is legitimate" (Carrabine, 2005, p. 904). Such pragmatic acceptance of authority may be brought about from the "mundane repetitiveness of routines that reinforce the loss of autonomy that a prison sentence entails" (Carrabine, 2005, p. 904). Obedience through dull compulsion is fragile because "it does not rest on prisoners' ideological incorporation into a dominant value system that justifies their subordination but relies instead on their grudging acceptance that the perceived despotism is a given and unalterable feature of the prison regime" (Carrabine, 2005, p. 905). Prior literature recognized this concept of dull compulsion in prisons (Bottoms & Tankebe, 2012; Carrabine, 2004), but this sense of powerlessness or fatalistic acceptance may not be limited to acquiescence to prison authority exclusively because the data analyzed in this dissertation support a latent construct of dull compulsion to the combined authority of police and correctional officers. Do prison conditions create or cultivate dull compulsion to authority? Future research is needed to empirically assess this conceptually-established phenomenon of dull compulsion among prisoners.

Legitimacy. The results from exploratory and confirmatory factor analyses of law legitimacy items aligned with the subconstructs identified in the process-based model of regulation (i.e., obligation, trust, and normative alignment). There was one unexpected finding, however. When the survey instrument was developed, one indicator of law legitimacy (i.e., lglw2: obeying the law ultimately benefits everyone in the community) was assumed to measure the subconstruct *obligation to obey the law* based on prior literature (i.e., Tyler & Jackson, 2014). The results of the PFA and CFA for law

legitimacy revealed that this indicator was measuring *normative alignment* and did not fit well with variables measuring *obligation to the law*. Tyler and Jackson (2014) included this item as a component of a nine-item scale measuring obligation to obey the law among a national sample of U.S. citizens. Thus, the divergent results reported in this dissertation may be attributed to methodological differences in samples and measures. Do men who are incarcerated perceive law legitimacy differently than the typical U.S. citizen? The answer to this question is beyond these dissertation data. Semantic review of the item supports the factor analysis findings. The only part of the statement that makes it about obligation to obey is "obeying the law;" the rest of the statement, "ultimately benefits everyone in the community," is conceptually similar to normative alignment (i.e., laws promote values, goals, and intentions of you and your community).

The three items comprising the law obligation scale essentially measure the opposite of legal cynicism. Original survey development proposed an item "people should obey the law even if it goes against what they think is right," but it was dropped to condense the survey length. Future research should incorporate items like "people should do what the law says," "all laws should be strictly obeyed," or "disobeying the law is seldom justified" (Baker et al., 2014; Baker & Gau, 2017; Tyler & Jackson, 2014) to further explore, define, and test the concept of obligation to the law.

Prior correctional research measured legal legitimacy as obligation to the law or legal cynicism (Baker & Gau, 2017; Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Piquero et al., 2005). The theoretical implications of these prior investigations are limited because they examine only one aspect of legal legitimacy. The factor analyses conducted for this dissertation suggest that legal legitimacy is multidimensional,

consisting of obligation, trust, and normative alignment with the law. This finding contributes to empirical assessments of the process-based model of regulation and informs future correctional research testing this model. With a U.S. citizen sample, Tyler and Jackson (2014) found that obligation, trust, and normative alignment exerted different effects depending on the outcome of focus: obligation had the strongest effect on compliance, trust was correlated with cooperation, and normative alignment was closely associated with engagement. It makes sense conceptually that the legal legitimacy subconstructs would exert varying effects on these outcomes. Obligation to the law represents perceptions about the authority of the law and a sense of responsibility to behave in accordance with the law. People who feel they are not obligated to obey the law may be more likely to break the law (i.e., non-compliance) compared to individuals who believe they have a duty to follow the rules. Trust in the law signifies impressions that the law is not used as a tool of oppression for the powerful to control people. If you trust that the law will not be used as an instrument of oppression by powerholders, then you may be more likely to cooperate with authorities who enforce the law. Lastly, normative alignment measures assessments of whether the law substantiates your personal moral beliefs and the concerns of your community. Individuals who believe that the law protects their interests may be more likely to exercise their freedom as citizens under the law to participate in the community and political process. Analyses conducted and discussed in Chapter V determine whether these separate subconstructs exert different effects on the outcomes of compliance, cooperation, and engagement for a sample of individuals who are imprisoned and reentering their communities.

Focusing on police and correctional officer legitimacy, results from the factor analyses suggest that these domains did not align perfectly with the assumptions of the process-based model of regulation. The items that were conceptualized to represent obligation to police/correctional officers were empirically confirmed to represent this concept. Police or correctional officer obligation represented prisoners' feelings of responsibility to accept and comply with police or correctional officers. The surprising finding was that the items conceptualized to measure trust and normative alignment loaded onto the same dimension, casting doubt on the discriminant validity of these subconstructs. The latent construct of combined trust and normative alignment represents prisoners' perceptions about the honesty, integrity, and morality of police or correctional officers. Normative alignment and trust may crossover conceptually, but this finding may be limited to the items delivered in the survey.

The number of items in the trust and normative alignment scales differed by reference group: six items for police and five items for correctional officers. This distinction is attributed to measurement limitations. The survey included two items that measured effectiveness of correctional officers (i.e., lgco12: prevent misconduct and lgco13: maintain order in prison) that were not asked of police officers and one item that was asked of police (lgpo12: arrest for no good reason) that was not asked for correctional officers. As a result, lgpo9 (i.e., "Most police do their job well") loaded with the police trust and normative alignment scale, whereas lgco9 (i.e., "Most correctional officers do their job well") fit with the correctional officer effectiveness scale. If the survey included measures of police effectiveness (e.g., "police prevent crime in my community," or "police maintain order in my community"), then a police effectiveness

scale might have emerged with lgpo9. These findings could explain why past correctional research either measures effectiveness as independent of legitimacy (Maguire et al., 2017) or incorporates effectiveness in legitimacy scales (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Brunton-Smith & McCarthy, 2016; Franke et al., 2010). That is, if a study does not have a sufficient number of effectiveness measures, then effectiveness items may converge with other legitimacy indicators.

Without additional indicators of police effectiveness, the factor analyses identified a police discretion scale, which contains one item that was conceptualized to represent trust (i.e., lgpo11: police take bribes; reverse coded) and one item envisioned to represent effectiveness (i.e., lgpo12: police often arrest people for no good reason; reverse scored). The original survey draft included "correctional officers often punish inmates for no good reason," but this statement was removed after agency review. If the survey contained an item measuring correctional officer discretion (e.g., "correctional officers usually have good reasons for disciplining inmates"), then it is possible that a comparable indicator of correctional officer discretion could be developed. Without such an indicator, one item conceptualized to represent trust (i.e., lgco11: correctional officers take bribes; reverse scored) did not converge with any scales. Future research should explore the concept of trust and include additional measures that could represent trust as independent of conceptually-similar notions of effectiveness, normative alignment, respect, neutrality, and motive-based trust. Trust may be defined as confidence that an authority will fulfill their expected role or belief that an authority will not abuse their power (Jackson & Gau, 2016). Survey items could be developed to measure perceptions of whether police/correctional officers would respond to the scene if you were victimized,

investigate a crime if you were the victim, fabricate evidence, use the least restrictive means of restraint, and refrain from excessive use of force, for example.

Some prior correctional studies treated indicators of legitimacy of police or correctional officers (i.e., obligation, trust, effectiveness, and normative alignment) as a unidimensional construct (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Brunton-Smith & McCarthy, 2016; Franke et al., 2010; Piquero et al., 2005), but the findings in this dissertation do not support this approach. When researchers claim to measure the same latent construct (e.g., legitimacy) while utilizing multifarious psychometric scales, this casts doubt on the objectivity of reported legitimacy effects and makes it impossible to compare studies to determine theoretical reliability. Ambiguous scale specification could produce artificial statistical relationships, making reported findings less reliable (Reisig et al., 2007). The results reported in this chapter contribute to the debate about the meaning and operationalization of key constructs outlined in the process-based model of regulation. With the procedural justice and legitimacy scales defined, the structural model proposed in the process-based model of regulation is examined in Chapter V.

CHAPTER V

Results: Testing the Measurement Model

The results of several statistical analyses employed to answer the three main research questions are presented in this chapter.

Procedural Justice and Legitimacy Differences and Pathways

In this section, the first research question is answered: What are the empirical relationships between perceived legitimacy and potentially overlapping constructs (e.g., procedural justice, effectiveness of authorities) among a sample of prisoners? To answer this question, linear regressions and structural equation models were estimated to first determine respondent differences in procedural justice and legitimacy indicators. Second, relationships among procedural justice predictors and legitimacy outcomes were tested to develop a parsimonious model explaining the structure of associations among these indicators. Third, procedural justice and legitimacy measures were modeled with other theoretically-relevant exogenous (i.e., low self-control and personal experiences with police and correctional officers) and endogenous (i.e., dull compulsion and fear of punishment) variables.[17]

Respondent differences in procedural justice and legitimacy indicators.
Weighted linear regressions and a generalized structural equation model were estimated to evaluate the relationships among respondent characteristics with procedural justice and legitimacy variables. Eleven variables measuring respondent characteristics were included in the analyses: age, race, color of skin, marital status, education, pre-prison

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[17] Unless otherwise noted, sampling weights were employed in all statistical analyses to avoid inaccurate estimation of standard errors and bias parameters, providing results that are closer to what would be expected in the Texas prisoner population.

employment, in-prison employment, custody level, time served in prison, offense of record, and number of prior arrests. There were no statistically significant differences in perceptions of procedural justice and legitimacy based on whether the respondent had a work assignment in the last six months of incarceration or the amount of time served in prison for the offense of record; thus, results for these two variables are omitted. The following five tables are sectioned by endogenous variable domains: procedural justice and fairness, outcome fairness and favorability, legal legitimacy, police and correctional officer legitimacy, and dull compulsion and fear of punishment. Statistically non-significant results are omitted from the tables for visual and interpretive ease.

Procedural justice and fair treatment. Statistical differences in procedural justice of police and correctional officers are presented in Table 26. Focusing on ratings of procedural justice, respondent age is statistically significant in that police and correctional officers are seen as more procedurally just as the age of the respondent increases ($\beta = 0.21$). Marital status and prior arrests were significantly associated with police procedural justice, but not correctional officer procedural justice. Married respondents felt that police were more procedurally just compared to single respondents ($\beta = 0.08$). As the number of prior arrests increases, respondents' ratings of the procedural justness of police decrease ($\beta = -0.10$).

Table 26

Weighted Linear Regressions and Generalized Structural Equation Model for Procedural

Justice and Fairness Indicators

Endogenous and exogenous variables	b	SE	β	R^2
Police procedural justice				0.10
Age	0.01	0.00	**0.21****	
Marital status				
Married	0.13	0.07	**0.08†**	
Separated	0.12	0.12	0.05	
Divorced/widowed	0.02	0.08	0.00	
Prior arrests	-0.01	0.00	**-0.10***	
Correctional procedural justice				0.08
Age	0.01	0.00	**0.21****	
Race/ethnicity				
Latino	0.06	0.07	0.06	
Black	0.23	0.12	**0.18***	
Native American	0.43	0.17	**0.12***	
Other	-0.14	0.13	-0.04	
Color of skin	-0.05	0.03	**-0.15†**	
Police fairness				0.07
Race/ethnicity				
Latino	-0.18	0.11	-0.07	
Black	-0.04	0.18	-0.02	
Native American	-0.04	0.23	-0.01	
Other	-0.75	0.23	**-0.13****	
Employed pre-prison	0.26	0.10	**0.12***	
Prior arrests	-0.02	0.00	**-0.17****	
Correctional fairness				0.09
Age	0.01	0.00	**0.12***	
Race/ethnicity				
Latino	-0.07	0.10	-0.04	
Black	0.40	0.17	**0.24***	
Native American	0.48	0.15	**0.11****	
Other	0.21	0.21	0.05	
Color of skin	-0.10	0.04	**-0.26****	

(continued)

Endogenous and exogenous variables	b	SE	β	R^2
Custody level				
General population	-0.23	0.12	**-0.09**†	
Restrictive/Ad. Seg.	-0.28	0.22	-0.05	
Prior arrests	0.01	0.00	**0.07***	

Note. Reference categories: race/ethnicity = White; marital status = single; education = 8th grade or less; custody = trustee; offense of record = violent.
† $p < 0.10$. * $p < 0.05$. ** $p < 0.01$.

Turning attention to racial differences, respondents who reported their race as Black (β = 0.18) or Native American (β = 0.12) had more favorable views of the procedural justness of correctional officers compared to White respondents. The data also indicated a statistically significant relationship between correctional officer procedural justice and respondent skin tone. As interviewer-identified skin tone of the respondent increased in darkness, views of correctional officer procedural justice became less favorable (β = -0.15).

Racial differences were detected in respondents' perceptions of the fairness of treatment in their interactions with police before their current incarceration and with correctional officers during their incarceration. Respondents whose self-reported race was identified as Other had less favorable views of the fairness of treatment by police compared to White respondents (β = -0.13). Comparatively, individuals who reported their race as Black (β = 0.24) or Native American (β = 0.11) had more favorable views of the fairness of treatment by correctional officers compared to White individuals. Correctional officers were viewed as less fair as interviewer-identified skin tone of the respondent increased in darkness (β = -0.26).

Respondents who were employed in the six months before their current incarceration had more positive perceptions of police fairness in treatment than

individuals who were not employed during that time ($\beta = 0.12$). Employment status did not exert a statistically significant effect on perceptions of correctional officer fairness in treatment, but custody status did. Individuals classified as general population perceived treatment by correctional officers as less fair compared to trustees ($\beta = -0.09$).

Corresponding with judgments of correctional officer procedural justice, respondent age was positively related to correctional officer fairness in treatment ($\beta = 0.12$). Correctional officers were rated fairer as respondent age increased. Age was not a statistically significant variable when modeled with police fairness. Similar to judgments of police procedural justice, as the number of prior arrests increased, respondents' ratings of police fairness in treatment decreased ($\beta = -0.17$). In contrast, respondents' ratings of correctional officer fairness in treatment increased as the number of prior arrests increased ($\beta = 0.07$).

Fairness and favorability of outcomes. Regression coefficients for fairness and favorability of outcomes derived from interactions with police or correctional officers are presented in Table 27. Older ($\beta = 0.15$) and employed ($\beta = 0.09$) people regarded outcomes of police interactions as more fair than younger and unemployed individuals. Similar to police procedural justice and police fairness in treatment, as the number of prior arrests increased, respondents' ratings of the fairness of outcomes in their dealings with police decreased ($\beta = -0.15$). Comparatively, there were no statistically significant demographic differences observed in the fairness of outcomes from correctional officer write-ups or disciplinary reports in prison.

Table 27

Weighted Linear Regressions and Generalized Structural Equation Model for Fairness

and Favorability of Outcomes

Endogenous and exogenous variables	b	SE	β	R^2
Police fair outcome				0.08
Age	0.01	0.00	**0.15****	
Employed pre-prison	0.21	0.09	**0.09***	
Prior arrests	-0.02	0.00	**-0.15****	
Police favorable outcome				0.05
Race/ethnicity				
Latino	-0.13	0.12	-0.05	
Black	-0.15	0.21	-0.08	
Native American	-0.07	0.33	-0.02	
Other	-0.73	0.22	**-0.12****	
Offense of record				
Property	-0.18	0.12	-0.06	
Drug	-0.30	0.14	**-0.10***	
Other	-0.11	0.11	-0.04	
Correctional favorable outcome [a]				0.06
Race/ethnicity				
Latino	-0.22	0.16	-0.09	
Black	0.27	0.29	0.11	
Native American	0.12	0.35	0.02	
Other	-0.72	0.30	**-0.10***	
Color of skin	-0.12	0.06	**-0.21***	
Education pre-prison				
9th to 11th grade	-0.24	0.19	-0.11	
High school graduate	-0.34	0.20	**-0.14†**	
College	-0.42	0.22	**-0.15†**	

Note. Reference categories: race/ethnicity = White; marital status = single; education = 8th grade or less; custody = trustee; offense of record = violent.
[a] Number of observations = 566
† $p < 0.10$. * $p < 0.05$. ** $p < 0.01$.

Racial differences in favorability of outcomes during interactions with police and

disciplinary reports from correctional officers also emerged. Respondents whose self-

reported race was identified as Other had less favorable views of outcomes compared to

White respondents. Outcomes of disciplinary reports were seen as less favorable as interviewer-identified skin tone of the respondent increased in darkness (β = -0.21). Favorability of disciplinary report outcomes also varied based on the self-reported education level of the respondent. Individuals with higher education (i.e., high school degree or college study) were less satisfied with the outcomes of disciplinary reports than individuals with educational attainment of eighth grade or less (β = -0.14; β = -0.15). Statistical differences were observed in favorability of outcomes during police interactions based on the offense of record. Drug offenders reported feeling less satisfied with the outcomes of their interactions with police compared to violent offenders (β = -0.10). There were no statistically significant differences in favorability of police outcomes among violent, property, and other offenders.

Legal legitimacy. Estimates of respondent differences in perceptions of legal legitimacy are represented in Table 28. In these models, marital status was statistically significant in all three domains of legal legitimacy. Married respondents had more trust in (β = 0.09), normative alignment with (β = 0.08), and obligation to (β = 0.10) the law compared to single individuals. College-educated individuals had more trust in the law (β = 0.16) and reported more normative alignment with the law (β = 0.15) compared to individuals with educational attainment of eighth grade or less. High school graduates (β = 0.16) and college-educated respondents (β = 0.25) felt more obligation to obey the law compared to individuals with educational attainment of eighth grade or less.

Table 28

Weighted Linear Regressions and Generalized Structural Equation Model for Legal

Legitimacy Indicators

Endogenous and exogenous variables	b	SE	β	R^2
Trust in law				0.06
Marital status				
Married	0.15	0.08	**0.09†**	
Separated	0.16	0.13	0.07	
Divorced/widowed	0.13	0.11	0.06	
Education pre-prison				
9th to 11th grade	0.06	0.10	0.04	
High school graduate	0.17	0.11	0.11	
College	0.27	0.12	**0.16***	
Offense of record				
Property	-0.28	0.09	**-0.15***	
Drug	-0.09	0.09	-0.04	
Other	-0.01	0.08	0.00	
Normative alignment with law				0.07
Race/ethnicity				
Latino	0.04	0.05	0.05	
Black	-0.13	0.10	-0.12	
Native American	0.21	0.12	**0.07†**	
Other	0.03	0.15	-0.01	
Marital status				
Married	0.10	0.05	**0.08†**	
Separated	0.04	0.08	0.03	
Divorced/widowed	0.02	0.07	0.00	
Education pre-prison				
9th to 11th grade	0.00	0.07	0.00	
High school graduate	0.07	0.08	0.07	
College	0.18	0.08	**0.15***	
Legal obligation				0.09
Marital status				
Married	0.16	0.07	**0.10***	
Separated	0.15	0.11	0.08	
Divorced/widowed	0.12	0.09	0.05	

(continued)

Endogenous and exogenous variables	b	SE	β	R^2
Education pre-prison				
9th to 11th grade	0.08	0.10	0.07	
High school graduate	0.21	0.11	**0.16†**	
College	0.37	0.11	**0.25****	
Custody level				
General population	-0.05	0.08	-0.04	
Restrictive/Ad. Seg.	-0.29	0.14	**-0.07***	
Offense of record				
Property	-0.17	0.08	**-0.11***	
Drug	-0.17	0.09	**-0.09†**	
Other	-0.06	0.07	-0.05	

Note. Reference categories: race/ethnicity = White; marital status = single; education = 8th grade or less; custody = trustee; offense of record = violent.
† $p < 0.10$. * $p < 0.05$. ** $p < 0.01$.

Property offenders demonstrated less trust in the law compared to violent offenders (β = -0.15). No statistically significant differences were observed among violent, drug, and other offenders for trust in the law. Individuals imprisoned for property (β = -0.11) or drug (β = -0.09) offenses felt less obligation to the law compared to violent offenders. Individuals housed in administrative segregation or restrictive custody reported less obligation to the law compared to trustees (β = -0.07). Native Americans felt more normative alignment with the law, compared to White respondents (β = 0.07). Perceptions of normative alignment with the law did not significantly vary among White, Latino, and Black respondents.

Police and correctional officer legitimacy. Statistical differences in police and correctional officer legitimacy indicators are represented in Table 29. In these regressions, older respondents had more trust in police (β = 0.15) and correctional officers (β = 0.19) compared to younger individuals. Age was positively related to correctional officer obligation (β = 0.14) and effectiveness (β = 0.22), but not statistically

associated with police obligation or discretion. Married individuals reported more obligation to obey police (β = 0.09) and correctional officers (β = 0.12) compared to single respondents. Married individuals also had more faith in police discretion to behave ethically compared to single respondents (β = 0.11). Native American (β = -0.09) and Other (β = -0.11) race respondents reported less faith in police discretion compared to Whites. As interviewer-identified skin tone of the respondent increased in darkness, views of police discretion became less favorable (β = -0.18).

Table 29

Weighted Linear Regressions and Generalized Structural Equation Model for Police and Correctional Officer Legitimacy Indicators

Endogenous and exogenous variables	b	SE	β	R^2
Police trust				0.07
Age	0.01	0.00	**0.15***	
Education pre-prison				
9th to 11th grade	0.00	0.08	0.00	
High school graduate	0.07	0.09	0.06	
College	0.17	0.09	**0.13†**	
Correctional officer trust				0.06
Age	0.01	0.00	**0.19****	
Race/ethnicity				
Latino	0.13	0.08	**0.11†**	
Black	0.22	0.13	**0.16†**	
Native American	0.14	0.19	0.04	
Other	0.13	0.18	0.02	
Color of skin	-0.04	0.03	**-0.13†**	
Prior arrests	-0.01	0.00	**-0.08***	
Police obligation				0.08
Marital status				
Married	0.13	0.06	**0.09***	
Separated	0.09	0.09	0.05	
Divorced/widowed	0.03	0.08	-0.02	

(continued)

Endogenous and exogenous variables	b	SE	β	R^2
Education pre-prison				
9th to 11th grade	0.19	0.08	**0.17***	
High school graduate	0.22	0.09	**0.19****	
College	0.36	0.09	**0.27****	
Correctional officer obligation				0.08
Age	0.01	0.00	**0.14****	
Marital status				
Married	0.18	0.07	**0.12***	
Separated	0.15	0.10	0.07	
Divorced/widowed	0.12	0.08	0.07	
Education pre-prison				
9th to 11th grade	0.09	0.08	0.07	
High school graduate	0.14	0.09	**0.11**†	
College	0.19	0.09	**0.13***	
Police discretion				0.10
Race/ethnicity				
Latino	0.03	0.09	0.04	
Black	0.18	0.15	0.12	
Native American	-0.35	0.21	**-0.09**†	
Other	-0.39	0.20	**-0.11**†	
Color of skin	-0.07	0.03	**-0.18***	
Marital status				
Married	0.18	0.08	**0.11***	
Separated	0.08	0.11	0.04	
Divorced/widowed	0.17	0.10	0.08	
Correctional officer effectiveness				0.08
Age	0.01	0.00	**0.22****	
Marital status				
Married	0.04	0.07	0.02	
Separated	0.23	0.09	**0.11****	
Divorced/widowed	-0.01	0.08	-0.02	

Note. Reference categories: race/ethnicity = White; marital status = single; education = 8th grade or less; custody = trustee; offense of record = violent.
† $p < 0.10$. * $p < 0.05$. ** $p < 0.01$.

Higher education was associated with an increased sense of obligation to obey

police (β = 0.17 to 0.27) and correctional officers (β = 0.11; β = 0.13), with a stronger

effect observed in police obligation. College-educated respondents also had more trust in

police compared to individuals with educational attainment of eighth grade or less (β = 0.13). Education was not a significant predictor of correctional officer trust. Racial and ethnic differences were observed in correctional officer trust, however. Latino (β = 0.11) and Black (β = 0.16) individuals reported more trust in correctional officers compared to Whites. Interestingly, trust in correctional officers decreased as interviewer-identified skin tone of the respondent increased in darkness (β = -0.13). Individuals' ratings of correctional officer trust also decreased as the number of prior arrests increased (β = -0.08). There were no statistically significant differences in police trust based on the number of prior arrests.

Dull compulsion and fear of punishment. Regression coefficients for dull compulsion and fear of punishment are represented in Table 30. Latinos felt more dull compulsion or powerlessness against authority compared to Whites (β = 0.10). This finding represents the only statistically significant race or ethnicity difference observed among legitimacy as obligation measures (i.e., obligation to obey the law, police, and correctional officers).

Table 30

Weighted Linear Regressions and Generalized Structural Equation Model for Dull Compulsion and Fear of Punishment Measures

Endogenous and exogenous variables	b	SE	β	R^2
Dull compulsion				0.04
Race/ethnicity				
Latino	0.13	0.07	**0.10**[†]	
Black	0.11	0.13	0.09	
Native American	0.20	0.15	0.05	
Other	-0.02	0.23	-0.01	

(continued)

Endogenous and exogenous variables	b	SE	β	R^2
Marital status				
Married	0.07	0.07	0.04	
Separated	0.18	0.08	**0.08***	
Divorced/widowed	0.02	0.08	0.00	
Custody level				
General population	0.17	0.09	**0.09†**	
Restrictive/Ad. Seg.	-0.14	0.17	-0.03	
Prior arrests	-0.01	0.00	**-0.07***	
Fear of punishment in prison				0.07
Age	0.01	0.00	**0.17****	
Custody level				
General population	0.17	0.10	**0.08†**	
Restrictive/Ad. Seg.	0.30	0.21	0.08	
Offense of record				
Property	-0.09	0.09	-0.05	
Drug	-0.18	0.10	**-0.10†**	
Other	-0.06	0.09	-0.04	
Prior arrests	0.01	0.00	**0.07†**	

Note. Reference categories: race/ethnicity = White; marital status = single; education = 8th grade or less; custody = trustee; offense of record = violent.
† $p < 0.10$. * $p < 0.05$. ** $p < 0.01$.

Fear of punishment increased with age of the respondent (β = 0.17). Individuals imprisoned for drug offenses were less fearful of punishment compared to violent offenders (β = -0.10). Fear of punishment increased (β = 0.07) and feelings of dull compulsion decreased (β = -0.07) as the number of prior arrests increased. Respondents who were classified as general population perceived more dull compulsion (β = 0.09) and fear of punishment (β = 0.08) than trustees. There were no statistical differences observed in feelings of dull compulsion or fear of punishment between trustees and individuals housed in restrictive custody.

Summary and discussion of respondent differences. The findings from the GSEM and multivariate linear regressions demonstrated important differences in

perceptions of procedural justice and legitimacy based on respondent characteristics. Age exhibited statistically significant positive relationships with procedural justice of police and correctional officers, trust in police and correctional officers, correctional officer obligation and effectiveness, fear of punishment, fairness of treatment from correctional officers, and fairness of outcomes with police. In each of these domains, older individuals rated police or correctional officers more favorably than younger people. This age finding adheres to prior research measuring procedural justice and legitimacy in prisons (Baker, 2017; Baker et al., 2015; Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Brunton-Smith & McCarthy, 2016; Papachristos et al., 2012; Reisig & Mesko, 2009; B. Steiner & Wooldredge, 2008), but contradicts prison studies measuring procedural justice of police and courts finding null or negative relationships (Atkin-Plunk & Armstrong, 2016; Baker, 2017; Baker & Gau, 2017; Tatar et al., 2012).

When analyzing self-reported racial and ethnic categories, Black respondents viewed correctional officers as more procedurally just, trustworthy, and fair in treatment compared to White respondents. Native American individuals tended to see correctional officers as more procedurally just and fair in treatment than White individuals. Latino respondents had more trust in correctional officers but felt more dull compulsion toward authority compared to White individuals. Overall, correctional officers were viewed in a favorable light in terms of trust and fairness among respondents who identified as racial/ethnic minorities. These findings are surprising considering prior correctional research found that Black/non-White males reported significantly lower feelings of prison legitimacy compared to Whites (Brunton-Smith & McCarthy, 2016; Maguire et al.,

2017).[18] Why would racial and ethnic minorities perceive correctional officers as more

trustworthy or fair compared to White prisoners?

One potential explanation may be found in the racial threat hypothesis, which is

part of the conflict perspective maintaining that subordinate racial/ethnic groups who are

dissimilar from the dominant group are more likely to be viewed as dangerous and

threatening and are therefore controlled and treated harshly by the dominant race

(Bridges & Crutchfield, 1988; Bridges, Crutchfield, & Simpson, 1987; Chambliss &

Seidman, 1982; Liska, 1992; Quinney, 1973; Turk, 1969). Black (34.0%) and Latino/a

(33.9%) individuals represent the largest proportion of prisoners in TDCJ, making White

(31.5%) prisoners the minority (Texas Department of Criminal Justice, 2016). Race and

ethnic diversity among the officers may play a role as well. One study found that non-

White male inmates who had the same race as the prosecutor in their case saw the courts

as more procedurally just than White individuals (Baker, 2017). TDCJ employment

statistics from 2016 reported racial and ethnic distributions for protective services

positions as follows: 40.8% White, 36.3% Black, 21.3% Latino/a, and 1.7% Other (Texas

Department of Criminal Justice, 2017a). Shared social identity and group value may

contribute to Black and Latino respondents' favorable views of correctional officers

(Hogg, 2016; Tyler, 1989). The racial threat hypothesis supposition would not explain

why Latino individuals perceived correctional officers as more trustworthy, but also felt

[18] Research drawing from samples of females who are incarcerated discovered that White
females had more positive perceptions of police (Baker & Gau, 2017) and court (Tatar,
Kaasa, & Cauffman, 2012) procedural justice compared to non-Whites. Conversely, one
study found that compared to Whites, Latina and Black female inmates reported more
positive perceptions of procedural justice in court, but this effect was only significant for
Latinas (Baker et al., 2014).

more dull compulsion toward authority. Latino cultural differences (e.g., familism, respect) may contribute to a paradox where Latinos thrive within a system of disadvantage or total control while acquiescing to authority (Steffensmeier, Ulmer, Feldmeyer, & Harris, 2010; Steidel & Contreras, 2003; Wright, Turanovic, & Rodriguez, 2016).

The racial threat hypothesis also cannot explain why Native American respondents held more favorable views of normative alignment with the law and correctional officer procedural justice and fair treatment while also expressing more negative views of police discretion compared to Whites. Native American stereotypes contribute to discrimination in treatment and punishment resulting in harmful but sometimes beneficial outcomes (Feinstein, 2015; Franklin, 2013; Franklin & Henry, 2018; Ulmer & Bradley, 2017; Wilmot & Delone, 2010). It is possible that Native American respondents experienced adverse interactions with police that did not influence their favorable opinions of the law or correctional officers.

Compared to the categorical race findings, the color of skin scale consistently showed that increases in interviewer-identified skin tone darkness corresponded with decreased views of correctional officer procedural justice, trust, fair treatment, favorability of outcomes of disciplinary reports, and police discretion. These results conform with previous studies, finding that individuals with darker skin tones are sentenced to longer terms of imprisonment (King & Johnson, 2016; Viglione, Hannon, & DeFina, 2011) and stopped by police more often (White, 2015) than lighter-skin individuals, which would contribute to perceptions of unfairness and illegitimacy of criminal justice agents (Jackson, Bradford, MacQueen, & Hough, 2016; Tyler, Jackson,

& Mentovich, 2015). The disparate findings between categorical race/ethnicity indicators and color of skin scale suggest that discrimination based on skin tone, or "colorism," may coincide with efforts to reduce racism (Hunter, 2007).

Continuing with other demographic differences, married individuals felt that police were more procedurally just, perceived a greater obligation to obey police and correctional officers, and believed that the law was more legitimate when compared to respondents who reported their marital status as single. This result is at odds with previous correctional research reporting a negative relationship between male prisoners' marital status and perceptions of court procedural justice and a null relationship between marital status and combined obligation to obey the law and judges (Baker, 2017).[19] The inconsistent findings may be a result of differences in measures and samples. Baker (2017) measured perceptions of court procedural justice, which are likely to differ from opinions of police or correctional officer procedural justice. Baker's (2017) obligation measure included perceptions of judges, whereas the analogous legal obligation scale identified in this dissertation incorporated only impressions about the law. In addition, Baker (2017) operationalized marital status dichotomously as married or unmarried, while marital status was treated as a categorical variable consisting of four categories in this dissertation. Lastly, the sample included in this dissertation was comprised of men who were scheduled for release from prison within one week—a distinction not observed in Baker's (2017) study. It is possible that married individuals may feel a greater sense of obligation to obey the law when they are nearing release and potential reunion with

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[19] One study found that perceptions of police procedural justice and obligation to obey the law did not significantly vary between married and unmarried females who are incarcerated (Baker & Gau, 2017).

their spouse. Spouses may provide beneficial social bonds and informal social control or may represent a form of social capital that can be safeguarded through a duty to obey the law (Sampson & Laub, 2005; Sampson & Laub, 1993).

Other differences were observed among self-reported educational attainment before imprisonment. Higher education corresponded with increased legitimacy of the law, trust in police, and obligation to obey police and correctional officers. Prior correctional research observed either that education was correlated with increased legitimacy (Baker, 2017; Brunton-Smith & McCarthy, 2016) or education demonstrated null or negative effects on legitimacy or procedural justice (Baker & Gau, 2017; Beijersbergen, Dirkzwager, Eichelsheim, et al., 2015; Maguire et al., 2017). One study reported that higher education was associated with lower ratings of court procedural justice (Baker et al., 2014). This finding may help to explain why respondents with higher education were less satisfied with the outcomes of disciplinary reports. It may be that people with more education are better situated to participate in their defense, understand the proceedings against them, and recognize their procedural rights compared to individuals with less education (Cooper & Zapf, 2003). Knowledge of procedural rights may contribute to dissatisfaction with the outcomes of disciplinary reports. People with more education may feel like they have more to lose than an individual with less education who may more readily accept unfavorable outcomes as a result of desensitization to cumulative disadvantage in other areas of life that are typical metrics of success (Paternoster & Iovanni, 2006; Sampson & Laub, 1997).

Respondents who were employed in the six months before their current incarceration had more positive perceptions of police fairness in treatment than

individuals who were not employed during that time. Older, educated, married, and employed individuals may be more willing to buy into the legitimacy of authority because they identify with the socioeconomic structure and have more social capital to protect (Bersani & Doherty, 2013; Sampson & Laub, 2005; Wolff & Draine, 2004). Alternatively, these individuals may be receiving preferential treatment from criminal justice agents (Engel, Sobol, & Worden, 2000; Franklin & Fearn, 2015; Steffensmeier, Ulmer, & Kramer, 1998).

Respondents who were classified as general population felt more dull compulsion and fear of punishment and perceived treatment by correctional officers as less fair compared to trustees. These differences may be related to the lower level of restrictions and higher level of privileges that are afforded to trustees, such as greater freedom of movement and more frequent contact visits (Texas Department of Criminal Justice, 2017b). Individuals housed in administrative segregation or restrictive custody reported less obligation to the law, compared to trustees. Lower perceived legitimacy among higher custody prisoners may be indicative of attitudes and behaviors that contribute to placement in restrictive housing, including risk of violence and involvement in security threat groups (Texas Department of Criminal Justice, 2017b).

Statistical differences were observed among the offense of record. Property offenders demonstrated less trust and obligation to the law compared to violent offenders. Drug offenders expressed less fear of punishment, less obligation to obey the law, and were less satisfied with outcomes of police encounters. These differences may reflect different motivations and severity of actions involved in these offenses.

Interesting findings emerged in the analysis of prior arrests. Increased number of prior arrests corresponded with decreased ratings of police fairness (i.e., procedural justice, fair treatment, fair outcomes) and increased correctional officer fairness in treatment. This disparate finding further elucidates that perceptions differ depending on the authority of focus. Individuals may develop a negativity bias toward police and view their treatment as less fair if they feel like the police are out to get them (Skogan, 2006). It may be that people with more prior arrests have difficulty adjusting to free world expectations but understand the expectations and rules in a controlled prison setting. This supposition may explain why respondents with more prior arrests felt more fear of punishment if they were to break prison rules. Although correctional officers were seen as fair, respondents with more prior arrests also had less trust in correctional officers' values. Individuals with more prior arrests may recognize the means by which correctional officers enforce rules as fair but reject the characteristics of the officers who enforce the prison rules. Such innovative or rebellious adaptations to imprisonment may also explain why increased prior arrests corresponded with a decreased sense of dull compulsion. Respondents with more prior arrests may not experience dull compulsion or powerlessness toward authority because they have disengaged from regulatory authority in favor of their own illegal motivations (Merton, 1938).

Procedural justice and legitimacy pathways. To determine the relationships among procedural justice and legitimacy variables, several structural equation models were estimated. First, direct effects from police and correctional officer procedural justice to legitimacy of law, police, and correctional officers are modeled. Second, legitimacy measures were tested as predictors of other legitimacy outcomes to test for

any potential mediating effects that should be modeled. Third, direct and mediating relationships among procedural justice and legitimacy indicators are examined to produce the final structural equation model representing relationships among procedural justice of police and correctional officers and legitimacy of police, correctional officers, and the law. Lastly, theoretically-relevant exogenous (i.e., low self-control and personal experiences with police and correctional officers) and endogenous (i.e., dull compulsion and fear of punishment) variables were added to the model.

Standardized coefficients and robust standard errors for the initial exploratory model measuring direct effects of procedural justice predictors on legitimacy outcomes are depicted in Table 31. Four observations with missing values were excluded, resulting in 798 total observations. The relationships from procedural justice to legitimacy are were positive, indicating that increases in perceived procedural justice corresponded with increases in perceived legitimacy. There were notable statistical differences between police and correctional officer procedural justice. Police procedural justice exerted the strongest associations with police trust ($\beta = 0.60$), police discretion ($\beta = 0.40$), and normative alignment with the law ($\beta = 0.40$). Comparatively, correctional officer procedural justice demonstrated the strongest relationships with the correctional officer-specific legitimacy scales of trust ($\beta = 0.58$), effectiveness ($\beta = 0.49$), and obligation ($\beta = 0.32$). Perceptions of police procedural justice exerted stronger associations with legal legitimacy indicators, whereas correctional officer procedural justice predictors were more closely associated with correctional officer-specific legitimacy outcomes. The paths from both police and correctional officer procedural justice indicators to dull compulsion were not statistically significant.

Table 31

Initial Model Measuring Direct Effects of Procedural Justice Predictors on Legitimacy

Outcomes

| | Procedural justice predictors | | | |
| | Police | | Corrections | |
Legitimacy outcomes	β	SE	β	SE
Police obligation	**0.26****	0.05	**0.14****	0.05
Police trust	**0.60****	0.03	**0.15****	0.04
Police discretion	**0.40****	0.05	0.07	0.05
Legal obligation	**0.26****	0.05	**0.17****	0.05
Trust in law	**0.23****	0.05	0.07	0.05
Normative alignment with law	**0.40****	0.04	**0.12****	0.04
Correctional officer obligation	0.09	0.05	**0.32****	0.05
Correctional officer trust	**0.16****	0.04	**0.58****	0.03
Correctional officer effectiveness	**0.15****	0.04	**0.49****	0.04
Dull compulsion	0.03	0.05	0.06	0.05

Note. N = 798; SRMR = 0.138; CD = 0.834; AIC = 14365; BIC = 14524.

** $p < 0.01$.

The initial model yielded less than acceptable goodness of fit statistics. The standardized root mean squared residual (SRMR) was 0.138, which is above the acceptable cutoff criteria of < 0.08 (Brown, 2015; Hu & Bentler, 1999). The coefficient of determination (CD) was 0.815, suggesting that the model explains about 82% of the variance.

Non-significant paths were excluded, and the model was re-run. In line with the estimates in the previous model, the path from correctional officer procedural justice to trust in the law was omitted. Dull compulsion was also removed from the model. The revised model is depicted in Figure 11. These changes resulted in a slight improvement in the SRMR, but the CD remained the same. The values for Akaike information

criterion (AIC) and Bayesian information criterion (BIC) were smaller in this model

compared to the initial model, indicating that the revised model fit the data better
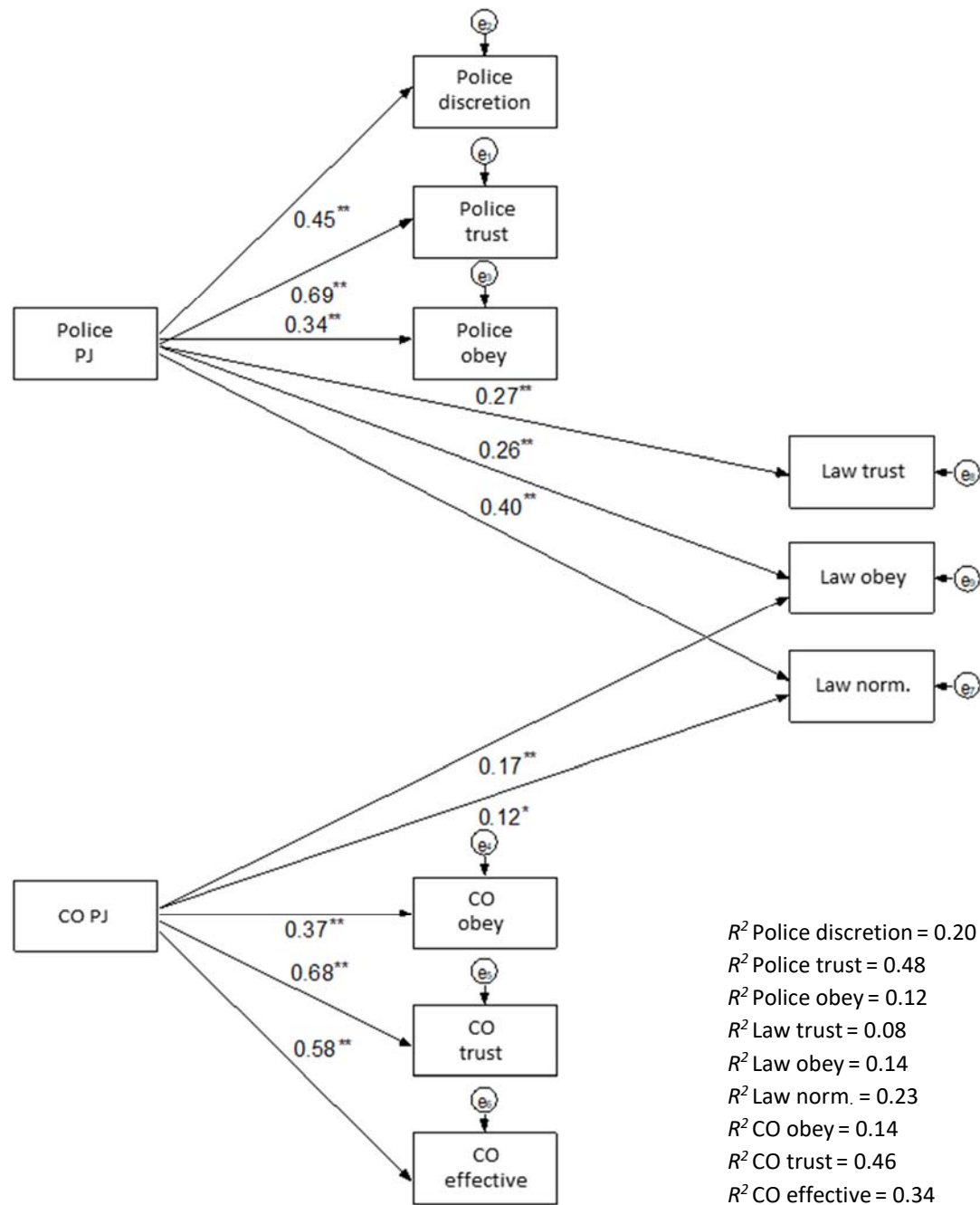
(StataCorp, 2015a).

Figure 11. Direct effects structural equation model for procedural justice of police and correctional officers on legitimacy of police, correctional officers, and the law.

Standardized coefficients are depicted. PJ = procedural justice. CO = correctional officer. N = 798; SRMR = 0.136; CD = 0.834; AIC = 12956; BIC = 13092.
* $p < 0.05$. ** $p < 0.01$.

In this revised model, police procedural justice demonstrated moderate to strong positive associations (β = 0.26 to 0.69) with all six police and law legitimacy measures. Correctional officer procedural justice was positively and significantly related to all three correctional officer legitimacy measures (β = 0.37 to 0.68) as well as obligation to the law (β = 0.17) and normative alignment with the law (β = 0.12). As reported in Figure 11, the variance explained for each endogenous variable ranged from 0.08 (R^2 Law trust) to 0.48 (R^2 Police trust), meaning that this model explains from 8% to 48% of the variance of the endogenous variables.

Next, legitimacy measures were modeled as predictors of other legitimacy outcomes to test for any potential mediating effects. Results are presented in Table 32. In these SEMs, both obligation to obey police (β = 0.26) and correctional officers (β = 0.27) moderately predicted dull compulsion, in that an increased sense of obligation to police and correctional officers is associated with increased feelings of powerlessness against these authorities. Dull compulsion also weakly predicted trust in the law (β = -0.12), specifically trust in the law decreased as powerlessness against police and correctional officers increased. The estimates presented in Table 32 indicate correlations between the obligation measures for police and correctional officers and also between trust in police and correctional officers. Police trust may predict normative alignment with the law (β = 0.44), whereas correctional officer trust was not significantly associated with normative alignment with the law. No statistically significant relationships were observed among the legitimacy measures for law and correctional officers.

Table 32

Direct Effects of Legitimacy Predictors on Legitimacy Outcomes

	Legitimacy outcomes																			
	Police officers						Law						Correctional officers						Dull compulsion		
	Obligation		Trust		Discretion		Obligation		Trust		Normative align.		Obligation		Trust		Effectiveness				
Legitimacy predictors	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE	CD
Police obligation			**0.16****	0.04	0.08	0.05	0.08	0.05	-0.01	0.06	0.02	0.05	**0.34****	0.05	-0.05	0.04	0.00	0.04	**0.26****	0.05	0.40
Police trust	**0.22****	0.06			**0.27****	0.07	0.02	0.07	0.02	0.06	**0.44****	0.06	0.00	0.06	**0.37****	0.05	0.06	0.06	-0.08	0.06	0.58
Police discretion	0.07	0.05	**0.17****	0.04			**0.19****	0.05	**0.18****	0.05	0.07	0.05	0.00	0.04	0.01	0.04	0.04	0.04	-0.07	0.05	0.31
Legal obligation	0.07	0.04	0.01	0.04	**0.18****	0.05			**0.27****	0.05	**0.10***	0.05	-0.01	0.04	0.01	0.04	0.07	0.05	0.09	0.05	0.27
Trust in law	-0.01	0.04	0.01	0.03	**0.15****	0.04	**0.24****	0.04			0.04	0.04	0.00	0.04	0.02	0.03	0.02	0.04	-0.11	0.05	0.19
Norm. align. law	0.02	0.05	**0.30****	0.05	0.07	0.06	**0.12***	0.06	0.05	0.06			0.01	0.04	0.05	0.04	0.02	0.05	0.07	0.05	0.38
CO obligation	**0.38****	0.05	0.00	0.04	0.00	0.05	-0.02	0.06	0.00	0.06	0.01	0.05			**0.21****	0.04	**0.14****	0.05	**0.27****	0.06	0.46
CO trust	-0.07	0.05	**0.37****	0.05	0.01	0.06	0.03	0.07	0.05	0.06	0.07	0.06	**0.27****	0.06			**0.46****	0.05	-0.09	0.06	0.58
CO effectiveness	0.00	0.05	0.05	0.05	0.05	0.05	0.10	0.06	0.03	0.06	0.03	0.06	**0.14****	0.05	**0.35****	0.04			0.06	0.06	0.44
Dull compulsion	**0.20****	0.04	-0.04	0.03	-0.06	0.05	0.09	0.05	**-0.12***	0.05	0.05	0.04	**0.19****	0.04	-0.05	0.03	0.04	0.04			0.21

Note. CO = correctional officer. CD = coefficient of determination.

* $p < 0.05$. ** $p < 0.01$.

The direct and mediating relationships among procedural justice and legitimacy indicators were modeled as depicted in Figure 12. Compared to the direct effects model, there was a slight improvement in the SRMR, but the CD reduced. The AIC and BIC were smaller in this model compared to the previous direct effects model, indicating that the revised model fit the data better (StataCorp, 2015a). In this model, police procedural justice demonstrated statistically significant direct effects with police discretion (β = 0.23), police trust (β = 0.69), trust in the law (β = 0.10), and obligation to obey the law (β = 0.15). The direct paths from police procedural justice to both obligation to obey police and normative alignment with the law were not statistically significant. Police trust exerted significant effects on other police legitimacy constructs of police discretion (β = 0.31) and obligation to obey police (β = 0.37).

Police legitimacy indicators maintained direct effects on law legitimacy measures, whereas correctional officer legitimacy measures were not significantly associated with legal legitimacy. Police discretion was positively associated with trust in the law (β = 0.18) and obligation to obey the law (β = 0.27). Police trust was the only statistically significant predictor of normative alignment with the law (β = 0.48).

Correctional officer procedural justice demonstrated statistically significant direct effects with correctional officer effectiveness (β = 0.29), correctional officer trust (β = 0.68), and obligation to obey the law (β = 0.15). The direct paths from correctional officer procedural justice to both obligation to obey correctional officers and normative alignment with the law were not statistically significant. Correctional officer trust exerted significant effects on other correctional officer legitimacy constructs of

correctional officer effectiveness ($\beta = 0.43$) and obligation to obey correctional officers
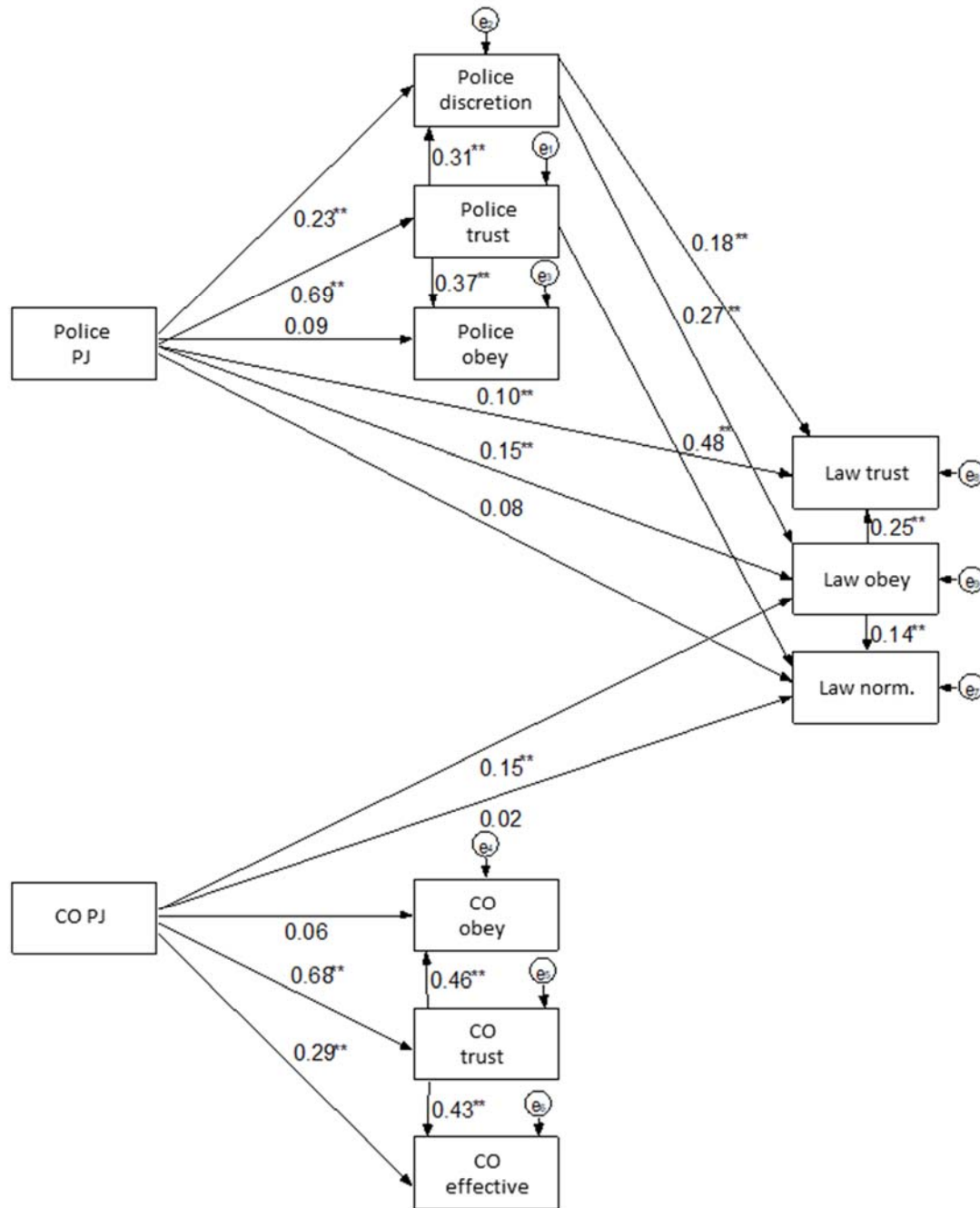
($\beta = 0.46$).

Figure 12. Direct and mediating effects structural equation model for procedural justice of police and correctional officers on legitimacy of police, correctional officers, and the law. Standardized coefficients are depicted. PJ = procedural justice. CO = correctional officer. N = 798; SRMR = 0.109; CD = 0.737; AIC = 12296; BIC = 12474.
* $p < 0.05$. ** $p < 0.01$.

With the goal of developing a parsimonious model, non-significant paths were removed. Figure 13 depicts the final model of the direct and mediating relationships among procedural justice and legitimacy indicators. The standardized coefficients were similar in the final model compared to the previous model, but the final model allowed covariance between the error terms of obligation to obey police and correctional officers ($r = 0.44$) and trust in police and correctional officers ($r = 0.45$). The variance explained for each endogenous variable ranged from 0.14 (R^2 Police obey) to 0.43 (R^2 Police trust and R^2 CO effective), meaning that this model explains from 14% to 43% of the variance of the endogenous variables. Compared to the previous model, the final model had a slight improvement in the SRMR (0.088), bringing the model closer to the acceptable cutoff criteria of < 0.08 (Brown, 2015; Hu & Bentler, 1999). The CD was 0.694, suggesting that the model explains about 69% of the variance. The AIC and BIC were smaller in this model compared to the previous model, indicating that the final model fit the data better (StataCorp, 2015a).

The standardized direct and indirect effects of procedural justice and legitimacy variables in the final model are presented in Table 33. Direct effect estimates are the same as depicted in Figure 13. After controlling for other variables in the model, 52.06% of the effect of correctional officer procedural justice on correctional officer effectiveness was direct and 47.94% of the effect was indirect as mediated through correctional officer trust. As reported in Table 34, the total effect of correctional officer procedural justice on correctional officer effectiveness as mediated by correctional officer trust was 47.94%. Correctional officer trust also mediated the path between correctional officer procedural justice and correctional officer obligation with a total mediated effect of 100%.
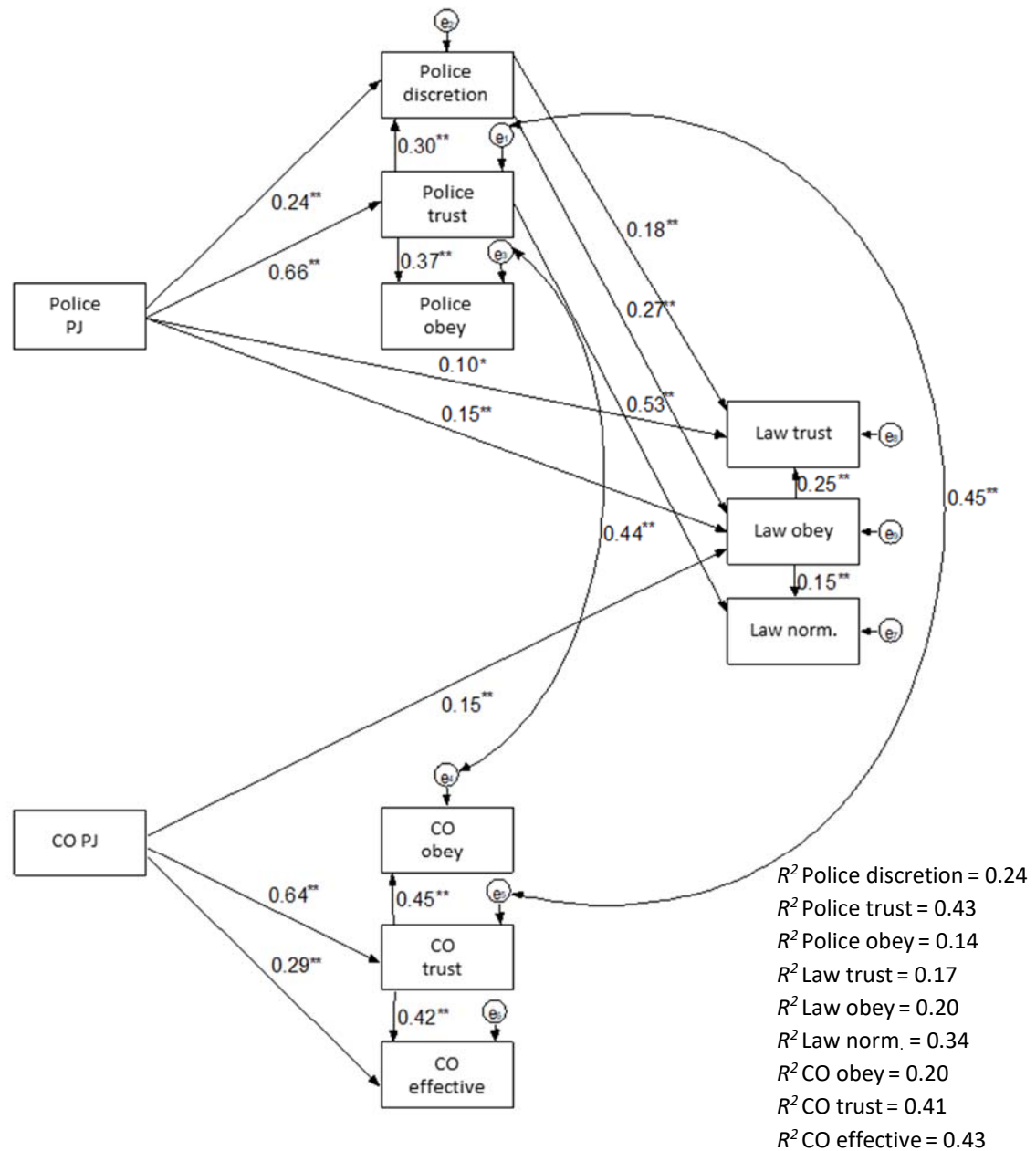
Figure 13. Final structural equation model for procedural justice of police and correctional officers on legitimacy of police, correctional officers, and the law. Standardized coefficients and correlated errors are depicted. PJ = procedural justice. CO = correctional officer. N = 798; SRMR = 0.088; CD = 0.694; AIC = 11966; BIC = 12134. * $p < 0.05$. ** $p < 0.01$.

Table 33

Standardized Effects for Procedural Justice of Police and Correctional Officers on

Legitimacy of Police, Correctional Officers, and the Law

Outcome ← Predictor	Direct effect	Indirect effect	Total effect	% direct	% indirect
Police trust					
← Police PJ	0.66	-	0.66	100.00	0.00
Police discretion					
← Police trust	0.30	-	0.30	100.00	0.00
← Police PJ	0.24	0.20	0.43	54.56	45.44
Law trust					
← Police trust	-	0.07	0.07	0.00	100.00
← Police discretion	0.18	0.07	0.25	71.98	28.02
← Law obey	0.25	-	0.25	100.00	0.00
← Police PJ	0.10	0.14	0.25	42.36	57.64
← CO PJ	-	0.04	0.04	0.00	100.00
Law obey					
← Police trust	-	0.08	0.08	0.00	100.00
← Police discretion	0.27	-	0.27	100.00	0.00
← Police PJ	0.15	0.12	0.26	55.41	44.59
← CO PJ	0.15	-	0.15	100.00	0.00
CO trust					
← CO PJ	0.64	-	0.64	100.00	0.00
CO effectiveness					
← CO trust	0.42	-	0.42	100.00	0.00
← CO PJ	0.29	0.27	0.57	52.06	47.94
Police obey					
← Police trust	0.37	-	0.37	100.00	0.00
← Police PJ	-	0.24	0.24	0.00	100.00
Law norm. align.					
← Police trust	0.53	0.01	0.54	97.71	2.29
← Police discretion	-	0.04	0.04	0.00	100.00
← Law obey	0.15	-	0.15	100.00	0.00
← Police PJ	-	0.39	0.39	0.00	100.00
← CO PJ	-	0.02	0.02	0.00	100.00
CO obey					
← CO trust	0.45	-	0.45	100.00	0.00
← CO PJ	-	0.29	0.29	0.00	100.00

Note. All effects are statistically significant. PJ = procedural justice. CO = correctional officer.

Police trust functioned similarly as a mediator between police procedural justice and police discretion. After controlling for other variables in the model, 54.56% of the effect of police procedural justice on police discretion was direct, and 45.44% of the effect was indirect as mediated through police trust. As reported in Table 34, the total effect of police procedural justice on police discretion as mediated by police trust was 45.44%. Police trust also mediated the path from police procedural justice to police obligation (total mediated effect = 100%).

Table 34

Total Effects of Mediated Procedural Justice and Legitimacy Pathways

Predictor	Mediator	Outcome	Total mediated effect %
Police PJ →	Police discretion →	Law trust	16.79
	Police discretion →	Law obey	24.33
	Police trust →	Police discretion	45.44
	Police trust →	Law norm. align.	89.65
	Police trust →	Police obey	100.00
	Law obey →	Law trust	14.89
	Law obey →	Law norm. align.	5.73
Police discretion →	Law obey →	Law trust	28.02
	Law obey →	Law norm. align.	100.00
CO PJ →	Law obey →	Law trust	100.00
	Law obey →	Law norm. align.	100.00
	CO trust →	CO obey	100.00
	CO trust →	CO effective	47.94

Note. All mediated effects are statistically significant.

Focusing on legal legitimacy outcomes, the effect of police procedural justice on trust in the law was 42.36% direct and 57.64% indirect as mediated through police discretion (total mediated effect = 16.79%) and obligation to obey the law (total mediated effect = 14.89%). The effect of correctional officer procedural justice on trust in the law

was mediated through obligation to obey the law (total mediated effect = 100%). The effect of police discretion on trust in the law was 71.98% direct and 28.02% indirect as mediated through obligation to obey the law (total mediated effect = 28.02%). The effect of police procedural justice on obligation to obey the law was 55.41% direct and 44.59% indirect as mediated through police discretion (total mediated effect = 24.33%). Correctional officer procedural justice maintained a direct effect on obligation to obey the law (β = 0.15).

The paths from procedural justice and police discretion to normative alignment with the law were 100% indirect. The effect of police procedural justice on normative alignment with the law was mediated through police trust (total mediated effect = 89.65%) and obligation to obey the law (total mediated effect = 5.73%). The effect of correctional officer procedural justice on normative alignment with the law was also mediated through obligation to obey the law (total mediated effect = 100%). Police discretion was associated with normative alignment with the law as mediated through obligation to obey the law (total mediated effect = 100%).

Adding dull compulsion and fear of punishment to the model. The previously estimated direct effects models demonstrated that procedural justice was not significantly associated with dull compulsion, but police and correctional officer indicators of obligation to obey related to dull compulsion. Thus, the next stage in the analyses was to add dull compulsion and a related concept, fear of punishment, to the model as depicted in Figure 14. The goodness of fit statistics for this model were acceptable (SRMR = 0.081; CD = 0.694).
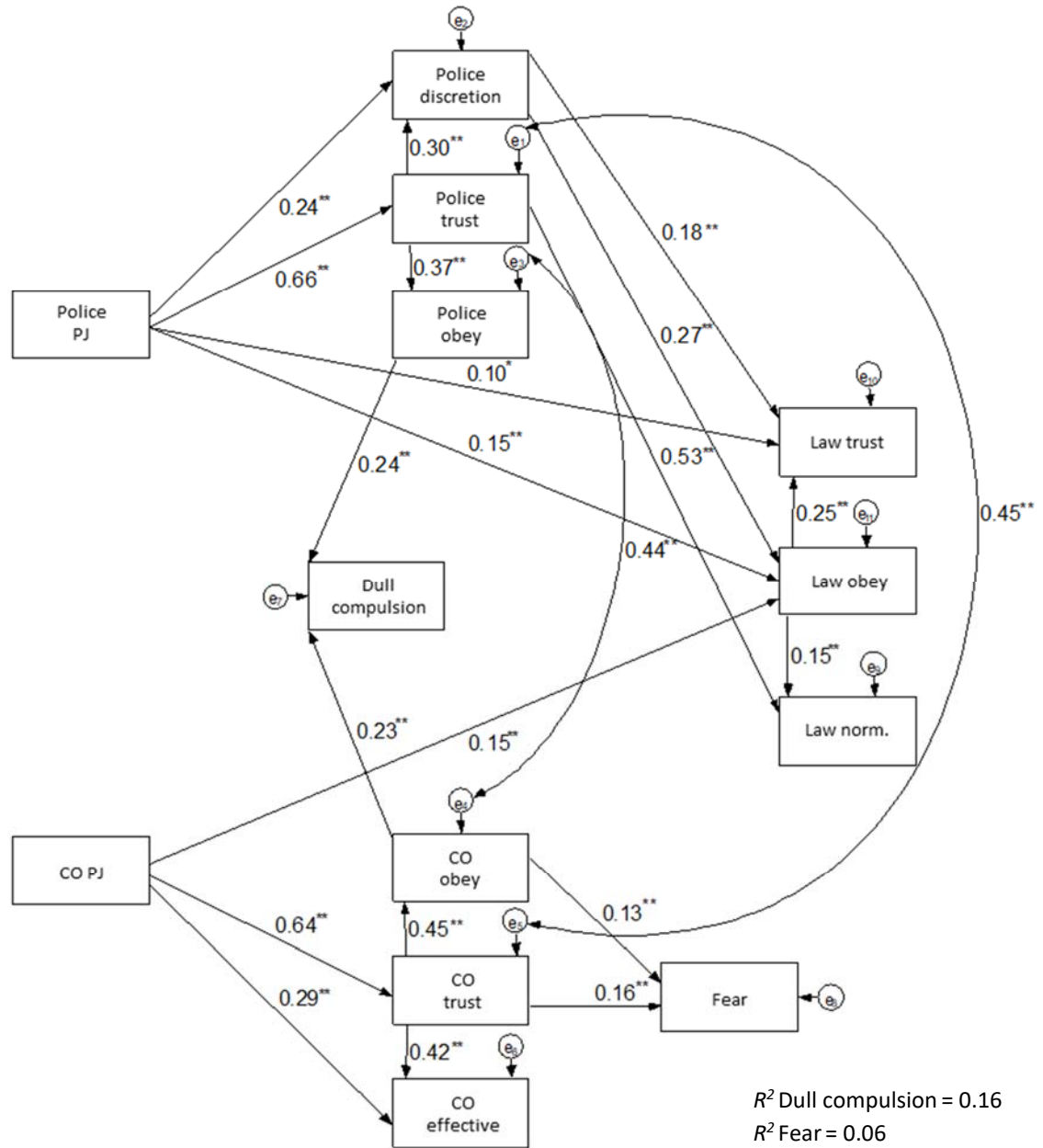
Figure 14. Procedural justice and legitimacy model predicting dull compulsion and fear of punishment in prison. Standardized coefficients and correlated errors are depicted. PJ = procedural justice. CO = correctional officer. N = 798; SRMR = 0.081; CD = 0.694; AIC = 14847; BIC = 15053.
* $p < 0.05$. ** $p < 0.01$.

Paths from police and correctional officer obligation to dull compulsion ($\beta_{\text{Police obey}}$ = 0.24; $\beta_{\text{CO obey}}$ = 0.23) were positive as were the paths from correctional officer trust (β = 0.16) and obligation (β = 0.13) to fear of punishment in prison. Increases in perceived

obligation corresponded with increases in perceived dull compulsion or fear of punishment. The model explained 16% of the variation in dull compulsion and 6% of the variation in fear of punishment.

The standardized direct and indirect effects of procedural justice and legitimacy variables on dull compulsion and fear are presented in Table 35. After controlling for other variables in the model, 72.85% of the effect of correctional officer trust on fear was direct and 27.15% of the effect was indirect as mediated through correctional officer obligation. As reported in Table 36, the total effect of correctional officer procedural justice on fear was 72.85% as mediated by correctional officer trust and 27.15% as mediated by correctional officer trust and obligation.

Table 35

Standardized Effects for Police and Correctional Officer Procedural Justice and Legitimacy on Dull Compulsion and Fear of Punishment

Outcome ← Predictor	Direct effect	Indirect effect	Total effect	% direct	% indirect
Dull compulsion					
← Police obey	0.24	-	0.24	100.00	0.00
← CO obey	0.23	-	0.23	100.00	0.00
← Police trust	-	0.09	0.09	0.00	100.00
← CO trust	-	0.11	0.11	0.00	100.00
← Police PJ	-	0.06	0.06	0.00	100.00
← CO PJ	-	0.07	0.07	0.00	100.00
Fear					
← CO obey	0.13	-	0.13	100.00	0.00
← CO trust	0.16	0.06	0.22	72.85	27.15
← CO PJ	-	0.14	0.14	0.00	100.00

Note. All effects are statistically significant. PJ = procedural justice.
CO = correctional officer.

Table 36

Total Effects of Mediated Procedural Justice and Legitimacy Pathways to Dull

Compulsion and Fear of Punishment

Predictor	Mediator	Outcome	Total mediated effect %
Police PJ →	Police trust → Police obey →	Dull compulsion	100.00
Police trust →	Police obey →	Dull compulsion	100.00
CO trust →	CO obey →	Dull compulsion	27.15
	CO obey →	Fear	100.00
CO PJ →	CO trust → CO obey →	Dull compulsion	100.00
	CO trust → CO obey →	Fear	27.15
	CO trust →	Fear	72.85

Note. All mediated effects are statistically significant.

Adding personal experience with police and correctional officers to the model.

Personal experiences refer to judgments about the fairness in treatment and decisions

made and favorability of outcomes in personal encounters with police or correctional

officers, which can be distinguished from perceptions of the procedural justness of these

criminal justice agents generally (Jackson et al., 2016; Tyler & Jackson, 2014). The full

model with personal experience indicators as exogenous variables is presented in Figure

15. The goodness of fit statistics for this model were within acceptable standards (SRMR
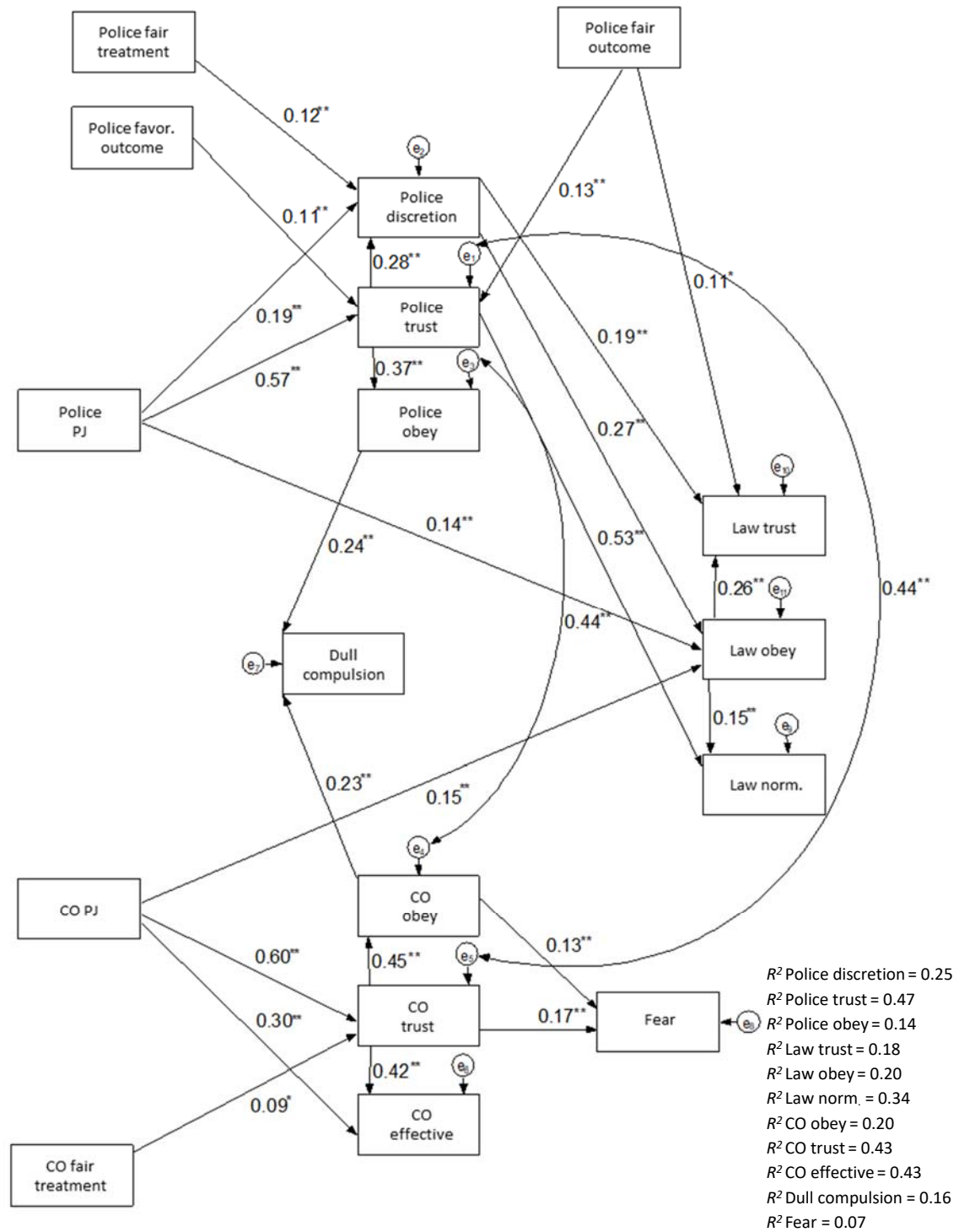
= 0.070; CD = 0.722).

Figure 15. Procedural justice and legitimacy model including personal experience with police and correctional officers as exogenous variables. Standardized coefficients and correlated errors are depicted. PJ = procedural justice. CO = correctional officer. N = 796; SRMR = 0.070; CD = 0.722; AIC = 21906; BIC = 22130.
* $p < 0.05$. ** $p < 0.01$.

In initial exploratory analyses, indicators of fairness and favorability of outcomes from disciplinary reports in prison did not demonstrate statistically significant effects on any legitimacy measures. Correctional officer fairness of treatment exerted a weak positive effect on trust in correctional officers ($\beta = 0.09$). Positive relationships were also observed from police fair treatment to police discretion ($\beta = 0.12$) and police favorable outcome to police trust ($\beta = 0.11$). Police fair outcomes affected police trust ($\beta = 0.13$) and trust in the law ($\beta = 0.11$). When police fairness in outcomes was added to the model, the path from police procedural justice to trust in the law attenuated and became non-significant. Thus, fairness in outcomes during interactions with police was a better predictor of trust in the law than general perceptions of police procedural justice.

Adding low self-control to the model. The full model with low self-control as an exogenous variable is presented in Figure 16. Goodness of fit statistics improved when low self-control was added to the model (SRMR = 0.066; CD = 0.745). Low self-control demonstrated statistically significant negative relationships with police discretion ($\beta = -0.08$), trust in the law ($\beta = -0.10$), obligation to obey the law ($\beta = -0.23$), and correctional officer effectiveness ($\beta = -0.07$). Increases in low self-control corresponded with decreases in these endogenous variables. This finding could alternatively be interpreted to mean that higher levels of self-control were associated with more favorable views of police discretion, correctional officer effectiveness, trust in the law, and duty to obey the law. Standardized coefficients among the other procedural justice and legitimacy pathways were virtually unchanged, except the path from police procedural justice to duty to obey the law was attenuated and became marginally significant ($\beta_{previous\ model} = 0.14$, $p < 0.01$; $\beta_{current\ model} = 0.09$, $p < 0.10$). Although police procedural justice

contributes to explaining duty to obey the law, low self-control is a stronger predictor. In this model, the variance explained for duty to obey the law was 0.24, meaning that this model explains 24% of the variance in duty to obey the law.
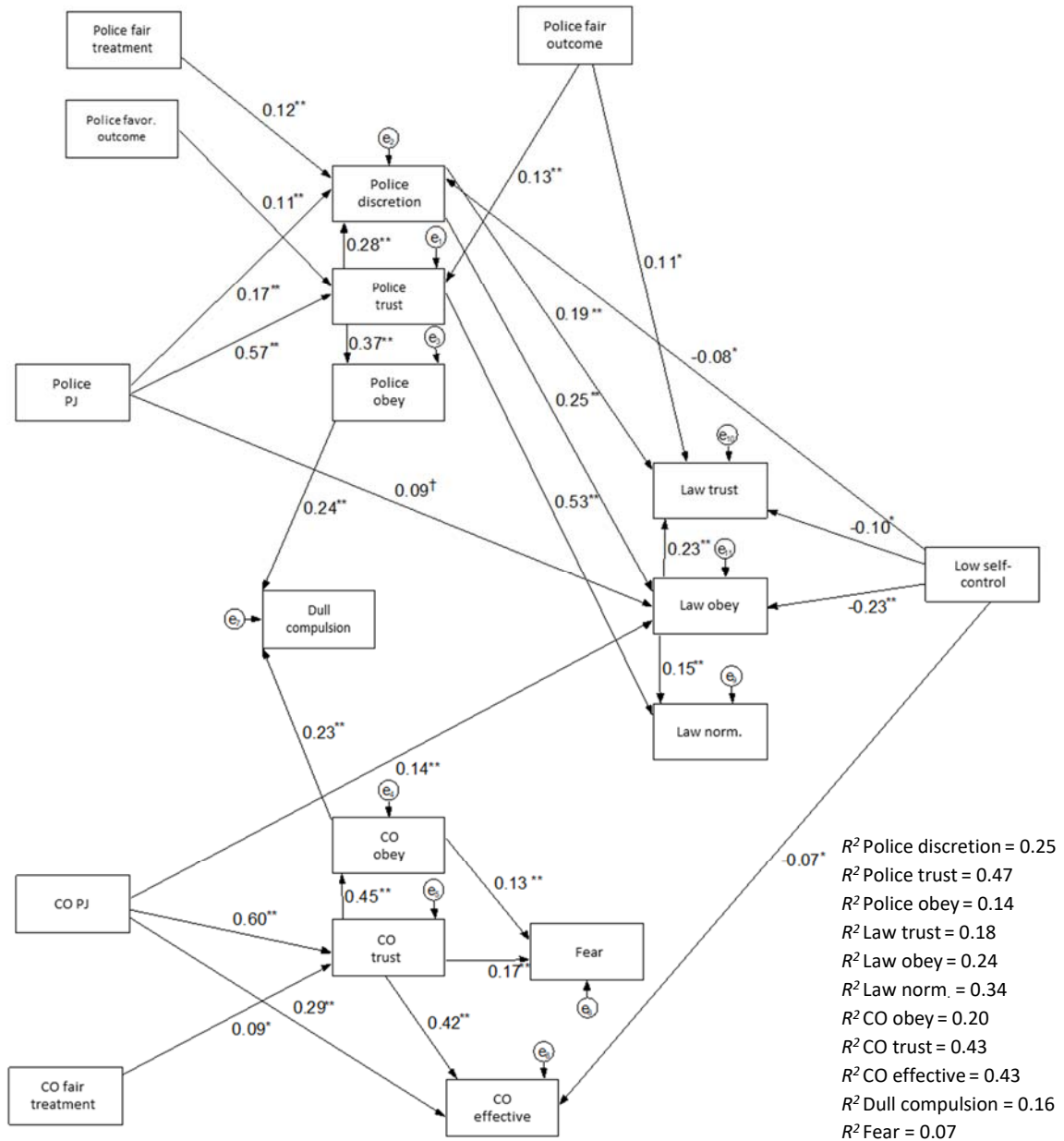

Figure 16. Procedural justice and legitimacy model including low self-control as an exogenous variable. Standardized coefficients are depicted. Correlated errors omitted for visual ease. PJ = procedural justice. CO = correctional officer. N = 796; SRMR = 0.066; CD = 0.745; AIC = 23505; BIC = 23748.
$^\dagger p < 0.10.$ * $p < 0.05.$ ** $p < 0.01.$

Summary of procedural justice and legitimacy pathway findings. The results reported here partially support the assumptions in the process-based model of regulation. Aligning with the process-based model of regulation, increased procedural justice was associated with increased legitimacy generally. Police and correctional officer pathways were similar in that procedural justice directly affected obligation to obey the law and trust in police or correctional officers. Departing from the process-based model of regulation, the direct path between procedural justice and obligation to obey police or correctional officers was not statistically significant; rather the data supported a model where trust in police or correctional officers mediated the respective relationship between procedural justice and obligation to obey criminal justice agents. Researchers testing the process-based model of regulation reached similar conclusions about trust as a precursor, not a component, of legitimacy (Gau, 2011, 2014; Tankebe, 2013; Tankebe, Reisig, & Wang, 2016). The data analyzed in this dissertation supported a model where procedural justice was directly related with legal obligation, but indirectly related with reference-specific obligation to obey.

Important differences in associations emerged between police and correctional officer pathways. Perceptions of police procedural justice exerted stronger associations with legal legitimacy indicators, while correctional officer procedural justice predictors were more closely associated with correctional officer-specific legitimacy outcomes. Police discretion and trust maintained significant relationships with trust in the law and normative alignment with the law. No statistically significant relationship emerged between correctional officer items and normative alignment with the law or trust in the law. Thus, although correctional officer procedural justice was directly associated with

legal obligation, perceptions of police procedural justice and legitimacy were more closely associated with impressions of legal legitimacy. As discussed in the subsequent sections in this chapter, these predictors reveal different effects depending on the outcome of focus.

In the SEM for procedural justice and legitimacy without added exogenous variables, police and correctional officer procedural justice exerted the same direct effect on obligation to obey the law. When accounting for low self-control, however, the path from police procedural justice to legal obligation attenuated, whereas the path from correctional officer procedural justice to legal obligation was not substantially reduced. This finding suggests that low self-control is an influential variable to consider in procedural justice research.

The results of the SEM modeling personal experiences with police and correctional officers revealed that police fairness in outcomes (i.e., distributive justice) directly implicated trust in police and trust in the law. When police distributive justice was added to the base model, the effect from police procedural justice to trust in the law washed away, meaning distributive justice had a greater effect on trust in the law than procedural justice. Favorability of outcomes in police encounters was also associated with perceptions of police trust. Correctional officer fairness in treatment affected correctional officer trust, while police fairness in treatment affected police discretion. These findings demonstrate the importance of research considering specific experiences and general judgments.

One prior study with Scotland citizens found that police procedural justice exerted a strong negative effect on coercive obligation measured as dull compulsion and fear of

punishment combined (Jackson et al., 2016). Based on this prior study, one would expect that perceived procedural justice would reduce feelings of dull compulsion or fear of punishment. The data analyzed here produced unexpected findings in that procedural justice was not directly associated with dull compulsion or fear, and legitimacy indicators demonstrated positive connections with dull compulsion and fear. Individuals who felt a greater duty to obey correctional officers and who had more trust that correctional officers are honest and represent their values reported higher levels of fear that they would be punished if they violated the rules of prison staff. This finding is surprising at first glance, but review of the conceptual meaning of the fear measure is informative. The fear of punishment item asked respondents to report how fearful they would be of punishment if they violated the rules that prison staff set. Instead of demarking affective sense of fear of excessive, harsh, or illegitimate reactions, this item may represent perceived risk or certainty in discovery, apprehension, and repercussions. If you break the rules and do something wrong, then you are more certain that you will be punished for your wrongdoing. With this conceptualization, it would make sense that the effect was positive because people who want to obey the officers, trust the officers are doing the right thing, and believe that the officers behave in a procedurally just manner would express a corresponding belief that the officers will uphold and enforce the rules. Correctional officers would be justified in taking action to punish a person who goes against the established shared values. Conversely, someone who feels little obligation to obey or trust correctional officers and believes that officers do not represent his values may feel like the rules do not apply to him, or he can get away with breaking the rules (i.e., fear/certainty of punishment is lower). Future research should incorporate more

diverse measures of fear and certainty of punishment to disentangle these effects. Previous research measured affective fear with these items: "if you don't do what police tell you, then they will treat you badly;" "I only obey police because I am afraid of them" (Jackson et al., 2016). Others operationalize risk or certainty in punishment by asking respondents to rate the likelihood that they would get caught if they broke specific rules (e.g., disobeying orders from correctional officers, making too much noise, fighting, gambling, etc.) (Maguire et al., 2017; Tyler & Jackson, 2014).

Although psychometric analyses revealed that dull compulsion did not converge with measures of legitimacy as consensual obligation, the SEMs demonstrated that there were significant associations between dull compulsion and obligation to obey police and correctional officers. Individuals who felt more like they had no choice but to obey the orders of police and correctional officers also believed that they should accept decisions of these agents even if the decisions were wrong and obey officers even if they do not understand, agree, or like how they are treated. More procedural justice, trust, and sense of obligation were associated with more feelings of dull compulsion. This finding may be a function of the characteristics of the sample. The level of control, routinization, and loss of autonomy that the prison environment affords may contribute to prisoners' pragmatic acceptance of authority. When prison authorities are seen as respectful, trustworthy, and just, prisoners may be more inclined to let go of their own power and accept the ultimate authority of the agents in control. In this sense, dull compulsion would be indicative of what Carrabine (2005) described as "the internalization of an ideology that explains why [prisoners'] inferiority is legitimate" (p. 904). Future research

is needed to fully explore the interactions between consensual obligation to obey and dull compulsion among prisoner populations.

Effects on Cooperation and Engagement

Findings reported in this subsection answer the second research question: Is perceived legitimacy of legal authorities and the law predictive of prisoner cooperation or engagement? To answer this question, SEMs were estimated with six different outcome indicators: intentional willingness to provide information, actual willingness to provide information, violence/non-acceptance of state power, general support for prison staff, pre-prison engagement, and in-prison engagement.

Cooperation: Intentional willingness to provide information to prison staff. The first cooperation analysis depicted in Figure 17 models intentional willingness to provide information to prison staff. The model yielded acceptable goodness of fit statistics. The SRMR was 0.068, which is below the recommended cutoff criteria of < 0.08 (Brown, 2015; Hu & Bentler, 1999). The CD was 0.755, suggesting that the model explains about 76% of the variance. The model explained 20% of the variance in intentional willingness to provide information to prison staff ($R^2_{\text{Provide info}} = 0.20$).

Statistically significant predictors of intentional willingness to provide information were fear ($\beta = 0.24$), correctional officer effectiveness ($\beta = 0.27$), low self-control ($\beta = -0.12$), and anger ($\beta = -0.10$). Increased fear or certainty of punishment in prison and correctional officer effectiveness were correlated with greater reported willingness to provide information to prison staff. Individual attitudes were significant predictors as well. Both increased feelings of anger and lower self-control were associated with reduced willingness to provide information to prison staff.

The findings reported here depart from those observed in previous research. Prior correctional research found that correctional officer procedural justice directly and positively affected willingness to provide information to prison staff (Maguire et al., 2017; Reisig & Mesko, 2009). The data analyzed in this dissertation indicated that correctional officer procedural justice exerted indirect effects on willingness to provide information, but the direct path was not statistically significant. Previous research also found that risk of sanctions, effectiveness, and anger were not significant predictors of willingness to provide information (Maguire et al., 2017). These discrepancies may be a result of differences in measurement and sample characteristics.
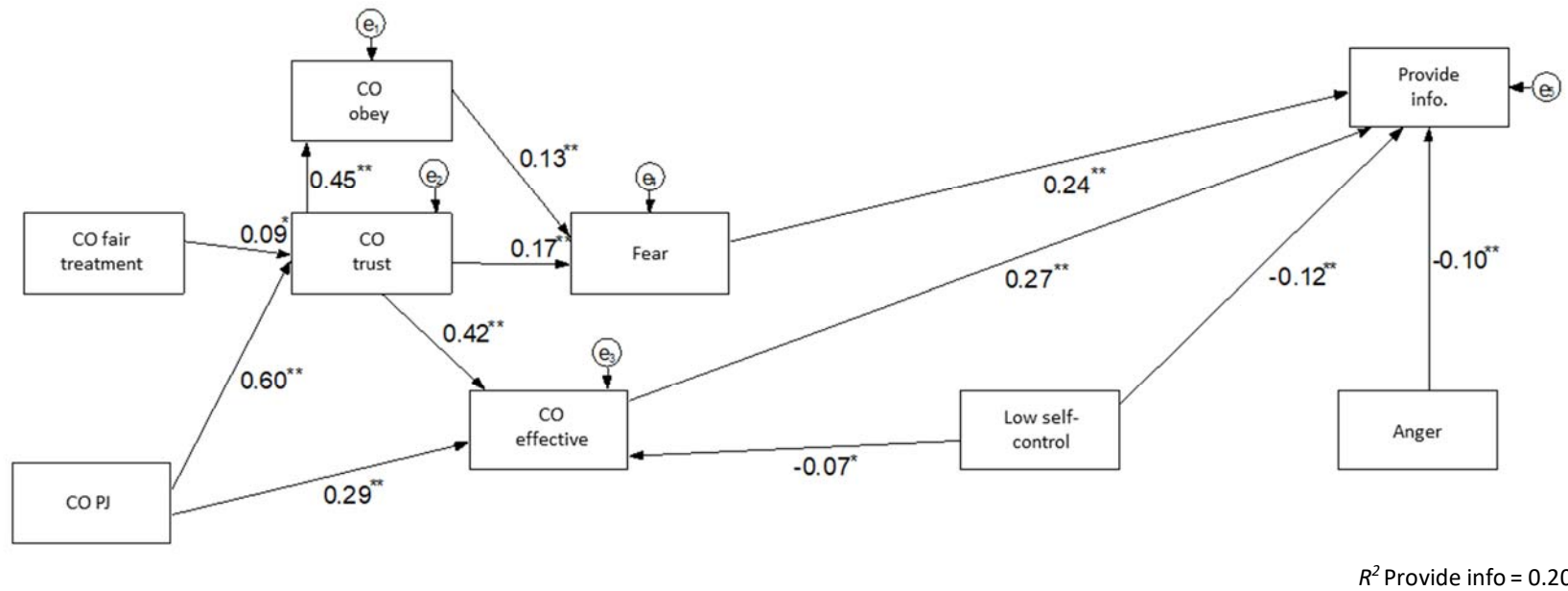
Figure 17. Procedural justice and legitimacy model predicting intentional willingness to provide information to prison staff. Standardized coefficients are depicted. Partial estimated model shown for visual ease. PJ = procedural justice. CO = correctional officer. $N = 796$; SRMR = 0.068; CD = 0.755; AIC = 26012; BIC = 26284.
* $p < 0.05$. ** $p < 0.01$.

Cooperation: Actual willingness to provide information to authorities. The

second cooperation analysis depicted in Figure 18 models actual willingness to provide

information to authorities. Because the outcome variable was dichotomous, a generalized

structural equation model (GSEM) was estimated. Certain features (i.e., goodness of fit

statistics and standardized coefficients) are not available in GSEMs (StataCorp, 2015a).
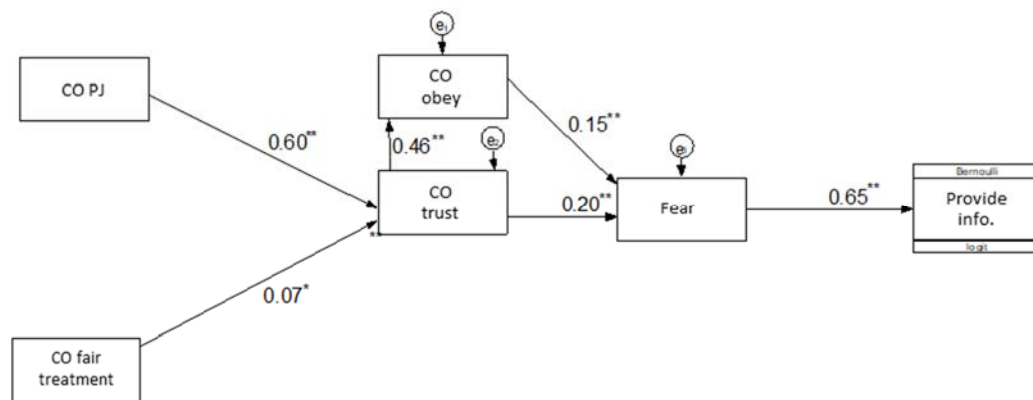
Figure 18. Procedural justice and legitimacy model predicting actual willingness to
provide information to authorities. Unstandardized coefficients are depicted. Partial
estimated model shown for visual ease. PJ = procedural justice. CO = correctional
officer. N = 802. AIC = 12661; BIC = 12914.
* $p < 0.05$. ** $p < 0.01$.

Similar to the findings in the intentional willingness to provide information

model, fear or certainty of punishment in prison was positively associated with actual

willingness to provide information to authorities ($b = 0.65$). Increased fear or certainty of

punishment in prison was associated with greater reported willingness to provide

information to prison staff. No other procedural justice or legitimacy measures or

individual attitudes exerted statistically significant direct effects on the outcome variable.

Previous studies measuring citizens' intentional willingness to provide

information to police found that legal legitimacy indicators (i.e., obligation, trust, and

normative alignment) were significant predictors of this outcome (Jackson et al., 2016; Tyler & Jackson, 2014). The results of both models of willingness to provide information reported in this dissertation did not adhere to the findings of previous research. The incongruities between the findings reported here and past research may be attributed to different measurements and sample characteristics, highlighting the importance of future research.

Cooperation: Violence/non-acceptance of state power. The third cooperation analysis shown in Figure 19 models violence/non-acceptance of state power. The model yielded acceptable goodness of fit statistics. The SRMR was 0.065, which is below the recommended cutoff criteria of < 0.08 (Brown, 2015; Hu & Bentler, 1999). The CD was 0.78, suggesting that the model explains about 78% of the variance. The model explained 34% of the variance in violence/non-acceptance of state power ($R^2_{\text{Violence/no state pow}}$ = 0.34).

Statistically significant predictors of violence/non-acceptance of state power were police trust (β = 0.11), obligation to obey the law (β = -0.22), police procedural justice (β = -0.14), correctional officer effectiveness (β = -0.10), fear of punishment (β = -0.25), low self-control (β = 0.20), and anger (β = 0.17). Increased police procedural justice, correctional officer effectiveness, and legal obligation were associated with reduced inclinations toward violence/rejection of authority. Individual attitudes were significant predictors as well. Both increased feelings of anger and lower self-control corresponded with increased proclivity toward violence/non-acceptance of authority. Less fear of punishment was associated with increased violence/non-acceptance of state power.
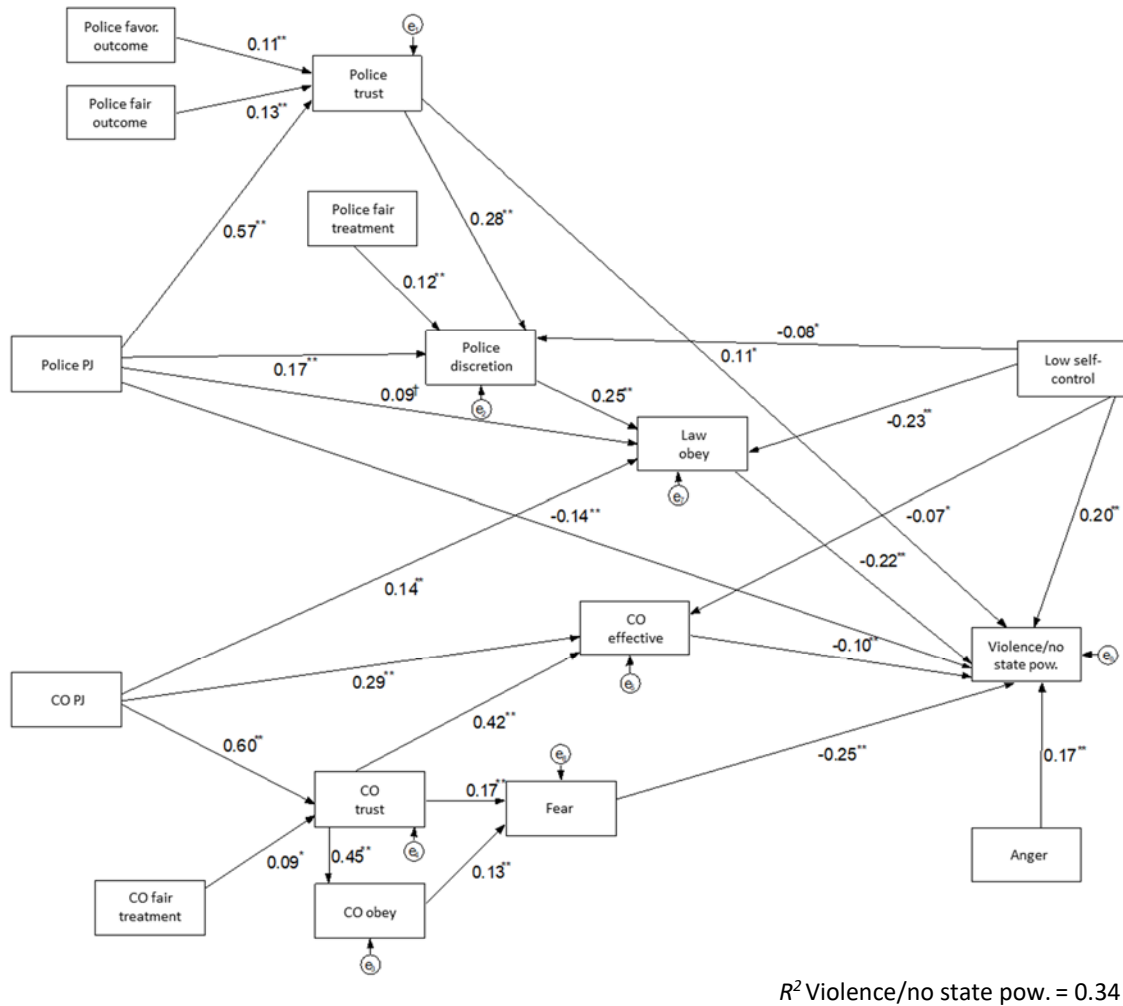
Figure 19. Procedural justice and legitimacy model predicting violence/non-acceptance of state power. Standardized coefficients are depicted. Partial estimated model shown for visual ease. PJ = procedural justice. CO = correctional officer. N = 796; SRMR = 0.065; CD = 0.780. AIC = 26108; BIC = 26394.
$^{\dagger}p < 0.10$. * $p < 0.05$. ** $p < 0.01$.

One prior citizen study found that legal legitimacy was positively associated with violence as protest, but negatively associated with violence as self-defense (Tyler & Jackson, 2014). Another citizen study found that perceived unjust use of police force was positively associated with support for the use of violence and self-reported use of violence against police in protests, but police procedural justice was not a significant predictor of these outcomes (Tyler, Barak, Maguire, & Wells, 2018).

Cooperation: General support for prison staff. The fourth cooperation

analysis shown in Figure 20 models general support for prison staff. The model yielded

acceptable goodness of fit statistics. The SRMR was 0.066, which is below the

recommended cutoff criteria of < 0.08 (Brown, 2015; Hu & Bentler, 1999). The CD was

0.757, suggesting that the model explains about 76% of the variance. The model

explained 22% of the variance in general support for prison staff ($R^2_{\text{Support prison staff}}$ = 0.22).

Statistically significant predictors of support for prison staff were correctional

officer procedural justice (β = 0.20), correctional officer effectiveness (β = 0.10),

correctional officer trust (β = 0.12), fear or certainty of punishment (β = 0.19), police

discretion (β = -0.10), and low self-control (β = -0.15). Increased correctional officer

procedural justice, effectiveness, and trust, as well as increased fear of punishment, were

associated with more supportive attitudes toward prison staff. Individual attitudes

mattered in that lower self-control corresponded with less supportive orientations.

Figure 20. Procedural justice and legitimacy model predicting general support for prison staff. Standardized coefficients are depicted. Partial estimated model shown for visual ease. PJ = procedural justice. CO = correctional officer. N = 796; SRMR = 0.066; CD = 0.757; AIC = 25284; BIC = 25564.
†$p < 0.10$. * $p < 0.05$. ** $p < 0.01$.

Engagement pre-prison. The first engagement analysis depicted in Figure 21

models pre-prison engagement in prosocial activities. The model yielded acceptable

goodness of fit statistics. The SRMR was 0.063, which is below the recommended cutoff

criteria of < 0.08 (Brown, 2015; Hu & Bentler, 1999). The CD was 0.753, meaning that

the model explains about 75% of the variance. The model explained 7% of the variance

in pre-prison engagement ($R^2_{\text{Pre-prison engagement}} = 0.07$).

Statistically significant correlates of pre-prison engagement were obligation to

obey the law (β = 0.09), obligation to police (β = 0.10), favorable outcomes with police

($\beta = 0.12$), correctional officer trust ($\beta = -0.16$), fear or certainty of punishment ($\beta = 0.07$), anger ($\beta = 0.10$), and low self-control ($\beta = -0.16$). Respondents with a greater sense of obligation to the law and police and who experienced favorable outcomes when dealing with police reported more involvement in community activities before imprisonment. Individual attitudes were significant in that increased anger and lower self-control were associated with less engagement.

Caution should be used when interpreting findings here. Respondents were asked to report their involvement in prosocial activities in the community before their current incarceration while their impressions of procedural justice and legitimacy were measured in interviews that took place at the end of their time in prison. The results are correlational and are not meant to suggest causative relationships. If pre-prison involvement in community activities predicts post-release engagement, then one could expect to see increased engagement among individuals who perceive authorities as more legitimate. Due to the limited nature of the data analyzed in this dissertation, this hypothesis will be of interest to future research endeavors.

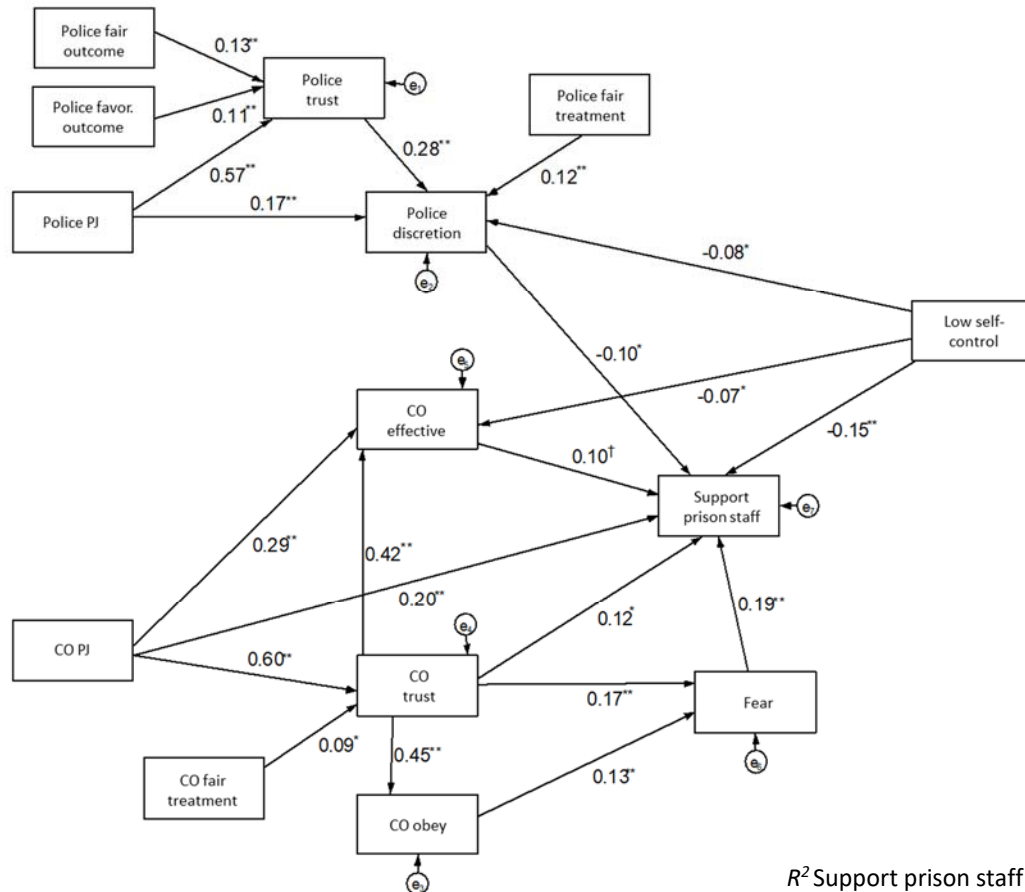*Figure 21.* Procedural justice and legitimacy model predicting pre-prison engagement. Standardized coefficients are depicted. Partial estimated model shown for visual ease. PJ = procedural justice. CO = correctional officer. N = 796; SRMR = 0.063; CD = 0.753; AIC = 27518; BIC = 27803.

†$p < 0.10$. * $p < 0.05$. ** $p < 0.01$.

Engagement in prison. The second engagement analysis shown in Figure 22 models engagement in prison measured as whether the respondent had worked with someone to plan his community reentry. Because the outcome variable was dichotomous, a GSEM was estimated. Certain features (i.e., goodness of fit statistics and standardized coefficients) are not available in GSEMs (StataCorp, 2015a).

Correctional officer procedural justice ($b = 0.58$) and obligation to obey the law ($b = 0.38$) were positively associated with in-prison engagement. Dull compulsion ($b = -0.40$) and trust in correctional officers ($b = -0.44$) were negatively correlated with in-prison engagement. Individuals who worked with someone to plan their reentry perceived correctional officers as more procedurally just and felt greater obligation to obey the law. Respondents who reported not working with someone to plan their reentry felt more dull compulsion and less trust in correctional officers.
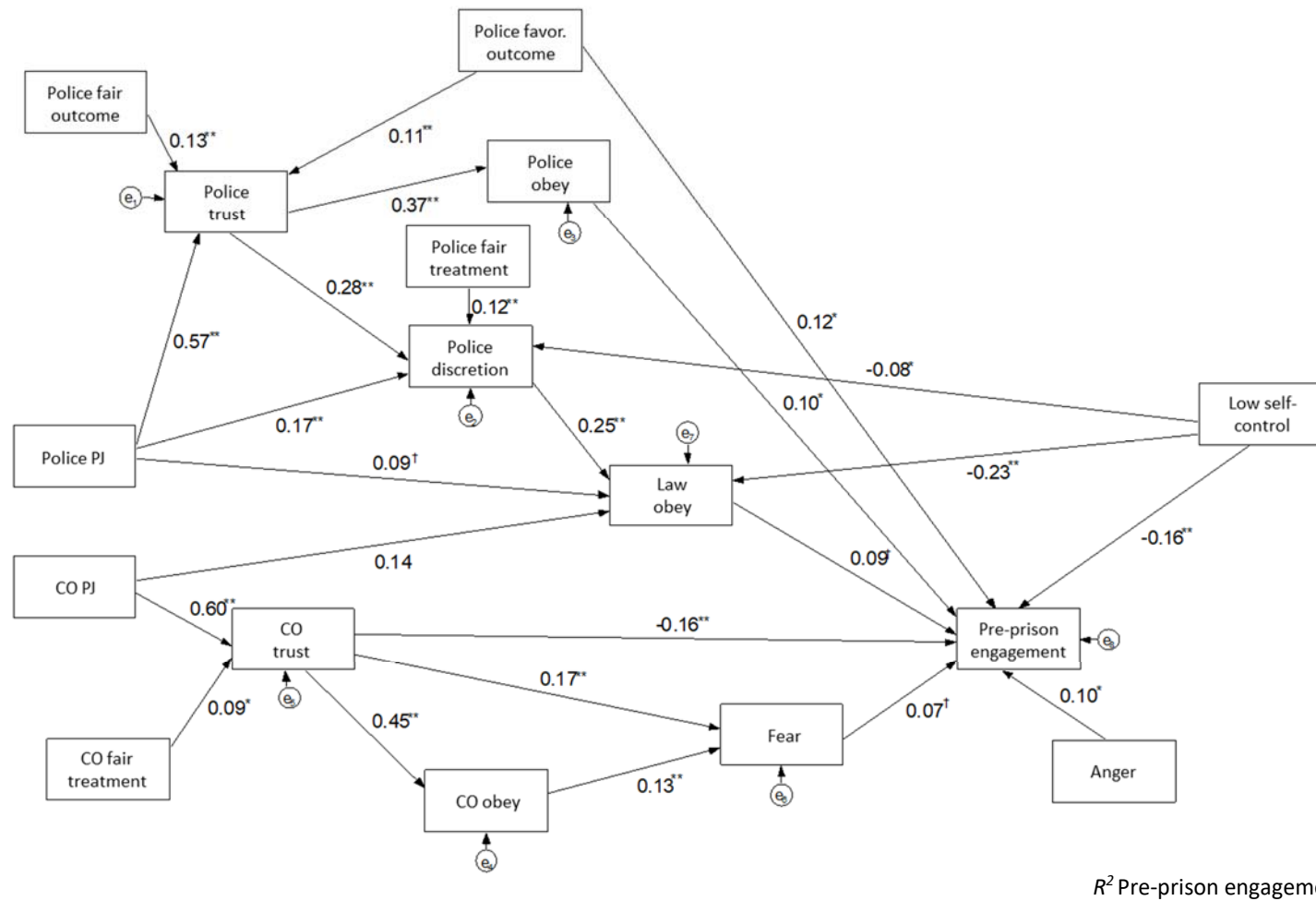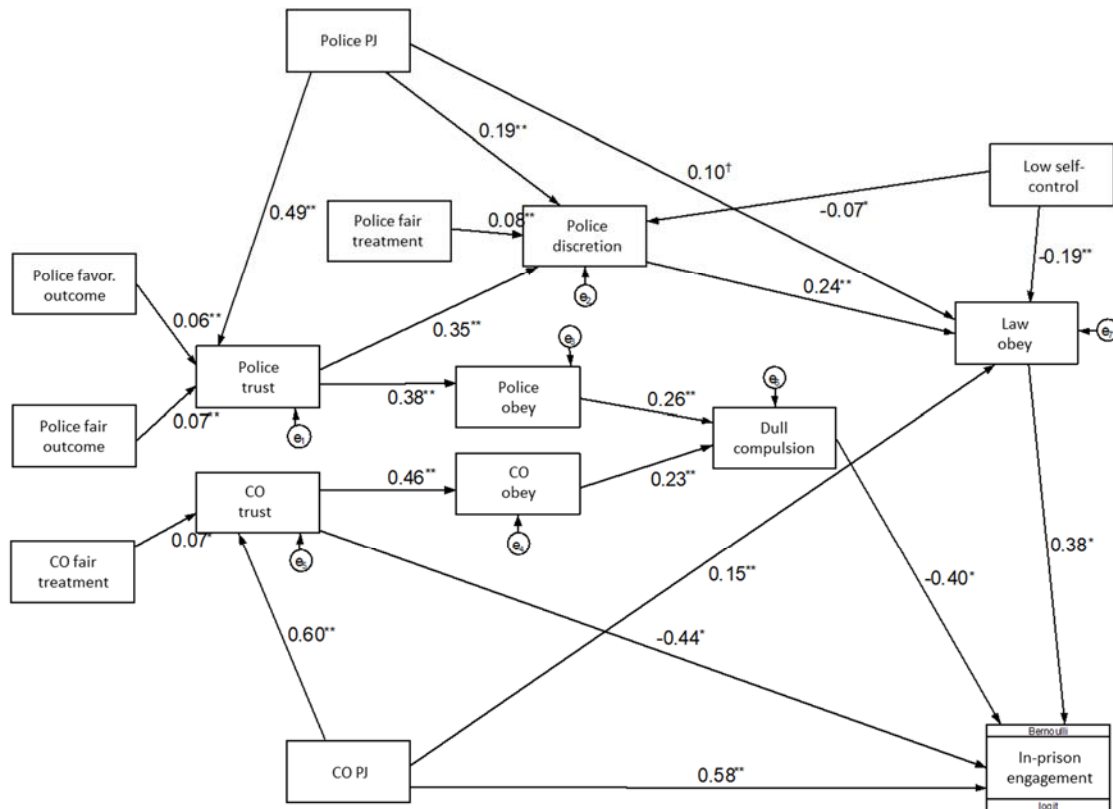
Figure 22. Procedural justice and legitimacy model predicting in-prison engagement. Unstandardized coefficients are depicted. Partial estimated model shown for visual ease. PJ = procedural justice. CO = correctional officer. N = 802; AIC = 13289; BIC = 13556. $^\dagger p < 0.10$. $* p < 0.05$. $** p < 0.01$.

Effects on Compliance

Results reported in this subsection answer the third research question: Is perceived legitimacy of legal authorities and the law predictive of misconduct in prison and recidivism among prisoners reentering the community? To answer this question, a GSEM was estimated with misconduct outcomes, and a multinomial logistic regression was estimated with rearrest outcomes.

First, the procedural justice and legitimacy model predicting violent and non-violent prison misconduct is depicted in Figure 23. Because the outcome variables were dichotomous, a GSEM was estimated. Certain features (i.e., goodness of fit statistics and

standardized coefficients) are not available in GSEMs (StataCorp, 2015a). Focusing first on non-violent misconduct, obligation to obey the law (b = -0.64) and fear of punishment (b = -0.32) were negatively associated with non-violent misconduct, whereas low self-control (b = 0.61) and anger (b = 0.78) were positively associated with non-violent misconduct. Concerning violent misconduct, obligation to obey the law (b = -0.91) and correctional officer effectiveness (b = -0.63) were negatively associated with violent misconduct, whereas trust in the law (b = 0.51) and anger (b = 1.58) were positively associated with violent misconduct.

Prior research measuring the effects of procedural justice and legitimacy on compliance in prison either found that procedural justice exerted an indirect effect on minor misconduct through legitimacy (Maguire et al., 2017) or procedural justice had a direct relationship with serious misconduct while legitimacy was not significant (Reisig & Mesko, 2009). The GSEM reported here produced findings that were similar to Maguire et al.'s (2017) study. Legitimacy measured as obligation to obey the law directly predicted decreased non-violent and violent misconduct.
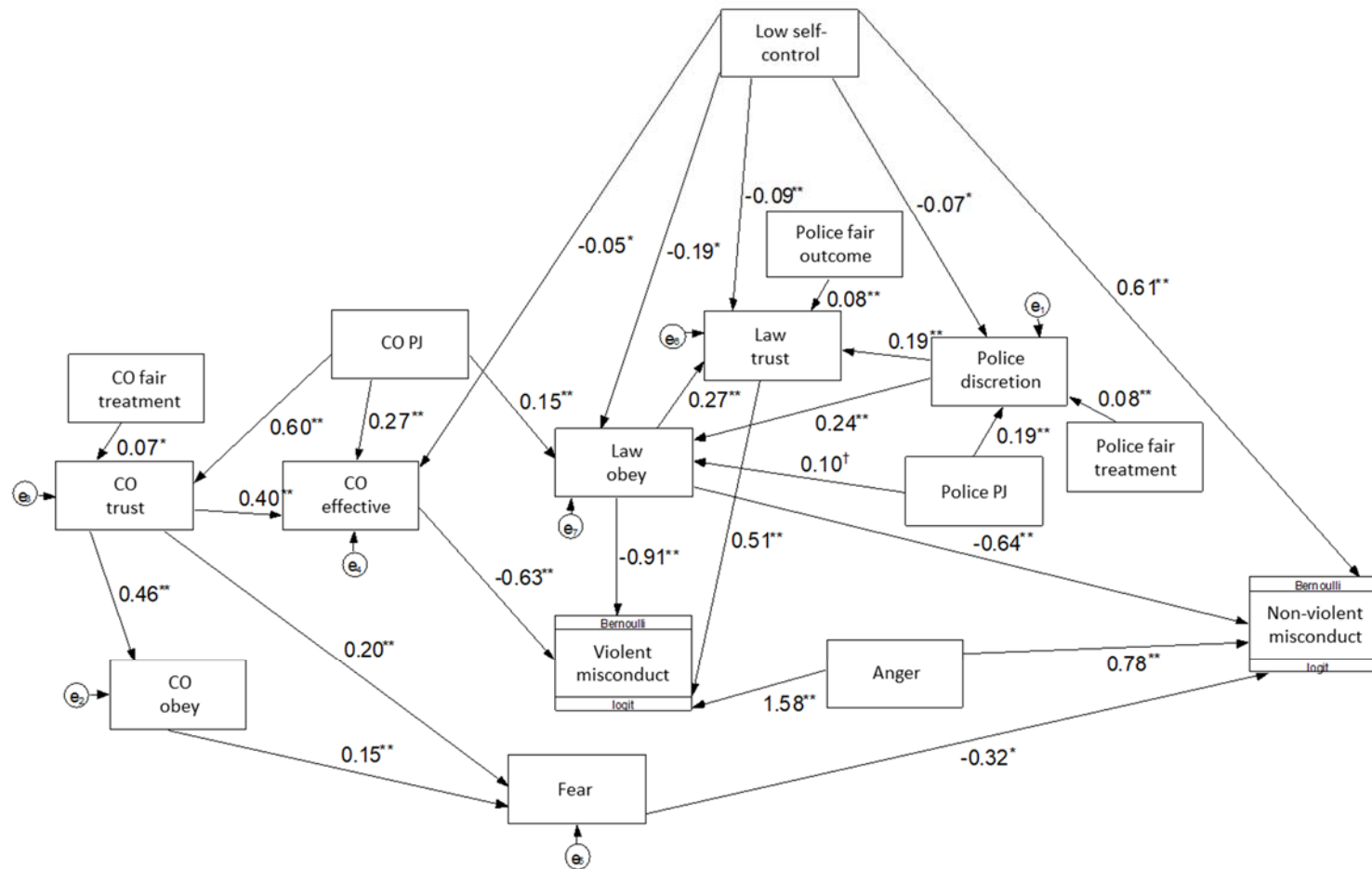
Figure 23. Procedural justice and legitimacy model predicting violent and non-violent prison misconduct. Unstandardized coefficients are depicted. Partial estimated model shown for visual ease. PJ = procedural justice. CO = correctional officer. N = 802; AIC = 13928; BIC = 14219.

$^\dagger p < 0.10.$ * $p < 0.05.$ ** $p < 0.01.$

A logistic regression and a multinomial logistic regression were estimated to predict rearrest and rearrest offense level controlling for demographics, criminal history, and time at risk. Results are presented in Table 37. Focusing first on predictors of any rearrest, police procedural justice ($b = 0.64$) and trust in the law ($b = 0.38$) demonstrated positive effects, but these relationships were marginally statistically significant. Several interesting findings emerged when examining effects on the type of rearrest offense. Correctional officer procedural justice ($b = -1.99$) and favorable outcomes in police encounters ($b = -0.85$) were negatively associated with rearrest for a violent offense, whereas police trust ($b = 2.71$) was positively associated with rearrest for a violent offense. Correctional officer procedural justice ($b = 2.09$) and anger ($b = 1.21$) were positively related to rearrest for a property offense, whereas correctional officer trust ($b = -2.09$) and low self-control ($b = -1.29$) were negatively associated with rearrest for a property offense. Normative alignment with the law ($b = 1.64$) and fairness in police treatment ($b = 0.69$) were positively associated with rearrest for a drug offense, whereas fairness in outcomes of police interactions ($b = -0.65$) was negatively related to rearrest for a drug offense.

Table 37

Multinomial Logistic Regression of Procedural Justice and Legitimacy Predicting Rearrest Offense Level

Variables	Any arrest b	Any arrest SE	Violent b	Violent SE	Property b	Property SE	Drug b	Drug SE	Other b	Other SE
Police PJ	**0.64**†	0.36	0.01	0.67	-0.44	0.67	0.14	0.77	**1.51****	0.54
CO PJ	0.00	0.42	**-1.99****	0.80	**2.09****	0.83	-0.21	0.77	-0.10	0.54
Police discretion	-0.25	0.27	-0.33	0.67	-0.07	0.45	-0.19	0.66	-0.44	0.38
Police trust	-0.28	0.42	**2.71****	1.03	0.16	0.86	-1.13	0.71	-0.61	0.68
Police obey	-0.27	0.31	-1.63	1.03	0.34	0.66	-0.50	0.49	-0.39	0.42
Norm. align. law	0.36	0.37	0.72	0.94	-0.92	0.57	**1.64****	0.64	0.31	0.56
Obey law	-0.20	0.24	0.55	0.67	0.49	0.44	-0.26	0.42	**-0.82***	0.39
Trust law	**0.38**†	0.22	0.21	0.60	0.26	0.37	0.42	0.43	0.41	0.35
CO trust	-0.17	0.38	-0.44	0.71	**-2.09****	0.73	-0.15	0.81	0.60	0.61
CO obey	-0.18	0.24	0.41	0.61	0.81	0.60	0.08	0.47	**-0.92****	0.35
CO effective	-0.06	0.31	-0.96	0.74	-0.28	0.55	0.56	0.53	-0.18	0.40
Dull compulsion	0.01	0.25	-0.23	0.51	-0.74	0.53	0.03	0.45	0.52	0.47
Fear	0.19	0.22	0.36	0.65	0.19	0.50	0.00	0.43	0.04	0.29
Police fair treatment	0.03	0.16	-0.04	0.41	-0.05	0.30	**0.69****	0.28	-0.22	0.27
Police favor. outcome	-0.14	0.18	**-0.85***	0.41	0.34	0.32	-0.40	0.39	-0.09	0.26
Police fair outcome	-0.14	0.17	-0.47	0.33	0.03	0.30	**-0.65**†	0.35	0.26	0.25
CO fair treatment	0.06	0.22	-0.21	0.47	0.24	0.47	0.05	0.32	-0.04	0.31
Low self-control	-0.01	0.22	0.59	0.52	**-1.29****	0.44	0.28	0.34	-0.17	0.35
Anger	0.55	0.36	-1.01	0.95	**1.21***	0.61	0.90	0.58	**0.93***	0.47
Time at risk	**0.01****	0.00	**0.01****	0.00	**0.01****	0.00	0.00	0.00	**0.01**†	0.00
McFadden's R^2	0.206		0.343							

Note. All models control for demographics, criminal history, and time at risk. N= 707. † $p < 0.10$. * $p < 0.05$. ** $p < 0.01$.

CHAPTER VI

Discussion

In this chapter, main findings reported in this dissertation, policy implications, limitations, and suggestions for future research are discussed.

Summary of Main Findings

The study of procedural justice and legitimacy is still in its infancy in many respects. Considerable effort has been devoted to testing the process-based model of regulation among citizens, but less is known about the applicability of this theory to people who are in the deep end of the criminal justice system, especially those incarcerated in the United States. With limited empirical evidence, debates about the conceptualization and operationalization of key constructs will continue until a consensus is reached. When researchers claim to measure the same latent construct (e.g., procedural justice or legitimacy) while utilizing divergent scales, the objectivity of reported legitimacy effects is implicated. Ambiguous construct specification could produce artificial statistical relationships, threatening theoretical reliability and practical interpretations (Reisig et al., 2007). Several significant findings emerged from this dissertation, contributing to our collective understanding of the logical coherence, explanatory scope, and generalizability of the process-based model of regulation.

Examining procedural justice and legitimacy constructs. Psychometrical analysis results suggest important modifications to the process-based model of regulation. A summative image of key conceptualizations observed in this dissertation is presented in Figure 24. The left side of the figure depicts exogenous variables measuring procedural justice and distributive justice, while the right side represents endogenous legitimacy

variables. Procedural justice analyses demonstrated that indicators of voice, respect, neutrality, and motive-based trust converged to represent the latent construct of procedural justice. The data did not support identification of procedural justice as the combination of perceptions of police and correctional officers into one global scale or subscales measuring quality of treatment and decision-making. Rather, the data produced two procedural justice scales: one combining the sub-concepts for police and the second encompassing the sub-concepts for correctional officers. Similar officer-specific distinctions were observed with the legitimacy measures as well. These results affirm that respondents distinguished among their opinions of police, correctional officers, and the law. In seeking a parsimonious theoretical model, it would not be appropriate to have scales measuring global procedural justice or legitimacy (i.e., combined measures of police, correctional officers, and the law, etc.) as some prior correctional studies have done (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Brunton-Smith & McCarthy, 2016; Franke et al., 2010; Piquero et al., 2005; Tatar et al., 2012).

Other important distinctions were made among exogenous variables. Procedural justice was conceptualized as general impressions and specific experiences. General impressions represent feelings toward police or correctional officers overall, whereas specific experiences refer to ratings of how fairly respondents felt they were treated by police or correctional officers during specific interactions. Distributive justice embodied respondents' perceptions of the outcomes of their interactions with police or correctional officers.
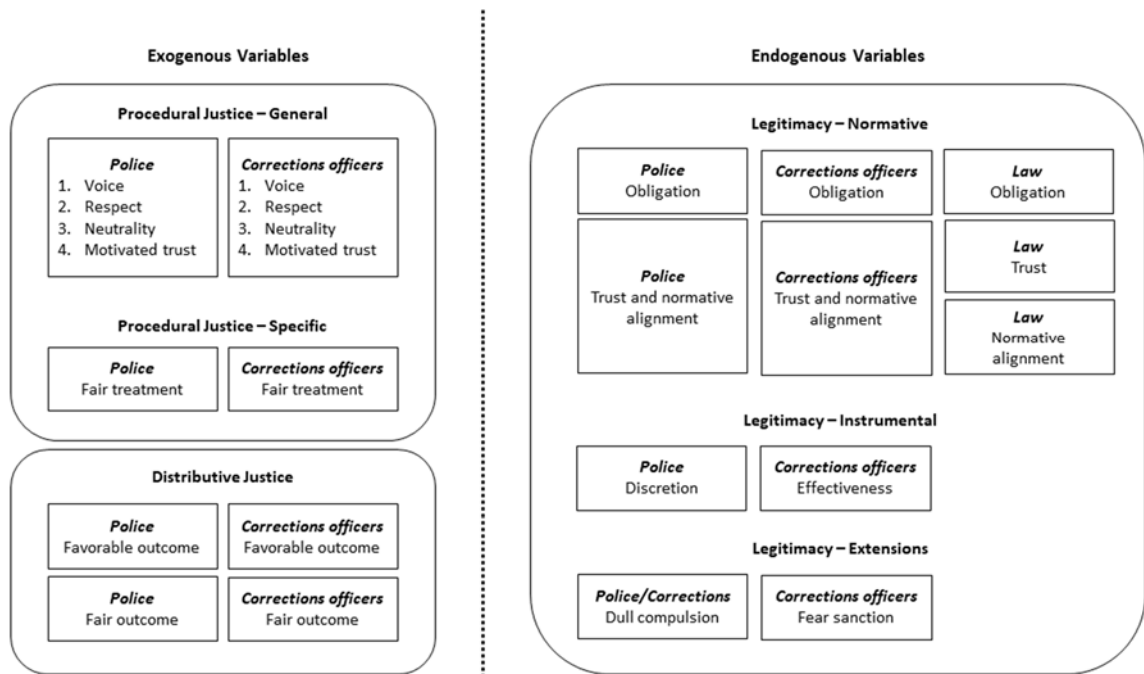
Figure 24. Conceptual map of procedural justice and legitimacy constructs observed in this dissertation.

Results from legitimacy analyses contribute to further theoretical advancement. The concept of normative alignment was proposed and tested as a subconstruct of legitimacy only recently (Bradford, 2014; Jackson et al., 2013; Tyler & Jackson, 2013, 2014) and has not been explored in existing correctional research. This dissertation addressed this limitation in developing and testing normative alignment. The results of the psychometric analyses suggest that normative alignment with the law was a distinct concept, but officer-specific normative alignment converged with officer-specific trust (see Figure 24). This finding may indicate that men who are incarcerated distinguish normative alignment with the law from other legal legitimacy measures while perceiving officer-specific trust and normative alignment as homologous. In this situation, trust in officers would be closely tied to judgments about whether officers share the same normative beliefs, values, and morals as incarcerated individuals.

Alternatively, the discordant normative alignment findings may be an artifact of measurement. It is possible that the officer-specific trust items loaded with normative alignment in the absence of more diverse trust measures. Trust in law represented faith that the law is not used as an instrument of oppression, while normative alignment with the law measured assessments of whether the law substantiates personal moral beliefs and community concerns. Officer-specific trust items measured perceived honesty and integrity in carrying out duties, whereas normative alignment signified impressions of whether the officers expressed similar personal values and morals. Future research will need to develop these concepts to determine whether they are empirically distinguishable among other correctional and citizen samples.

The instrumental legitimacy variables of police discretion and correctional officer effectiveness loaded together separately from normative legitimacy scales. Past correctional research either measured effectiveness as independent of legitimacy (Maguire et al., 2017) or incorporated effectiveness in legitimacy scales (Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Brunton-Smith & McCarthy, 2016; Franke et al., 2010). The psychometrical results reported in this dissertation inform this discrepancy, contributing to the refinement of the underlying theory. Instrumental legitimacy items may converge with normative legitimacy when the diversity in instrumental measures is limited. Future researchers should endeavor to include stronger measures of effectiveness and discretion to avoid ambiguity in normative legitimacy constructs.

Dull compulsion and fear of sanctions are recent conceptual extensions in legitimacy research representing a type of coercive obligation that may influence moral assessments of obligation (Bottoms & Tankebe, 2012; Jackson et al., 2016; Maguire et

al., 2017). As one of the first studies to examine both of these concepts with a correctional sample, the results reported in this dissertation demonstrate that coercive obligation concepts are distinguishable and associated with moral obligation indicators. Dull compulsion and fear of sanctions contribute to our understanding of theoretically relevant correlates of legitimate authority. With the goal of developing an accurate explanatory model, indicators of coercive obligation must be explored through future research.

Respondent differences. As reported in Chapter V, assessments of procedural justice and legitimacy varied depending on respondent characteristics. A summary of the statistically significant relationships among respondent characteristics and procedural justice, distributive justice, and legitimacy is presented in Table 38. These results indicate that perceptions of police and correctional officers improved with age. Compared to White respondents, racial/ethnic minorities tended to have more favorable opinions of correctional officers, but darker skin tone corresponded with less positive views on several outcomes. This distinction may signify that racial/ethnic discrimination from correctional officers is not as prevalent as differential treatment based on outward appearance.

Increased social capital (i.e., marriage, education, employment) was associated with more favorable ratings of authority. Marriage and higher education corresponded with a greater sense of duty to obey authorities, while employment correlated with police fairness. These findings highlight the importance of social capital as a theoretical correlate of procedural justice and legitimacy.

Table 38

Direction of Statistically Significant Relationships Among Respondent Characteristics and Procedural Justice, Distributive Justice, and Legitimacy

| | Procedural Justice | | Distributive Justice | | | | | Legitimacy | | | | | | | | | | |
| | | | Police | | | Corrections | | Law | | | Police | | | Corrections | | | | |
Predictors	Police	CO	Fair treat.	Fair out.	Favor. out.	Fair treat.	Favor. out.	Trust	Norm. align.	Obey	Trust	Obey	Discre-tion	Trust	Obey	Effective	Dull comp	Fear
Age	+	+		+		+					+			+	+	+		+
Race/ethnicity																		
Latino														+			+	
Black		+				+								+				
Native American		+				+			+				−					
Other			−		−	−							−					
Color of skin	−					−	−						−	−				
Marital status																		
Married	+							+	+	+	+	+			+			
Separated																+	+	
Divorced/widow																		
Education pre-prison																		
9th to 11th grade											+							
High school						−				+	+				+			
College						−		+	+	+	+	+			+			
Employed pre-prison		+	+															

(continued)

| Predictors | Procedural Justice | | Distributive Justice | | | | | Legitimacy | | | | | | | | | Dull comp | Fear |
| | Police | CO | Police | | | Corrections | | Law | | | Police | | | Corrections | | | | |
			Fair treat.	Fair out.	Favor. out.	Fair treat.	Favor. out.	Trust	Norm. align.	Obey	Trust	Obey	Discre-tion	Trust	Obey	Effective		
Custody level																		
General population						−											+	+
Restrictive/Ad. Seg.										−								
Offense of record																		
Property								−		−								
Drug					−					−								−
Other																		
Prior arrests	−		−	−		+								−			−	+

Note. CO = correctional officer. Reference categories: race/ethnicity = White; marital status = single; education = 8th grade or less; custody = trustee; offense of record = violent.

Custody and criminal history indicators also corresponded with significant differences in perceptions. Compared to trustees, individuals classified as general population felt unfairly treated by correctional officers and also perceived more dull compulsion and risk of sanctions. These variations may be related to differences in freedoms and privileges. People classified as general population may feel unfairly treated when they see trustees receive benefits that they are not awarded. Individuals housed in segregation expressed less obligation to obey the law. This finding may be indicative of attitudes and behaviors that contribute to placement in restrictive housing, including risk of violence and involvement in security threat groups. Variations in opinions based on the offense of record may reflect different motivations and severity of actions as well as punishment involved in these offenses. Differences in prior arrests suggest that increasingly frequent contact with police reduces impressions of fairness, whereas more frequent contact with correctional officers improves judgments of fairness. Individuals with more arrests may be better adjusted to prison life and rules than free world expectations.

In demonstrating nuances in perceptions of procedural justice and legitimacy based on respondent differences, this dissertation contributes to our understanding of the correlates of procedural justice and legitimacy. These results guide theory development, elucidating the potential effects of extraneous variables and conditions where causal relationships are likely to be observed (Singleton & Straits, 2010). The findings reported here can also inform the development of policies and practices aimed at addressing potential causes for differences in perceptions (e.g., discrimination and social capital).

Procedural justice and legitimacy pathways. The statistical models estimated for this dissertation support the assumptions in the process-based model of regulation in that increased procedural justice was associated with increased legitimacy generally. Aligning with theoretical assumptions, police and correctional officer procedural justice directly affected obligation to obey the law and officer-specific trust. Departing from the process-based model of regulation, the direct path between procedural justice and officer-specific obligation to obey was not statistically significant; rather the data supported a model where officer-specific trust mediated the respective relationship between procedural justice and obligation to obey. Researchers testing the process-based model of regulation reached similar conclusions about trust as a precursor, not a component, of legitimacy (Gau, 2011, 2014; Tankebe, 2013; Tankebe et al., 2016). The data analyzed in this dissertation support a model where procedural justice is directly related with legal obligation, but indirectly associated with officer-specific obligation to obey.

Important differences emerged in police and correctional officer pathways. Correctional officer procedural justice was directly associated with one indicator of legal legitimacy (i.e., legal obligation), whereas police procedural justice and legitimacy were associated with all three measures of legal legitimacy (i.e., obligation, trust, and normative alignment). It should be noted that the legal obligation scale included perceptions of the law and prison rules. The possibility exists that the path between correctional officer procedural justice and legal obligation could be attenuated if the legal obligation scale did not include perceptions of prison rules. With a spectrum of legitimacy measures, these findings advance previous correctional studies that analyzed measures of legitimacy that were limited to single or combined authorities (Baker, 2017;

Baker et al., 2015; Baker & Gau, 2017; Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Brunton-Smith & McCarthy, 2016; Franke et al., 2010; Maguire et al., 2017; McCarthy & Brunton-Smith, 2017; Piquero et al., 2005; Reisig & Mesko, 2009).

Effects on cooperation, engagement, and compliance. Procedural justice and legitimacy measures produced differential effects on outcomes of interest. The direction of statistically significant effects among the predictors and outcomes are summarized in Table 39. Several statistically significant effects of procedural justice and legitimacy measures on cooperation, engagement, and compliance were confirmed in the desired direction proposed in the process-based model of regulation.

Police procedural justice and trust were associated with reduced inclinations toward violence and rejection of state power. Obligation to obey the law corresponded with increased engagement, reduced inclination toward violence and rejection of state power, and reduced violent and non-violent misconduct. Thus, perceptions of police were important predictors of attitudes toward violence, whereas a sense of duty to obey the law was associated with attitudes toward violence and misconduct behaviors.

Correctional officer procedural justice and trust were associated with increased supportive attitudes toward correctional officers. Increased correctional officer procedural justice also corresponded with an increased likelihood of collaborating with others to plan for reentry and reduced likelihood of violent rearrest. These findings indicate that the actions of correctional officers can influence cooperation and engagement in prison and compliance after reentry. It should be noted that correctional officer procedural justice was also associated with increased risk of rearrest for property offending. This unexpected finding may be attributable to specification of measurement.

Although return to prison is a common measure of recidivism in reentry studies (Durose et al., 2014), this information was not readily available for inclusion in this dissertation. Future research should examine the effects of correctional officer procedural justice on return to prison after release.

Perceived effectiveness of correctional officers in their job performance, particularly preventing misconduct and maintaining order, was associated with increased intentional willingness to provide information, increased supportive attitudes toward correctional officers, reduced violent misconduct, and reduced inclination toward violence/rejection of state power. Aligning with prior research (Franke et al., 2010), the results reported in this dissertation suggest that maintaining a safe environment is important for increasing legitimacy and reducing violence.

The analysis of dull compulsion also produced informative results. People who felt more dull compulsion were less likely to work with others to plan for their reentry. This finding suggests that efforts to help prisoners regain a sense of control in their lives may facilitate efforts to prepare prisoners for community reentry. Alternatively, it may be that prisoners who were working with others to plan for their reentry felt they had more control in their decisions to obey authorities.

Table 39

Direction of Statistically Significant Direct Relationships Among Predictors and Outcomes

| | Cooperation | | | | Engagement | | Compliance | | | | | | |
| | | | | | | | Misconduct | | Rearrest | | | | |
Predictors	Info. intent	Info. actual	Violent/ no-state	Help prison	Pre-prison	In-prison	Violent	Non-violent	Any arrest	Violent	Prop.	Drug	Other
Police PJ			−						+				+
Corrections PJ				+		+				−	+		
Police discretion				−									
Police trust			−							+			
Police obey					+								
Norm. align. law												+	
Obey law			−		+	+	−	−					−
Trust law							+			+			
CO trust				+	−	−						−	
CO obey													−
CO effective	+		−	+			−						
Dull compulsion						−							
Fear sanction	+	+	−	+	+			−					
Police fair treatment												+	
Police favor. outcome					+						−		
Police fair outcome												−	
CO fair treatment													

(continued)

| Predictors | Cooperation | | | | Engagement | | Compliance | | | | | | |
| | | | | | | | Misconduct | | Rearrest | | | | |
	Info. intent	Info. actual	Violent/ no-state	Help prison	Pre-prison	In-prison	Violent	Non-violent	Any arrest	Violent	Prop.	Drug	Other
Low self-control	−		+	−	−			+			−		
Anger	−		+		+		+	+			+		+
N	796	802	796	796	802	802	802	802	802	802			
SRMR	0.07		0.07	0.07									
CD	0.76		0.78	0.76									
R²	0.20		0.34	0.22					0.21	0.34			

Note. PJ = procedural justice. CO = correctional officer. SRMR = standardized root mean squared residual. CD = coefficient of determination.

Certainty of punishment was associated with increased willingness to provide information to authorities, increased supportive attitudes toward correctional officers, increased pre-prison engagement, reduced proclivity for violence, and reduced non-violent misconduct. Due to the cross-sectional nature of the data, it is impossible to determine causality. The possibility cannot be ruled out that individuals who are more supportive of prison staff, less inclined to violence, more involved in their communities, more willing to cooperate with authorities, and who have lower rates of non-violent misconduct are more likely to identify and understand the risk of breaking prison rules. Alternative management strategies may be better than deterrence-focused policies. Prior research found that risk of sanctions was related to compliance, but procedural justice and legitimacy effects were stronger (Maguire et al., 2017; Sunshine & Tyler, 2003).

Individual attitudes were also important predictors. Increased anger corresponded with increased non-violent and violent misconduct and decreased willingness to provide information to prison staff. Low self-control was associated with increased non-violent misconduct, proclivity for violence, decreased willingness to provide information to prison staff, and less supportive orientations toward correctional officers. These findings support the implementation of risk assessment tools to identify individuals in need of anger management and self-control programs.

Policy Implications

The results of this dissertation have important implications for policy and practice regarding the management and treatment of prisoners. Recommendations discussed here should be considered as investments in proactive, rather than responsive, approaches to building procedural justice and legitimacy. If left unaddressed, persistent procedural

injustice within prisons can have devastating consequences as exemplified by the prisoner rebellion, hostage standoff, and murder of a veteran correctional officer in Delaware's James T. Vaughn Correctional Center last year (Police Foundation, 2017). An independent review of this incident concluded that changes in procedures and communication could have prevented the unfortunate outcomes (Police Foundation, 2017). Addressing issues of procedural injustice and distrust proactively can prevent adverse consequences such as potential loss of life, unwanted publicity, scrutiny, and sanctions. Although conclusive causative evidence is lacking, action can be taken now to implement procedurally just and legitimate practices.

Under the process-based model of regulation, criminal justice officials are most effective at promoting compliance within correctional facilities when authorities are seen as procedurally just and legitimate. When the system is seen as legitimate, then people are more likely to accept and consent to its rules. This type of consensual control yields compliance that is more meaningful and lasts longer than obedience achieved through threat or use of force (Tyler, 2003). As this dissertation and previous research shows, fair procedures, treatment, and decisions in correctional settings could reduce violence and misconduct (e.g., Tyler, 2010). Randomized control trial research indicated that procedurally just practices are more effective at producing confidence, trust, and obligation than standard operations or external controls (Mazerolle et al., 2013; Murphy, Mazerolle, & Bennett, 2014; Reisig & Mesko, 2009). Thus, correctional policies and practices should incorporate the four tenants of procedural justice (i.e., voice, respect, neutrality, and motive-based trust). What would application of these concepts look like in practice?

A focus on training may be the easiest avenue to investigate (Nagin & Telep, 2017). Analyses of respondent differences in procedural justice and legitimacy impressions reported in this dissertation suggest that racial/ethnic minorities expressed favorable views of correctional officers. When looking at the color of skin scale, however, some correctional officer indicators became less favorable as the skin tone of the respondent increased in darkness. The promising results derived from racial/ethnic categorical measures suggest that efforts to promote cultural sensitivity and reduce racial bias or segregation may be working. Reducing potential colorism, or disparate treatment based on apparent skin tone should be considered a policy priority and focus of training for correctional employees. Disproportionate or unfair treatment based on skin color could contribute to an awareness of discrimination and procedural injustice, which could induce negative views and behaviors within the correctional institution and post-release (Jackson et al., 2010; Rocque, 2011; Sunshine & Tyler, 2003; Tyler, 2001, 2010).

Other salient training topics include communication skills, decision-making, cognitive awareness, and empathy. The goals of such training would be to identify sources of miscommunication and signals of disrespect, while developing strategies to express respectful, non-demeaning language, meaningfully consider the opinions of others, and communicate reasons for decisions. Structured communication tools may facilitate these goals (Jackson et al., 2010), but this strategy can cause adverse effects when implemented poorly (Jackson et al., 2016; MacQueen & Bradford, 2017; Mazerolle & Terrill, 2018; Rosenbaum & Lawrence, 2017). Any training program should be conceived of as a continuous priority, not just a one-time event. Progress and change

should be empirically measured and periodically evaluated internally and independently to identify successes and areas for improvement (Mazerolle & Terrill, 2018).

Correctional authorities can communicate trust and legitimacy by providing opportunities for people to voice their concerns, meaningfully considering those concerns, and explaining the reasoning and processes of their decisions. The grievance process should be clear, transparent, and easily understood by offenders and should include protections for individuals who file complaints (Bierie, 2013; Benjamin Steiner, Travis, Makarios, & Brickley, 2011). Grievance and disciplinary procedures should be heard and settled in a timely manner. Computerized systems that track time from initiation to resolution can function as early warning systems to identify cases or facilities that are falling behind (Bierie, 2013). These procedures should be designed so that prisoners have a realistic opportunity to achieve rulings in their favor (Police Foundation, 2017). Incorporating restorative justice, as opposed to adversarial, principles may facilitate this process (Butler & Maruna, 2016).

Increased opportunities for collaboration between prisoners, community members, and state authorities can also improve perceptions of legitimacy and procedural justice. In response to a legitimacy crisis in Delaware correctional facilities, the Department of Correction developed advisory councils for incarcerated people, correctional officers, and civilians. The stated purpose of the prisoner advisory council is to facilitate discussion and problem-solving with correctional officers. The correctional officer advisory council assists correctional officers at all ranks in voicing their concerns with administrators. The civilian community council acts as a liaison to resolve prisoner complaints about welfare and safety (Delaware Department of Correction, 2018). This

approach ensures that prisoners, correctional officers, and non-custodial staff (teachers, counselors, etc.) are represented in decisions that affect them (Bierie, 2013; Police Foundation, 2017). In forming collaborative groups, it should be apparent to criminal justice officials, prisoners, and community members that cooperation is in their mutual interest (Doak & O'Mahony, 2011).

Any change in routine operations may be met with resistance, reducing fidelity to the goals of a procedural justice program or policy (Jackson et al., 2016). It can be difficult to implement changes to adhere to procedural justice and legitimacy because some officers may perceive these goals as contradictory to their established roles as authoritative control agents (Tyler, 2017). Thus, effective implementation of a procedural justice agenda will require shifts in role expectations and organizational identity from an emphasis on force toward an emphasis on service (Schaefer, 2018; Tyler, 2017; Wright & Gifford, 2016). How can individual and organizational orientations be changed when people may feel like their behaviors are being criticized?

The benefits of a procedural justice approach should be clearly communicated to the agency and employees. Implementation of procedural justice principles at the supervisory or administrative level would improve working conditions for prison staff to include improved mental health and job satisfaction and reduced stress and anger (Mazerolle & Terrill, 2018; Owens, Weisburd, Amendola, & Alpert, 2018; Tyler, 2017). If officers are treated fairly and see the organization as legitimate, then they are more likely to behave in procedurally just ways (Tyler, 2017). How can we track the effects of a procedural justice intervention?

Periodic surveys measuring officers' and prisoners' perceptions of procedural justice and legitimacy can function as metrics of agency and individual officer performance. This feedback can be used to reprimand administrators or officers for procedurally unjust treatment, and inform promotions based on merit and other incentives (Nagin & Telep, 2017; Police Foundation, 2017). These surveys may also be able to identify incarcerated individuals who may need concentrated efforts to improve their impressions of legitimacy. Future research should determine whether procedural justice and legitimacy measures are reliable indicators of need for an intervention or responsivity to treatment (Blasko & Taxman, 2018; Wright & Gifford, 2016).

Improving the living conditions for prisoners is also a worthwhile endeavor. In institutional corrections, increasing positive experiences (e.g., educational classes, reentry services), decreasing negative experiences (e.g., disorder, procedural injustice), and limiting environmental deprivation (e.g., lack of safety and privacy) can improve perceptions of legitimacy (Franke et al., 2010).

Limitations

Although the data included many measures of key constructs identified in the process-based model of regulation, there were some measurement limitations. There were no measures of criminal justice agents' use of force or intimidation. Police and correctional officers' use of force could explain variations in perceptions of legitimacy (Bottoms & Tankebe, 2012). Threatened and actual use of force can produce short-term acquiescence, but cooperation and consent are theorized to generate both immediate acceptance and long-term compliance (Tyler, 2003).

Although no prior correctional study of legitimacy measured respondents' skin tone, the data analyzed in this dissertation indicated significant relationships between respondent skin tone and correctional officer procedural justice/legitimacy measures that did not correspond with results from categorical race/ethnicity measures. The color of skin scale was a subjective determination made by the interviewers. Individual characteristics of the interviewers could influence the accuracy of their skin tone determinations (Hannon & DeFina, 2014). Steps were taken to increase the accuracy of the skin tone measure, however. Interviewers recorded respondent skin tone before beginning the interview. The skin tone scale was displayed on the laptop screen as interviewers looked across a table at respondents. This method worked well because interviewers could take their time to choose the corresponding skin tone without making the respondent uneasy. If there seemed to be an awkward pause, then interviewers could attribute the pause to the computer program loading. Computer-assisted personal interviewing helped make this process discreet. Capturing interviewer-identified skin tone through this process was an improvement compared to one study that had interviewers record the color of skin after leaving the interview when they were no longer in the presence of the respondent (For review see Hannon & DeFina, 2016). Future research should explore the use of spectrophotometers, which are machines that measure light reflectivity objectively to avoid the issues associated with subjective measurement of skin tone (Hannon & DeFina, 2016).

Various methods were employed to reduce social desirability bias, including informing participants that interview responses would be confidential, encouraging respondents to provide honest answers, and building rapport with participants. Even with

these safeguards, it is possible that some participants reported socially desirable opinions, beliefs, behaviors, and attitudes about themselves or legal authorities. In addition, respondents' views of police or pre-prison engagement may not be as reliable as their views of correctional officers and in-prison engagement due to recall effects.

Coverage error is a limitation of this study because the sample was drawn from the population of adult male prisoners released from one release center during the study period. Thus, the findings may not be generalizable to the entire population of prisoners released in Texas or other states. Future research should determine whether similar findings are discovered when studying perceptions of females who are incarcerated. Attitudes and experiences of incarcerated females may overlap in some respects but are likely to differ from the all-male respondent views observed here (Baker & Gau, 2017; Somers & Holtfreter, 2018; Toman, 2017).

Like much of the research testing the process-based model of regulation, the data analyzed for this dissertation were cross-sectional and the research design was not experimental. As a result, it is impossible to infer causality or rule out the possibility of spurious relationships. Observed effects may be attenuated or inflated by the lack of measures for facility or individual officer characteristics (Beijersbergen, Dirkzwager, Molleman, van der Laan, & Nieuwbeerta, 2015; Beijersbergen, Dirkzwager, van der Laan, & Nieuwbeerta, 2016; Brunton-Smith & McCarthy, 2016; Butler & Steiner, 2016; Cesaroni & Peterson-Badali, 2016). This dissertation was not able to ascertain differences in legitimacy at multiple levels. This kind of research could help identify qualities of criminal justice agents and agencies that are better at promoting procedural justice and legitimacy, which is needed to develop effective practices.

Future Research

As demonstrated in this dissertation, it is of paramount importance for future research to clearly distinguish measures of procedural justice and legitimacy depending on the reference group (e.g., law, police, prosecutors, correctional officers, etc.). While the data collected for this dissertation contained a substantial variety in measures of procedural justice, legitimacy, and related variables, future research should develop measures that fully explore dull compulsion, fear, trust, effectiveness in job performance, and ethicality in discretion.

It is important to measure multiple dimensions of legal legitimacy because each subconstruct demonstrated different effects on outcomes. Future research should incorporate items like "people should obey the law even if it goes against what they think is right," "people should do what the law says," "all laws should be strictly obeyed," or "disobeying the law is seldom justified" (Baker et al., 2014; Baker & Gau, 2017; Tyler & Jackson, 2014) to further explore, define, and test the concept of obligation to the law. Better measures of trust could also be developed. Survey items measuring trust could gauge perceptions of whether police/correctional officers would respond to the scene if you were victimized, investigate a crime if you were the victim, fabricate evidence, use the least restrictive means of restraint, and refrain from excessive use of force, for example. Future researchers should develop items to measure police effectiveness (e.g., "police prevent crime in my community," or "police maintain order in my community") and correctional officer discretion (e.g., "correctional officers usually have good reasons for disciplining inmates").

Future research should incorporate more diverse measures of fear and certainty of punishment to disentangle their effects. Affective fear can be measured with these items: "if you don't do what [police/correctional officers] tell you, then they will treat you badly;" "I only comply with [police/correctional officers] because I am afraid of them" (Jackson et al., 2016). Comparatively, risk or certainty of punishment can be measured by asking respondents to rate the likelihood that they would get caught if they broke specific rules (e.g., disobeying orders from correctional officers, making too much noise, fighting, gambling, etc.) (Maguire et al., 2017; Tyler & Jackson, 2014).

A longitudinal study design is needed to demonstrate the stability or change in perceptions of procedural justice and legitimacy of police and correctional officers. In such a study, prisoners could be surveyed at different time points in their imprisonment (e.g., intake, sentence midpoint, and before release) to determine if police are viewed more favorably over time, or if prisoners view police more favorably than correctional officers at the start of their imprisonment when their interactions with police would be more recent. This research is needed to determine the impact of cumulative effects of interactions with criminal justice agents over time on perceptions of procedural justice and legitimacy (Nagin & Telep, 2017).

More research is needed to design and evaluate procedural justice programs and initiatives to determine what aspects produce the most beneficial results in practice (Nagin & Telep, 2017; Skogan, Van Craen, & Hennessy, 2015). This research would be instrumental in translating theoretical work into attaining beneficial outcomes with purposeful actions. Prior program evaluations are limited to policing contexts and produced mixed results where training improved police officers' behaviors in some

aspects of procedural justice but not others (For review see Nagin & Telep, 2017).
Program evaluators should explore the use of systematic social observation as an
alternative to subjective ratings when evaluating the effectiveness of procedural justice
training (Jonathan-Zamir, Mastrofski, & Moyal, 2015; Mastrofski, Jonathan-Zamir,
Moyal, & Willis, 2016; Nagin & Telep, 2017; Worden & McLean, 2018).

Conclusion

The results of this dissertation provide guidance for future research, policy, and
practice regarding the management and treatment of individuals who are incarcerated.
Considering the substantial expenses and limited budgets of our current system of justice,
it is necessary that we invest wisely in evidence-based practices that promote legitimacy
and not rely only on external instrumental means of control. Under the process-based
model of regulation, criminal justice officials are most effective at promoting compliance
within correctional facilities when prisoners perceive authorities to be procedurally just
and legitimate. The results of this dissertation provide critical insight into how the tenets
of the process-based model of regulation perform with a sample of men who were
imprisoned in the United States. This information can guide future research testing this
model and inform the development and implementation of legitimacy-promoting
programs in prison.

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APPENDIX

Survey Items Measuring Key Dependent and Independent Variables

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DEPENDENT VARIABLES

COOPERATION

Willingness to provide information – intentional
(*5-point: strongly disagree – strongly agree*)

(1) It is important to not leak information to a correctional officer about an inmate. (R)

(2) It is important to do your time and never let the staff know that anything is getting you down. (R)

(3) It is important to never talk with prison staff about personal problems. (R)

(4) You regularly share your thoughts and concerns with the prison staff.

(5) Sometimes telling prison staff what another person is up to is a better option than fighting them.

(6) It is okay to inform prison staff if people are doing things that are out of line.

(7) You will cooperate with prison staff if you know that it will prevent another inmate from getting hurt.

Willingness to provide information – actual
(*dichotomous: no, yes*)

(1) During this incarceration, have you provided information about another inmate or situations involving another inmate to correctional officers, police officers, or prosecutors?

Violence/non-acceptance of state power
(*5-point: strongly disagree – strongly agree*)

(1) When someone disrespects you, it is important that you use physical force or aggression to teach him or her not to disrespect you.

(2) If someone uses violence against you, it is important that you use violence against him or her to get even.

(3) It is more important to follow the rules that gangs set than the rules of the prison staff.

(4) It is more important to follow the rules that prisoners set for themselves than the rules of the prison staff.

(*7-point: completely disagree – completely agree*)

    (5) You would participate in a public protest against oppression of your group even if you thought the protest might turn violent.

    (6) You would attack police or security forces if you saw them beating members of your group.

    (7) You would retaliate against members of a group that had attacked your group, even if you couldn't be sure you were retaliating against the guilty parties.

General support

(*5-point: strongly disagree – strongly agree*)

    (1) It is important to help prison staff when they need it.

    (2) You look for ways to help the prison staff.

(*5-point: very unlikely – very likely*)

    (3) How likely are inmates to do something if someone is disrespecting a correctional officer?

ENGAGEMENT

Pre-incarceration community engagement

(*dichotomous: no, yes*)

    (1) Have you volunteered in any programs in the community, like youth groups, programs for the elderly, or recreational programs?

    (2) Have you mentored peers, youth, or other community members?

    (3) Have you voted in any political election, such as a general election, primary election, or special referendum?

    (4) Have you participated in the activities of a church, mosque, temple, or other religious group?

    (5) Have you served in a neighborhood watch or tenant patrol program?

    (6) Have you taken part in an ethnic or nationality club in the neighborhood?

    (7) Have you taken part in a business or civic group such as Masons, Elks, or Rotary Club?

    (8) Have you taken part in a neighborhood ward group, or other local political organization?

    (9) Have you taken part in local sports teams?

In-prison engagement

(*dichotomous: no, yes*)

    (1) During this term of incarceration, have you worked with anyone to help plan for your release?

INDEPENDENT VARIABLES

Legitimacy of the law

(*4-point: strongly disagree – strongly agree*)

Obligation to obey

    (1) Obeying the law ultimately benefits everyone in the community.

    (2) Sometimes doing the right thing means breaking the law. (R)

    (3) Some laws are made to be broken. (R)

    (4) Prison rules are made to be broken. (R)

Trust

    (5) The law represents the values of people in power rather than the values of people like yourself. (R)

    (6) People in power use the law to try and control people like you. (R)

Normative alignment

    (7) Laws usually match your own feelings about what is right and just.

    (8) The law protects your interests.

    (9) Laws are generally consistent with the views of the people in your community.

   (10) The law represents the moral values of people like yourself.

Procedural justice – police/correctional officers

(*4-point: never – always*)

Voice

    (1) How often do police/correctional officers give people/inmates a chance to tell their side of the story before they make decisions?

Neutrality

    (2) How often do police/correctional officers treat people/inmates fairly?

    (3) How often do police/correctional officers clearly explain the reasons for their actions and decisions?

Respect

    (4) How often do police/correctional officers respect people's/inmate's rights?

    (5) How often do police/correctional officers treat people/inmates with dignity and respect?

Motive-based trust

    (6) How often do police/correctional officers make decisions that are good for everyone in the community/prison?

    (7) How often do police/correctional officers try to do what is best for people/inmates?

Legitimacy – police/correctional officers

Obligation: fear – correctional officers
(*3-point: not at all, somewhat, extremely*)

    (1) How fearful would you be of punishment if you violated the rules that prison staff set?

Obligation: dull compulsion – police/correctional officers
(*4-point: strongly disagree – strongly agree*)

    (1) People like you have no choice but to obey the orders of police/correctional officers.

Obligation: duty to obey – police/correctional officers
(*4-point: strongly disagree – strongly agree*)

    (1) You should accept the decisions of police/correctional officers even if you think they are wrong.

    (2) You should do what police/correctional officers tell you even if you do not understand the reasons.

    (3) You should do what police/correctional officers tell you to do even if you do not like how they treat you.

Trust – police/correctional officers
(*4-point: strongly disagree – strongly agree*)

    (1) Police/correctional officers are generally honest.

    (2) When dealing with people, police/correctional officers almost always behave according to the law/rules.

    (3) Police/correctional officers take bribes. (R)

Normative alignment – police/correctional officers
(*4-point: strongly disagree – strongly agree*)

    (1) Police/correctional officers generally have the same sense of right and wrong that you do.

    (2) Police/correctional officers stand up for values that are important to you.

    (3) Police/correctional officers usually act in ways that match your own ideas about what is right and wrong.

Personal experience –   police/correctional officers

Fairness of treatment
(*5-point: very unfairly – very fairly*)

    (1) Before/during this incarceration how fairly were you treated by police/correctional officers?

Favorability of outcome
(*4-point: never – always*)

    (1) During your interactions with police/when you got a write-up or case from a correctional officer during this incarceration, how often did you get the outcome you wanted?

Fairness of outcome
(*4-point: never – always*)

    (1) During your interactions with police/when you got a write-up or case from a correctional officer during this incarceration, how often did you receive the right outcome based upon your understanding of the law/rules?

Effectiveness – police/correctional officers
(*4-point: strongly disagree – strongly agree*)

(1) The **police** often arrest people for no good reason. (R)

(2) Most police/correctional officers do their job well.

(3) **Correctional officers** are doing a good job in preventing misconduct.

(4) **Correctional officers** maintain order in prison.

Note. (R) = reverse scored

VITA

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EDUCATION

Doctor of Philosophy in Criminal Justice and Criminology at Sam Houston State University, July 2014 – May 2018. Dissertation title: "Prisoners' perceptions of procedural justice and legitimacy: Examining constructs and effects on recidivism."

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ACADEMIC EMPLOYMENT

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PUBLICATIONS

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Spooner, K., Pyrooz, D. C., Webb, V. J., & Fox, K. A. (2017). Recidivism among juveniles in a multi-component gang reentry program: Findings from a program

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PRESENTATIONS AT PROFESSIONAL MEETINGS

McCullough, K. (2017, November). *Effects of perceived legitimacy of the law and criminal justice agents on prisoner reentry success*. Paper presented at the American Society of Criminology annual meeting, Philadelphia, Pennsylvania.

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Spooner, K., & Vaughn, M. S. (2014, November). *Sentencing juvenile homicide offenders to life without parole: A comparative legal analysis*. Paper presented at the American Society of Criminology conference, San Francisco, California.

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ACADEMIC AWARDS

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