

ABSTRACT

Title of Dissertation: UNDERSTANDING CODE OF THE STREET
ATTITUDE UPDATING: IMPLICATIONS
FOR POLICE PERCEPTIONS, RACE, AND
GEOGRAPHIC CONTEXT

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Elijah Anderson's 1999 Code of the Street thesis posited that individuals might develop and espouse subcultural attitudes supporting violence and aggression in response to feelings of marginalization and isolation. Despite attempts to test Anderson's arguments, little research has attempted to study code of the street attitudes in a longitudinal context, specifically with a focus on individual change over time. This dissertation addresses this research gap in several ways.

First, the concept of attitude or perception updating almost exclusively arises in deterrence research. However, it is an appropriate, first-order, question to ask whether individual code of the street attitudes are malleable across time or are relatively static. Second, Anderson (1999) argues that mistrust of the police and isolation from the rule of law influence attitudinal change and willingness to adhere to subcultural principles. However, no empirical research to date has explicitly

considered the relationship among perceptions of the police, police actions, and code of the street attitudes. Third, nearly all research studying the code of the street in a longitudinal context draws from a racially and geographically homogenous sample. While scholars have approached the question of racial and geographic invariance in examining other important criminological theories and concepts, researchers have not addressed them in testing principles of the code of the streets, particularly with regard to longitudinal attitude updating.

The current work addresses these prominent gaps using data from the six-wave Gang Resistance Education and Training (GREAT) II sample. The study uses a within-individual fixed-effects modeling approach to examine the nature of code of the street attitude updating, specifically in response to changing perceptions of the police, experiences with police questioning, and arrest. Finally, this study examines how invariant code of the street updating is with respect to different races and geographic contexts. Results demonstrate that updating does occur, regardless of one's initial attitudes. Further, although results show a robust relationship between perceptions of police and attitude updates, the nature of the relationship varies across race and geographic context, though not necessarily in a way that comports with traditional criminological understanding. The study concludes with implications for policy and theory, with the central ideas that: a) "updating" should play a more prominent role in understanding subcultural attitudes; b) scholars need to understand the role police play in perpetuating (or curtailing) subcultural attitudes; and, c) policy prescriptions may differ across context.

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by

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CHAPTER 1: Introduction

Elijah Anderson's Code of the Street (COTS) thesis (1994; 1999) attempted to explain why violent crime persists in inner-city communities. In doing so, the author offered arguments positing that a marginalized neighborhood arises out of alienation and isolation from the mainstream status quo. At the micro level, social isolation and a dearth of pro-social bonds and institutions strip individuals of role models for mainstream success. One particularly important institution is law enforcement. Without the expectation that the police will intervene to prevent crime in their neighborhood, individuals feel less attached to conventional laws and rules. One manner in which this frayed bond manifests in behavior is when residents violently retaliate to victimization rather than solve the problem through less aggressive means. In response to a dearth of pro-social role models, individuals come to value those attributes that protect them from victimization, including traits such as respect and nerve. Through this process, theoretically, the subcultural values actually insulate against subsequent victimization. Since Anderson first published his ideas, a handful of researchers have tested the principles of his thesis and its generalizability across a range of samples and predictors (e.g. Brezina, Agnew, Cullen, and Wright, 2004; Stewart and Schreck, 2006; Stewart and Simons, 2010). However, there are a number of critical gaps. As a whole, scholars need a much more robust understanding of how individuals update their COTS attitudes over time, what might influence the updating process, and how racially invariant attitude the process might be.¹

¹ Undoubtedly, there are more gaps in COTS literature than this dissertation will answer. Specifically, this dissertation will not speak to the initial sources of COTS attitudes. A satisfactory answer to that

Given the research gap, this dissertation will proceed in the following manner. The first section provides a more extensive summary of subcultural theories, generally, and COTS specifically, concluding with a thorough discussion of the most persistent gaps in the literature and why they are critical in furthering criminological discourse. The second section considers COTS attitudes in a longitudinal context—do individuals update attitudes over time? Indeed, in a criminological context, researchers have applied the concept of updating to measure changing perceptions of sanction certainty and the deterrent effects of outcomes such as arrest. However, only parallel fields such as behavioral economics and psychology have persistently considered attitudinal updating more generally. This section summarizes important literature in this regard and then makes the case that it is plausible to assess COTS attitude updating over time. The section concludes by advocating why it is important to expand criminological understanding of updating and, specifically, how measuring between- and within-individual attitude changes over time can separately inform our understanding of COTS theory.

Specifically, knowledge of mechanisms that influence change in COTS attitudes is still at a nascent stage. Only one recent study (Moule et al., 2015) has examined trends over more than two periods, limiting what scholars know about movements in COTS attitudes over time. Implications from this section also extend to larger implications for subcultural theories, against which scholars have already levied several prominent refutations (e.g. Kornhauser, 1978). As wary scholars note, criminology lacks concerted efforts to challenge theoretical mechanisms and disprove

question would require longitudinal data beyond the scope of GREAT II, which only captures attitudes in adolescence.

theoretical arguments (e.g. Warr, 2017). By testing COTS principles longitudinally over many waves, I provide an important empirical test of its generalizability and ability to explain patterns over time, which is a critical gap to fill for gaining a more nuanced understanding.

The third section will incorporate relevant components of the more extensive policing literature to build a theoretical understanding for why perceptions of the police matters and how people's attitudes, generally, might fluctuate in responses to changes in perceptions of police legitimacy and use of procedural justice. This section includes a review of studies linking COTS attitudes to perceptions of criminal justice agent legitimacy generally and a specific consideration of the impact of perceived discrimination on subcultural attitudes. Finally, this section considers the importance of personal experiences with the police, specifically how they condition the relationship between generalized perceptions of police legitimacy and subcultural attitudes toward violence. To be sure, COTS attitude updating is a complex and multifaceted concept. There are many reasons why an individual might change their attitudes, both tangible and imperceptible, time-stable and time-variant. However, the role of the police is arguably one of the most prominent. Indeed, the police are primary social control actors in urban neighborhoods and frequently play some sort of role in the lives of residents. Anderson (1999) himself made explicit reference to how important the police are in effecting perceptions of the need to handle aggression and violence in a less than prosocial manner. Currently, COTS literature has done little to understand the precise role of the police in fostering code adherence.

In addressing this knowledge gap, this dissertation will improve the understanding of the potential deleterious effects police conduct might have on attitudes toward pro-social methods of resolving conflicts. Research has consistently documented the insidious effect of racial discrimination and police bias on outcomes such as willingness to call the police, perceptions of the police, and violent crime and victimization (both at individual and aggregate levels-Murphy et al., 2017; Tyler and Fagan, 2008). However, as of yet, no studies have examined the influence on subcultural attitudes toward violence. One way to extend the current pool of knowledge is to expand methods for operationalizing perceptions of police. Specifically, by measuring the influence of direct interactions with the police separately from the influence of general perceptions of police use of procedural justice, criminologists can begin to hone in on potential mechanisms by which police behavior may affect updating. A stronger knowledge base could provide myriad policy implications; indeed, as prominent COTS scholars posit, better understanding of the role procedural justice plays in influencing COTS attitudes can inform methods of curtailing the cycle of isolation and alienation endemic to many marginalized neighborhoods (Stewart, Schreck, and Brunson, 2008).

The final section considers the importance of context in COTS attitude change, with specialized focus on race and geographic location. First, the section very briefly summarizes existing criminological discourse on racial differences and potential biases across various facets of the criminal justice system spectrum. The section next considers the existing evidence for racial and ethnic differences, specifically about COTS attitudes. Finally, the concluding sub-section makes an

argument for why it is important and empirically useful to understand if mechanisms in COTS attitudes operate universally or take racially/ethnically specific paths. The text argues that research to date, by merely controlling for various races or ethnicities in analyses, insufficiently addresses the racial invariance question. Even though race has been prominently included in analyses of criminal justice policies and decision-making processes (e.g. Alexander, 2016; Leiber and Jamieson, 1995; Spohn, Gruhl, and Welch, 1981; Wang et al., 2013), it is less frequently considered in analyses of subcultural theories, such as COTS. Problematically, although many empirical tests of COTS use dichotomous racial indicators as control variables, even when accounting for multiple potential races and ethnicities, they do not adequately address whether or not COTS is universally applicable. That is, even if race is a significant variable in a regression model, the results do little to shed light on differences in the ways in which independent variables might affect changes in COTS values across race and ethnicity. This is extremely important. For instance, in the current study, if COTS values update differently for one racial or ethnic group, but not another, it may have far-reaching implications for understanding Anderson's ideas. The results would conceivably mean different things depending on if COTS attitudes adapt universally or follow different longitudinal patterns for particular racial or ethnic groups. The second part of the final section considers the role of geographic context. The notion that the relationship between police officers and their citizenry differs from city to city, depending on demographic and historical factors, has been discussed in criminological discourse (Smith et al., 1999; Taylor et al., 2010). Indeed, perceptions of the police, including perceptions of procedural justice, are not

geographically uniform. However, the geographic uniformity of COTS attitudes are far less understood. Many studies explicitly measuring COTS attitudes use single cities for analysis (e.g., Atlanta). Aside from Taylor et al. (2010), no studies compare COTS attitudes across multiple cities with different demographics (e.g. comparing many geographic contexts in one analysis). Implications from this analysis are equally as important as those from the racial analysis. Each city's police force recognizes that its constituents, and their most pressing concerns, are unique (indeed, this is the motivation for problem-oriented policing); however, if this study finds evidence for a geographic-invariant relationship between perceptions of police and COTS values, perhaps a more universal, collaborative solution can be proffered. By contrast, if the relationship is different across cities, it may pare down the list of priorities for an unaffected city.

To test each of the hypotheses, I will use data collected from the Gang Resistance Education and Training (GREAT) II process and outcome evaluation. The GREAT II evaluators interviewed teachers, police officers, and students in middle school and high school for up to six waves in seven different cities dispersed throughout the United States. This particular dissertation will extract data from only the student sample, as it is most relevant to measuring the key constructs of interest that answer the outlined research questions. The principal investigators initially sought 4,905 students, across 195 classrooms within 31 middle schools, for interviews in the initial data collection process. Though the main objective of the data collection was to assess the effectiveness of a classroom-administered program targeting potential gang members, the principal investigators also asked the

individuals surveyed an extensive array of questions covering their perceptions and experiences with the police and subcultural attitudes consistent with previous COTS operationalizations. The data is ideal for the given set of analyses because it measures police perceptions and cultural attitudes in a longitudinal fashion, permitting for both between-individual and within-individual analyses to assess changes across multiple waves. Further, the students in the survey are adolescents, which makes for an ideal sample because they are likely to have malleable perceptions and are at the age where police interactions peak, allowing for substantial variability in the data. Finally, as the data collectors note, attrition in the sample was not substantial from wave to wave (Esbensen et al., 2011; Esbensen et al., 2013).

In sum, this dissertation will make key contributions to criminological understanding that will be sure to interest scholars across a number of subject areas. These include scholars interested in criminological theory (including subcultural theories of crime specifically), procedural justice and police-citizen relations, the relationship between race and crime, and attitude changes, among others. Ideally, the results will provoke further cross-disciplinary examination and future attempts to further unpack the critical mechanisms underlying COTS theory. If understanding these theoretical nuances uncovers appreciable differences in policy prescriptions, it is an important avenue for any criminological scholar.

CHAPTER 2: Literature Review

Anderson (1999)'s Code of the Street offered an influential new perspective on the etiology of crime, particularly violent behavior in urban centers. In the 18 years since its publication, Code of the Street has spawned a good deal of research testing its components and the mechanisms through which subcultural attitudes affect subsequent outcomes. Before providing an exhaustive portrait of the state of the literature, it is instructive to briefly summarize theoretical work that provided precedent for Anderson (1999)'s ideas.

Development of Subculture of Violence Theories

Anderson's COTS thesis offers a unique subcultural explanation for crime, rooted in decades of criminological discourse. Indeed, researchers have proposed many different subcultural explanations of crime, each premised on the fundamental claim that certain groups of people espouse values favoring deviance or crime (e.g. Ellison, 1991; Wolfgang and Ferracuti, 1967; Zhang et al., 2017). As opposed to classical theories of crime, subcultural theories hinge on the assumption that deviant individuals are not different from pro-social individuals in that they both strive to achieve the main goals of the greater society. Many subcultural theories posit that subcultures form when mainstream society's goals are unattainable; specifically, the prevailing macro-scale opportunity structure precludes certain individuals from having the same ability to achieve normative goals or espouse normative values as other, more privileged individuals. For instance, Albert Cohen (1955)'s Delinquent Boys argued that everyone aspires to achieve mainstream society's version of

success; however, lower-class individuals have unequal opportunities, particularly in school, to achieve their goals. As such, they feel status frustration, resulting in the formation of delinquent subcultures, where the goals are actually obtainable. In doing so, the individuals explicitly reject the goals of the prosocial culture to which they once ascribed. Therefore, individuals adhering to a delinquent subculture commit crime because they feel disconnected from the mainstream culture. By contrast, they feel that committing crime can provide the most fulfillment and allow them to achieve success.

Two sets of scholars expanded Cohen's argument in divergent manners. Miller (1959) elaborated the concept of subculture by positing that not only do individuals adhere to a delinquent subculture, but there are also a set of specific characteristics valued by all members of the subculture. The author posited that subcultural values revolve around a number of critical focal points: fate (or luck), autonomy (resentment of authority and rules), trouble (getting into and staying out of), toughness (masculinity, endurance, and strength), excitement (constant search for thrills), and smartness (street sense). Cloward and Ohlin (1960) developed Cohen's argument in a different way by positing that subcultural formation is entirely dependent on the contextual neighborhood milieu. Criminal subcultures form when a neighborhood is highly organized, meaning that there are active networks of gangs that promote an organized structure for achievement and incremental success. By contrast, conflict subcultures form in disorganized neighborhoods, characterized by few social networks, pro and anti-social employment opportunities, or any other sort of support system. In lieu of the monetary or social success that characterizes

traditional cultures and criminal subcultures, conflict subcultures emphasize violence as a way to achieve and maintain success.²

As subcultural theories developed, researchers began to explore their utility as an inductive explanation of the fact that a very small group of individuals commits the overwhelming proportion of crimes. Wolfgang and Ferracuti's (1967) subculture of violence theory posits that a small group of individuals adhere to subcultures that promote violence as a normative value. As Wolfgang (1972) would discover in an analysis of a Philadelphia research cohort, only six percent of the individuals committed more than 50% of all crimes. Perhaps most provocatively, Wolfgang and Ferracuti's theory explicitly proffered that the subculture of violence was an exclusively African-American phenomenon. The authors contended that the rate of African-American involvement in crime was magnitudes higher than that of other races across a range of violent crime types. Further, the authors posited that, no matter the contextual social conditions or learned responses to violence that influence an individual, the cumulative influence is much larger on African-Americans than Caucasians. Indeed, most overtly, Wolfgang and Ferracuti (1967) stated that "...our subculture-of-violence thesis would, therefore, expect to find a large spread to the learning of, resort to, and criminal display of the violence value among minority groups such as Negroes" (1967:264). The theory refined previous conceptions by adding that the subcultural values serve as frames with which individuals contextualize situations (e.g. bumping into someone, receiving a verbal challenge,

² Cloward and Ohlin (1960) also referred to retreatist subcultures, which exist for individuals who feel rejected from both convention society and from criminal society, and therefore retreat into a world of drug or alcohol abuse and rejection.

etc.) that may appear more innocuous to individuals ascribing to different cultural values. A subculture of violence teaches that any such stimuli that an individual perceives as potentially threatening or aggressive warrants an appropriate, violent response. Further, the subculture emphasizes that to respond passively toward any provocative stimuli is taboo, resulting in loss of respect or ostracism (Kennedy and Baron, 1993).

Very little research has explicitly tested Wolfgang and Ferracuti's contention that African-Americans are more likely to react in violence. However, the studies that do exist generally do not provide supportive evidence, contrarily showing that Caucasians are more likely to espouse retaliating in an aggressive manner, in both defensive and offensive situations (Cao et al., 1997; Doerner, 1978; Dixon and Lizotte, 1987). Despite evidence that it might be a faulty line of reasoning, the contention that the subculture of violence may be an exclusively inner city, African-American phenomenon has persisted.

After Wolfgang and Ferracuti's initial theory, recent scholars have added nuance to the subculture of violence idea. For instance, Horowitz (1983) specifically emphasized the role of honor in setting the parameters for gangs' values. Specifically, honor itself conditions the way in which individuals contextualize their environment, as besmirching honor constitutes a confrontational breach of etiquette. Horowitz (1983) continued that such breaches challenge one's self-perception to the point that there is no recourse other than physical violence. Finally, Horowitz (1983) reasoned that gang members use violence to gain status in two ways: as "self-image promoters"

who provoke incidents to demonstrate prominence and fearlessness or as “self-image defenders” who are sensitive to perceived challenges.

Later, Luckenbill and Doyle (1989) suggested that subcultural attitudes translate to violence through three consecutive processes. First, an individual must feel offended and attribute blame to someone else. Second, an individual must express this perceived injustice to the wrongdoer and demand that they make it right. Finally, the wrongdoer must not acquiesce to the individual’s request, escalating the tension beyond the incident in question. According to Luckenbill and Doyle (1989), the subculture of violence engenders an environment where individuals are more inclined to take confrontations beyond a point where negative interactions generally conclude in other contexts. Again, the emphasis is on self-perception and the need to maintain respect and honor.

Finally, a separate research paradigm posits that there are deep-rooted and historically enmeshed cultural norms and mores that socialize its constituents to value aggression and violence in certain geographical regions of the United States. There are two predominant anthropological explanations of the geographic development of crime in the United States. The first is the Southern subculture of violence. Numerous sociological studies have found that the homicide rates in Southern counties are significantly higher than rates in other regions, even when controlling for cultural, and not just geographic, differences (Gastil, 1971; Hackney, 1969; Messner, 1983). Physical and social scientists have separately contended that myriad factors such as temperature differences (Baron and Ransberger, 1978), the enduring legacy of slavery (Grosjean, 2011; Messner, Baller, and Zevenbergen, 2005), and

disproportionately distributed wealth (but see Messner, 1983 who argues that poverty does not play a causal role) are significantly related to violence in the South.

A second prominent anthropological paradigm to explain geographical differences in violence is that violence was borne out of a need to protect territory and property. Early Irish and Scottish clans settled in Appalachian territories inside the United States and their most prized possessions were their sheep herds. Accordingly, the herds represented valuable assets and clans emphasized protecting theft from other clans (e.g. Nisbett, 1993). Whatever the anthropological explanation, the key argument is that individuals raised in the South accumulate cultural values that are more likely to reinforce violent or aggressive behavior. Specifically, individuals raised in the South have an innate need to respond aggressively to perceived territorial encroachments or threats to sovereignty. In a famous experiment, colloquially named the Asshole Experiment, Southern subjects who were bumped into by an experimental confederate were more likely to feel that the confederate was challenging their reputation, experienced heightened physiological reactions, and were more likely to respond with aggression than their Northern counterparts (Cohen et al., 1996).

Anderson's Code of the Street built off of earlier conceptions of violent subcultures by further fleshing out the myriad ways in which individual behaviors and attitudes are actually a reflection of their cultural emphases, and how certain behaviors promote inner-city youth violence. In comparison to previous scholarship, Anderson (1994, 1999) offers a fully fleshed out code of conduct that individuals abide by to survive in inner cities. Further, Anderson (1994, 1999) makes explicit

effort to contextualize the COTS within the larger deprivation and alienation that is endemic to inner-city environments.

The Code of the Street

Elijah Anderson (1999)'s ethnography, Code of the Street is a continuation of his earlier work, Streetwise: Race, Class, and Change in an Urban Community (Anderson, 1990), which aimed to understand the cultural underpinnings and social interactions among diverse neighborhoods in Philadelphia, Pennsylvania. Code of the Street departs slightly in that its main intention is to understand and generate an explanation for why youth violence is so prevalent in inner-city neighborhoods. To accomplish this, Anderson spent four years conducting interviews and observational field research in impoverished, predominantly African-American, inner-city communities, as well as prosperous mixed-race neighborhoods to assess differences in both cultural adaptations and social structural support systems. In the end, Anderson (1999) concluded that access to formal law enforcement (e.g. the police) erodes in inner-city neighborhoods, resulting in an informal set of conduct rules that he refers to as the "code of the street." As a culture further inculcates certain individuals, they propagate its underpinnings to peers and other community members, which ironically results in cumulative marginalization from pro-social institutions. As Anderson (1999) notes, when COTS attitudes permeate a community, family-sustaining permanent jobs depart. Just as importantly, pro-social adult role models, particularly community leaders and family elders, also react to the marginalization and increasing disorder in the neighborhood by leaving, which only further accelerates the community's alienation from conventional norms.

As Anderson (1999) notes, alienation can take many forms; regardless, perceived isolation from pro-social opportunities fosters resentment of normative institutions. As such, when individuals feel they are alienated to such an extent that they cannot achieve respect by adopting pro-social, mainstream norms, they reject the norms in favor of those that are more attainable, such as displaying aggression and material wealth.

When members of a community feel alienated, it reproduces a cycle of poverty. Ample evidence supports the existence of these so-called “poverty traps.” For instance, Sampson (2009; 2012) hypothesized that persistent differences in neighborhood inequality are durable qualities, often bounded along racial and ethnic divisions. Furthermore, due to segregation and continuing polarization between the “have” and the “have not” communities, the properties of neighborhoods are self-reinforcing and perpetuating unless there are government interventions or, at least, changes at a more macro level of consideration. Sampson (2012) used data from the Project on Human Development in Chicago Neighborhoods (PHDCN) and found support for these persistent differences over time. This is unsurprising given that Sampson and Wilson (1995) had first conceptualized these persistent “social dislocations” as a reason for the disproportionate participation of African-Americans in violent crime, positing that the main concern was in neighborhood structure and community location rather than any individual traits. It is important to recognize the reproduction of poverty because it infers a parallel reproduction of alienation and cultural isolation from mainstream society. Given the social distance from the prevailing rules that guide success in thriving neighborhoods, it makes rational sense

that members of deprived neighborhoods would not see any benefit from adhering to societal norms, given that they reap no rewards from them. It follows that individuals seeing no utility in a conventional normative system would recreate a set of conduct that is easy to abide by and provides the most benefits to their well-being, one prominent example of which might be the COTS.

Alienation breeds COTS attitude formation, which correlates with an increase in individual rates of violent victimization and violent crime (e.g. Stewart and Simons, 2010; Stewart, Schreck, and Simons, 2006). As both Anderson (1999) and many other social disorganization scholars (e.g. Sampson and Morenoff, 1997; Skogan, 1990; Wilson, 1987) have noted, violence is related to pro-social families leaving and anti-social families moving in. As a result, declining neighborhoods only further spiral into deterioration. This is particularly detrimental for individuals living in inner-city neighborhoods because any semblance of positive social capital leaves the community and no prospective representative of positive social capital has any incentive to move in. The “decent” families, ones that do not value violence and place an emphasis on hard work, typically have left the community (Anderson, 1999). Further, individuals in the community view the families that remain not with reverence, but with contempt. This is because residents see those living decently struggle to survive, as the community is bereft of employment opportunities. By contrast, residents who espouse COTS attitudes thrive and garner the most reverence.

A number of scholars noted that as individuals’ feelings of alienation and isolation compound, and as individuals grow to resent and distrust pro-social institutions, they develop cognitive scripts that essentially guide their behavior and

social interactions given the surrounding context (Copp, Giordano, Longmore, and Manning, 2016; Lee and Ousey, 2011; Luckenbill and Doyle, 1989; McGloin et al., 2011; Wilkinson and Fagan, 1996). For instance, as in Cohen et al. (1996)'s experiment, individuals possessing culturally derived cognitive scripts that prescribe retaliation in reaction to perceived slights might be more likely to react using violence. As Straus (1980) and Copp et al. (2016) acknowledged, experiences such as witnessing violence or growing up in a neighborhood where violence is normatively accepted (and occasionally encouraged) help form these scripts and make them difficult to counter. Therefore, both attitudinal and behavioral biases may form and play a robust role in explaining the persistence of the COTS in a neighborhood.

Considered generally, the COTS is a cultural rejection of pro-social norms and values because of prolonged isolation and alienation from mainstream society. According to Anderson (1999), the COTS is an unwritten set of rules aimed at “governing interpersonal public behavior” (Anderson, 1999: 33). The COTS guides not only appropriate conduct, but retaliatory conduct as well. When one feels challenged or provoked, the COTS provides a rationale for retaliation, emphasizing the need to maintain respect. In this manner, one's ultimate goal in adopting the COTS is actually to shield him or herself from victimization (Anderson, 1999: 92). The COTS essentially signals to peers that an individual is street-savvy, aggressive, and dangerous to confront. In this way, the COTS protects an individual from provocation and prolongs survival in the inner city. Many scholars have theorized that COTS attitudes are part of a larger cultural toolkit that contextualizes how adherents see the larger world (see e.g. Lee and Ousey, 2011; McGloin et al., 2011).

That is, perhaps COTS provides a general guide for how to interpret and optimally react to certain situations rather than specific cultural values adhered to by a limited proportion of the population. Nevertheless, there is some consensus on what makes up the core attributes of the COTS.

Anderson (1999) largely premised the COTS on the notion of respect, which Anderson (1994:82) stated is at the “heart of the code.” As previous subculture of violence theories postulate, respect is at the heart of the COTS because so many of the other components govern behavior with the ultimate goal of gaining, flaunting, or maintaining respect. Individuals feel that they cannot gain respect by normal pro-social methods such as education or employment because mainstream society has marginalized and alienated the community. As such, people gain respect by retaliating against affronts and standing up for themselves. Just as gaining respect is critical for increasing prestige and renown among peers on the street, by the same measure, losing respect is a detrimental prospect that demands aggressive action in situations that would not normally call for it. Following that logic, another one of Anderson (1994, 1999)’s identified COTS components is nerve, where one must retaliate in a physical manner against any perceived slight or physical altercation. Again, individuals must be willing to retaliate to preserve self-perception as well as how peers and potential adversaries might view them.

Thus, at the crux of the argument, Anderson (1994, 1999) inductively determined that violence is a product of a subculture that emphasizes respect as its highest form of currency, which individuals garner and protect through the most extreme of means. Building on Horowitz (1983), people use violence to gain respect

(both from the victim and from a larger peer community) as well as to shield against potential victimization or usurpation. In order to live an unbothered life and receive fair treatment, individuals must employ an extreme form of persuasion. In turn, a victim of physical aggression loses respect, and in an unfortunate irony, must victimize another individual in order to reclaim prestige. Hence, even though COTS attitudes are supposed to insulate an individual from violence, it may instead create a cyclical pattern of victimization and retaliation.

Empirical work on Code of the Street

The first prolific avenue of empirical work tested the merits of Anderson (1999)'s argument that the COTS acts as a protection against violence when one perceives little alternative recourse. Stewart, Schreck, and Simons (2006) offer one of the first statistical tests for the argument that the COTS acts as a shield against victimization. Using data from the Family and Community Health Survey (FACHS) data, which employed a longitudinal sample of African-American youth in Iowa and Georgia, the authors assessed whether COTS attitudes at an earlier sampling wave predicted subsequently fewer victimizations. Contrary to Anderson (1999)'s portrayal, the authors found that COTS attitudes were actually related to an increased level of victimization, above and beyond macro-social neighborhood conditions social disorganization theorists would typically associate with crime. That is, the COTS does not act as a protector (which would conceivably be the only practical reason of adopting the COTS), but rather, presumably, as a provocateur of more violence. Subsequent research posited that the COTS might actually be endemic to the neighborhood itself; that is, perhaps the neighborhood culture effects violence

independently of individual-level COTS attitudinal support. Stewart and Simons (2010) used multilevel models to examine this potential interactional relationship and found supportive evidence. Neighborhood-level measures of COTS support had an additive effect on rates of victimization above-and-beyond individual level attitudes (Stewart and Simons, 2010). Moreover, individuals with more forceful endorsements of COTS attitudes were even more likely to suffer victimization if their neighborhood's culture put more emphasis on the COTS.

A second line of work has examined the implications of the COTS for the commission of violent crime. An early study by Stewart, Simons, and Conger (2002), again using the FACHS data, found that African-American individuals with attitudes more strongly espousing COTS committed both more serious and a greater quantity of violent crime. As with work testing the effects of the COTS on victimization, the authors found that measures of individual-level COTS attitudes remained significant even after accounting for important neighborhood-level explanatory variables. However, some authors have criticized operationalizations of the COTS because COTS constructs appear to correlate with participation in non-violent crime as well, weakening the arguments made by Anderson. McGloin et al. (2011) tested Anderson (1999)'s implicit argument that COTS attitudes should not only predict which individuals commit crime, but which individuals specialize in violent crime. That is, COTS should not merely be predictive of prolific offending of which violence is some random part, but rather a tendency to favor violent action. Contrary to the theory, McGloin et al. (2011) found that individuals advocating for the use of

violence to solve problems, both in school and out, were more likely to commit crimes, but not more likely to specialize in violence.

A third line of research stems from skeptical empiricists contemplating whether Anderson (1999)'s arguments are truly universally applicable. That is, although Anderson (1999) intimated that the COTS is a general cultural adaptation to neighborhood conditions, perhaps it is truly only applicable to a subset of the population. For instance, given that early empirical work exclusively sampled males, researchers began to explore the generalizability of Anderson (1999)'s concepts to females. Brunson and Stewart (2006) conducted in-depth surveys with 24 teenage women living in Chicago's Southside and found that many of the principles Anderson (1999) proposed, such as retaliatory fighting to garner respect and an obligation to maintain one's status in order to navigate the perils inherent in a crime-ridden neighborhood, were also applicable to the female inner-city experience. Similarly, Nowacki (2012) compared males and females from the National Youth Survey on their likelihood of COTS attitude adherence and the extent to which familial attachment conditioned the relationship between gender and COTS attitudes. The author found that though males were more likely to endorse the COTS, the average scores of males on the COTS scale were only approximately fifteen percent higher than females, indicating that males were most likely to be representing values at the scale's extreme. Further, certain variables, such as family income generation, significantly correlated with only males' adherence to the COTS. Other variables, such as parental attachment, by contrast, significantly related to COTS attitudes regardless of gender.

A separate line of research tests the generalizability of the COTS beyond the confines of the inner city. This may seem counterintuitive because the parlance of the “street” certainly conjures up an image of an urban environment. Nevertheless, if COTS attitudes are endemic in rural and suburban areas, it calls into question Anderson’s postulation that it is responsible for the persistent cycle of violence in urban neighborhoods. Indeed, empiricists have uncovered evidence that the undue emphasis on the inner-city environment may be overly myopic. Keith and Griffiths (2014) used a sample of Georgia juvenile offenders drawn from zip codes that they classified into urban, rural, and suburban pools. Although the authors’ regression analysis showed that residing in an urban core (more than 100,000 people) was significantly associated with COTS attitudes, a test for difference of means across geographical environments revealed no average difference. A second relevant study (Intravia, Wolff, Gibbs, and Piquero, 2017) assessed the applicability to a college student sample. Consistent with expectation, the authors found that COTS endorsement still correlated with a summed index of criminal offending. However, analyses also showed that inclusion of variables derived from strain theory rendered the effect of the COTS insignificant. A final study tested the COTS’s applicability to cyberspace. Henson, Swartz, and Reynolds (2016) examined the relationship between “street-oriented beliefs” and online criminal activity, to include cyber-stalking, identity theft, virus dissemination, and other specific online-only behaviors. The authors found a significant relationship between COTS beliefs and participation in online crime. The results may be somewhat surprising, particularly when considering the authors’ decision to test values specifically posited to apply to only person-to-

person interaction in a more anonymous and insulated context. Indeed, the fact that there was still a significant, positive relationship in a situation where risk of bodily victimization is non-existent might indicate that the term ‘COTS beliefs’ is a misnomer; rather the values instead might more generally indicate tolerance of aggression and antisocial behavior rather than anything explicitly tied to survival in an inner-city neighborhood. However, the decision to apply COTS beliefs to behavior in the online world maintains questionable fidelity to Anderson (1999)’s original intent. For instance, it would be interesting to see how strongly online COTS beliefs would correlate with “real-world” COTS beliefs.

Finally, a set of empirical studies sought to model the theoretical mechanisms involved. For instance, Brezina et al. (2004) elaborated on earlier work by designing a structural model to portray the sophisticated mechanisms they believed to represent the theoretical argument made by Anderson (1999). The authors posited that relevant variables such as underlying structural conditions and indicators of a lack of social control (including measures related to alienation such as perceived lack of pro-social opportunity) in time one would affect both COTS attitudes and violent offending in time two (Brezina et al., 2004:312). Even though the authors found that these underlying explanatory variables, as might be predicted by extant criminological theory, were related to the likelihood that an individual would engage in violence, they did not find support that they affected COTS attitudes, even though COTS attitudes were also significantly related to the likelihood of engaging in violence.

A second study by Stewart and Simons (2006) expanded on the original work of Brezina et al. (2004) by explicitly measuring the contribution of neighborhood-

level measures, above-and-beyond merely aggregating individual measures to the neighborhood level. The authors further developed the existing understanding by distinguishing between individuals in decent families and individuals in street families (for a more detailed explanation on the differences between the two, see Anderson, 1999; Baron, 2017; Mitchell et al., 2017). Finally, the authors explored the possible connection between experiences with perceived racial discrimination and COTS attitudes. The authors found support for their hypotheses: individuals living in neighborhoods with greater disadvantage, individuals who were part of street families, and individuals who reported experiencing racial discrimination were all more likely to espouse COTS beliefs. Although the authors concluded that individuals' experiences with racial discrimination significantly affected their COTS attitudes, the measure used did not specify the source of the perceived discrimination. For instance, experiences with police discrimination may be a more salient and jarring experience than experiences with peer discrimination, which may be more of a normative expectation consistent with typical adolescent behavior.

Persistent Gaps in the Literature

Empirical work has done an admirable job in less than twenty years of providing an evidentiary base for Anderson's work; however, critical gaps remain. This dissertation will address four of them. The first shortcoming in extant research is the lack of empirical attention paid to COTS attitude change over time within individuals. Admittedly, this stems from a larger, still unanswered, question about how subcultures originate. Unfortunately, research will never satisfactorily answer that question until scientists can be confident that longitudinal data accurately

captures COTS attitudes' genesis. As it currently stands, understanding attitude malleability instead offers critical insight into the malleability of subcultural values over time, which is equally as important in testing a theory's strength.

The next section covers the limited research in this area; however, there is still a first-order need to establish the extent to which COTS attitudes might change over time. Much of recent criminological exertion in this vein measures attitudes about sanction threat and likelihood of arrest. Additionally, though COTS empirical literature has emphasized the importance of past COTS attitudes in determining future COTS attitudes, scholars typically assess the statistical relationship using only two waves, which is somewhat simplistic. Although a long line of scholars have criticized subcultural theories in general for doing a poor job in explaining how certain subcultures originate and whether or not individual attitudes evolve over time (Kornhauser, 1978), Anderson (1999)'s Code of the Street, and the GREAT II data, can actually speak to the latter shortcoming in a convincing fashion.

Understanding the nature of COTS attitude updating over an extended length of time will serve to increase awareness of its developmental pattern. As many scholars of criminological theory contend, an important way to assess the robustness of a theory is to test its longitudinal viability. This is a, as yet, poorly understood facet of Anderson (1999)'s conceit. Many studies are cross-sectional in nature and do not account for the temporal ordering that Code of the Street implies. As such, we are not learning more about the flexibility of the mechanisms underlying Anderson's ideas. For instance, it may be that violent crime or victimization affects one's COTS levels, and not the other way around. The studies that are longitudinal in nature and

account for this potential confounding relationship (by controlling for prior COTS attitudes) are also limited because they typically measure the independent variable at Time 1 and COTS values at Time 2 (for an exception, see Moule et al., 2015).

Although this is important, it is still difficult to assess whether individuals update their COTS values over time, if at all. Even though research on a variety of attitudes, such as self-control, has been careful to test for updating processes (e.g. Baumeister, Vohs and Tice, 2007), it has not been extended to COTS attitudes, which is a notable flaw.

For instance, remarkable stability in COTS attitudes may implicate a persistent, underlying trait or a particularly important, enduring, macro-environmental phenomenon. By contrast, if there is notable change in COTS attitudes over time, it is theoretically important to discern determinants of that change and the nature of the attitude updating. Existing literature lacks a thorough understanding of the mechanisms that determine the extent to which one espouses COTS attitudes. Thus, by uncovering nuances in the relationship between social control actors, citizen perceptions, and COTS values, avenues for integration with other important criminological concepts may be uncovered.

Relatedly, the second large gap in existing literature is an incomplete understanding of the relationship between perceptions of social control actors and COTS attitudes. This particular gap is puzzling because both Anderson (1999) and a wealth of other research has indicated the substantial role the police, in particular, play in the persistent marginalization of inner-city communities (e.g. Berg et al., 2016; Brunson and Weitzer, 2009; Carr et al., 2007; Desmond, Papachristos, and

Kirk, 2016). It would make for a natural extension of this logic, then, that perceptions of police may have a critical role to play in how strongly individuals espouse COTS values. Prominent subcultural scholars have also noticed this possibility. Indeed, as Stewart, Schreck, and Brunson (2008) commented, efforts to understand the role of procedural justice tactics in community and individual COTS attitudes would go a long way in repairing sentiments of alienation and rejuvenating a marginalized community. Specifically, if perceptions of procedural justice play a verifiable role in COTS attitude malleability, it would provide empirical support for some of the theoretical arguments Anderson made and would provide a tangible avenue for policy implications stemming from the theory.

The third critical gap is that empirical tests of the COTS' external validity are thus far incomplete, especially with regard to race and geographic context. Although some scholars have speculated that COTS attitudes are important no matter the larger context, very few have thoroughly tested this contention. Additionally, in studies that do test COTS' geographic generalizability, methodological flaws in each study, at the least, renders it premature to draw conclusions about external validity. Notably, almost no research to date has empirically tested COTS principles across multiple geographical locations in the same study. Another particularly important avenue of concern in this vein is the extent to which the arguments Anderson (1999) makes regarding COTS are applicable across races and ethnicities. However, given the current limitations in research, we know very little about whether the COTS applies to all races or is limited to African Americans, which is an important flaw in the literature.

Though these gaps specifically plague COTS literature, it does not mean that criminal justice researchers have fundamentally ignored the topic entirely. For instance, although an appreciable collection of scholars have acknowledged that updating is a real and important phenomenon, they generally consider it in the context of sanction perceptions rather than attitude adjustment. Further, even though scholars have paid a great deal of attention to procedural justice and police perceptions, there is a large gulf between extant knowledge and its applicability to individuals' subcultural attitudes. Finally, scholars' attention to the importance of racial invariance in the criminal justice system has not translated to considerations of attitude change. Appropriately, the next sections will contextualize the three main research gaps first within the overall criminal justice framework, and then within the concept of the COTS more specifically. Given that the first gap is a lack of knowledge about how individuals' COTS attitudes change over time, it is prudent to review relevant scholarship on attitude updating.

Updating COTS Attitudes

The idea that individuals' attitudes are not static and are, in fact, responsive to external and internal stimuli is not controversial and is generally accepted in the social sciences (e.g. Devine-Wright et al., 2015; Hardy, 1957; Hogarth and Einhorn, 1992; Mann et al., 2015; Tesser, 1978). However, criminology, by comparison, has made relatively little progress in measuring attitudinal reactions and changes in perceptions over time. By contrast, other social science fields have a more expansive literature measuring perception updates. One particular sub-field, cognitive psychology takes particular interest in the concept of machine learning and Bayesian

processing of information. For instance, Jacobs and Kruschke (2011) provided a formal application of Bayesian updating principals to the study of human cognition. The authors noted that human cognition fundamentally begins with an amount of prior knowledge as well as the degree to which an individual “believes” in, or adheres to, a particular idea. As individuals gain more information, they have the capacity to update their knowledge collection in response to the new information, though the potential change is by no means linear. Further, an individual anchors his or her ability to process new information and update beliefs within constraints bounding prior beliefs. Processing is contingent upon the individual’s agency in selecting sources from which to gather new information. The latter point is especially critical outside of the laboratory setting, where social cues and existing cultural milieu can have a large, independent impact on bounding individual choice.

It makes sense that attitudes are malleable given the source and influence of prior knowledge as well as new pieces of information that might foreseeably have the power to effect attitude updates. Scholars have conducted extensive research measuring attitude change across many subject areas, such as political attitudes (e.g. Alwin, Cohen, and Newcomb, 1991; Hess and Torney-Purta, 2005), attitudes about oneself (e.g. self-awareness [Hobson, 2006], self-esteem [Fox, 1997; Robins and Trzesniewski, 2005], social awareness [Govern and Marsch, 2001], etc.), and many more. The research summarized below applies Bayesian updating principals to the understanding of attitude change. In doing so, the evidence suggests the importance of measuring changes in attitudes, both generally, and as a specific part of this dissertation.

A good deal of psychological literature has investigated the importance of heuristics in explaining how people generate beliefs and reference the prior knowledge about the beliefs to update them in a Bayesian manner. One additional interesting application of Bayesian learning models was to understand the role of confidence in prior beliefs in influencing stock market trading decisions (Bisiere, Decamps, and Lovo, 2014). The authors found that the strength of prior convictions are particularly important in shaping future beliefs, even when accounting for the objective pool of information present to the trader. As such, a good proportion of future decisions rely on sentiments (feelings) outside the objective evidence available; weak sentiments engender underconfidence and strong sentiments engender confirmation bias of previously held beliefs. Deryugina (2013) conducted an interesting application in investigating the effect local fluctuations in outside temperature had on people's beliefs about the salience of global warming. The author found evidence that availability heuristics played a role in attitudes about global warming. Availability heuristics posit that individuals will cede greater weight to information more readily available to them and clearer in their mind than information less central, even though there may be no objective reason to do so (e.g. Kahneman and Tversky, 1979). For instance, very hot temperatures in one's local town have a more pronounced effect on their beliefs about global warming, even if temperatures in more disperse locales are normal. However, the author also finds evidence that belief updating is rooted in Bayesian logic, as individuals' beliefs had a greater fluctuation when temperatures deviated more from the mean.

Social psychological research also investigates how people update their cognitions and attitudes when members of a group. Specifically, notions of groupthink posit that pre-existing beliefs are amplified contingent upon group membership, as individuals acclimatize to the group and attempt to prove their belongingness in the group. Individual beliefs within the group can evolve to much more extreme positions as they attempt to create a fuller sense of harmony and cohesion within the group (Esser, 1998; Janis, 1972; McCauley, 1989); at the same time, the group actively suppresses more moderate and dissenting opinions. There is a parallel collection of literature invoking similar phenomena to understand how racial prejudices and support for punitive punishment changes depending on perceived threat from marginalized groups. Blalock (1967) posited that as the relative size of the minority population rises in a given geographical location, the majority perceives an increasing threat to their social, political, and economic dominant position of power. As a result, they become increasingly punitive, or act in a harsher manner, toward the minority in order to curtail any upheaval in power. In response to increased proactive police conduct perceived to be unfairly targeting minorities, members of the inner-cities who feel as though they are being oppressed might react by shifting their cultural beliefs toward the law that they now feel is being overly punitively manipulated against them.

There is also a line of sociological work examining the impact of macro contexts on decision-making processes and changes in beliefs. This branch of research is particularly relevant given Anderson (1999)'s argument, and the argument of subcultural theories as a whole, that marginalized groups see conventional society

through a different lens. Indeed, the whole notion of cognitive scripts draws heavily on this notion, positing that differential context guides the very ways people respond to stimuli, even the most mundane ones.

This latter point about the interplay between cognitive scripts and attitudes coalesces well with a Harding (2007) study. The author used the National Survey of Adolescent to Adult Health (AddHealth) longitudinal data to survey whether attitudes related to pregnancy and romantic relationships espoused in wave I were commensurate with behaviors between wave I and wave II (e.g. did an individual state that ideally they would not get pregnant, but actually become pregnant after espousing their attitudes?). He found that, in more culturally heterogeneous neighborhoods (e.g. areas with a wider range of ideal notions about pregnancy and relationships), individuals were less likely to adhere to their attitudes.³ Cultural heterogeneity seemed to influence notions of romantic relationships and pregnancy above-and-beyond overall poverty levels in a neighborhood.

Harding was also involved in several follow-up studies further exploring the ways in which cultural heterogeneity affect subsequent behavioral and attitudinal outcomes. Indeed, Harding (2011) demonstrates the versatility of his initial argument in showing that cultural heterogeneity affected individuals' attitudes related to school achievement and desire to attend college. The study found much the same result as Harding (2007): individuals living in neighborhoods with more cultural heterogeneity

³ Although the author frames the results as measuring discrepancy between projected attitudes and subsequent behaviors, one can still make the argument that he is measuring a form of attitude updating. Each of the waves asks the respondent to rank 17 relationship goals from a provided list in wave I and then re-rank the order in wave II according to what they have done in relationships between the two waves. As such, while the wave II rankings certainly reflect behaviors, to some extent, they also reflect attitude updating as well.

were more likely to change their preferences for further schooling between interview periods than were individuals in more homogeneous neighborhoods, controlling for poverty.

A second line of research comes from behavior economists who have long attempted to understand what affects individuals' decision-making. However, only relatively recently have scholars acknowledged the prevailing role of culture in shaping one's rational calculus. For instance, Guiso, Sapienza, and Zingales (2006) posited that group-level beliefs influenced individual-level beliefs, but added that this, in turn, effects economic decision-making and attitudes about optimal economic decisions. Follow-up studies by the trio (e.g. Guiso, Sapienza, and Zingales, 2008) demonstrated the role culture plays in strengthening trust among trading partners on the economic market and found that changes in intergenerational transmission of attitudes about trust can permanently alter one's general perception about trading trustworthiness, such that they fundamentally alter their attitudes on the matter.

Despite the attention updating has received in other social science disciplines, little *criminological* research has measured the updating processes attitudes. This is surprising when considering that social learning scholars explicitly contend that attitudes develop and are malleable over time. An individual initially forms an attitude or behavior through imitation and then either continues to espouse or ceases to espouse this attitude depending upon whether or not it is reinforced (Akers et al., 1979). Indeed, attitudes are of critical import in many other criminological theories and paradigms, harkening back to the work of scholars like Sutherland (1947) and Sykes and Matza (1957), the latter of whom maintained that individuals act in a

criminal manner even when their attitudes toward crime may directly belie their behaviors. Follow-up empirical theory testing has found evidence both that attitudes may influence future actions (Payne and Salotti, 2007; Wikstrom and Svensson, 2010) and that individuals update their actions in response to prior behaviors (Matsueda, 1989). Further, many scholars contend that the relationship is inherently and necessarily reciprocal (Thornberry et al., 1994). Though most scholars agree that attitudes are important independent of behaviors in understanding future criminal behavior, they normally measure attitudes in order to understand the predictors of criminal activity, not as dependent variables in-and-of themselves. That is, although researchers understand that attitudes change over time, they exert less research effort toward understanding predictors of attitude change (one form of which is updating), especially subcultural attitudes such as COTS.

Instead, the bulk of updating research in criminology has incorporated concepts from behavioral economics to assess how offenders update perceptions of sanction threat in response to a deterrent tactic, such as arrest or intensified police patrol. In the mid-2000s, research began to demonstrate that individuals are indeed responsive to arrest and will adjust their risk perceptions accordingly (Matsueda, Kreager, and Huizinga, 2006; Pogarsky, Piquero, and Paternoster, 2004). However, it was not until later that researchers established precise econometric techniques for measuring the exact distance traveled between prior risk perceptions and post-sanction risk perceptions. For instance, an influential study of perception updating used a Bayesian learning model to analyze how both experienced and inexperienced offenders respond to deterrent measures, specifically arrest (Anwar and Loughran,

2011). The authors found that offenders do indeed update their perceived likelihood of capture in response to arrest, with evidence showing that more experienced offenders are less responsive to arrest. Follow-up studies built on the existing model to test for the effect of individual differences in influencing updating above-and-beyond the characteristics of the sanction or the signal to which offenders respond (Pickett and Bushway, 2015; Schulz, 2014; Thomas, Loughran, and Piquero, 2013). Despite the dearth of available evidence to draw upon regarding COTS updating, many disciplines suggest that attitude updating frequently occurs.

I argue that a focus on what affects COTS updating is novel in criminology and will advance current understanding of both COTS and subcultural theories more generally in several key ways. First, a focus on updating can speak to major arguments in the criminological discourse. Harkening back to the population heterogeneity versus state dependence argument of early life-course criminology (see e.g. Gottfredson and Hirschi, 1990; Heckman, 1991; Nagin and Paternoster, 2000), there is still a debate regarding the extent to which psychological traits (such as self-control or aggression) change, and at what point they change, over the life-course. While scholars do not typically consider COTS attitudes in the same vein, studies have shown that they are related to the commission of violent crime (e.g. Stewart and Simons, 2010). Therefore, any attempt to gain an understanding of the way they change or are static over the life-course is an endeavor as important as any other for theoretical criminology. To reiterate, even though this dissertation cannot speak to COTS attitude origins, it can still make significant contributions to advancing criminological theory.

Second, from a practical standpoint, criminology can learn a great deal from other disciplines where scholars have researched attitude updating for far longer. Indeed, understanding attitude updating can reasonably extend to many aspects of criminology or criminal justice research. For instance, research examining changing focal concerns of judges and parole officers over time or changes in attitude toward the death penalty, just to name two examples, would make welcome contributions to the existing knowledge base. This dissertation will begin the process of making attitude updating an integral part of the criminological lexicon.

This leads to my first hypothesis:

H₁: COTS attitudes are malleable and change within individuals over time.

As noted, a limitation of extant updating studies is that they revolve around understanding perceptions of the threat of arrest rather than speaking to perceptions of criminal justice agents more broadly. Further, the subcultural literature typically uses COTS attitudes as independent variables to explain crime, rather than testing what factors, such as perceptions of the police, might be driving attitude updating. As such, before theorizing on the nature by which social control agents might affect COTS attitude updating, it is important to leverage existing scholarship to reason why such a relationship would exist.

Why Are Perceptions of the Police Important?

Anderson (1999) did not present a specific causal mechanism to explain the relationship between police perception and COTS attitudes. However, his choice of words tacitly proffered that mistrust and discord with the police is an exemplar of the ubiquitous construct he calls alienation or isolation. A further argument Anderson

(1999) made is that adoption of COTS is in reaction to feelings of isolation. Given that Anderson (1999) essentially labeled mistrust of, and discord with, the police as an operationalization of the alienation construct, it logically follows that COTS attitudes change in reaction to unfavorable perceptions of the police. Anderson's own words seem to support the temporal nature of this relationship. For instance, Anderson (1999:34) stated, "The code of the street is actually a cultural adaptation to a profound lack of faith in the police and the judicial system" and "the [code of the street] thus emerges where the influence of the police ends and where personal responsibility for one's safety is felt to begin." The prose in these sentences certainly indicates that COTS is dormant until one perceives that the police (and court system) are unable to provide protection. To further emphasize the point, Anderson (1999) proffered that the violent subculture is borne out of a sense that the police are indifferent (Anderson 1999:30), lack moral authority (Anderson 1999:36), and cannot be trusted (Anderson 1999:320). As a result, as Anderson (1999:81) notes, lack of faith in the justice system, in combination with endemic poverty and lack of opportunity, results in the COTS dominating social order and residents feeling forced to attend to their security through personal means.

In order to answer the complex question of why perceptions of the police are so important, both generally and as related to COTS subcultural beliefs, it is imperative to review theoretical work. There are two branches of research in this vein. First, there is a wealth of research connecting perceptions of police to deleterious outcomes, such as persistent violence and legal cynicism. Specifically, Tyler (1988)'s Procedural Justice Theory and Sherman (1993)'s Defiance Theory

make a convincing argument for why perceptions of the police might effect change for different attitudes.

Criminological literature commonly supports the notion that violence persists in neighborhoods where residents see the police as untrustworthy. In deteriorating neighborhoods, residents' alienation and isolation breeds distrust in the police, which may manifest itself in several negative outcomes. First, mistrust of the police might tangibly result in fewer calls for police service in violent situations. Black (1983) argued in his theory of the behavior of law that residents who perceive the police to be unhelpful and unavailable use violence as a surrogate for the social control they feel is lacking. Unsurprisingly, the majority of these residents live in communities where the COTS conscripts predominantly guide person-to-person interactions (Kubrin and Weitzer, 2003).

Relatedly, another explanation posits that violence persists because criminals perceive that residents often refrain from reporting crime and so feel free to operate with more impunity because their offenses go unpunished. In essence, if victims and bystanders do not call the police, offenders' perception of the certainty of sanction diminishes and crime subsequently flourishes. The crime reporting literature makes important contributions to understanding the detrimental impact of negative perceptions of the police. For instance, Tyler and Fagan (2008) found that perceptions of police legitimacy and procedural justice were significantly related to the likelihood of cooperation with the police and cooperation within the community. Another interesting study by Tyler, Schulhofer, and Huq (2010) examined two competing hypotheses predicting why Muslim-American community members might

choose to cooperate with the police in the wake of the September 11, 2001 terrorist attacks. Instead of finding evidence for an instrumental explanation, where individuals would approach the police out of a perception that doing so would provide marginal benefits outweighing the marginal costs, the authors found support for a normative perspective. Community members were more likely to approach the police if they believed the police were going to act in a procedurally just manner, which was so important to bolstering their overall legitimacy. When negative perceptions of the police reduce the likelihood that a crime will be reported by the victim or a third party, it has repercussions on police response time, which a plethora of policing research has shown is related to case outcomes as well as, paradoxically, perceptions of police efficacy (e.g. Spelman and Brown, 1981).

Another paradigm of reasoning posits that alienation and isolation breed mistrust of the police, which in turn promotes a sentiment of legal cynicism in a neighborhood, engendering disproportionate rates of violent crime. Legal cynicism is a contextual cultural frame that portrays police officers and other social control agents as illegitimate, unconcerned with residential concerns, and improperly equipped to regulate public safety (Kirk and Matsuda, 2011; Kirk and Papachristos, 2011). As Sampson and Bartusch (1998) posit, inner city situations breed racial discord and concentrated disadvantage. In turn, many residents are constrained by an inability to influence the prevailing power structure and become cynical because of the perception that they have no ability to effect society. This cynicism manifests itself in cultural attitudes that encourage aggression and disdain toward the larger social

structure that individuals feel has perpetuated the concentrated disadvantage and alienation.

A parallel line of empirical work shows that negative perceptions of the police foster distrust with the system and the need to account for one's own personal safety, which is a key cognitive component of the COTS subculture. For instance, both quantitative and qualitative studies of residents in Chicago neighborhoods found that African-Americans' distrust in police is spawned from perceptions that the confines of the law are biased and do not protect them from violence. Paradoxically, cynical and distrusting individuals are generally less accepting of deviance than individuals who are less legally cynical (Brunson and Stewart, 2006; Sampson and Bartusch, 1998). Kochel (2012) further demonstrated that perceptions of police conduct have a significant effect on neighborhood sentiments of collective efficacy, which is an important representation of neighborhood cultural values such as mutual trust and social cohesion. Kochel (2012) found that measures of the quality of routine police services and rates of police misconduct had a significant impact on collective efficacy measures in Trinidad and Tobago; lower quality police work and corrupt police officers were related to a decrease in cultural values promoting cohesion and adherence to the law. Gau and Brunson (2010)'s qualitative contribution supplemented the argument in illuminating how personal experiences with the police erode citizen perceptions of the police as fair arbitrators.

The second branch of research is rooted in long-standing theoretical work. Sherman's Defiance Theory (1993) plays an important role in explaining why perceptions of the police are so critical to understanding people's beliefs and

responses. Defiance Theory originally spawned from the observation that deterrent measures did not have a uniform impact on all potential offenders. Sherman posited that perceptions of the law and the justice system differed and had a non-negligible impact on how likely potential offenders were likely to obey the law in the future. Specifically, Sherman defined defiance as “the net increase in the prevalence, incidence, or seriousness of future offending against a sanctioning community caused by a proud, shameless reaction to the administration of a criminal sanction” (Sherman, 1993, p. 459). Further, Sherman (1993) posited that there are four defining characteristics of defiance: 1) the offender perceives the law to be unfair; 2) the offender lacks social bonds with convention society; 3) the offender must consider the law or punishment as putting an unfair stigma onto them; and 4) the offender rejects feeling shame from the perceived stigma imbued by the law or punishment.

Though the theory is more extensive than I have just outlined, and has received some empirical support (e.g. Bouffard and Piquero, 2010), I want to pay explicit attention to how it relates to perceptions of procedural justice, which directly influences the perceived fairness of legal authority (Tyler, 1990). Following Sherman (1993), if individuals perceive sanctions, or more generally the police, as unfair, it subsequently affects their perception of police and legal legitimacy, which in turn can affect likelihood of compliance with the law. Thus, perceptions of police fairness play a role in influencing whether or not an individual (who either experiences real sanctions or merely foresees their possibility) is likely to respond to legal conscripts with rage and rejection of their legitimacy.

Defiance Theory can reasonably apply to COTS adoption. Although the theory itself, and subsequent tests, are concerned with behavioral outcomes such as lawbreaking, compliance with the law, or willingness to involve the police, the logic does not exclude studying broader attitudinal outcomes. Many inner-city citizens fulfill Sherman (1993)'s second defining characteristic in that they lack social bonds to conventional society due to geographic and normative alienation. In turn, the same individuals are more likely to believe the police act in an unfair and stigmatizing manner, which fulfills another of Sherman (1993)'s criteria. As Defiance Theory notes, individuals in this situation are subsequently less likely to believe in the sanctity of the law and defy legal code in lieu of a rule of conduct that they feel holds more legitimacy and fairly governs everyday life. In this way, the COTS serves as an adopted rule of conduct that is the manifestation of a desire to defy the prevailing legal system and the perceived unjustness and stigmatization implied by its sanctions.

Procedural Justice Theory also argues that the perception that police are executing their job fairly and meting out punishments without bias is at the root of police legitimacy (Tyler, 1988; 2006). Procedural justice, at its most general level, provides an argument as to why individuals feel compelled to obey authority figures or societal rules. Weber (1968) posited that individuals are most apt to heed authorities who wield power rationally. Thibaut and Walker (1975) first applied the argument to the criminal justice system, explicating how individuals reacted to certain judicial systems; Tyler (1990) expanded this perspective to account for overall perceptions of legitimacy toward legal authorities. Procedural justice perspectives stand in stark contrast to instrumental perspectives, which posit that the police draw

their legal authority from efficient execution and successful crime fighting. Empirical work demonstrates that individuals actually tend to weigh non-instrumental criteria more heavily in perceptions of police than instrumental factors (Tyler and Lind, 1992). Important examples of non-instrumental criteria include perceptions that the police are treating people in a respectful manner, that police officers are trustworthy, that police are making decisions without bias, and that everyone has an opportunity to participate in the process, whether it be the criminal justice process generally or an interaction with a police officer specifically.

Empirical evidence also generally suggests that procedural justice is important for influencing willingness to comply and voluntarily defer to police decisions, legal code, and less formal normative rules (Bradford et al., 2015; Sparks, Bottoms, and Hay, 1996; Tyler and Huo, 2002; Tyler, 2003).⁴ Individuals valued the opportunity to plead their case and represent their point of view, even if they did not think it would influence the result (Thibault and Walker, 1975; Tyler, 1987; Tyler, Rasinski, and Spodick, 1985). Critically, procedural justice has a versatile quality. Changes in one's perception of procedural justice also facilitate other attitudinal and perceptual change, such as satisfaction, commitment to working together, sense of self-worth and social identity, and proactive behavior (Colquitt et al., 2001; De Cremer and

⁴ Some scholars will contend that the relationship between procedural justice and compliance is not as robust as commonly asserted. For instance, Xie et al. (2006) found that the likelihood that a victim reported a subsequent crime was unaffected by police effort in the previous one. Further, Koster, Kuijpers, Kunst, and Van der Leun (2016)'s review of procedural justice studies note that extant research has generally only utilized general population surveys, which may not necessarily be relevant for understanding interactions with the police. The authors conclude that not all areas of Tyler (1990)'s theoretical framework actually enjoy consistent theoretical support and, in fact, many of the results are mixed (e.g. Kochel et al., 2013). As such, though the majority of research and theoretical development supports the relationship between procedural justice and positive criminal justice outcomes, it is important to note that it is not an unequivocal fact.

Tyler, 2005; Lambert, Hogan, and Griffin, 2007; Maxham and Netemeyer, 2002; Tyler and Blader, 2003; Tyler, Degoey, and Smith, 1996).

As Tyler (2006) emphasized, it is especially valuable to study the connection between procedural justice, police legitimacy, and behavioral or attitudinal updating over time. Most deterrence work acknowledges a decaying effect of sanctions, where the preventative impact diminishes substantially over time (e.g. Koper, 1995). By contrast, research has demonstrated that police actions performed in a procedurally just manner have the potential to impact behavior over a longer period. For instance, Paternoster et al. (1997a) found that when police treated domestic violence perpetrators in a procedurally just manner, they were less likely to recidivate, even when arrested the first time, than individuals who perceived their treatment to be less just. A more recent experimental study by Mazerolle et al. (2013) assessed the effectiveness of police procedural justice scripts in traffic stops and found that when officers acted in a procedurally just manner, driver compliance, as well as general attitudes toward the police for future traffic stops, increased.

Similarly, Tyler (1990, 2006) made the argument that procedural justice is critical in enforcing pro-social stasis and compliance with laws and norms. Logically, then, the counterfactual to this theory would stipulate that a lack of procedural justice is related to decisions to disobey the law. Indeed, Tyler (1987) argued that individuals became especially disillusioned when they believed police were ignoring, stigmatizing, or discounting their arguments and sentiments. Tyler (1987) spoke in the context of personalized interactions with police; however, one can easily extend the argument to perceptions of the police more generally.

The existing research on perceptions of procedural justice is extensive, but some scholars argue that researchers have not tested its principles in a particularly versatile manner. For instance, much of the work on procedural justice samples the general population or individuals interacting with the police concerning a relatively minor offense, such as a traffic violation. As such, it is possible that the bulk of research has not honed in on the most relevant population of interest: individuals most likely to commit crime. At the least, procedural justice theories would receive a boost if evidence from a more criminogenic sample were supportive. Further, very little work has connected perceptions of the police to COTS attitudes, especially perplexing when considering that police perceptions are a theorized conduit by which individuals first develop COTS attitudes. Finally, and most fundamentally, scholars have rarely studied attitudes toward the police in a longitudinal context, neither as a dependent *nor* as an independent variable. This is especially important when connected with the earlier idea that attitude updating should have a larger role at the criminological table.

Augustyn (2016) offered a rare exception. She used the Pathways to Desistance study to measure how serious adolescent offenders update their perceptions of procedural justice across eleven waves of survey measures. Specifically, the study posited that while prior procedural justice influences contemporary procedural justice, one's perceptions are also strongly linked to their own personal and vicarious arrest experiences, as well as the totality of their criminal history (among other variables). Thus, perceptions of the law are malleable and worth studying in a longitudinal context and may be affected by not only personal

traits but also contextual changes such as real or vicarious law enforcement experiences.

Two of the study's conclusions are particularly relevant for this dissertation. First, the author found that perceptions of procedural justice are malleable and have a developmental component, as evidenced by the fact that age played a significant role in both influencing procedural justice directly and in conditioning the impact that prior arrests had on perceptions of the police (even when controlling for total arrest history). As Tyler, Fagan, and Geller (2014) argued, concepts of legal socialization and procedural justice often develop as part of a learning process as one socializes in reaction to society's normative expectations. Augustyn (2016) served as one of the few studies to consider perceptions of the police across longer than two waves; as such, the finding that there is a developmental component to understanding procedural justice perceptions is a critical consideration for future research. A prior study by Gau (2010) serves as another example of a longitudinal examination of perceptions of procedural justice over time, specifically measuring the relationship between person-to-person police interactions (e.g. actions) and perceptions of procedural justice (e.g. attitudes). The author found that even when controlling for prior perceptions of procedural justice, contact with police officers had a significant impact on future perceptions of police effectiveness and procedural justice capabilities. These results reinforce the study's initial conclusion: if you study procedural justice and its causes or effects cross-sectionally, you may miss meaningful relationships.

The second relevant conclusion from the study is the importance in considering multiple avenues of attitudinal change. Augustyn (2016) leveraged knowledge of *both* personal and vicarious arrest experiences for understanding both normative attitudes, generally, and attitudes toward the police, specifically. The conclusion reasonably extends to COTS attitude changes. Extant theory and research provides evidence that COTS attitude updating can be in reaction to changes in general procedural justice sentiments. However, it is reasonable to think that specific interactions with police might affect attitudes beyond one's general perceptions of procedural justice. If Augustyn (2016) found separate effects of personal and vicarious arrest experiences, it makes sense that personal experiences might have a separate role to play than generalized notions of police perceptions. Regardless, no extant quantitative research tests for separate effects of specific police perceptions on factors affecting shifting (or steadfast) attitudes toward violence, specifically with regard to COTS attitudes.

A number of other works also deserve mention. Augustyn and Ray (2016) found that personality traits might have a large impact on perceptions of procedural justice, specifically in moderating the relationship between prior experiences with the police and perceptions of procedural justice. Another paper (Augustyn, 2015) provided direct impetus for the current dissertation by examining the longitudinal impact of perceptions of procedural justice on likelihood of recidivism for a sample of early-onset serious offenders and adolescent-onset serious offenders. The author found evidence suggesting that procedural justice does not operate in an invariant manner, but rather has a stronger relationship with the likelihood of recidivism for

less experienced, adolescent-onset offenders rather than more experienced, early-onset offenders.

Some preliminary evidence indicates that procedural justice perceptions are important in influencing attitudes. However, very few studies explicitly examine individuals who update attitudes toward violence and social control. Anderson (1999) indicated that COTS beliefs are not an inherent trait or one crystallized at a young age. For instance, in arguing that the COTS explains the prevalence of adolescent, inner-city violence, Anderson (1999) posited that one adheres to these beliefs to avoid victimization in the streets, a phenomenon that is not particularly problematic for very young people. Further, one develops COTS attitudes as an adaptation to isolation and alienation, two complex processes that one can reasonably assess to fluctuate and occur over time. Despite a theoretical basis that would appear to argue that COTS attitudes change over time, it remains an open, empirical question. At the least, if one believes the evidence that perceptions of sanction risk are responsive to changes in policing tactics or perceived police fairness, then a natural follow-up question would ask how individuals adjust other perceptions or attitudes in response to perceived changes in police ability.

Perceptions of Police and COTS Updating

Very little research has endeavored to assess the effect formal social control agents have on COTS attitudes, specifically. Indeed, most of the existing research measures the causal relationship in reverse, examining the impact COTS attitudes have on negative prison and judicial outcomes. Mears, Stewart, Siennick, and Simons (2013) examined the relationship between COTS beliefs and prison misconduct using

the Family and Community Health Survey (FACHS) data; specifically, pitting importation theory against imprisonment theory. The rationale is that individuals who adhere to the COTS outside of prison are likely to bring those beliefs and norms into prison and manifest them in the form of prison misconduct and other types of violence. Further, because prison deprives individuals of even the most basic forms of social support and social control, it amplifies the effects of subcultural attitudes on violence. The authors' results were supportive of their hypotheses, finding that attitudes supporting the COTS only amplified one's behavior in prison. Mears and colleagues also studied the role of COTS beliefs in influencing police and court processing decisions (Mears, Stewart, Warren, and Simons, 2017). As in the prior study, the authors found support for the hypothesis that espousing COTS attitudes is related to negative outcomes within the formal social control system, in this instance an increased likelihood of arrest and conviction. However, both of these studies viewed the COTS as an instigator of negative interactions with the criminal justice system. By contrast, the language in Anderson (1999)'s text indicates that the true temporal path operates in the opposite direction.

Much of the other work on the topic has derived from qualitative interviews conducted with residents in violent neighborhoods. Brunson and Stewart (2006) conducted interviews with a cohort of women living in Chicago. They found that community members based their lack of faith in the police less on a sense of alienation from the legal system than on the perception that police presence was so intrusive that it disrupted any chance of having amiable ties with the residents. Further, interviewees perceived the police to be over-policing to the point where

residents wondered if the police had any true interest in law enforcement or were more interested in haranguing and harassing residents. As such, this slightly departs from the narrative Anderson (1999) portrays. Instead of resorting to violence and COTS culture because the police were not present, the women interviewed by Brunson and Stewart (2006; Brunson, 2007) felt that this was the only way to avoid having to interact with the police at all, which they saw as an unfruitful and potentially dangerous situation in its own way.⁵ Other ethnographical work categorizes isolation from the police less as a consequence of police distrust or intrusiveness and more as an agentic decision consciously made by an individual who feels they are capable of taking care of themselves (Brookman et al., 2011). Rosenfeld et al. (2003)'s set of interviews furthered this argument in exploring the perception of snitching, finding that police actions in a community could actually have a further deleterious effect on residents' willingness to share information, specifically, and the overall meaning and value placed on snitching, generally.

There are a few studies specifically addressing the relationship between the police and COTS values in the same direction as this dissertation hypothesizes. Much like the current dissertation, Intravia, Wolff, Stewart, and Simons (2014) contend that

⁵ It is worth noting that other work posits the relationship between perceptions of police and COTS-influenced behaviors may not be a true adaptation of subcultural values, but instead reflects cultural attenuation due to a perception that the police lack legitimacy and do not act in a procedurally just manner (Carr et al., 2007; Warner, 2003). Carr et al. (2007) conducted interviews with residents from neighborhoods who expressed legal cynicism. Contrary to what one might expect if an individual truly embraced the COTS, Carr et al. (2007) found that no matter how legally cynical they were, individuals advocated for greater law enforcement presence in their neighborhood, demonstrating that they still perceived police officers to be a genuine executor of formal social control. Interestingly, this is not the only study to find this counterintuitive result. Weitzer and Tuch (1999) found that typically middle-class African-Americans are more critical of the police than lower class African-Americans, who are more likely to advocate for stricter crime control in response to crime being omnipresent in their lives.

researchers have not adequately tested the processes by which individuals come to adhere to the COTS. The authors tested a model where perceptions of police discrimination at T_1 would influence one's COTS beliefs at T_2 , again using the all African-American FACHS data. The authors found that perceptions of police discrimination were positively, significantly related to the COTS, although this relationship was moderated by neighborhood violent crime rate.

Another study by Moule, Burt, Stewart, and Simons (2015) analyzed the FACHS data and calculated group-based trajectory models in an attempt to plot the longitudinal pathways of COTS beliefs in African-American adolescents across six time points. The study is unique in examining COTS belief updating across more than just two waves of data. The authors' criterion determined that a five-group model was optimally suited to the data; of these five groups, four had relatively stable COTS belief paths across the six waves. The final group, which comprised 12% of the total sample, exhibited a gradual, steady decline across each of the waves. Despite the traditional warnings against group reification, the authors statistically determined that one of the factors associated with being a member of the declining group was experiences with racial discrimination. Although discrimination did not appear to account for the change in this group's COTS beliefs, the implications are that it might produce a large increase of such values in otherwise pro-social individuals that wanes over time, an important finding in its own right.

Gaps in the literature persist, rendering the understanding of attitudinal changes in reaction to perceptions of the police incomplete. Fundamentally, little research has empirically tested the path from perceptions of the police to attitudes

about the police in a longitudinal setting. Only one study (Intravia et al., 2014) has investigated the relationship between the police and COTS attitudes, specifically examining experiences with police discrimination. However, scholarship needs to proceed beyond this one work in several ways. First, it is also imperative to understand the impact perceptions of procedural justice play in both influencing COTS attitudes independently. Second, it is important to measure the separate impact specific interactions with the police, such as arrest, might have on COTS attitudes. Although the Augustin (2016) study specifically connected the influence of arrest on procedural justice attitudes, the relationship might work in reverse, where arrests alter the nature of the relationship between perceptions of procedural justice and COTS attitudes (see also Brick, Taylor, and Esbensen, 2009). Indeed, from a theoretical perspective, negative personal experiences with the police, such as arrest, only serve to deteriorate perceptions of procedural justice and the sanctity of law enforcement (Sherman, 1993). Specifically, in alignment with Anderson (1999)'s arguments, arrests only serve to further enforce notions of alienation and isolation from pro-social bonds. Given that, they conceivably serve to exacerbate the relationship general perceptions of the police have on COTS attitudes. Third, even though the Intravia et al. (2014) study showed that perceptions of police did affect current COTS, even when including previous COTS attitudes, this is not the same as carrying out a more explicit examination of how COTS attitudes update over several periods of research.

Collectively, these theories and literature lead to the following hypotheses:

H₂: A decrease in one's perceptions of procedural justice is related to an upward updating of COTS attitudes.

H_{3a}: Arrest experiences are related to an upward updating in COTS attitudes.

H_{3b}: Personal interactions with the police are related to an upward updating of COTS attitudes.

Almost unavoidable in any investigation of the role perceptions of the police play in COTS attitude changes is the way demographic and geographic context shapes the nature of the relationship. Practically speaking, if the COTS is endemic to inner-city violence for only African-Americans, it poses a separate set of theoretical and policy concerns than if the COTS reflects violence regardless of race or ethnicity. Despite the increased attention race has received in criminal justice dialogue, relatively few scholars explicitly consider whether theoretical mechanisms operate differently across different races (for an exception, see McNulty and Bellair, 2003). This notion seems to be particularly important for assessing the relationship between citizen perceptions of the police and changes in COTS attitudes, given the evidence for perceived racial discrimination. The same goes for geographic context. The history of police-citizen relationships has developed differently in every city in the United States. The extent to which a city's context affects the relationship between perceptions of the police and COTS attitude updates is unknown. It is also critical when testing the components of Anderson (1999)'s thesis to measure its external validity in a variety of cities with different demographic makeups. As such, the potential roles of race and geographic context merit critical attention.

Racial and Geographic Context in COTS Attitude Updating

Anderson (1999:66) made no explicit comment that his thesis was racially specific, but his ethnography focused on an overwhelmingly African-American inner-city Philadelphia neighborhood. As such, his observations reflected these specific residents' perspectives. In this way, the statements he made are a portrayal of African-American perceptions, which would tacitly indicate that the COTS is only applicable to them. For instance, Anderson (1999:66) noted "the criminal justice system is widely perceived as beset with a double standard: one for Blacks and one for Whites, resulting in a profound distrust in this institution...this situation has given rise to a kind of people's law based on a peculiar form of social exchange...whose by-product in this case is respect." He repeated this sentiment in the book's conclusion, noting that the aforementioned perceived double standard of justice only serves as an additional reminder to residents that the law does not work in their best interest and reinforces a sense of isolation from the laws that govern mainstream, "White" society. Taken in this context, it seems difficult to commute the components of the COTS, and the societal milieu in which Anderson (1999) postulates such cultural values to arise, to another racial or ethnic group.

At the same time, there is an inextricable link between race and socioeconomic status. Indeed, Anderson (1999) explicitly emphasizes that marginalization stems, in part, from endemic neighborhood poverty and neglect. Therefore, it seems inappropriate to neglect the importance of SES in a discussion of racial implications for COTS. Indeed, empirically, the two demographic measures often strongly correlate with one another. However, since class is at times poorly

defined (especially during adolescence- see e.g. Cheng and Goodman, 2015; Currie et al., 1997; 2008; Obradors-Rial et al., 2018) and more difficult to measure than race, scholars have not treated it with the same diligence, especially when it comes to the question of invariance.

Despite the noted difficulty with separating the two, there are several studies measuring separate race and class effects on perceptions of the police, both at the individual and neighborhood level of analysis. Unsurprisingly, the interplay between the two is complex and not entirely understood. For instance, a Schuck, Rosenbaum, and Hawkins (2008) study found that not only did an individual's class affect perceptions of police, but so too did the neighborhood's socioeconomic status. In this way, middle-class minorities living in disadvantaged areas still felt worse about the police than middle-class minorities in more prosperous neighborhoods. The role of social class for minorities has been particularly interesting. An earlier Weitzer and Tuch (1999) study found that level of education, rather than income, was the most significant indicator of class with respect to perceptions of the police. Using education, the authors found that African-Americans with a higher level of education were actually *more* critical of the police than were African-Americans with less education. However, a follow-up study using more comprehensive social control measures actually appeared to find results more in line with conventional thought (Weitzer and Tuch, 2002). The authors found that individuals that earn less income were less likely to have a high opinion of the police and less likely to believe that the police would treat them fairly in a confrontation. The authors also found that less educated individuals were less likely to think that the police treat all races equally

(albeit their education variable was also insignificant for the majority of their models). Finally, Wu, Sun, and Triplett (2009) used a more sophisticated hierarchical regression model and found that neighborhood demographic characteristics appear to negate any individual race and class effects on satisfaction with the police. However, the authors still found that there were complex race and class interactions at the neighborhood level, much like Schuck et al. (2008). Although class is clearly important, the invariance question traditionally focuses on race. However, given prior work, it makes sense that the following review of pertinent literature could also extend to social class.

The idea that there is differential application of the law across racial and ethnic boundaries is not new and has empirical precedent. For example, a good deal of research using Federal sentencing data and Pennsylvania state sentencing data shows that different ethnicities receive disproportional punishment, even when accounting for relevant legal correlates such as criminal record and offense severity (e.g., Johnson, 2003; Ulmer, Painter-Davis, and Tinik, 2016). In fact, some research shows that Hispanics are given harsher sentencing outcomes than African-Americans (Steffensmeier and Demuth, 2001) and are less likely to receive downward departures from sentencing guidelines (Kramer and Ulmer, 2002). Criminology is also replete with examples of legal differences in back-end sentencing and the correctional system. As merely one example, Huebner and Bynum (2008) found that both Hispanics and African-Americans wait a significantly longer time in prison before being eligible for parole, net of substantively relevant legal and demographic characteristics (although, see Hughes, Wilson, and Beck, 2001 who find that

Hispanics are actually less likely than both Caucasians and African-Americans to have their parole revoked). As such, racial differences in application of the legal system may not be limited to African-American citizens.

There is comparatively less research specifically on perceptions of police discrimination or unfairness toward non-African-American minorities. The paltry amount of knowledge is less surprising than it is disappointing, as the explicit attention to non-African-American minorities is also lacking in many other facets of criminal justice research (Burch, 2015; Ulmer, 2012). A handful of studies have attended to the issue in investigating the difference between native-born Hispanics and immigrants. Correia (2010) analyzed the correlates of attitudes toward the police for immigrant and non-immigrant Hispanic families and found significant differences across the two groups. Piquero, Bersani, Loughran, and Fagan (2016) compared legal socialization orientations between first generation, second generation, and native-born Hispanic serious violent offenders using the Pathways to Desistance study. The authors found that second-generation immigrants generally approximated native-born offenders in their perceptions toward the law. By contrast, first-generation immigrants had much less cynical legal socialization trajectories, particularly with regard to perceptions of police legitimacy and the social costs of committing crime.

A meta-analysis published in 2015 found only 92 eligible studies that used race or ethnicity to compare attitudes toward the police; further, only a fraction of those included Hispanics as one of the comparison groups (Peck, 2015). The author found that though African-Americans held the most negative view of police officers, Hispanics also held significantly less favorable views of the police than White people

(see also Lasley, 1994; Schuck, Rosenbaum, & Hawkins, 2008; Weitzer & Tuch, 2004). Despite this average result, many individual studies are less conclusive, finding that attitudes toward the police do not differentiate between multiple ethnic groups (Wehrman and Angelis, 2011). In the end, even if we accept the result of Peck (2015)'s meta-analysis, the overall state of research remains unclear as to exactly how procedural justice constructs specifically shape attitudinal differences in perceptions of the police.

Even fewer studies split their sample into finer racial and ethnic distinctions to analyze differences in influencers of police perceptions. Wu (2014) found that a great deal of measured variation in perceptions of the police would have been lost if the sample was limited to just African-Americans and Caucasians. Further, there was tremendous inter-racial variation in police perceptions. A recent study by McNeeley and Grothoff (2015) found that Asians were more likely than Caucasians to perceive police hassling and that Hispanics and African-Americans were more likely to perceive both police harassing and racial profiling. Asians' perceptions of police discrimination, compared to other ethnicities, may be disproportionately a product of geographic location vis-à-vis a significant Asian immigrant community, as other studies specifically focusing on Southern California found that Asians hold significantly less positive views of the police than all racial groups except African-Americans (Vogel, 2011). Interestingly, African-Americans were far *less* likely than Caucasians to perceive that the police were doing an effective job, but Hispanics were marginally *more* likely to think so. Finally, only a handful of studies have incorporated perceptions of Native Americans into their study. Taylor, Turner,

Esbensen, and Winfree (2001) found that Native American attitudes toward the police fell between Caucasians (most favorable) and African-Americans (least favorable). Sethuraju, Sole, Oliver, and Prew (2017) sampled university students in their attempt to survey a diverse range of races and ethnicities and found that Native Americans were significantly more likely to perceive police misconduct. The authors then ran separate regressions for each race/ethnicity⁶ and found that both personal and vicarious experiences with police misconduct significantly predicted perceptions of the police for their multiracial category.

The question of racial invariance takes on particular importance in evaluating the external validity of the COTS, as Anderson (1999) focuses only on African-American individuals. Furthermore, most empirical work uses an African-American sample. The Family and Community Health Survey (FACHS) is the most prominent example and is used in a wide-ranging list of studies (e.g. Berg et al., 2012; Intravia et al., 2014; Moule et al., 2015; Stewart et al., 2006; Stewart and Simons, 2010, etc.). This is undoubtedly informative and attends most closely to the group Anderson (1999) discusses, but does not account for potential external validity. Fewer studies use random digit dialing samples (Piquero et al., 2012), college samples (Intravia et al., 2017), or general population surveys (Ousey and Wilcox, 2005; McNeeley and Wilcox, 2015). However, these samples still tend to be predominantly homogenous and pro-social, which have substantial validity limitations of their own. Even more importantly, one should not consider studies testing the applicability of the COTS with a more diverse sample (e.g. Henson et al., 2017; Intravia et al., 2017, as above)

⁶ Sethuraju et al. (2017) combined Native Americans with all other races due to sample size restrictions.

or on a non-African-American minority group (Bourgois, 2003) as posing the same research question as analyses of racial invariance. By running separate analyses for each racial and ethnic group, one can discern if the same variables influence the outcome of interest in the same manner. In this case, the question becomes the following: Do COTS values depend on the same set of circumstances and influencers for every racial and ethnic group, or are there things that matter more for some and less for others? In running these analyses, it is possible to assess the generalizability of Anderson (1999)'s ideas in a manner that is more empirically satisfying than merely using a certain sample, which carries inherent sample selection biases and considerations. By conducting separate analyses on different ethnic groups drawn from the same larger sample, we can at least know that any given result is not borne out of a particular surveyor's sampling technique.

There appears to be only one study that makes a specific attempt to assess the racial invariant nature of the COTS. Taylor, Esbensen, Brick, and Freng (2010) noticed that no researcher to that point had attempted to assess the psychometric measurement properties of the widely accepted seven-item Likert scale measure first put forth by Stewart and Simons (2006). As such, the authors measured the reliability and validity of the measures across different demographic groups, one specific example of which was race/ethnicity. The authors also analyzed variation in COTS attitudes across different racial and ethnic groups. Importantly, the authors drew their sample from the Gang Resistance Education and Training (GREAT) dataset, which, unlike the FACHS data, is a racially and ethnically diverse sample. The authors noted that the construct appears to be reliable across White, Black, Hispanic,

American Indian, Asian, Multiracial, and “other race” individuals. Further, the items appeared to load onto one factor for each race, no matter the statistical technique for determining model fit. However, in favor of racial variance, the sample means for each of the seven scale questions (where answer choices range from one to five) were statistically different across most races (Taylor et al., 2010: 201). As might be expected according to Anderson (1999), African-American subjects were more likely to espouse COTS attitudes than were subjects from other races and ethnicities. Next, the authors further divided their racially-specific samples into seven subsamples according to each of the seven surveyed cities. As previously, there were significantly different COTS attitude means within each city for each race or ethnicity, demonstrating that both macro and micro level factors might play an influential role in shaping attitudes (and that racial invariance might be geographically dependent).

Although the Taylor et al. (2010) study is the only one that looked at racial invariance in COTS attitude measures, slightly more have employed the analytic strategy in examining perceptions of the police. First, the concept of testing for invariance, generally, has received more attention. Much of this line of research has considered geographic invariance in perceptions of procedural justice for both Western (Hinds and Murphy, 2007; Mazerolle et al., 2013) and non-Western countries (Reisig et al., 2012; Tankebe, 2009).

However, studies specifically attending to racial invariance are much less prevalent. For instance, Wolfe, Nix, Kaminski, and Rojek (2016) tested the invariance in the impact of procedural justice on police legitimacy across a number of demographic variables, including race (dichotomized as racial minority or not). The

authors found support for Tyler (1990)'s process-based model suggesting that the path from procedural justice to legitimacy is invariant. Sunshine and Tyler (2003) did a similar, but arguably more comprehensive, examination of the invariance hypothesis using three analytical iterations. First, the authors were able to separate their sample into Caucasians, African-Americans, and Hispanics and analyzed the antecedents of: 1) cooperation with the police 2) police legitimacy 3) procedural justice. With a few slight exceptions, the authors also generally found evidence supportive of racial invariance across all three sets of analyses. For instance, no matter the racial/ethnic group, procedural justice significantly predicted perceptions of police legitimacy, while evaluations of police performance did not. Similar to the first two examples, Jackson, Bradford, Stanko, and Hohl (2012) tested for a racial invariance hypothesis AND a geographic invariance hypothesis in England and Wales and found more evidence for the invariant relationship between procedural justice and outcomes such as perceptions of police legitimacy.

Implications of Racial Invariance for the COTS

Interested scholars should not overlook the importance in understanding if attitude updating is a racially invariant process. Again, though many researchers attempt to tackle the issue by either including a series of dummy variables in regression models or acknowledging the limits of their study's external validity, these may not appropriately address the complexity of the problem. The current research that has assessed racial invariance often finds illuminating results highlighting that there is not a unimodal path to violence and, similarly, not a unimodal approach to countering violence either. Further, the one study explicitly examining racial

invariance in assessing the measurement validity of a COTS attitudinal scale found evidence that different races, and sub-sections of races, have significantly different mean attitude levels (Taylor et al., 2010).

Although existing studies are obviously a useful beginning toward understanding the racial nuances in adhering to the COTS, they represent merely a preliminary step. Much of the research testing for racial invariance either uses procedural justice as a dependent variable or assesses its relationship with police legitimacy. However, I believe there is tremendous utility in extending this understanding of procedural justice's impact to other attitudes, specifically COTS beliefs. The current dissertation will go far beyond the current work to advance the state of knowledge. First, the current work in understanding racial invariance is cross-sectional, which does not allow for an assessment of how changes in COTS attitudes may differ along racial or ethnic lines. Second, the extant studies only compare means and do not conduct more sophisticated regression analyses where they can control for the influence of other theoretically important variables. Third, certain races may be more likely to espouse COTS values because they have differential perceptions of, and experiences with, legal social control agents, such as the police. For instance, how might African-Americans' increased experience with the police (both arrests and informal interactions), alter the path from perceptions of procedural justice to COTS beliefs? Do arrests matter more or is it a totality of interactions? Do individuals of each race and ethnicity weigh interactions with the police in the same manner in updating COTS beliefs? To this point, the extant

research is exploratory in nature, and does not offer nuanced, testable hypotheses logically incorporating more than one concept into its research question.

Again, it would be ideal if this dissertation considered invariance along race *and* socioeconomic class divisions. Clearly, class plays a role in COTS adherence, and conceivably updating- when Anderson (1999) referred to residents as marginalized, he indicated the importance of race and class together. Unfortunately, for reasons I describe in later chapters, the measures of socioeconomic status in the GREAT II dataset are unsatisfactory. Therefore, to avoid completely ignoring class, I include a proxy as a control variable in analyses and acknowledge the theoretical importance of socioeconomic status here. A supplemental analysis using subsamples striated by race *and* class is also included in the results section below, but was also quite problematic.

Despite this limitation, testing for racial invariance has far-reaching implications for understanding the relationship between perceptions of, and interactions with, the police and COTS attitude updating. For instance, if results find that perceptions of the police only relate to COTS attitudes for a particular race, it may indicate that policing practices inherently involve racial bias. If, by contrast, results demonstrate that race does not condition the relationship between perceptions of the police and subcultural beliefs, it lends to an entirely different set of conclusions. By either measure, it is critical that I go beyond previous research that has typically drawn from racially homogenous samples to explicitly introduce the concept of racial difference into efforts at assessing components of Anderson

(1999)'s Code of the Street thesis. The lack of clarity merits further attention and yields the following hypotheses:

H4: COTS attitude updating is racially invariant.

H5: The relationship between perceptions of police procedural justice and COTS updating is invariant across race.

However, there are also different arguments that would suggest race-based differences.⁷ The first line of research emanates from sentencing scholars, who posit that the judicial system is more lenient toward individuals of certain races, regardless of jurisdiction or crime type. Specifically, the line of research posits that Asians are regarded as the “model minority” (Johnson and Betsinger, 2009) and are sentenced more leniently because the enduring stereotype of them is as bookish, educated, and non-threatening to society. Indeed, there is some reason to believe that the model minority thesis extends to other social control agents, such as the police. Taylor et al. (2001) found that Asian attitudes toward the police are closest to Caucasian attitudes, perhaps a reflection of police perception that they are less criminogenic. This relationship may also be geographically flexible- Tankebe (2013) found that Asian perceptions of the police in the United Kingdom were not significantly different from Caucasians. Unfortunately, no research has considered COTS perspectives of Asians. Despite that, the model minority thesis would suggest that perceptions of police would not strongly influence COTS attitude updating in Asian students.

⁷ Again, the race-class intersection is difficult to ignore. While this dissertation makes no specific hypotheses, a test for invariance according to race *and* class subsections is reported as a supplemental analysis below.

Comparatively, scholars have not ceded Hispanics much specialized attention in researching COTS attitudes. The primary exception is a recent dissertation (Rojas-Gaona, 2016). The author uses structural equation modeling (SEM) to map pathways to violent and non-violent monetary offending for Hispanic offenders, using measures of moral disengagement as crude proxies for COTS attitudes. He found that differences in offending pathways between Hispanic Caucasians and non-Hispanic Caucasians could be attributed to the mediating effect of moral disengagement attitudes for Hispanic offenders. That study aside, no other research has done more than control for race and ethnicity, which is a peripheral research motivation.

By contrast, a good deal of work has specifically considered the police's relationship with both immigrant and non-immigrant Latino residents, often finding that it is as strained as the relationship with African-Americans. For instance, Solis, Portillos, and Brunson (2009) found that Latino, specifically Afro-Caribbean, perceptions of the police in New York do not deviate from those of most minorities. The surveyed residents felt that police actions are meant to antagonize them and limit their use of public space. Further, a Vidales, Day, and Powe (2009) study found that Hispanic perceptions of the police in California were eroding, such that they were at a much lower level in the mid-to-late-2000s than they were in early 2000s. This might have implications for this dissertation, which uses the GREAT II survey, collected between 2006 and 2011. Indeed, as a summary of the state of the literature, Oliveira and Murphy (2015:1) stated that "research consistently finds that people from ethnic or racial minority backgrounds tend to view police more negatively than those from nonminority backgrounds."

However, some researchers posited that, instead of a dichotomy between Caucasians and all other races, there exists a hierarchy. Latinos are viewed less favorably than Caucasians but more favorably than African-Americans (Hagan, Shedd, and Payne, 2005; Weitzer, 2014). One prominent explanation is that minorities distrust social control actors because of a historical legacy of perceived subordination under predominantly White institutions (Bayley and Mendelsohn, 1969; Blumer, 1958; Weitzer, 2017). Indeed, some authors contended that this explanation is particularly salient for Hispanic residents in cities with growing minority populations (Kane, 2003). Regardless, the evidence indicated that Latinos have unfavorable views of the police and espouse COTS attitudes.

The promotion of COTS attitudes among African-American residents and in African-American predominant communities has undoubtedly received the most research attention from scholars. As noted, the majority of studies examining COTS attitudes used an entirely African-American sample (FACHS), finding that there is an appreciable range of COTS espousal amongst respondents and that experiences with discrimination might affect COTS attitude trajectories (Moule et al., 2015). Further, Anderson (1999)'s Code of the Street contextualizes COTS attitudes in a predominantly African-American context and makes explicit reference to the African American experience when describing different parts of the code, especially as it relates to perceptions of the police. In sum, the COTS literature indicates experiences with the police might play a large role on attitude development.

The policing literature largely conveys the same message. African-Americans are more likely than other races to perceive bias in police actions, believe that police

adhere to stereotypes in making arrest decisions, and to experience anxiety and negative consequences out of a fear of being unduly targeted (see e.g. Krueger, 1996; Najdowski, Bottoms, and Goff, 2015; Welch, 2007). Naturally, African-Americans' perception that police do not treat them equally does not translate to positive perceptions of procedural justice.

Taken as a whole, there is research evidence to suggest the following hypotheses:

H6: The relationship between police perceptions and COTS attitude updating for Asians will be significantly less than for Hispanics and Blacks (non-model minorities).

H7: The relationship between police perceptions and COTS attitude updating for Caucasians will be significantly less than for Hispanics and Blacks (non-model minorities)

City Context and Code of the Street

The idea that there might be regional differences in COTS adherence is not novel. Indeed, Keith and Griffiths (2014) contended that there might be differences in COTS attitudes across urban, suburban, and rural areas of Georgia. While the authors did not find statistical differences depending upon their chosen trichotomy, the study stands as a stark contrast to the overwhelming bulk of research, which has used the neighborhood as the macro-economic level of analysis rather than cities or metropolitan statistical areas (MSAs). This precedent is not without reason- the neighborhood is an extremely important, independent, influence on COTS attitudes. Numerous examples already covered in this text (e.g. Berg et al., 2012; Berg and

Loeber, 2011; Stewart and Simons, 2010) find that neighborhood aggregate COTS levels have an independent role above-and-beyond individual COTS levels on outcomes such as violence. Clearly, there is an importance in understanding the relationship between geographical context and COTS attitudes.

However, to understand the complex relationship between perceptions of the police and COTS attitudes, it makes sense to take a further step back and reconsider COTS at a city level. This is a useful endeavor for several reasons. First, the relationship between the police and citizens can vary greatly from city to city, depending on a particular city's history, particularly with respect to race relations. For instance, cities with a long history of tenuous police-citizen relationships or anti-police riots (e.g. Newark, Los Angeles, and St. Louis) might provide a very different backdrop for COTS attitude updating than cities with a more harmonious, co-dependent relationship. Indeed, perceptions of the police could be particularly impactful on COTS attitude changes in cities where the police-citizen relationship is a lot more tenuous and fragile. Finally, as noted scholars have determined that *neighborhood* context plays a significant role in COTS attitudes, violent offending, and violent victimization (Berg et al., 2012; Stewart and Simons, 2010). While concluding that macro-level predictors are important components of a predictive model for COTS attitudes, previous studies have not zoomed out even further than neighborhood level. As such, given what scholars have learned about the importance of neighborhoods, it makes sense to take a wider perspective and understand if there is something to gain from understanding city-wide variance in empirical analysis.

There are at least two relevant studies addressing city differences in either perceptions of police or COTS attitudes. The first was a 1998 twelve-city joint Bureau of Justice Statistics (BJS) and Community Oriented Policing Service (COPS) office survey offered as a supplement to National Crime Victimization Survey (NCVS- Smith et al., 1999). Among other questions related to community-oriented policing, the survey asked individuals in twelve United States cities about crime levels in their city, frequency of contacting/working with the police, and their satisfaction with the police in their city. The report's statistics show some variability in cities' satisfaction with the police, ranging from 97% satisfaction (Madison, WI) to 79% satisfaction (Washington, D.C.). Furthermore, the answers vary even more when the authors broke down the sample statistics by race and ethnicity. For instance, while 97% of African-Americans in Madison (and 91% in Tucson, AZ) reported satisfaction with the police, the same was true of only 63% of African-Americans in Knoxville, TN and 69% in Chicago. Similarly, 94% of Hispanics reported satisfaction with the police in Knoxville, compared to 74% in Chicago, New York, and Washington D.C.⁸ While the cities in the study do not precisely map onto those in the GREAT II study, they present a plausible probability of important city-level differences in perceptions of the police and, therefore, differences in the relationship those perceptions have with COTS attitude updates.

Taylor et al. (2010) used the GREAT II data to examine differences in COTS attitudes across the seven cities included in the survey at wave III (the first to include

⁸ Interestingly, these differences appear to be highly correlated with whether or not an individual was a victim of a violent crime (e.g. through personal, rather than vicarious, experiences with the police).

COTS measures in the data).⁹ The authors found that there were significant differences across cities with regard to all seven items included in the COTS measure. In sum, it appears worthwhile to consider city-level context in explaining COTS attitudes. This dissertation will go even beyond Taylor et al. (2010)'s study by examining geographical differences in a *longitudinal* context. While cross-sectional (e.g. baseline) differences might appear, it may be that updating is invariant, no matter the city. Second, Taylor et al. (2010) only examined city means for COTS measures as a preliminary endeavor looking at invariance. However, explicitly modeling the relationship between perceptions of the police and COTS attitudes might further illuminate how these cities differ and shape the nature of updating in its constituents. Given the potential importance of city context in molding the relationship between perceptions of the police and COTS attitude updating, it is worth exploring how the seven cities surveyed by GREAT II investigators might be different (or similar) to generate meaningful hypotheses. In this vein, it is important to provide reasoning derived from both historical precedent and criminological theory to justify why there might be differences across cities in how perceptions of police might shape COTS attitudes.

Theorizing City Differences in Police Perceptions and COTS Updating

⁹ The downloadable version of the GREAT II data does not explicitly name each of the seven cities. Instead, it refers to the seven cities as Southwest city, West city, South city, Mountain city, Southeast city, Northeast city, and Midwest city, respectively. However, by process of elimination, I can translate the cities to Albuquerque, Portland, Dallas, Greeley, Nashville, Philadelphia, and Chicago, respectively, which many studies (e.g. Taylor et al., 2010), as well as the Inter-University Consortium for Political and Social Research (ICPSR), name as the seven cities in the evaluation.

The first theoretical arguments attempt to explain why the southern United States has a historically higher violent crime rate than other regions of the country. The main arguments are anthropological in nature, with one positing that Southerners, by nature, are more aggressive because they have historically had to protect their livestock and cattle (Nisbett, 1993) and another contending that the Southern legacy of lynching and slavery has resulted in more aggression, by African-Americans, generally, and by Whites unto African-Americans, specifically (Messner, Baller, and Zevenbergen, 2011). Recently, other scholars have even argued that the legacy of lynching has resulted in more punitive perceptions of punishment, particularly from White residents toward Black offenders (Stewart et al., 2018). Finally, several studies argue that this legacy of vigilantism contributed toward punitive criminal justice policies against certain races, including police treatment (Jacobs, Carmichael, and Kent, 2005). Given the theoretical argument, many scholars have attempted to assess how strongly a Southern locale predicted the crime rate, with the consensus appearing to be that support is tepid, at best. Indeed, a Pratt and Cullen (2005) meta-analysis found that, of the 40 tested macro-social predictors of crime, Southern location was precisely in the middle.

Of the studies that use COTS attitudes as a dependent variable, a few use Southern residence as an independent variable. Hayes and Lee (2005), for instance, found that individuals living in a rural, Southern area were more likely to endorse aggressive retaliation and other COTS-adjacent attitudes. However, most studies' results do not support the subcultural theory. Piquero et al. (2012) found no relationship between the South and COTS attitudes in their general population sample

(and even interestingly found that Southern residency has a *negative* relationship with offending behavior). Other studies using the entirely African-American FACHS sample found the same thing (e.g. Stewart et al., 2006): Southern residency does not seem to matter for COTS attitudes.¹⁰ Taylor et al. (2010)'s study using GREAT II data found that mean endorsements of COTS attitudes were NOT highest in Southern cities during wave 3 in fact, Nashville, TN had the second lowest mean endorsement values. However, no study has examined the role of Southern residency in explaining the relationship between *perceptions of the police* and COTS attitudes. It may be that a legacy of lynching in the South might uniquely contextualize the relationship between perceptions of the police and COTS attitudes. Indeed, if, as research suggests, geographic differences contribute to differential treatment by the police and different COTS attitudes, perhaps they also affect the role perceptions of police play in updating.

A second criminological paradigm that might support the idea of city level differences in the relationship between perceptions of police and COTS attitudes leverages arguments made by racial threat theory. Racial threat theory derives from arguments made by Blalock (1967) that individuals, including (predominantly Caucasian) social control actors, act more punitively in response to changing population makeup in a given city. For example, Stewart et al. (2009) found that not only do minorities experience more police discrimination in cities that are

¹⁰ As some scholars have noted (e.g. Parker, 1989), perhaps one of the shortcomings in this line of research is that it is difficult to adequately define what qualifies as a Southern state or metropolitan statistical area. Indeed, for instance, grouping Maryland together with a state such as Alabama negates much of the heterogeneity between the two cities. For the current dissertation, given the GREAT II study cities, only Nashville counts as a Southern city.

predominantly White, but that there seems to be an additive relationship between *growth* in the African-American population and police discrimination. Scholars have found similar results in studies examining racial segregation in cities; Stolzenberg, D'Alessio, and Eitle (2004) found that levels of racial segregation were related to the use of social control against African-Americans who committed interracial crimes. Racial threat is not a phenomenon exclusive to police action. Scholars have found that citizens who perceive racial threat are more likely to perceive victimization (Chiricos, McEntire, and Gertz, 2001), endorse punitive punishment (King and Wheelock, 2007), and involve the police (Warner and Pierce, 1993). Therefore, it reasons that cities with the largest racial segregation and the greatest change in racial makeup might include particularly strained relationship between police and citizens most likely to espouse COTS attitudes. It is not a large stretch, then, that racial threat theory suggests that perceptions of the police in these cities would have the greatest impact on COTS attitudes and changes in these perceptions would affect COTS updating.

In addition to the Southern subculture of violence and racial threat theory paradigms, we can use case studies and histories of each of GREAT II's seven cities to inform the understanding of geographical context in this instance. In some cases, there is a legacy of police-citizen relationships in these particular cities. However, in other cases, particularly for the smaller cities, the hypotheses will draw upon studies on similar cities or regions. Regardless, it is prudent to provide a summary of the relevant information, city by city.

Albuquerque

Although Albuquerque is technically in the Southern United States, it would be unfair to draw a link to the Southern subculture of violence theory, which focused heavily on livestock migration and a legacy of slavery not connected with New Mexico. There are no other studies examining perceptions of the police in Albuquerque, specifically; however, by contrast, there is a fair amount of work done in Phoenix, which is geographically contiguous to Albuquerque and has a similar demographic makeup, with particular attention to the burgeoning population of Hispanics in the region. Similarly, some research has focused on the Southwest United States, more generally. For instance, Holmes et al. (2008) measured perceptions of minority threat, as operationalized by measuring the relationship between minority population and police expenditures/number of police officers in large urban areas in five states in the Southwest United States. The authors found that neither percent Black nor percent Hispanic (nor their squares, in an attempt to identify some sort of tipping point), were related to either of the dependent variables. In fact, percent Hispanic, and its square, had a negative relationship with the operationalizations of threat perceptions. Menjivar and Bejarano (2004) specifically studied Latino perceptions of the police in Phoenix, AZ. Through 61 cognitive interviews, the authors interestingly found that immigrants' earlier experiences with crime in their homeland, as well as their experience with the United States immigration service, played a large role in shaping perceptions of American police. Finally, a swath of research has used the Pathways to Desistance study (Mulvey 2004; 2011) to compare the trajectories of violent offenders in Phoenix and Philadelphia. While most studies are not directly relevant for this dissertation, it is important to

note that there seem to be some major differences between Phoenix offenders and Philadelphia offenders with regard to gang membership and participation in violent crime, especially where immigrants are concerned (e.g. Piquero et al., 2016; Pyrooz, Gartner, and Smith, 2017). In sum, while preliminary evidence indicates there may not actually be biased treatment against Hispanics in Albuquerque, minority threat theory would posit otherwise. Similarly, the few studies that do exist do not adequately address the relationship between perceptions of the police and COTS values.

Chicago

The history of police-citizen relations in Chicago is particularly complex and storied. Demographers, criminologists, and sociologists have taken keen interest in the city as a model for segregation. Different areas of the city have completely separate contexts, immigrant enclaves, and relationships with the police. Thus, the diverse boundaries defining the city have driven the etiology of police-citizen relationships. A 2017 study by the Department of Justice and United States Attorney's Office sums up the history of police reform in the city quite well (Black, 2017). There have been several cataclysmic occurrences, including police handling of protests outside the Democratic National Convention in 1968 as well as the systemic culture of police abuse and maltreatment throughout the 1990s (Black, 2017: 18). In response, Chicago has often been very proactive to call for police reform, but it is not always clear the extent to which, one, the reforms are enacted and, two, improve Chicagoans perceptions of the police force. For instance, Skogan (2006) conducted a survey of Chicago residents and found that perceptions of the police were far less

responsive to positive reform and positive interactions than they were to negative interactions. Distrust in the police tended to be high, and perceptions of procedural justice low, especially along racial boundaries.

Although there is ample research on police-citizen interactions in Chicago, by contrast no quantitative studies have used Chicago data to study COTS. There are some notable qualitative studies that have, including those already touched upon in this dissertation, such as Brunson and Stewart (2006)'s interviews with females (see also Kirk and Matsuda, 2011; Reisig, Wolfe, and Holtfreter, 2011; Sampson and Bartusch, 1998 for a discussion of legal cynicism in Chicago). This, in combination with Smith et al. (1999)'s BJS report, which showed that residents in Chicago, particularly minority residents, had the lowest trust in police and felt the most victimized by the police, suggests that the relationship between perceptions of police and changes in COTS attitudes may be particularly salient.

Dallas

Interestingly, there is not much research specifically focusing on Dallas residents' perceptions of the police or COTS attitudes. Much like other cities in this study, there is a commissioned report on the residual effects of a federally funded grant testing the efficacy of a community policing implementation in the city (Mindel et al., 2000). The authors found that implementation of the intensive community policing tactics did not seem to significantly effect changes in citizen perceptions of safety or perceptions of police performance. A RAND report several years later took a more general perspective in evaluating perceptions of Dallas police during 2008 and 2009 (Davis, 2009). Interestingly, the author also provided periodic comparisons of

perceptions in Dallas to perceptions in other cities. He found that residents in Dallas generally were more sanguine about measures closely paralleling procedural justice and police legitimacy (e.g. Davis, 2009: p. 16) than residents in large cities, but less satisfied regarding voluntary and involuntary police interactions than residents in much smaller municipalities (e.g. Davis, 2009: p. 26). A final interesting study examined police use of force in racial dyads (e.g. officer race vs. victim race) to examine if force is disproportionately used against minorities in Dallas and found that there do not appear to be drastic race-based biases (Jetelina et al., 2017).

Greeley

While there were no readily identifiable reports of police-citizen relationships in Greeley, I can draw upon other studies that have specifically focused on smaller cities in an attempt to build a parallel to Greeley, which is the smallest city in the GREAT II data (census population estimate: 103,990). Garcia and Cao (2005) surveyed residents in a small city and their results did not seem to deviate much from those typically found with a sample drawn from a large, urban metropolis: minority residents felt that the police treated them far less favorably and were significantly less satisfied with the police. Similarly, in an exploration of COTS endorsement across urban, rural, and suburban census tracts, Keith and Griffiths (2014) found that, on average, residents in smaller cities did not significantly differ from larger cities on their mean COTS endorsement. However, in a multiple regression analysis, residency in an urban core *did* significantly predict COTS values. In a similarly contrasting manner, a Nofziger and Williams (2005) article using a rural sample found that almost no individuals perceived crime to be a problem in their

neighborhood, which significantly correlated with their level of satisfaction with the police. Finally, Smith et al. (1999)'s BJS publication showed that the smaller cities surveyed (e.g. Madison, WI) were far less likely to feel the police were prejudiced. Taken together as circumstantial evidence, it suggests that Greeley residents might be less likely to perceive police misconduct or have their COTS attitudes as strongly affected by perceptions of police procedural justice.

Nashville

There is not a detailed history of contentious police-community discord in Nashville to leverage for hypotheses. However, several published reports in the early 2000s portrayed a community that is cognizant of biased policing. For instance, Greene and Speer (2001) published a report on the nature of policing in Nashville. The authors collected survey information from a random sample of African-Americans in high-traffic-stop areas and a simple random sample of all demographics throughout Nashville. While, unsurprisingly, Whites were far more likely to trust the police and believe the police acted without prejudice, there was no difference in the perception that the police were just doing their jobs. A follow-up study (Williams, Peters, and Speer, 2003) essentially represented an expanded and more rigorous version of the earlier commissioned study. The study was decidedly more pessimistic than the earlier one, concluding that police exhibited widespread racial biases toward African-American communities in Nashville, even going so far to say that police officers did not respect certain sections of Nashville. Finally, in 2016, Gideon's Army (a grassroots organization aimed at increasing awareness of endemic problems in Nashville) published a lengthy report (Gideon's Army, 2016) positing that traffic

stops in Nashville continued to be racially biased, including toward Hispanics. The report drew critical dissent from the Nashville police department (“MNPDP’s Response to Gideon’s Army Report,” 2017), who disputed the statistical methods used for deriving the report’s results, among other things.

In sum, there are several reasons to think there might be a strong relationship between perceptions of police and COTS attitudes in Nashville. First, it is the only city fitting of the southern subculture of violence theory in the sample. While the empirical evidence is mixed, the merits of the theory are worth testing in this dataset. Second, there are several reports, and critical responses, showing that there is enough of a concern about the potentially biased nature of police to stimulate discourse.

Philadelphia

As portrayed by Anderson (1999), Philadelphia is a city with many distinct, often segregated neighborhoods. Many of the distinctions are along racial and socioeconomic lines as well. This is not entirely surprising. There is a long history of punitive police actions in Philadelphia, with specific focus on projects housing crackdowns and aggressively targeting hippies, homosexuals, and anti-war protesters in the 1970s (Rubenstein, 2003). Further, police actions during the Columbus Avenue Riots in 1964 only served to exacerbate the perceived gulf between the police and urban residents (Perkiss, 2014). Recent findings do little to elucidate the complex relationships between the police and various racial groups in the city. A Fachner and Carter (2015) Collaborative Reform Institute (CRI) report assessed the rate of deadly force use in Philadelphia. Interestingly, the rate of White officer-Black offender inappropriate officer-involved shootings (e.g. shootings when the suspect was

unarmed) was much lower than Black officer-Black offender and Hispanic officer-Black offender mistaken shootings. Several other tangentially related studies (Groff et al., 2015; Ratcliffe et al., 2015) assessed the effectiveness of the Philadelphia Policing Tactics Experiment, conducted at crime hot spots, on crime levels, displacement, and residents' attitudes toward crime and the police. Ratcliffe et al. (2015) found that police tactics neither improved nor worsened citizen perceptions of procedural justice. In sum, much of prior research on Philadelphia does not directly relate to the current study. However, given that Anderson (1999) based his whole research in Philadelphia and included specific language stating that perceptions of police played a large role in COTS attitudes, it appears that there is a strong empirical relationship between police perceptions and COTS attitude updating.

Portland

The available research on police perceptions in Portland comes from the Criminal Justice Policy Research Institute (CJPRI) at Portland State University. Stewart, Henning, and Renauer (2012) wrote a brief concerning public perceptions of police use of force. The initial brief found that while police use of force declined significantly, residents' perceptions were not commensurately parallel. A more detailed follow-up study (Renauer et al., 2013) examined a wider range of perceptions, including perceptions of police legitimacy and willingness to trust the police. The authors found that Whites and minorities did not differ very much on perceptions of police legitimacy, save for one question asking whether a resident felt worried that the police would stereotype them because of their race or ethnicity. In sum, Portland is one of the smaller, less ethnically diverse cities in the GREAT II

sample. Given the results of the CJPRI report, and drawing inference from the BJS 1999 report (Smith et al., 1999), it makes sense that changes in perceptions of the police do not have a strong relationship with COTS attitudes.

The context of police-citizen relationships in each city appears to be very different, but it seems a stretch to make directional hypotheses for how perceptions of the police affect COTS updating differently by each specific city. However, it is fair to posit that, taken as a whole, the evidence suggests:

H₈: There are differences between cities in the relationship between perceptions of police procedural justice and COTS attitude updating.

Summary of Study's Intentions

In sum, this study will draw from several bodies of research to contribute toward a more robust understanding of some of the fundamental COTS principles. To be clear, because Anderson (1999) did not lay out specific theoretical arguments, I do not purport to be testing his thesis or the entirety of his arguments. Rather, this dissertation aims to expand the breadth of knowledge about the correlates of COTS attitude change and their contextual variation.

First, this dissertation recognizes the utility of updating concepts in understanding attitude change over time. Thus, the first hypothesis draws on theoretical work on updating in other criminological disciplines to predict that individuals update their COTS attitudes over time. Second, this dissertation draws on both a long line of research considering the importance of the police-citizen relationship and qualitative work emphasizing the importance of perceptions toward the police for COTS attitudes to make specific hypotheses. The research indicates that

there is a relationship between perceptions of procedural justice and COTS attitude updating and there might be additive effects from both formal (arrest) and informal (questioning) specific experiences with the police. Third, this dissertation considers contextual implications of the relationship between perceptions of police and COTS attitude updating across race and geography. First, like the initial hypothesis, the evidence indicates that COTS attitude updating is variant across race. I also draw on criminal justice empirical work to predict that Whites and Asians have a weaker negative relationship between perceptions of the police and COTS attitude updating than the other two races. Finally, geographic context clearly matters for many outcomes at the neighborhood level. However, little work has zoomed out even further to examine city-level contextual differences. Thus, the last hypothesis predicts that there are significant city-level differences in the relationship between perceptions of police procedural justice and COTS attitude updates.

CHAPTER 3: Data and Methods

Data

The current dissertation uses data from the Gang Resistance Education and Training (GREAT) II sample, collected by researchers at the University of Missouri-Saint Louis (UMSL) (Esbensen et al., 2011; Esbensen et al., 2013; for a detailed discussion of results from the original GREAT sample, see Esbensen and Osgood, 1999; Esbensen et al., 2002). The original GREAT study, collected from 1995-1999, evaluated the effect of an experimental anti-gang school curriculum on student behavior, leveraging police officer, teacher, and student surveys to discern baseline and post-intervention responses to a range of questions, including COTS attitudes and perceptions of, and experiences with, the police. Scholars at UMSL used National Institute of Justice (NIJ) funding to conduct the GREAT II survey from 2006-2011 as a follow-up evaluation to a revised GREAT curriculum. The survey included the same law enforcement, teacher, and student interview components; however, I will only discuss the student portion in more detail as I am not using the police or teacher surveys for analysis.

GREAT II investigators collected information from students in 195 classrooms, 102 experimental and 93 control, dispersed among 31 middle schools in seven cities. The principle investigators selected the chosen cities (Albuquerque, New Mexico; Chicago, Illinois; Greeley, Colorado; Nashville, Tennessee; Philadelphia, Pennsylvania; Portland, Oregon; and Dallas-Fort Worth (DFW), Texas) because they had pre-existing GREAT curricula, were a geographically representative sample, and had high rates of gang involvement and activity. The PIs made school

officials aware of the study's purposes, logistical constraints on random assignment and program implementation, and procedures for obtaining informed consent from students' parents to allow them to answer sensitive survey questions about participation in crime and gang membership, among other things. Once this process happened, 89.1% of youths (n = 4,372) returned a completed consent form (of which 3,820 actually consented). Finally, only 3,482 students (out of 4,905 eligible students enrolled at the participating middle schools), received parental consent AND ended up participating in the survey (see Esbensen et al., 2008 for a complete description of the consent process).

Investigators surveyed students over six waves (pretest, posttest, and four annual follow-ups), and collected 1,926 variables across all six waves. Compared with the earlier GREAT I collection, the researchers made a greater effort at decreasing the survey dropout rate in GREAT II, and obtained a retention rate of 87%, 83%, and 75% respectively after each of the first three years. The researchers intended for law enforcement personnel to begin teaching the GREAT curriculum in sixth grade, as individuals entered middle school; however, some law enforcement agencies felt that seventh grade was a more appropriate starting place. As such in five of the 31 chosen middle schools, the students were in 7th grade rather than 6th grade during the baseline survey.

Though the survey contains variables related to attitudes toward fighting across all six waves, it is not until the third wave that questions explicitly operationalized for discerning COTS attitudes, according to the scale developed and used in several studies (Stewart et al., 2006, 2008; Stewart and Simons, 2006, 2010)

and tested by Taylor et al. (2010), are implemented. As such, this analysis will use waves 3-6, meaning there is the possibility of attrition bias from wave 1 to wave 3. Given that analyses will begin with wave 3, the sample size is 3,102 youths (89% of the original 3,482 consenting individuals) in 116 different schools in the seven original districts.¹¹

There are several compelling reasons why a school-based sample is well-suited to answer the research questions presented in this dissertation. The first is that those surveyed are of the age where crime is the most prevalent. Criminal activity, and general delinquency, gradually ascends to a peak at approximately 18 years old and declines thereafter. Studies have found that this parabolic pattern holds across geographic location, crime type, race, and gender (Hirschi and Gottfredson, 1983). Given that the students' ages in the GREAT II sample ranges from 12-18 years old across all waves, the survey is likely to capture them at their most deviant. This logic extends to attitudes favorable towards deviance, which includes COTS attitudes. In this way, a school-based sample is advantageous both because adolescents are likely to have a wide range of experiences with the police, including arrests, and because there is likely to be a wide range of consummate COTS attitudes.

Similarly, aside from being a stage in the life course of increased involvement in deviance, adolescence is when individuals are most susceptible to catalysts of attitudinal change. Psychologists for years have tested, and generally found support

¹¹ The sample only retains 3,102 out of 4,905 kids initially sought for the study, which is potentially concerning because the dropouts might be very different from the children that remained. However, as described, much of the dropout occurs due to the consent process and in other ways that the researcher has no control over. As such, while it is important to acknowledge here, there is no way to account for the dropout empirically.

for, the “impressionable years” hypothesis (Krosnick and Alwin, 1989; Hodgkinson and Innes, 2001; Sears and Levy, 2003) that adolescent attitudes are most volatile during early teenage years. Thus, if attitudes do update, adolescence is the stage most likely to capture it. Indeed, extant criminological work that looks at sanction risk updating uses adolescent and young adult samples (Anwar and Loughran, 2011; Schulz, 2014; Thomas, Loughran, and Piquero, 2013).

Finally, this school sample ensures ample racial and ethnic diversity. This stands in contrast to the other prominent studies that have specific measures for COTS attitudes, which are either completely racially homogenous (FACHS) or heavily Caucasian (Seattle Neighborhoods study). There are obvious drawbacks to surveying only those adolescents in attendance on a particular day, but the benefits seem particularly well suited to the current dissertation and its research questions.

It is also critical to acknowledge that GREAT (both iterations) fails to sample from a number of populations, some more critical than others, therefore limiting its external validity. GREAT fails to sample private school students, students who were absent from school on a given survey day (for truancy, illness, or some other reason), and other high-risk demographics such as those not enrolled in school or those in juvenile detention or some other custodial arrangement that makes attending school impossible. The GREAT research team attempted to mitigate attenuation concerns by making multiple return visits to the schools in efforts to survey students who were absent (e.g., ill, truant, and suspended) during the initial visits. Again, students not even registered for public school will be missed entirely; however, the GREAT team

somewhat tempered the risk of skipping some of the most at-risk students, minimizing the potential sample bias.

Dependent Variable

The main dependent variable is *COTS attitudes*, measured at waves three through six. *COTS attitudes* is a scale containing seven items: 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) People will take advantage of you if you do not let them know how tough you are; 4) People do not respect a person who is afraid to fight physically for his/her rights; 5) Sometimes you need to threaten people to get them to treat you fairly; 6) It is important to show others that you cannot be intimidated; 7) People tend to respect a person who is tough and aggressive. Each item itself was a Likert scale, ranging from one (strongly disagree) to five (strongly agree). Thus, higher scores indicate stronger attitudes in favor of COTS tenants. To create a composite measure, I summed scores for each item and divided by seven to provide an average score for each individual at each wave ($\alpha=.895$).

Independent Variables

The first independent variable is perceptions of police procedural (in)justice (*Procedural Justice*), recorded at waves one through six. *Procedural Justice* ($\alpha=.909$) is measured by a set of five questions, again asked on a scale from one (strongly disagree) to five (strongly agree): 1) Police officers are honest; 2) Police officers are hardworking; 3) Most police officers are usually friendly; 4) Police

officers are usually courteous and 5) Police officers are respectful toward people like me. Higher scores indicate higher levels of perceived procedural justice and lower scores indicate stronger feelings of procedural injustice. As with the dependent variable, I divide each individual's total score on the five items by five to provide an average score at each wave. Further, though all waves included procedural justice measures, I will only use measures from waves three through six to parallel the COTS measure across the four waves of measurement. Given their conceptual overlap, it is important to confirm that the COTS attitudes and perceptions of procedural justice in these data do not reflect the same latent characteristic (e.g. anti-social tendencies). If both sets of variables load onto one factor, it would be difficult to justify any findings as depicting a directional relationship. An initial correlation matrix (available upon request) revealed that each of the COTS attitude waves correlated with one another at a relatively high proportion (from .4614 between wave 3 and wave 6 to .6159 between wave 5 and wave 6), as did procedural justice waves (from .5168 between wave 3 and wave 6 to .6736 between wave 5 and wave 6). The correlation between the procedural justice variables and COTS attitudinal variables was also fairly high, as might be expected if there is a genuine relationship, but not as high (at most, -.039 between COTS wave 4 attitudes and procedural justice wave 4 attitudes). Thus, I conducted an exploratory factor analysis to see if COTS values and procedural justice perceptions were two distinct entities. A factor analysis (available upon request) indeed provided evidence for two factors (e.g. in the iterative process, only two factors had eigenvalues over one). Thus, while the two factors are moderately

correlated, as I have argued throughout, it does not necessarily mean they are both tapping a single latent trait.

The next set of independent variables concern interactions with the police, measuring the influence of “specific” police experiences as a counterpoint to the general procedural justice measures specified above. GREAT II only started asking questions about experiences with the police in wave three, so I employed measures from waves three through six. There are two pertinent questions for this set of variables. The first asks how many times in the past year an individual was stopped by the police or law enforcement officers for questioning, *Police Question*. Answers range from zero to eleven, with the latter representing eleven or more stops. The second asks how many times in the past year an individual was arrested (*Police Arrest*), again ranging from zero to eleven, with the latter representing eleven or more arrests. In analyses, I operationalized these variables in two ways. First, I created dummy variables for each to indicate *if* an individual has had said experience in the previous wave (indicated by *Question Dummy* and *Arrest Dummy*). Second, I maintained the count variables to analyze if different quantities of police interactions or arrest experiences changes the way it varies with COTS attitudes.

The third key set of variables relate to an individual’s race. GREAT II allows an individual to identify as one of seven different categories: White (non-Hispanic), Black, Hispanic, Native American, Asian, other, and mixed race. In contrast to many extant empirical tests of Code of the Street, non-White Hispanics make up the largest racial/ethnic group in the sample at 34.7%, followed by Whites at 25.3%, Blacks at 17.1%, Asians at 3.8% and Native Americans at 3.8%. I made the coding decision to

combine Native American, other and mixed race into one, larger, “other” category, which represents 10.6% of the total sample.

The fourth key set of variables relate to geographical context. Respondents were relatively evenly distributed across the seven cities in the study (Albuquerque, Chicago, Dallas, Greeley, Nashville, Philadelphia, Portland). As with race, each city has a separate analysis to test for geographic differences amongst the relationship between perceptions of the police and COTS attitude updates.

Control Variables

The first control variable attempts to account for social class. Social class is arguably integral to an analysis looking at racial effects, but the GREAT II data does not provide any robust measure of an individual’s socioeconomic status. There are a few potential proxies. First, there is a variable measuring the percent of school attendees who received free or reduced lunch. For instance, Slocum, Esbensen, and Taylor (2014) were interested in the effect of school ecological context on student willingness to report misbehavior in school. The authors used National Center for Educational Statistics (NCES) administrative data to match the schools used by the GREAT II survey with demographic information, including the percentage of children in the school that receive free or reduced lunch. However, this is a school-level variable, and is not captured for every individual. Using this variable would problematically mask important within-school variation in wealth.

At the individual level, there are two crude approximations. First, is a measure of *household structure* (0=No, 1=Yes) indicating if the respondent lived with both parents. Second, there is a measure of *parent education* indicating the highest level

of education completed (*less than high school, completed high school, some college, completed college, more than college*). The project managers asked this question about both an individual's mother and father; however, nearly 50% of the answers about their father's education were "I don't know." Therefore, to minimize missingness on this variable, I made the decision to combine the two questions into a single measure, using the maximum for either parent (there are still 839 respondents that did not know). Unlike *household structure*, this variable is measured only before the start of the study. Again, while there is a correlation between socioeconomic status and educational achievement, ideally there would be a more direct measure of socioeconomic status. As such, I use *household structure* as a control in subsequent models and then conduct a supplemental analysis stratifying the sample by race and class, as captured by highest level of parental education (see Supplemental Analyses section).

Extant work emphasizes the critical role neighborhood cultural milieu plays in determining an individual's actions, beyond what merely an individual's COTS attitudes would predict. In this sense, omitting variables capturing neighborhood conditions would be a mistake. However, the GREAT II dataset does not allow for census identification of specific neighborhoods in which each individual lives. As such, it is impossible to provide objective macro-level measures to control for neighborhood conditions. To compensate, the GREAT II questionnaire asks participants to judge the safety and disorder of their neighborhood, which, though not ideal, provides some context to individual COTS perceptions, albeit potentially colored by the individual him or herself. Six questions assess individuals'

perspectives of the state of their neighborhoods. Each question asks how prominent a problem is in an individual's neighborhood, ranging from one (not a problem) to three (a big problem). The six signs of the disorder the survey asks about are: 1) run down or poorly kept buildings; 2) groups of people hanging out in public places causing trouble; 3) graffiti on buildings and fences; 4) hearing gunshots; 5) cars traveling too fast throughout the streets; and 6) gangs. As with previous variables, I sum an individual's six responses at each wave and divide by six to obtain an average score, labeled as *Disorder* ($\alpha=.877$). It was also important to include a set of variables to control for the possible influence of other disruptive or stressful environments. For instance, Hirschi (1969) contended that the arena where individuals have the most time to garner and hone social bonds is in school. Indeed, Anderson (1999) also emphasized school as a critical staging ground for producing COTS attitudes, especially as students test each other's nerve and challenge each other's status. Therefore, I include a variable characterizing student perceptions of their school environment at each wave, *School Context* ($\alpha=.834$). The variable is comprised of an average score from a set of six questions, ranging from one (not a problem) to three (a big problem): 1) Kids bullying or teasing other children at your school; 2) Places in your school where some students are afraid to go; 3) Students beating up or threatening other students at your school; 4) Kids of different racial or cultural groups at your school not getting along with each other; 5) Students bringing guns to school; 6) Having things stolen at school. Higher scores represent that the individuals perceives a more problematic school contextual milieu. I also include a variable measuring school achievement. Failure to attain good grades is another example of

lost pro-social bonds and may serve as another stressor that acts as a catalyst to withdrawal from mainstream society. As such, *Grades* is measured at each wave, with each individual assessing, from one (A student) to five (F student), what grades they predominantly received. Finally, I include a variable, *School Bond* ($\alpha=.794$), which explicitly measures the commitment part of the social bond to which Hirschi (1969) referred. The variable is an average score from three questions, ranging from one (strongly disagree) to five (strongly agree): 1) Grades are very important to me; 2) Education is so important that it's worth it to put up with things about school that I don't like; and 3) I try hard in school.

Another important component of the social bond is the role parents play in supervising the child. Indeed, Gottfredson and Hirschi (1990) argued that parental supervision is one of the key cogs in developing high levels of self-control in children during critical developmental stages. Given that, I include one variable, *Both Parents*, which dichotomized survey results between those individuals who lived with both biological parents and all other individuals. I also include a variable, *Parental Supervision* ($\alpha=.804$), which measured the student's assessment of how well they believed their parents supervised them. The measure is an average of the answers to four questions, ranging from one (strongly disagree) to four (strongly agree): 1) When I go someplace, I leave a note for my parents or call them to tell them where I am; 2) My parents know where I am when I am not at home or at school; 3) I know how to get in touch with my parents if they are not at home; and 4) My parents know who I am with if I am not at home.

Other prominent criminological theories posit that peers heavily influence COTS attitudes (e.g. Akers et al., 1979; Thornberry, 1987). To that extent, it is critical to control for peer attitudes and behaviors, with the caveat that all information is coming from the respondent's perception of their peers. A first, simple, measure (*Gang Member*) asks whether an individual is a member of a gang at each wave. Recent scholars have demonstrated the link between gang membership and COTS attitudes (Matsuda et al., 2013). Then, a composite members of peers' deviant involvement (*Peer Deviance*) asks how often (from one (never) to five (all of the time)) one's friends participated in each of five behaviors (stole something worth less than \$50, attacked someone with a weapon, sold drugs, used tobacco or alcohol, and used drugs) during the last wave. As with the other composite measures, scores represent an average of the answers to each of the five questions.

Finally, the one prior study using the GREAT II data where COTS attitudes were the dependent variable incorporated a number of other demographic correlates (Taylor et al., 2010). A final variable, *Age* represents each individual's age when interviewed for each wave.

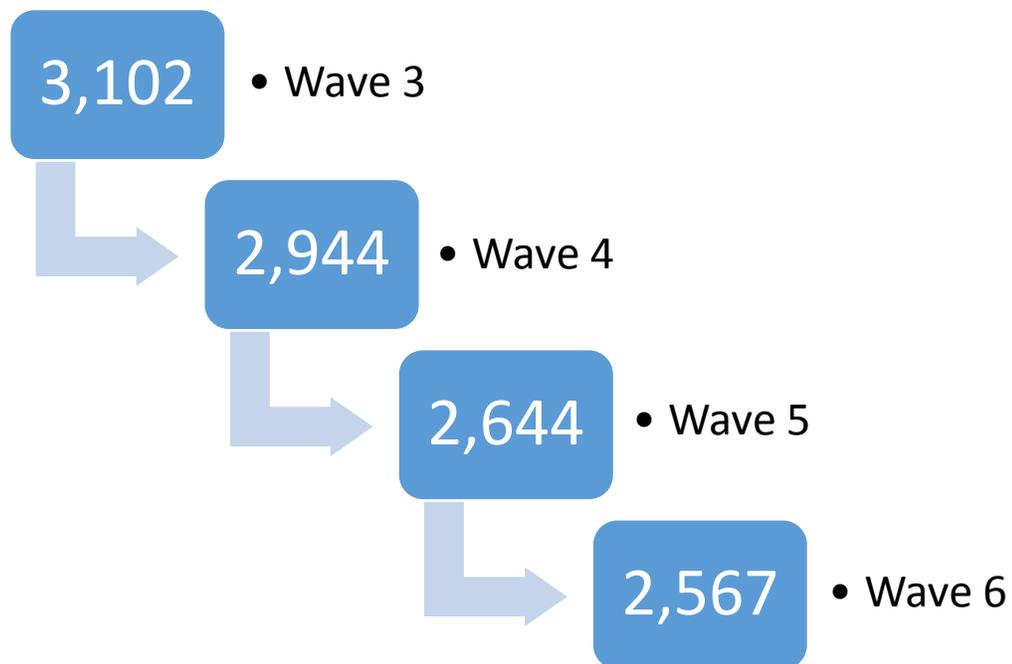
For individuals who are missing two or fewer responses to items at a particular wave, I divide by the number of eligible responses to get that individuals average on the scale. Otherwise, I consider the individual as missing for the pertinent variable. For instance, I code individuals missing three or more answers as missing data on COTS attitudes for that particular wave. These decision rules mimic those made by Taylor et al. (2010) when working with the same database.¹²

¹² As a robustness check in analyses, I will conceptualize several ways of imputing values for these missing data, such as mean-value substitution.

Missing Data

It is important to consider the possibility of nonrandom sample attrition across the four waves. As Figure 1 indicates, the sample retains 2,567 of the original 3,102 individuals by wave 6 (82.8%). Given that over 17% of the sample drops out at some point, it is prudent to see if it is reasonable to use list-wise deletion or if the dropout is non-random with regard to the variables of interest, as one might suspect. To investigate this question, I first conducted a t-test to see if COTS attitudes at wave 3 were significantly different between individuals who did not drop out and those who did drop out between wave 3 and wave 6. The test showed that COTS attitudes were significantly higher for those who dropped out (3.20 to 2.98, $t=5.81$, $p<.05$).¹³ This would seem to indicate individuals are not missing completely at random.

Figure 1. A flow chart of respondents answering questions in each wave



¹³ I did the same thing for perceptions of police and found that there was a significant difference between those that dropped out and those that did not as well.

Although this is problematic in that sense, there are several ways to look at the missing data concern. First, as noted above, the COTS attitudes and procedural justice measures incorporate individuals who were missing one or two answers to the questions comprising the respective constructs at each wave. As such, missingness within a wave was reasonably addressed. Second, given that the fixed-effect model measures within-individual change, missingness is not as large a concern because that individual would not be included in any way in the models if they dropped out immediately after wave 3. An assessment of the nature of respondent dropout revealed that 191 out of the 535 individuals who dropped between wave three and wave 6 dropped out immediately after wave three. A similar group of individuals (222) dropped out between wave 5 and wave 6, which is more problematic because those individuals would be included in the fixed-effect analysis. The same pattern is notable with respect to the perceptions of procedural justice variables. To address this concern, I created an indicator to denote if an individual was missing data on COTS for any wave. I then ran a regression with those who had data for at least two waves (and were thus eligible for inclusion in the model), but were missing at least one wave. Some of the coefficients on control variables substantively changed from the main models below, but the findings regarding the main independent variables remained unchanged from the fixed-effects models below.¹⁴ To address non-response for the control variables, I used mean-value imputation for missing values.

¹⁴ I did the same thing to address concerns about missingness with procedural justice perceptions. The regression coefficients were somewhat attenuated and the standard errors higher, but the substantive results and direction of the coefficient remained the same as in the full model. One potential reason for the attenuation is that, in this model, the maximum number of included waves was 3, which limits the amount of time for within-individual change.

Analytic Plan

The empirical analysis will primarily use a within-individual fixed-effects design, aimed at identifying an individual's COTS attitude change over the four waves of study. This is an ideal way to assess the malleability of one's attitudes over time without ascribing individual change to that exhibited by a whole, arbitrary, group, as previous scholars who have used group-based trajectory modeling have done (e.g. Moule et al., 2015). Essentially, each individual is compared to him or herself in previous waves of the study; the dependent variable becomes the magnitude of the *change* of COTS attitude scores at each wave rather than the actual mean. As a result, the most predominant advantage of using this fixed-effect panel design is that the method controls for time-stable unobservable heterogeneity. Because the wave-to-wave difference measures of the dependent variable (COTS attitudes) are distributed approximately normal (Cameron and Trivedi, 2005), I can empirically model it as such, with the fixed-effects specification, using robust standard errors.

It is critical to note that although I include a range of controls from a number of relevant criminological theories and use a fixed-effects method aimed at curtailing the influence of persistent unobserved heterogeneity between individuals (i.e., unobserved time stable attributes), I cannot make a causal argument from the results of the analyses. Indeed, there are myriad reasons why one's COTS attitudes might change, some of which the current dataset cannot account for (i.e., potentially important unobservables). This is especially true considering that the information measured in the current study occurred in yearly waves. Further, even though fixed-effects methods account for persistent individual heterogeneity, they do not produce

results comparable to those garnered from experimental manipulation because they cannot account for potential time-variant unobserved heterogeneity. In sum, I cannot infer causal relationships from my analyses. Instead, I classify the statistical estimates as associations among variables, specifically providing insight about the strength of the relationship between the independent variables and COTS attitudes.

The first hypothesis, **H₁**, posited that COTS attitudes are malleable and change in individuals across time. In order to assess how malleable attitudes are across the waves, I compare the sample means between waves three, four, five, and six (two at a time) using basic paired samples difference-in-means t-tests. However, this considers the sample as a whole when, by contrast, prior research using group-based trajectory modeling (GBTM; Moule et al., 2015) has indicated that certain subsamples might have COTS attitudes that are far more reactive and malleable than the rest of the sample. If this were the case in the GREAT II data, it would be a shame to lose the heterogeneity in certain individuals by merely speaking to wholesale trends (or lack thereof). As such, I also apportion the sample into four quartiles of COTS attitudes at each wave, according to the mean, to assess the sub-sample for each of the quartiles from wave to wave. Indeed, perhaps COTS attitude change is limited to those in a particular quartile of the sample. This accords with the extant literature on post-sanction updating, which tends to find that individuals do not respond uniformly; experienced offenders are less reactive than novice offenders are (e.g. Anwar and Loughran, 2011).

The second set of hypotheses posited that individual COTS attitudes update in response to changes in global perceptions of police procedural justice (**H₂**) and that

specific experiences with the police, arrest (**H3a**) and police questioning (**H3b**), are separately related to COTS attitudes. I evaluate **H2** by incorporating the procedural justice measures into the model and analyzing the extent to which these perceptions affect updates to individuals' COTS attitudes over the four waves using the aforementioned within-individuals fixed-effects design. I will first evaluate **H3a** and **H3b** by incorporating the incumbent measures (arrest experience first, in accordance with **H3a** and then other personal police interactions, in accordance with **H3b**) into the model. First, I will run three analyses: one each with the dummy indicators of arrest experience and questioning experience, and a third with both of them in the model. I will then run three more models with the count indicators of arrest experience, questioning experience, and both of them incorporated into the longitudinal analysis.

The next set of hypotheses posits that COTS attitude updating is a racially invariant process (**H4**) and that the relationship between perceptions of procedural justice and COTS attitudes is racially invariant (**H5**). The analysis of **H4** will proceed in a manner very similar to that of the first hypothesis. For each race, I will first evaluate the average COTS attitude at each of the four waves and evaluate differences within each conditioned sample using basic paired samples difference-in-means t-tests. In this way, I can determine if attitude updating occurs for all races, occurs for no races, or only occurs for certain races. Similarly, by dividing each race's sample into four quartiles, I can evaluate the idea that COTS attitude updating is a racially invariant process for every quartile of every race.

A more sophisticated analysis will assess the relative strength of the relationship between procedural justice measures and COTS attitudes for each

different race's sample. This is critical for evaluating **H6** and **H7**. A first stage analysis will use OLS regression (clustered by individual), where I can use the empirical test for the equality of coefficients to compare across estimates generated by different conditioned samples (Paternoster et al., 1997b):

$$Z = \frac{b_1 - b_2}{\sqrt{SEb_1^2 + SEb_2^2}}.$$

As a result, I can determine if the relationship is significantly different across two racial groups. If there are differences, I can assert that the relationship between perceptions of procedural justice and COTS attitudes is racially dependent. However, the problem with a simplistic OLS model is that its structure does not account for persistent unobserved heterogeneity. As I have highlighted above, this is a potentially problematic assumption; however, it is useful to present the analysis to highlight its potential biases when contrasted with the fixed-effects model. The second specification uses fixed-effect analyses, as detailed above, to control for fixed, unobserved heterogeneity. In order to assess if differences in the effect of perceptions of police procedural justice differ across race, I will center the results from the fixed-effects analysis and test for the difference in regression results between the two races using chi-squared tests (e.g. see Loughran et al., 2016 for a similar method). Analyses for the hypothesis concerning geographic context, **H8**, will proceed in the same manner.

CHAPTER 4: Results

The sample statistics for the pertinent variables are included below in Table 1. First, it is important to note that the alpha scores for each construct, control variables included, are well above the standard threshold of .70, suggesting that the included questions load reliably (Nunnally, 1978; Peterson, 1994). Otherwise, across all individuals, the most striking preliminary finding is that variables seem to be quite consistent, on average, across the waves. Table 1 also includes the proportion of variance in each variable accounted for by within-respondent fixed-effects to give an idea of the level of variation due to individual change. This column is interesting and indicates that the within-respondent share of variation is appreciable for each variable across the waves.

Second, the descriptive statistics reveal more nuance when partitioned by race and geographic location, a finding in tune with Taylor et al. (2010)'s descriptive analysis. Tables 2 and 3 present descriptive statistics of the key independent and dependent variables when the sample is striated by race/ethnicity (Table 2) and city (Table 3). According to Table 2, African-Americans and Hispanics have the highest levels of COTS adherence across all four relevant waves (3.33 and 3.20, respectively, in wave 3). By contrast, Caucasians and Asians have similarly low levels of COTS adherence (2.63 and 2.71, respectively, in wave 3), which is more than half a point lower than the mean scores for African-Americans and Hispanics. Interestingly, all races and ethnicities follow the same general pattern across time, with a gentle decrease in overall COTS attitude means from wave 3 to wave 6. A similar pattern appears to be occurring with respect to procedural justice attitudes. African-

Americans and Hispanics had the lowest perceptions of procedural justice, while Caucasians and Asians had the highest. Interestingly, over time, perceptions of procedural justice uniformly decreased, which is the opposite trend from COTS attitudes (which, though they also decreased, signifies a pro-social trend). The pattern repeats itself for both experiences with police questioning and experiences

Table 1. Descriptive statistics at each wave

	<u>Wave 3</u> Mean (SD)	<u>Wave 4</u> Mean (SD)	<u>Wave 5</u> Mean (SD)	<u>Wave 6</u> Mean (SD)	<u>Total</u> Mean (SD)	<u>Within- Respondent Share of Variation</u>
COTS Attitudes	3.03 (0.88)	2.94 (0.87)	2.86 (0.87)	2.84 (0.86)	-	0.33
Procedural Justice	3.46 (1.00)	3.33 (0.96)	3.32 (0.92)	3.23 (0.91)	-	0.65
Police Question	0.62 (1.80)	0.80 (2.07)	0.81 (2.04)	0.80 (1.99)	-	0.56
Police Arrest	0.20 (1.02)	0.24 (1.13)	0.23 (1.04)	0.24 (1.11)	-	0.49
Household Structure	0.55 (0.50)	0.53 (0.50)	0.53 (0.50)	0.52 (0.50)	-	0.77
Disorder	1.70 (0.61)	1.61 (0.57)	1.55 (0.54)	1.52 (0.53)	-	0.31
School Context	1.77 (0.52)	1.65 (0.50)	1.58 (0.49)	1.60 (0.49)	-	0.30
Grades	2.30 (1.00)	2.30 (0.97)	2.33 (0.95)	2.29 (0.86)	-	0.49
School Bond	4.07 (0.79)	4.05 (0.78)	4.08 (0.75)	4.09 (0.74)	-	0.55
Parent Supervision	4.12 (0.76)	4.03 (0.80)	4.02 (0.76)	4.04 (0.76)	-	0.32
Gang Member	0.05 (0.23)	0.05 (0.22)	0.04 (0.18)	0.03 (0.16)	-	0.37
Peer Deviance	1.35 (0.66)	1.45 (0.70)	1.56 (0.73)	1.63 (0.76)	-	0.47
Age	12.60 (0.74)	13.51 (0.72)	14.53 (0.71)	15.45 (0.63)	-	0.53

White	-	-	-	-	0.27 (0.44)	-
Black	-	-	-	-	0.18 (0.38)	-
Hispanic	-	-	-	-	0.37 (0.48)	-
Asian	-	-	-	-	0.04 (0.20)	-
Other Race	-	-	-	-	0.15 (0.36)	-
Less than High School	-	-	-	-	0.08 (0.26)	-
Completed High School	-	-	-	-	0.18 (0.38)	-
Some College	-	-	-	-	0.15 (0.35)	-
Completed College	-	-	-	-	0.20 (0.40)	-
More than College	-	-	-	-	0.12 (0.33)	-
Don't Know Education	-	-	-	-	0.28 (0.45)	-
Albuquerque	-	-	-	-	0.15 (0.36)	-
Chicago	-	-	-	-	0.13 (0.34)	-
Dallas	-	-	-	-	0.16 (0.37)	-
Greeley	-	-	-	-	0.15 (0.36)	-
Nashville	-	-	-	-	0.15 (0.36)	-
Philadelphia	-	-	-	-	0.12 (0.33)	-
Portland	-	-	-	-	0.13 (0.33)	-
<hr/>						
N						3,102

with arrest across the four relevant waves. African-Americans and Hispanics reported the highest average number of police questioning experiences and arrests, while

Asians and Caucasians reported the lowest. Experiences with police appeared to tick slightly up across the four waves. Of note, across all four sets of variables, individuals of another race are in the middle of the five groups.

The descriptive statistics concerning geographic differences in the key measures are also interesting. There are some differences in the sample means for respondents across the seven survey cities. For instance, Portland residents have consistently lower COTS attitudes than the other cities; by contrast, Albuquerque, Chicago, and Philadelphia residents have consistently higher COTS attitudes across the four waves. Much like with the racial categories, residents' COTS attitudes in every city decrease across the four waves. Again, there appear to be differences when examining procedural justice attitudes. Philadelphia and Chicago residents have the lowest average police procedural justice perceptions- in each city, the respondents' average value on the five-point scale dips below 3.0 by wave 6, which is not true of respondents in any other city. By contrast, subjects in each of the other five cities, less so Albuquerque, have noticeably higher COTS attitudes. Again, much like the racially-specific samples, residents' perceptions of police procedural justice declined uniformly across the four waves. Indeed, in Dallas and Greeley, residents' procedural justice perceptions dropped by approximately 10% between the third and sixth waves. Interestingly, Albuquerque residents had the highest average number of experiences with police questioning in wave 3. However, across the four different waves, Philadelphians had the highest average value (1.36) for a particular wave. Portland and Nashville residents were also the least likely to be stopped for questioning by the police. Again, experiences with the police appeared to slightly trend upwards for

individuals in about half of the geographic locales; otherwise, experiences appeared to peak in wave 5 and decrease in wave 6.

Table 2. Descriptive statistics partitioned by race

	<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian</u>	<u>Other</u>
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
COTS (W3)	2.63 (0.88)	3.33 (0.85)	3.20 (0.82)	2.71 (0.80)	3.12 (0.84)
COTS (W4)	2.59 (0.88)	3.19 (0.84)	3.10 (0.80)	2.59 (0.84)	3.01 (0.84)
COTS (W5)	2.54 (0.89)	3.05 (0.82)	3.06 (0.82)	2.59 (0.80)	2.88 (0.82)
COTS (W6)	2.50 (0.87)	3.10 (0.79)	3.03 (0.82)	2.50 (0.80)	2.88 (0.86)
PJ (W3)	3.82 (0.92)	3.25 (0.98)	3.23 (0.98)	3.77 (0.76)	3.45 (1.04)
PJ (W4)	3.71 (0.92)	3.07 (0.98)	3.11 (0.91)	3.70 (0.70)	3.34 (0.94)
PJ (W5)	3.65 (0.93)	3.09 (0.91)	3.11 (0.89)	3.69 (0.67)	3.36 (0.89)
PJ (W6)	3.55 (0.91)	3.00 (0.92)	3.05 (0.84)	3.46 (0.77)	3.21 (0.90)
Police Question (W3)	0.30 (1.17)	0.85 (2.20)	0.77 (1.98)	0.25 (1.22)	0.71 (1.84)
Police Question (W4)	0.50 (1.64)	0.91 (2.16)	1.02 (2.30)	0.14 (0.57)	0.95 (2.33)
Police Question (W5)	0.54 (1.61)	1.08 (2.42)	0.94 (2.16)	0.09 (0.40)	0.91 (2.09)
Police Question (W6)	0.52 (1.53)	1.07 (2.47)	0.97 (2.22)	0.18 (0.65)	0.81 (1.96)
Police Arrest (W3)	0.09 (0.60)	0.27 (1.18)	0.24 (1.13)	0.04 (0.33)	0.22 (1.01)
Police Arrest (W4)	0.15 (1.03)	0.28 (1.13)	0.32 (1.30)	0.04 (0.24)	0.22 (1.13)
Police Arrest (W5)	0.12 (0.74)	0.30 (1.14)	0.32 (1.25)	0.00 (0.00)	0.17 (0.75)
Police Arrest (W6)	0.09 (0.73)	0.40 (1.51)	0.34 (1.33)	0.03 (0.18)	0.17 (0.94)
N ^a	796	502	1,100	124	440

PJ=Procedural Justice

a=The total N does not equal the sample size because some subjects did not endorse a race

Finally, with respect to arrest experiences, Nashville and Portland residents again have the lowest average numbers. However, the rest of the cities' respondents' averages for each wave are more uniform and reflect that, on average, residents do not experience many arrests. While this is informative, partitioning the data into quartiles might reveal even more useful nuance.

Table 4 also presents descriptive statistics partitioned by age as another way to gauge the developmental context of COTS attitudes. One important thing to note is that there are a handful of respondents who change ages around the time when the survey is administered every year. It appears that the survey was not administered on the exact same day every year because some respondents change more than one year in age per survey wave. As such, the age-cohorts do not neatly translate from wave to

wave. Finally, the COTS attitude measures are averaged across the waves, as this is a descriptive table of age differences rather than wave differences. The results from Table 4 show that measures do not change much across different age-groups and the differences that do appear might result from the influence of outliers in relatively small sample size. The changes do appear to comport with typical patterns of deviance in accordance with the age-crime curve (Hirschi and Gottfredson, 1983). COTS attitudes gradually increase with age and perceptions of police decrease. Similarly, experience with arrest and police questioning appear to increase slightly. However, there does not appear to be much utility in an age-classified model. Though this preliminarily indicates that COTS attitudes are stable, it will be more informative if the data is broken down to examine if certain percentiles of individuals are more volatile than what the entire sample's apparent stability indicates. As such, a final descriptive table, Table 5, portrays COTS attitudes, procedural justice perceptions, and experiences with the police in each wave separated by the apportioned quartiles, yielding some interesting results. With respect to COTS, it appears as if the averages for each quartile regress toward an overall mean. Individuals who begin with low COTS attitudes, in Q1, have an increasing average across the four waves. By contrast, individuals who begin with high COTS attitudes, in Q4, have a decreasing average across the four waves. Individuals in Q2 and Q3 also see their averages decrease over time, albeit at a smaller scale. By contrast, the quartiles' procedural justice values over the four waves uniformly decrease. This parallels what the overall sample demonstrated; respondents' views of the police

Table 3. Descriptive statistics partitioned by city

	<u>Albuquerque</u>	<u>Chicago</u>	<u>Dallas</u>	<u>Greeley</u>	<u>Nashville</u>	<u>Philadelphia</u>	<u>Portland</u>
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
COTS Attitudes (W3)	3.20 (0.78)	3.20 (0.81)	3.04 (0.84)	2.89 (0.91)	2.89 (0.98)	3.37 (0.83)	2.68 (0.86)
COTS Attitudes (W4)	3.08 (0.80)	3.11 (0.81)	2.89 (0.85)	2.98 (0.98)	2.79 (0.89)	3.19 (0.72)	2.56 (0.86)
COTS Attitudes (W5)	2.91 (0.79)	3.06 (0.84)	2.86 (0.86)	2.86 (0.92)	2.71 (0.88)	3.20 (0.71)	2.52 (0.86)
COTS Attitudes (W6)	2.89 (0.83)	3.02 (0.83)	2.85 (0.84)	2.86 (0.89)	2.76 (0.92)	3.12 (0.76)	2.50 (0.84)
PJ (W3)	3.35 (1.02)	3.02 (0.98)	3.58 (0.97)	3.64 (1.06)	3.65 (0.95)	3.25 (0.94)	3.60 (0.88)
PJ (W4)	3.29 (0.94)	2.90 (0.91)	3.34 (0.95)	3.39 (1.04)	3.62 (0.89)	3.10 (0.93)	3.56 (0.87)
PJ (W5)	3.26 (0.92)	2.94 (0.89)	3.36 (0.95)	3.36 (0.99)	3.57 (0.88)	3.04 (0.82)	3.55 (0.85)
PJ (W6)	3.28 (0.86)	2.86 (0.83)	3.25 (0.90)	3.23 (0.94)	3.37 (0.94)	2.98 (0.87)	3.50 (0.83)
Question (W3)	1.05 (2.38)	0.78 (1.92)	0.55 (1.55)	0.50 (1.66)	0.32 (1.30)	0.94 (2.24)	0.24 (0.99)
Question (W4)	1.08 (2.35)	0.93 (2.32)	0.86 (2.11)	0.98 (2.29)	0.38 (1.35)	1.08 (2.36)	0.42 (1.44)
Question (W5)	1.04 (2.42)	1.02 (2.17)	0.73 (1.75)	0.90 (2.18)	0.39 (1.28)	1.36 (2.72)	0.42 (1.33)
Question (W6)	0.82 (1.77)	1.19 (2.60)	0.91 (2.16)	0.78 (1.98)	0.52 (1.70)	1.17 (2.58)	0.32 (0.94)
Arrest (W3)	0.33 (1.33)	0.17 (0.79)	0.14 (0.81)	0.24 (1.19)	0.11 (0.74)	0.33 (1.26)	0.04 (0.31)
Arrest (W4)	0.27 (1.10)	0.32 (1.36)	0.26 (1.31)	0.23 (0.93)	0.12 (0.92)	0.33 (1.14)	0.20 (1.23)
Arrest (W5)	0.29 (1.12)	0.22 (0.87)	0.28 (1.24)	0.31 (1.22)	0.13 (0.86)	0.36 (1.20)	0.06 (0.40)
Arrest (W6)	0.22 (0.91)	0.27 (1.22)	0.27 (1.14)	0.37 (1.55)	0.21 (1.14)	0.26 (1.04)	0.07 (0.71)
N	475	426	502	465	479	341	414

Table 4. Descriptive statistics partitioned by age

	<u>Age 10</u>	<u>Age 11</u>	<u>Age 12</u>	<u>Age 13</u>	<u>Age 14</u>	<u>Age 15</u>	<u>Age 16</u>	<u>Age 17</u>	<u>Age 18</u>	<u>Age 19</u>
	Mean									
	(SD)									
COTS (All Waves)	2.58 (0.36)	2.90 (0.62)	2.80 (0.71)	2.88 (0.71)	2.89 (0.71)	2.90 (0.71)	3.02 (0.66)	3.14 (0.62)	3.39 (0.62)	3.20 (0.27)
PJ (All Waves)	3.61 (0.33)	3.46 (0.69)	3.50 (0.77)	3.39 (0.79)	3.36 (0.79)	3.35 (0.80)	3.17 (0.80)	2.96 (0.73)	2.84 (0.44)	3.68 (0.53)
Question (All Waves)	0.00 (0.00)	0.50 (0.85)	0.50 (1.12)	0.63 (1.30)	0.69 (1.43)	0.70 (1.42)	0.96 (1.66)	1.47 (2.35)	1.81 (1.99)	0.13 (0.18)
Arrest (All Waves)	0.00 (0.00)	0.34 (0.87)	0.11 (0.49)	0.19 (0.69)	0.20 (0.70)	0.19 (0.68)	0.30 (0.85)	0.38 (1.02)	0.88 (1.03)	0.00 (0.00)
N	3	25	1,378	2,306	2,315	2,422	967	152	4	2

Table 5. Descriptive statistics partitioned by COTS quartile

	Q1	Q2	Q3	Q4
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
COTS (W3)	1.96 (0.51)	2.90 (0.11)	3.34 (0.16)	4.17 (0.43)
COTS (W4)	2.30 (0.81)	2.88 (0.68)	3.17 (0.65)	3.51 (0.81)
COTS (W5)	2.29 (0.81)	2.85 (0.71)	3.05 (0.73)	3.38 (0.83)
COTS (W6)	2.35 (0.90)	2.82 (0.72)	3.02 (0.72)	3.35 (0.78)
PJ (W3)	3.97 (0.85)	3.46 (0.88)	3.35 (0.92)	2.91 (1.03)
PJ (W4)	3.77 (0.87)	3.36 (0.87)	3.19 (0.90)	2.90 (1.01)
PJ (W5)	3.76 (0.82)	3.31 (0.87)	3.19 (0.87)	2.91 (0.94)
PJ (W6)	3.56 (0.87)	3.23 (0.81)	3.15 (0.85)	2.86 (0.94)
Question (W3)	0.11 (0.53)	0.36 (1.29)	0.77 (1.98)	0.59 (1.48)
Question (W4)	0.27 (1.20)	0.57 (1.66)	1.02 (2.30)	0.92 (2.04)
Question (W5)	0.35 (1.30)	0.61 (1.69)	0.94 (2.16)	0.87 (1.99)
Question (W6)	0.34 (1.17)	0.65 (1.72)	0.97 (2.22)	0.84 (1.98)
Arrest (W3)	0.03 (0.32)	0.14 (0.73)	0.17 (0.85)	0.49 (1.63)
Arrest (W4)	0.09 (0.81)	0.17 (0.91)	0.24 (1.13)	0.49 (1.64)
Arrest (W5)	0.10 (0.74)	0.13 (0.58)	0.23 (1.05)	0.46 (1.51)
Arrest (W6)	0.07 (0.61)	0.21 (1.13)	0.26 (1.19)	0.41 (1.40)
N	869	740	711	711

become less sanguine over time. Experiences with police questioning and experiences with arrest display a similar pattern. In sum, it appears, initially, that quartiles are at least partially characterized by some persistent underlying heterogeneity. However, the notable changes in COTS attitudes, over time, are worthy of further exploration.

I can leverage the results from Table 1 and Table 5 for evaluating **H₁**. As a supplement, Table 6 provides the results of paired-sample t-tests evaluating the differences in means for the sample's COTS attitudes between pairs of waves. As the two tables show, although there are relatively small differences in COTS means across waves, they represent the average of over 3,000 individuals. As a result, the results in Table 6 show that there are significantly different means ($p < 0.05$) between waves in all instances except between waves 5 and 6 for COTS attitudes.

Unsurprisingly, the largest differences are between wave 3 and waves 5 and 6.

Notably, it is interesting that residents decrease their COTS attitudes, on average, across the waves. At first blush the mean values do not appear to change much, but there is an overall decrease of nearly .20 (on the five point scale) from wave three to six for the overall respondents' average.

Table 6. Paired-sample t-tests comparing COTS attitude averages across waves

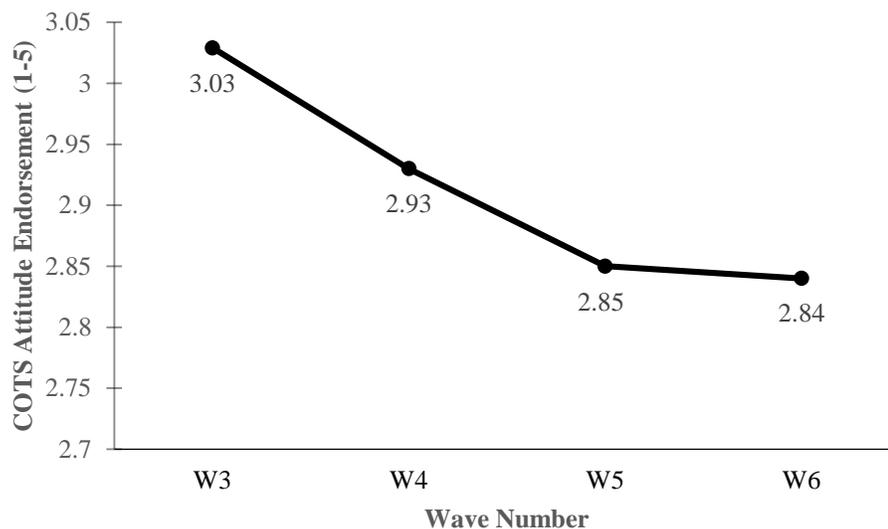
	<u>COTSW3</u>	<u>COTSW4</u>	<u>COTSW5</u>	<u>COTSW6</u>
COTSW3	--	5.48*	8.31*	7.45*
COTSW4	--	--	3.43*	3.65*
COTSW5	--	--	--	0.02
COTSW6	--	--	--	--

*=significantly different means, $p < .05$

The t-tests depicted in Table 6 offer preliminary support for **H1**. However, an examination of mean-level differences by sub-divided quartile will offer a more nuanced perspective that can either bolster or refute these preliminary findings. In this vein, Table 7 shows the results of paired-sample t-tests that test for a significant difference between the COTS attitude means presented in Table 5. Table 7 indicates several interesting findings. First, for Q2, Q3, and Q4, there is no significant change from wave 5 to 6, which aligns with the findings from the undivided sample. Similarly, it appears as if most of the change comes between wave three and wave four; respondents in each quartile have relatively stable COTS attitudes thereafter. Second, interestingly, Q2 respondents appear to show the least amount of COTS attitude change from wave to wave, a finding without a readily apparent explanation. Third, and perhaps most notably, the dramatic changes for respondents in Q1 and Q4 are toward a less extreme value (e.g. toward the overall sample average). That is, those individuals in the lowest quartile increase their COTS attitudes across the four

waves and individuals in the highest quartile decrease their COTS attitudes across the four waves, particularly between waves 3 and 4 (1.96 to 2.30 from wave 3 to 4, $t=12.83$, $p<.05$ for Q1; 4.17 to 3.51, $t=18.67$, $p<.05$ for Q4). In sum, the bulk of findings from the t-tests in Table 6 and 7 support **H₁**'s contention that COTS attitudes are malleable and change over time. Respondents in both the overall sample and the sub-sample quartiles showed evidence of attitude updating over waves. While the fact the significant differences across waves are informative in their own right, the magnitude of change from wave to wave is also critical in its own right. Therefore, as a supplement, Figure 2 shows the magnitude of change from wave to wave and Figure 3 does the same, but separated by quartile. While t-tests are informative, they only show that two differences are significant, not necessarily the level of change in them. The results from Figure 2 and 3 show that the change, while significant, is not necessarily of a large magnitude. For instance, the change from W3 to W4 for the whole sample is 3% $((3.03-2.93)/3.03)$, as is the change from W4 to W5. The change

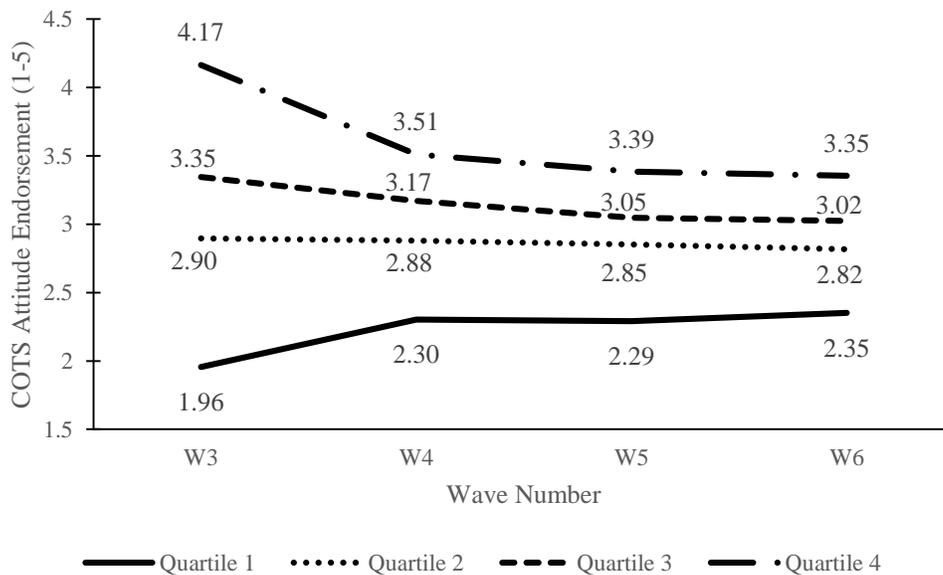
Figure 2. Changes in average COTS attitude across waves



from W5 to W6 is less than one percent. It is worth remembering that, while these magnitudes are small, it is for the whole sample, consisting of over 3,000 respondents. Figure 3 presents a slightly more nuanced picture, showing how large the changes are for respondents in quartile one (e.g. 17% between W3 and W4) and in quartile four (16% between W3 and W4) and how minimal the change is for individuals in quartile two and, to a lesser extent, quartile three. While interesting, these evaluations are merely descriptive and cannot speak to the correlates of said attitude updating. However, this should not discount the importance of considering both magnitude and significance in future studies of updating processes.

Table 8 shows the results of a series of fixed-effects regression analyses aimed at addressing **H2**, **H3a**, and **H3b**. The first column of the table depicts the baseline

Figure 3. Changes in average COTS attitude across waves, by quartile



fixed-effects model, meant to evaluate **H2**. The subsequent six models evaluate permutations of the model with specific police experiences included. Models 2 and 3 include a measure of arrest experiences and questioning experiences, respectively.

Models 4 and 5 are the same except the arrest and questioning measures are transformed into simpler yes/no dummy variables. Finally, models 6 and 7 include both measures in the analysis at the same time.

First, a brief note on the control variables. Neighborhood disorder, school context, gang membership, and peer deviance are positive and significantly related to COTS attitude updating across all models. These are in line with theoretical expectations- it is unsurprising that increases in factors typically associated with criminal deviance should also be related to upward updates in COTS attitudes. Similarly, those variables that have significant, negative coefficients (namely, school bond and parent supervision) are also in line with criminological expectations.

Proceeding to the key independent variables, the results from model 1 lend support to **H₂**. Perceptions of procedural justice are significantly, negatively, related to COTS attitude updating. This relationship holds even when specific police experiences are included in the model.

By contrast, **H_{3a}** is not supported by the data. The coefficient on arrest is very small and fluctuates between positive and negative across the models in which the variable is included. In fact, in model six, the coefficient is negative and approaches significant ($p < .10$), which is counterintuitive in relation to the hypothesis. It seems, given the descriptive statistics presented in Table 1, that arrest experiences were an extremely rare phenomenon, which may explain the lack of significant findings. There simply was not enough variation in an individual's experiences from wave to wave.

Table 7. Paired-sample t-tests comparing COTS attitude averages across waves, by quartile

	<u>Q1</u>				<u>Q2</u>				<u>Q3</u>				<u>Q4</u>			
	W3	W4	W5	W6	W3	W4	W5	W6	W3	W4	W5	W6	W3	W4	W5	W6
W3	--	12.83*	11.23*	12.03*	--	0.61	1.54	2.63*	--	6.66*	9.93*	10.48*	--	18.67*	20.20*	21.43*
W4	--	--	0.03	1.67	--	--	0.79	1.28	--	--	3.78*	3.66*	--	--	2.40*	3.53*
W5	--	--	--	2.20*	--	--	--	0.57	--	--	--	0.23	--	--	--	0.59
W6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

*=significantly different means, p<.05

Table 8. Fixed effects regression models of COTS attitudes

	<u>(1)</u>	<u>(2)</u>	<u>(3)</u>	<u>(4)</u>	<u>(5)</u>	<u>(6)</u>	<u>(7)</u>
	Mean (SD)						
Procedural Justice	-0.09 (0.01)*	-0.09 (0.01)*	-0.08 (0.01)*	-0.09 (0.01)*	-0.08 (0.01)*	-0.08 (0.01)*	-0.08 (0.01)*
Arrest	-	-0.01 (0.01)	-	-	-	-0.02 (0.01)†	-
Question	-	-	0.02 (0.01)*	-	-	0.02 (0.01)*	-
Arrest (Dummy)	-	-	-	0.01 (0.04)	-	-	-0.03 (0.04)
Question (Dummy)	-	-	-	-	0.10 (0.02)*	-	0.10 (0.02)*
Household Structure	0.03 (0.04)	0.03 (0.04)	0.04 (0.04)	0.04 (0.04)	0.04 (0.03)	0.04 (0.04)	0.04 (0.03)
Disorder	0.11 (0.02)*						
School Context	0.14 (0.02)*	0.13 (0.02)*	0.13 (0.02)*	0.13 (0.02)*	0.13 (0.02)*	0.13 (0.02)*	0.13 (0.02)*
Grades	0.02 (0.01)†	0.02 (0.01)†	0.02 (0.01)	0.02 (0.01)†	0.02 (0.01)†	0.02 (0.01)	0.02 (0.01)
School Bond	-0.03 (0.02)†	-0.03 (0.02)†	-0.03 (0.02)†	-0.03 (0.02)†	-0.03 (0.01)*	-0.03 (0.02)†	-0.03 (0.01)†
Parent Supervision	-0.03 (0.01)*	-0.04 (0.01)*	-0.03 (0.01)*	-0.04 (0.01)*	-0.03 (0.01)*	-0.04 (0.01)*	-0.03 (0.01)*
Gang Member	0.25 (0.05)*	0.24 (0.05)*	0.23 (0.05)*	0.24 (0.05)*	0.24 (0.04)*	0.23 (0.05)*	0.23 (0.05)*
Peer Deviance	0.11 (0.02)*	0.12 (0.02)*	0.10 (0.02)*	0.11 (0.02)*	0.10 (0.01)*	0.11 (0.02)*	0.11 (0.02)*
Age	-0.01 (0.00)*						
F-statistic on model parameters	30.79*	28.69*	27.94*	28.18*	29.86*	28.10*	27.97*

*=p<.05

†=p<.10

Even though **H3_a** is not empirically supported, **H3_b** is. The results from models 3, 5, 6, and 7 in the table show that experiences with police questioning are positively and significantly related to COTS attitude updates. This result holds no matter if the variable is operationalized as a dummy variable or continuous variable; however, though the coefficient when it is a dummy variable is five times larger than when it is a continuous variable, the relative impacts are not inherently comparable. As a note of caution, it is possible the results demonstrate that there is simply not much heterogeneity in the sample, with nearly all respondents being stopped for questioning either zero or one time. To be sure, assessing these hypotheses on a sample of violent offenders would shed more light on some of the results displayed in this table.

The next set of analyses test for racial and geographic invariance (Tables 9-14) and proceed as follows. First, paired-sample t-tests of COTS attitudes across waves are separated by race (Table 9) and race x quartile (Table 10). Second, for both the racial and geographic invariance models, an unspecified ordinary-least squares model is presented (Table 11 for the race models, Table 13 for the city models), followed by the fixed-effects model (Table 12 for the race models, Table 14 for the city models). As noted, while the OLS models are flawed, there is a relatively easy strategy for determining differences between beta values for different subsamples.

Tables 9 and 10 provide the results of paired sample t-tests, which can be used to analyze **H4**, similar to the way **H1** was evaluated. The evidence largely refutes the hypothesis' contention that COTS attitude updating is racially invariant. The results

of Table 9 (using Table 2 for reference) show differences among races and ethnicities in attitude updating over time. For instance, White respondents do not appear to update their COTS attitudes across waves; similarly, Asian respondents only had a significant difference in mean COTS attitude between wave 3 and wave 6, which intuitively makes sense because they have the longest temporal separation. By contrast, the results of Table 9 show that Blacks, Hispanics, and those who qualify as another race update their COTS attitudes more frequently. For each of the races/ethnicities, there is a large difference between wave three and wave four: for all races, respondents, on average, updated their COTS attitudes in a downward direction. However, like the results of the full sample, no race showed a significant update to COTS attitudes between waves 5 and 6. This again demonstrates that while

Table 9. Paired-sample t-tests comparing COTS attitudes across waves, by race

<u>Race</u>		<u>Waves</u>			
		W3	W4	W5	W6
Whites	W3	--	0.36	1.69	1.73
	W4	--	--	1.36	1.28
	W5	--	--	--	0.10
	W6	--	--	--	--
Blacks	W3	--	3.44*	6.30*	4.56*
	W4	--	--	2.11*	1.49
	W5	--	--	--	1.53
	W6	--	--	--	--
Hispanics	W3	--	4.25*	4.88*	4.82*
	W4	--	--	0.90	2.33*
	W5	--	--	--	1.02
	W6	--	--	--	--
Asians	W3	--	1.60	1.11	2.27*
	W4	--	--	0.00	1.39
	W5	--	--	--	1.49
	W6	--	--	--	--
Other Race	W3	--	2.54*	3.86*	3.66*
	W4	--	--	2.84*	2.34*
	W5	--	--	--	0.05
	W6	--	--	--	--

*=significantly different means, $p < .05$

updating may not be racially invariant, respondents, on average, “lock in” their COTS attitudes at some point during their adolescence.

By contrast, the paired-sample t-tests in Table 10 present a somewhat different picture. The overall racial models in Table 9 show that Whites and Asians did not appear to update their COTS attitudes over time, but the t-tests in Table 10 show that, when further subdivided into quartiles, all races show evidence of updating. As such, a possible explanation is that White and Asian individuals in Q1 upwardly updated their COTS attitudes over time and White and Asian individuals in Q4 downwardly updated their COTS attitudes over time, effectively canceling each other out in the racially aggregate model. At any rate, the results in Table 10 are similar to the results in Table 7, where the sample was subdivided by quartile only. In fact, a main similarity is that individuals in Q1, regardless of race, updated their COTS attitudes upward across the four waves while individuals in Q4 updated their COTS attitude in a downward direction across the four waves. Further, in most instances, the largest changes were from wave 3 to subsequent waves; by contrast, only 10 out of the 45 t-tests measuring differences between later waves were significant. Interestingly, this indicates that the most pronounced updates to COTS attitudes occurred between wave 3 and 4. After that, the average COTS attitude appears to be relatively static. Similarly, even when sub-divided by race, Q2 shows the same inexplicable stability as it did in the aggregate model.

Despite the notable similarities to the aggregate model, there are some interesting differences across race, when subdivided by quartile. Asians, as a whole, showed relatively little change in COTS attitudes, particularly in Q1. This indicates

that even those who began with lower COTS attitudes did not increase their attitudes over time. Further, Blacks and Hispanics in Q4 showed the sharpest decrease in the average COTS attitudes across waves. Only Black and Hispanic individuals in Q4 had significantly different COTS attitudes between any two waves later than wave 3, showing that these two groups' attitudes still showed evidence of updating at later waves. However, generally, in contrast to Table 9, Table 10 shows a good deal more evidence in favor of racial invariance in the updating process. While Table 10 indicates a few racially-specific trends, the similarities across race outnumber the differences when sub-divided into quartiles by initial COTS attitude. Thus, as a whole, the evidence garnered from Tables 9 and 10 lends partial support to **H4**. It would be incorrect to say that updating is a completely invariant process across race (and, indeed, Table 9 would strongly indicate otherwise). However, when further subdividing the sample by quartiles, the evidence actually indicates that processes in each quartile look similar, regardless of race. Regardless, it is still crucial to move forward and evaluate if there is a relationship between perceptions of procedural justice and COTS attitude updating by race using regression analysis. The first analysis using race subsamples employs OLS models (Table 11), where the coefficients across models are more easily comparable, even if the models do not address persistent heterogeneity. The OLS analysis indicates that the two significant differences in the relationship between perceptions of procedural justice and COTS attitude updating are between a) Blacks and Whites and b) Blacks and Hispanics. Furthermore, the OLS model's coefficients run counter to hypotheses. The relationship between perceptions of procedural justice and COTS attitude updating is

NOT entirely invariant across race and ethnicity because there are some significant differences across race. However, it is fair to note that only two out of ten comparisons revealed significant differences, demonstrating that, in the majority of cases, the relationship between perceptions of police and attitude updating does not vary across race. The two differences that the OLS model *does* reveal are quite interesting. The relationship between police perceptions and COTS attitude updating appears to be significantly less for Blacks than for Whites and for Hispanics. This runs counter to hypotheses that changes in perceptions of police would be particularly salient for Blacks' COTS attitudes. However, given that OLS does not account for persistent heterogeneity, the results here cannot be considered on their own. The results from the fixed-effects analyses are therefore presented as a more robust test in Table 12. It is more difficult to compare coefficients across sub-samples with fixed-effects specifications, but it is possible by using a chi-squared analysis on regressions done after centering the data (see Loughran et al., 2016).

The analysis shows the results of each racially subdivided model. Additionally, the superscripts above the procedural justice variable indicate which pairs of variables across models differed according to a chi-squared test (corresponding with the description beneath the table). The fixed-effects results, and subsequent chi-squared tests, show more differences across race than the OLS results. Still, the most prominent finding remains, in that Black respondents' coefficient on procedural justice stands out from the rest. Black respondents' coefficient on procedural justice is significantly different from that of Whites, Hispanics, Asians, and other races. Again, however, the direction is against the idea espoused

Table 10. Paired-sample t-tests comparing COTS attitude averages across waves, by quartile and race

Race		Q1				Q2				Q3				Q4			
		W3	W4	W5	W6	W3	W4	W5	W6	W3	W4	W5	W6	W3	W4	W5	W6
Whites	W3	--	6.70*	5.72*	6.19*	--	4.38*	5.04*	4.64*	--	3.55*	4.90*	5.21*	--	6.87*	6.58*	7.73*
	W4	--	--	0.13	0.28	--	--	1.32	0.20	--	--	2.19*	2.30*	--	--	0.81	1.48
	W5	--	--	--	0.24	--	--	--	0.56	--	--	--	0.55	--	--	--	0.42
	W6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Blacks	W3	--	6.04*	4.07*	4.75*	--	2.17*	0.93	1.67	--	1.13	3.69*	3.04*	--	9.74*	11.81*	12.31*
	W4	--	--	1.66	0.65	--	--	0.03	0.93	--	--	1.55	0.91	--	--	1.47	2.66*
	W5	--	--	--	1.70	--	--	--	1.01	--	--	--	0.94	--	--	--	0.22
	W6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hispanics	W3	--	8.78*	8.07*	8.65*	--	0.62	1.71	0.18	--	4.24*	5.50*	6.02*	--	11.55*	12.19*	14.54*
	W4	--	--	0.04	1.78	--	--	1.30	0.47	--	--	2.08*	2.06*	--	--	0.47	2.39*
	W5	--	--	--	2.25*	--	--	--	1.02	--	--	--	0.15	--	--	--	1.29
	W6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Asians	W3	--	1.07	2.11*	2.18*	--	0.29	0.02	1.93	--	1.81	1.68	3.19*	--	4.94*	4.42*	3.97*
	W4	--	--	1.18	1.11	--	--	0.33	1.75	--	--	0.64	2.14*	--	--	0.74	0.33
	W5	--	--	--	0.07	--	--	--	0.90	--	--	--	1.96	--	--	--	0.39
	W6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other	W3	--	4.44*	4.95*	3.39*	--	0.91	1.34	2.14*	--	3.94*	5.00*	5.35*	--	7.04*	7.01*	5.40*
	W4	--	--	0.44	0.11	--	--	2.49*	2.53*	--	--	1.01	1.16	--	--	1.91	0.35
	W5	--	--	--	0.12	--	--	--	1.36	--	--	--	0.40	--	--	--	1.30
	W6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

*=significantly different means, p<.05

Table 11. Ordinary least squares regressions of COTS attitudes, by race

	<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian</u>	<u>Other Race</u>
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Procedural Justice ^{a,b}	-0.17 (0.02)*	-0.09 (0.02)*	-0.16 (0.02)*	-0.19 (0.06)*	-0.11 (0.03)*
Household Structure	0.06 (0.04)	-0.01 (0.05)	-0.05 (0.03)	-0.04 (0.11)	0.03 (0.05)
Disorder	0.18 (0.04)*	0.09 (0.05)*	0.09 (0.03)*	0.09 (0.11)	0.23 (0.05)*
School Context	0.22 (0.04)*	0.06 (0.05)	0.12 (0.03)*	0.12 (0.10)	0.18 (0.06)*
Grades	0.09 (0.02)*	0.11 (0.03)*	0.04 (0.02)*	0.09 (0.05)†	0.07 (0.03)*
School Bond	-0.12 (0.03)*	0.11 (0.04)*	-0.05 (0.02)*	-0.06 (0.06)	-0.04 (0.04)
Parent Supervision	-0.08 (0.02)*	-0.00 (0.03)	-0.04 (0.02)†	-0.09 (0.05)†	-0.05 (0.03)*
Gang Member	0.30 (0.14)*	0.24 (0.10)*	0.23 (0.06)*	0.26 (0.18)	0.24 (0.09)*
Peer Deviance	0.12 (0.03)*	0.15 (0.03)*	0.19 (0.02)*	0.24 (0.07)*	0.14 (0.03)*
Age	-0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)*	-0.04 (0.01)*	0.00 (0.01)

*=p<0.05

†=p<0.10

a=significant difference between Whites and Blacks

b=significant difference between Blacks and Hispanics

Table 12. Fixed-effects regressions of COTS attitudes, by race

	<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian</u>	<u>Other</u>
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Procedural Justice ^{a,b,c,d,e,f}	-0.09 (0.02)*	-0.04 (0.03)	-0.12 (0.02)*	-0.19 (0.06)*	-0.04 (0.03)
Household Structure	0.09 (0.07)	0.04 (0.09)	0.00 (0.06)	-0.36 (0.21)†	0.13 (0.09)
Disorder	0.13 (0.05)*	0.08 (0.06)	0.06 (0.03)†	0.14 (0.10)	0.24 (0.06)*
School Context	0.16 (0.05)*	0.07 (0.06)	0.15 (0.04)*	0.15 (0.11)	0.16 (0.07)*
Grades	-0.02 (0.02)	0.06 (0.03)†	0.01 (0.02)	0.02 (0.06)	0.03 (0.03)
School Bond	-0.14 (0.02)*	0.11 (0.03)*	-0.03 (0.02)†	-0.05 (0.06)	-0.04 (0.03)
Parent Supervision	-0.09 (0.02)*	0.03 (0.03)	-0.02 (0.02)	-0.05 (0.05)	-0.01 (0.04)
Gang Member	0.24 (0.11)*	0.27 (0.10)*	0.24 (0.06)*	0.29 (0.30)	0.18 (0.11)
Peer Deviance	0.09 (0.03)*	0.10 (0.04)*	0.13 (0.02)*	0.16 (0.10)	0.11 (0.04)*
Age	-0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)*	-0.03 (0.01)*	0.00 (0.01)

*= $p < 0.05$

†= $p < 0.10$

a=significantly different coefficients, according to a chi-squared test, between Whites and Blacks, $p < 0.05$

b= significantly different coefficients, according to a chi-squared test, between Whites and other races, $p < 0.05$

c=significantly different coefficients, according to a chi-squared test, between Blacks and Hispanics, $p < 0.05$

d=significantly different coefficients, according to a chi-squared test, between Blacks and Asians, $p < 0.05$

e=significantly different coefficients, according to a chi-squared test, between Blacks and other races, $p < 0.05$

f=significantly different coefficients, according to a chi-squared test, between Asians and other races, $p < 0.05$

in the hypotheses: the relationship between procedural justice and COTS attitude

updating for Blacks is significantly weaker (in a negative direction) than that of other

racess and ethnicities. Interestingly, the strongest relationship is for Asian respondents,

which directly refutes the model minority hypothesis. The standard error for procedural justice in the Asian respondents model is three times higher, however, which means that it is only significantly different from that for Black and other race respondents, according to a chi-squared analysis. In sum, the OLS and fixed-effect analyses suggest that the relationship between procedural justice attitudes and COTS attitude updating is not racially invariant. However, the differences between races are not in accordance with the directional hypotheses, **H₆** and **H₇**. In fact, the results lend themselves to the opposite conclusion.

It is also important to assess if there are important city-level differences. The OLS city-disaggregated models reveal some interesting results in their own right. Table 13 depicts the OLS models for each city subsample. First, the OLS models show that each city has a significant, negative relationship between perceptions of police and COTS attitude updating, in accordance with the results from the fully aggregated models. Two cities in particular stand out- Philadelphia and Portland. Philadelphia has the lowest magnitude beta coefficient ($\beta = -0.10$) and Portland has the highest magnitude beta coefficient ($\beta = -0.23$). Further, when comparing magnitudes between cities, we see that there are a slew of significant differences, which are (in alphabetical order): a) Albuquerque and Philadelphia b) Dallas and Portland c) Greeley and Philadelphia d) Nashville and Portland e) Philadelphia and Portland. This is supportive of **H₈**, which posited that there would be significant differences amongst city-specific samples. When controlling for persistent individual differences, and thus using fixed-effects regression models, the analyses still show that there are significant differences across cities with respect to the relationship

Table 13. Ordinary least squares regressions of COTS attitudes, by city

	<u>Alb</u>	<u>Chi</u>	<u>Dal</u>	<u>Gre</u>	<u>Nas</u>	<u>Phi</u>	<u>Por</u>
	Mean (SD)						
Procedural Justice ^{a,b,c,d,e}	-0.17* (0.03)	-0.16* (0.03)	-0.13* (0.03)	-0.16* (0.02)	-0.13* (0.03)	-0.10* (0.02)	-0.23* (0.03)
Household Structure	-0.07 (0.05)	-0.04 (0.05)	0.05 (0.05)	-0.04 (0.05)	-0.04 (0.05)	-0.04 (0.06)	-0.00 (0.05)
Disorder	0.05 (0.05)	0.15* (0.05)	0.13* (0.05)	0.15* (0.05)	0.13* (0.05)	0.05 (0.05)	0.16* (0.06)
School Context	0.14* (0.05)	0.09 (0.05)	0.06 (0.06)	0.19* (0.06)	0.25* (0.06)	0.14* (0.06)	0.12 (0.06)
Grades	0.07* (0.02)	0.06* (0.03)	0.07* (0.03)	0.05* (0.02)	0.13* (0.03)	0.09* (0.03)	0.05* (0.02)
School Bond	-0.04 (0.03)	0.03 (0.04)	0.01 (0.04)	-0.10* (0.04)	-0.05 (0.04)	0.06† (0.04)	-0.15* (0.03)
Parent Supervision	-0.05† (0.03)	-0.08* (0.04)	-0.03 (0.03)	-0.05† (0.03)	-0.03 (0.03)	-0.00 (0.03)	-0.11* (0.03)
Gang Member	0.19* (0.09)	0.49* (0.12)	0.09 (0.12)	0.21* (0.09)	0.33* (0.14)	0.22* (0.10)	0.28 (0.19)
Peer Deviance	0.20* (0.03)	0.15* (0.03)	0.26* (0.04)	0.18* (0.03)	0.16* (0.04)	0.10* (0.04)	0.03 (0.04)
Age	-0.02* (0.01)	-0.02† (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.03* (0.01)

Note: Alb=Albuquerque, Chi=Chicago, Dal=Dallas, Gre=Greeley, Nas=Nashville, Phi=Philadelphia, Por=Portland

*=p<0.05

†=p<0.10

a=significant difference between Albuquerque and Philadelphia

b=significant difference between Dallas and Portland

c=significant difference between Greeley and Philadelphia

d=significant difference between Nashville and Portland

e=significant difference between Philadelphia and Portland

between procedural justice perceptions and COTS attitude updating. Table 14 portrays the results from the fixed-effects models. The superscripts in Table 14 denote which cities had significantly different means with respect to the coefficient on procedural justice perceptions. In accordance with results from the OLS analyses, Philadelphia and Portland are the cities that produced differences most frequently, albeit at opposite ends of the spectrum. Interestingly, the descriptive statistics in Table 3 portrayed Portland as a city with very low COTS attitudes and very high perceptions of procedural justice, relative to the others; yet, the analyses show that Portland residents' perceptions of procedural justice have the highest impact on COTS attitude changes. In the analysis, chi-squared tests show significant differences between Portland and every city save Dallas. Further, the results showed significant differences between Philadelphia and Dallas, Greeley, Nashville, and Portland. In sum, the results from the fixed-effects analysis and the OLS analysis support **H8**. While the relationship between procedural justice perceptions and COTS attitudes is negative across the board, there are statistically significant differences between cities.

Supplemental Analyses

A set of additional analyses incorporated a measure of socioeconomic status, or class, to the model. Class is undoubtedly a critical component of COTS empirical analysis, but GREAT II does not have a satisfactory variable to measure it on an individual level. As such, this analysis considered parents' highest level of education as the class proxy. As noted earlier, 839 individuals indicated they did not know the highest education of either parent. As such, for the sake of this supplemental analysis,

Table 14. Fixed-effects regressions of COTS attitudes, by city

	<u>Alb</u>	<u>Chi</u>	<u>Dal</u>	<u>Gre</u>	<u>Nas</u>	<u>Phi</u>	<u>Por</u>
	Mean (SD)						
Procedural Justice ^{a,b,c,d,e,f,g,h,i,j}	-0.12* (0.04)	-0.11* (0.04)	-0.02 (0.04)	-0.09* (0.03)	-0.07† (0.04)	-0.03 (0.04)	-0.16* (0.03)
Household Structure	-0.06 (0.09)	0.11 (0.09)	0.08 (0.12)	-0.07 (0.08)	0.12 (0.11)	0.06 (0.12)	0.02 (0.08)
Disorder	0.04 (0.05)	0.11 (0.07)	0.16* (0.07)	0.11† (0.06)	0.14* (0.06)	0.08 (0.07)	0.08 (0.06)
School Context	0.15* (0.06)	0.12 (0.07)	0.08 (0.07)	0.18 (0.06)	0.19* (0.07)	0.10 (0.07)	0.14* (0.06)
Grades	0.01 (0.03)	0.03 (0.03)	0.00 (0.03)	0.02 (0.03)	0.04 (0.04)	0.04 (0.03)	-0.04 (0.03)
School Bond	-0.02 (0.04)	0.02 (0.05)	0.01 (0.04)	-0.08* (0.04)	-0.01 (0.05)	0.06 (0.05)	-0.17 (0.03)
Parent Supervision	-0.04 (0.03)	-0.03 (0.04)	-0.03 (0.04)	-0.06 (0.03)	0.01 (0.04)	-0.01 (0.04)	-0.08* (0.03)
Gang Member	0.12 (0.13)	0.60* (0.17)	0.16 (0.14)	0.11 (0.11)	0.32* (0.15)	0.22† (0.12)	0.37* (0.14)
Peer Deviance	0.15* (0.03)	0.08† (0.04)	0.21* (0.05)	0.16* (0.04)	0.09* (0.04)	0.02 (0.05)	0.00 (0.04)
Age	-0.02* (0.01)	-0.02 (0.01)	-0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	-0.01 (0.01)	-0.03* (0.01)

Note: Alb=Albuquerque, Chi=Chicago, Dal=Dallas, Gre=Greeley, Nas=Nashville, Phi=Philadelphia, Por=Portland

*=p<0.05

†=p<0.10

a=significant different coefficients, according to a chi-squared test, between Alb and Dal, p<0.05

b=significant different coefficients, according to a chi-squared test, between Alb and Por, p<0.05

c=significant different coefficients, according to a chi-squared test, between Chi and Por, p<0.05

d=significant different coefficients, according to a chi-squared test, between Dal and Nas, p<0.05

e=significant different coefficients, according to a chi-squared test, between Dal and Phi, p<0.05

f=significant different coefficients, according to a chi-squared test, between Gre and Phi, p<0.05

g=significant different coefficients, according to a chi-squared test, between Gre and Por, p<0.05

h=significant different coefficients, according to a chi-squared test, between Nas and Phi, p<0.05

i=significant different coefficients, according to a chi-squared test, between Nas and Por, p<0.05

j=significant different coefficients, according to a chi-squared test, between Phi and Por, p<0.05

they were not included in the model.¹⁵ A second modeling choice was to combine Asians and other races because there were statistical power concerns with the subdivided Asian sample.

A number of notable things occurred in attempting to run this analysis. First, the models on Black and Asian/other race did not pass a global f-test for overall model utility. A further examination revealed that only 394 out of 610 Black respondents answered something other than “I don’t know” for the class measurement. When this sample is further subdivided into class=high and class=low, the statistical power of each model is only attenuated further. Therefore, it seems imprudent to present results from a model that, as a whole, does not achieve significance. An examination of the beta coefficients across the White and Hispanic models, in turn, shows strikingly little difference by class (results available upon request). For instance, the coefficient for perceptions of procedural justice is $\beta=-0.10$ for Hispanics of low class and $\beta=-0.12$ for Hispanics of high class ($\beta=-0.08$ for Whites of low class and $\beta=-0.07$ for Whites of high class). In sum, it is extremely difficult to make any substantive conclusions from this supplemental analysis for a few reasons. First, the inability of several models to achieve significance indicates how attenuated and unwieldy the sample became given the missing data concern with regard to the class proxy variable. Second, the proxy variable itself is an unsatisfactory substitute for a more valid class variable that would capture a student’s

¹⁵ Naturally, there is concern that those who did not know are not randomly dispersed respondents. However, it is difficult to be confident in any imputation method for this variable and the variable is already an imperfect proxy for class. This decision only adds another cautionary note against using the analytical results to make overly strong conclusions about the importance of class in COTS attitude updating.

socioeconomic status. Perhaps it is for this latter reason that there are no stark differences in the relationship between perceptions of police procedural justice and COTS attitude updating among those of higher socioeconomic status and those of lower socioeconomic status. At any rate, while the effect of class/socioeconomic status is necessarily intertwined with the effect of race in understanding mechanisms affecting COTS attitude updating, they are not so easily separable in this analysis and should be studied with close attention in future studies and other datasets.

Summary of Findings

Table 15 presents a summary of findings from this section, corresponding to each tested hypothesis. In sum, the bulk of the evidence suggests that COTS attitudes are indeed malleable and that individuals, on average, update their COTS attitudes, if slightly, across the four waves of study. This is particularly true between waves three and four; respondents' values are, on average, relatively fixed by wave five. Also, interestingly, individuals from the quartile with the highest COTS attitudes in wave 3 tend to update their attitudes downward (in a more pro-social direction) from wave to wave while, by contrast, individuals from the quartile with the lowest COTS attitudes in wave 3 tend to update their attitudes upward (in a less pro-social direction) from wave to wave. The evidence also suggests that perceptions of procedural justice have a small, but significant, effect on COTS attitude updating, regardless of model fit. Similarly, experiences with being questioned by the police also have an independent, significant effect on COTS attitude updating; by contrast, experiences with arrest do not have a significant effect.

The models testing for racial invariance demonstrate that individuals of all races update their COTS attitudes over time; however, the nature of the attitude updating from wave to wave, particularly when subdivided into four quartiles, differs appreciably across race. Further, when examining the OLS and fixed-effect models, it is clear that the relationship between procedural justice perceptions and COTS attitude updating is not invariant across races. Contrary to the specific hypotheses of **H₆** and **H₇**, the results from the regression analyses showed that the relationship between perceptions of procedural justice and COTS attitude updating was strongest (most negative) for Whites and Asians, and least strong for Blacks. As such, the evidence strongly refutes these hypotheses. Finally, the city-level models indicate significant differences in the relationship between perceptions of procedural justice and COTS attitude updating across cities. In particular, Philadelphia and Portland showed the largest differences between themselves and other cities with respect to the coefficient on perceptions of procedural justice. Both the results from the OLS models and the fixed-effect models show differences between multiple city pairs with respect to the coefficient on perceptions of procedural justice, lending support to the final hypothesis.

Table 15. Summary of key findings

Hypotheses	Supported?	Summary of findings
H₁ : COTS attitudes are malleable and change within individuals over time.	Yes	T-tests of the full model, as well as the model broken up by quartile, show that, by and large, COTS attitudes, on average, are significantly different from wave to wave.
H₂ : A decrease in one's perceptions of procedural justice is related to an upward update to COTS attitudes.	Yes	In the full fixed-effect model, procedural justice perceptions were significantly related to COTS attitudes, no matter the model specification.
H_{3a} : Arrest experiences are related to an upward update to COTS attitudes.	No	No operationalizations of arrest experiences were significant in a fixed-effects analysis.
H_{3b} : Personal interactions with the police are related to an upward update to COTS attitudes.	Yes	In each model, whether operationalized as a continuous or dichotomous variable, experiences with police questioning had a significant relationship with COTS attitudes.
H₄ : COTS attitude updating is racially invariant.	Partially	While the full sample t-tests emphatically refute this hypothesis, the t-tests on samples further subdivided by quartile show that attitude updating is more uniform.
H₅ : The relationship between perceptions of police procedural justice and COTS updating is invariant across race.	No	In the fixed-effect analyses, the relationship was significant for some races and non-significant for others. Additionally, there were statistically significant differences in the magnitude of the coefficients for certain pairs of races.
H₆ : The relationship between police perceptions and COTS attitude updating for Asians will be significantly less than for Hispanics and Blacks (non-model minorities).	No	In fact, the opposite was the case: the magnitude of the coefficient for Asian respondents was significantly greater than for Blacks in the fixed-effects analysis and larger, though not significantly so, than for Hispanics.
H₇ : The relationship between police perceptions and COTS attitude updating for Caucasians will be significantly less than for Hispanics and Blacks (non-model minorities).	No	In fact, the opposite was again the case: the magnitude of the coefficient for White respondents was significantly greater than for Blacks in the OLS and the fixed-effects analysis and larger, though not significantly so, than for Hispanics.
H₈ : There are differences between cities in the relationship between perceptions of police procedural justice and COTS attitude updating.	Yes	In both the OLS and fixed-effects models, there were significant differences between cities in the relationship between perceptions of procedural justice and COTS attitude updating.

CHAPTER 5: Discussion

Scholars have long been interested in subcultural explanations of crime, with the key premise being that individuals develop and espouse attitudes that run counter to those predominant in the prevailing culture. One particular iteration is Anderson's (1994; 1999) Code of the Street thesis, which has received widespread scholarly and empirical attention because of its implications for the persistence of violence, particularly in inner-city neighborhoods. Despite a devoted line of research, there are still several key gaps in this theoretical perspective.

First, while scholars are slowly integrating the concept of updating into criminological discourse, it is still underdeveloped, particularly with regard to anything outside a deterrence paradigm. This dissertation sought to apply the updating principal with regard to individuals' COTS attitude changes over time. Specifically, it measured whether COTS attitudes, on average, change over time for a whole sample and for subsamples divided by initial COTS attitudes (to measure whether the overall sample patterns mask important variations). Second, the relationship between perceptions of the police, experiences with the police, and COTS attitude updating was hitherto only tacitly stated, or noted through field observation, and not empirically tested. This dissertation remedied the second gap by specifying a model to include variables measuring general perceptions of procedural justice as well as specific experiences with the police to see if they had independent effects on COTS attitude updating. Third, the applicability of COTS attitude change, including updating, to a range of contexts is not fully understood, as most samples are either racially homogenous or do not include a criminogenic enough sample to

faithfully test the principals of Anderson (1999)'s thesis. Two important forms of contextual variation are race and geographic location. In accordance, this dissertation ran separate regressions by race/ethnicity and geographic context to understand if updating, and the relationship between perceptions of procedural justice and updating, differ across contexts. Finally, while longitudinal work is somewhat prevalent when testing Code of the Street principals, none of it tests how individuals' COTS adherences change over time. This dissertation provided an important first endeavor in this vein by conducting a series of within-individual fixed-effects analyses.

The findings from this dissertation both comported with and stood in contrast to the hypotheses derived from prior criminological work. Below, the major findings with regard to the hypotheses are noted. For each main finding, I discuss the implications for both criminological theory and criminal justice policy. Finally, I note limitations to this study and suggest potentially fruitful paths for future research.

Summary of Critical Findings

The first key finding was that COTS attitudes are indeed malleable and can change significantly over time. To be fair, while the magnitude of the change itself from wave to wave for the overall sample, and even the sub-sample quartiles, was relatively small, the differences were still statistically significant (perhaps because the sample was quite large). Therefore, I provided line graphs to supplement the t-tests in evaluating **H₁**, which provided a better visual depiction of the relative *magnitude* of change from wave to wave. While I only did this to supplement **H₁**, the concept of magnitude remains just as important as statistical significant, especially when the effect size is relatively small across waves. Indeed, the magnitude of change is an

arguably more useful way to assess change from wave to wave. In essence, future work should assess relative levels of updating when examining the phenomena across several wave. Regardless, if one views the results from the t-tests as meaningful effects, then it indicates the importance of understanding the updating process in a more technical sense. Indeed, in deterrence research, criminologists have started to formulate refined techniques for calculating an individual's "signal" (e.g. their perception of, and responses to, changes in sanction likelihood- Anwar and Loughran, 2011; Pogarsky et al., 2017; Thomas et al., 2013; Wilson, Paternoster, and Loughran, 2017). It is plausible then that calculating how individuals update their COTS attitudes would take a similar approach. For instance, a recent study (Wilson et al., 2017) noted the differential roles indirect and direct sanction experiences had on the updating process. While this dissertation could not exactly parallel the recent study's intentions, they would definitely be interesting when applied to understanding an individual's COTS attitude change.

At the same time, however, there was also some evidence of stability, no matter the sample composition or one's quartile placement, between wave five and six of the study. Respondents in these waves were typically age 15 and 16, which, according to the widely accepted age-crime curve (Hirschi and Gottfredson, 1983), should be ages when participation in crime, on average, is sharply increasing. It is puzzling that respondents' COTS attitudes are not commensurately increasing as well, especially given that prior researchers have found a direct connection between COTS attitudes and participation in crime (e.g. Stewart et al., 2006). The logical extension is therefore that, given what is known about the relationship between age

and crime and COTS attitudes and crime, COTS attitudes should be increasing with age (or with waves). However, the results do not bear this out.

Regardless of the explanation, the invariance of COTS updating, on average, matched with the stability across the last two waves, is interesting and contributes to policy implications. First, a key component of recognizing that individuals update their COTS attitudes is leveraging this knowledge to formulate strategies for manipulating the updating process, just as law enforcement agents use particular tactics to affect how individuals adjust perceptions of sanction certainty. For instance, perhaps police can increase procedural justice tactics to affect individuals' perceptions of the police and get them to adjust their COTS perceptions in a positive direction.

Further, the implication that all individuals update their perception, regardless of their beginning COTS attitude quartile, at least offers some optimism that there might be a general solution to this particular subcultural problem. Interestingly, this prescription becomes a little more complex when considering that members in each quartile converged toward a central value over time rather than further dispersed into separable groups. The fact that they converge toward a center value lends more support to the general policy prescription idea. However, an important caveat is that the pro-social individuals actually became more in favor of COTS attitudes over time. Policy analysts would do well to understand why, if not a statistical return-to-the-mean, this is the case and its importance for counter strategies.

A final implication for policy is that if COTS attitudes are truly stable after a certain point in time, it makes any interventions or attempts at neutralization more

urgent. To be sure, future work would do well to verify the external validity of this particular finding, particularly with respect to its co-relationship with crime and victimization. However, as it stands, it puts even more emphasis on early interventions, both at home and in school, which would curtail subcultural attitudes before they stabilize.

The second major finding was that perceptions of the police do have a significant relationship with COTS attitudes, as do specific experiences with the police, such as police questioning. For the full sample, this relationship held consistent in the expected direction, no matter the model specification. By contrast, arrest experiences did not have a significant relationship with COTS attitude updating. The reason that there was a significant relationship with police questioning but not with arrests might come down to variation. Notably, experiences with police questioning are much more common than experiences with police arrest. If more respondents experienced police questioning from wave to wave, with some of them having multiple experiences per wave, it may have provided enough variability in the measurement to find a significant result in the empirical analysis.

Regardless, the implications from this result are myriad. First, as alluded to above, this only further emphasizes the proactive role the police need to play in countering subcultural norms. Concordantly, many of the other prescriptions that procedural justice scholars have recommended would also be useful in this context. For instance, Mazerolle et al. (2013) recommended implementation of procedural justice scripts to ensure that police act in a fair and impartial manner and found that those who interacted with the police had a significantly more positive view of the

interaction. This can apply to the current dissertation, as the reasonable assumption is that a positive view of an interaction with the police would be antithetical to an adherence to COTS attitudes. In this vein, there is a litany of other police-based tactics with the overall goal of improving police-community relations that, given the current dissertation's finding of a significant link between perceptions of police and COTS attitudes, would serve an important purpose. Indeed, while scholarly output remains equivocal about the impact of community policing tactics on police-citizen relations, some scholars have also contended that implementation fidelity is critical for ensuring a program's success (Gill et al., 2014). However, particularly with respect to COTS attitudes, it makes sense that closer police-citizen relationships would serve to reduce the alienation and isolation, both objectively stated and perceived, between formal social control agents and their citizenry. For instance, through regular meetings between police and citizens, the latter could communicate problems with victimization and alert police to particular issues such that violent retaliation, something endemic to those who imbibe COTS principles, is not a feasible option.

The finding that experiences with police questioning, but not arrest, have their own small but independent effect (in the negative direction) on COTS attitude updates is equally interesting. It emphasizes that informal and seemingly less consequential interactions with police are just as critical, and may be just as deleterious, as formal interactions such as arrest. Indeed, experiences with police questioning might involve a given officer employing more subjectivity with the questions they ask and the behaviors they exhibit. By contrast, the arrest process

might be more formal and systematic, which does not necessarily allow an individual to get an impression of whether or not an officer is treating them in a procedurally just manner. A helpful next step in assessing why experiences with police questioning might be so important is to understand respondents' perceptions of procedural justice for each specific interaction. Do global perceptions of procedural justice trump interaction-specific perceptions in influencing factors such as COTS attitude updates, or might specific perceptions override global ones? Is there a more complex additive relationship between the two?

This discussion would be incomplete without noting that the causal pathway from perceptions of procedural justice to COTS attitude updates is likely complex, and the results from this study cannot definitively speak to the temporal ordering of the relationship. Indeed, it may be that updates to COTS attitudes, which invariably mean changes in one's perceptions of the presence of the police and their ability to prevent crime and victimization in a given neighborhood, engender changes in perceptions of the police and even the likelihood of police questioning or arrest in the first place. Most likely, there is a nuanced co-morbid problem occurring, where updates to COTS attitudes bring about changes in perceptions of the police and likelihood of police questioning/arrest, which in turn only further incentivizes individuals to enhance their espousal of COTS attitudes out of a perception that the police are not looking out in their best interest. In sum, this finding offers an interesting path forward for theoretical scholars who should be keen to untangle the complex causal mechanisms connecting perceptions of procedural justice, experiences with the police, and COTS attitude updates. This dissertation's results

imply that an extremely important relationship exists and provides empirical, quantitative evidence for the qualitative findings and arguments that scholars like Anderson (1999) have posited.

Finally, this finding offers another example for a closer marriage between criminological and criminal justice theory. Clearly, scholars should more strenuously incorporate criminal justice theories on behavior of police and the role police play in citizen perception into subcultural theory's continued development. If criminologists can make progress in identifying the precise role of the police, and their interactions with citizens, in enhancing or alleviating subcultural values, it would be a boon to a wide range of scholars. Another prime example of this is with regard to race, which I will now discuss with respect to its commensurate analytical findings from this dissertation.

Perhaps this dissertation's most surprising set of results came from testing the hypotheses regarding race relations. Indeed, the results from both OLS models and fixed-effects models stood in stark contrast to the directional hypotheses specified by **H₆** and **H₇**. Before that, however, it is important to acknowledge the overall finding that respondents of different races update their COTS attitudes in different manners; the changes are not racially invariant. For instance, White respondents, on average, did not appear to update their COTS attitudes across waves; by contrast, Hispanic individuals updated their COTS attitudes almost every time from wave to wave. In fact, for every other race, there is a significant difference between wave 3 and wave 6. It is somewhat difficult to reconcile these findings with those from the t-tests of the

quartile sub-divided racial samples, which demonstrated a good deal more uniformity in updating (Table 10).

One explanation is that respondents of a particular race are not equally assigned to quartiles, which the numbers bear out. There are a higher proportion of White respondents in the first quartile of Table 10 (e.g. the lowest initial COTS attitudes) and a higher proportion of Black respondents in the fourth quartile (e.g. the highest initial COTS attitudes), for instance. It may be that the increase in COTS attitude for one quartile's respondents (either the first or second quartile) merely offsets the decrease by another quartile's respondents (either the third or fourth quartile), causing the appearance that the White sample respondents, as a whole, are not updating their COTS attitudes, as an example. It might also be that respondents in the highest quartile are particularly important for certain races. The magnitude of the change is very large for Black and Hispanic respondents between wave three and wave six for respondents in the highest quartile and less so for the corresponding White respondents. In sum, the quartile findings add nuance to the results beyond merely looking at race-subdivided samples. This indicates that there may be discrete groups of COTS updaters, which points to trajectory and latent class analyses as useful tools for further understanding. While I have referred to Moule et al. (2015)'s study several times as a useful starting point, further research would do well to utilize some sort of mixed model that also accounts for individual change within these trajectories. This would be another interesting way to understand the longitudinal paths of COTS updating.

The results also showed that the relationship between perceptions of the police and COTS attitude updating varied across race. In the fixed-effect regressions, the coefficient on perceptions of procedural justice was significant for some racial subsamples, but not for others. Specifically, the coefficients for Blacks and for individuals in the “other race” category were not significant in the model. Further, tests showed that, in six instances, there were significant differences between pairs of coefficients across the racially subdivided models. Specifically, the coefficient on perceptions of procedural justice for Black respondents was significantly different than the coefficient for each of the other racial subsets. Interestingly, and in direct contradiction to hypotheses, the relationship between perceptions of procedural justice and COTS attitude updating was significantly *weaker* (less negative) for Black respondents, not stronger (more negative).

There are several possible explanations for the seemingly anomalous finding. First, this dissertation has acknowledged the imperfect proxies for social class and neighborhood context in the survey questionnaire. Prior research using an all-Black sample has showed the importance of neighborhood structure for COTS attitudes (see any study using FACHS data, e.g. Berg et al., 2012, Stewart and Simons, 2010) and a great deal of sociological and criminological work acknowledges the role class and neighborhood environment play in conditioning the police-citizen relationship (for instance, Brunson, 2007; Kane, 2002; Weitzer and Tuch, 1999). Thus, it is not a stretch to consider that more robust measures of these two constructs would have been useful for either looking at subsamples by race *and* class or constructing a multi-level model to account for neighborhood effects with hierarchical linear modeling.

A second possible interpretation of the findings is that there is no relationship between procedural justice perceptions and COTS attitude updates for Black respondents because one or the other of the two variables does not change much over time for them. That is, perhaps COTS attitudes or perceptions of procedural justice are relatively fixed in Black respondents at an earlier age than that of other respondents. However, the data do not seem to bear this out. The statistics showed that Black perceptions of procedural justice decreased from wave to wave, as did their COTS attitudes, in a manner similar to Hispanic respondents. Therefore, a third, and final, interpretation draws on the fact that Black respondents disproportionately comprised the Q4 subsample, which decreased the most noticeably over the study periods. In accordance, it is possible that these respondents' dissatisfaction with the police and COTS attitudes peak at an earlier age than for other respondents. It would be interesting to have a longer sample frame with which to examine relative COTS and procedural justice perception trajectories for each race to see if this is indeed the case.

Regardless, the fact that the results did not support hypotheses informed by criminal justice research (e.g. Asians as the model minority) is useful in considering criminal justice processes, such as sentencing. For instance, the results might indicate that patterns in the sentencing process do not apply toward the police-COTS attitude dynamic. However, it may be a comparison of apples and oranges. Perhaps, the results from this dissertation do not refute the model minority idea, but rather demonstrate that perceptions of police are particularly salient for COTS attitude updating in a small subsection of more criminogenic Asian respondents. Another

potential explanation is that Asians disproportionately comprise Q1 respondents, who notably showed the largest *increase* in COTS attitudes from wave to wave. The intra-individual changes in COTS attitudes produce more heterogeneity in the measure, as a whole, which provides greater insight into the variables producing such variability.

Finally, the results of the analysis provided robust evidence for city-level differences in the relationship between perceptions of procedural justice and COTS attitude change. As both the OLS and fixed-effects results showed, there were significant differences on the key variable across a slew of cities, with Philadelphia and Portland representing the two extremes. Indeed, the results also demonstrated that the relationship between perceptions of procedural justice and COTS was significant in some city contexts, but not others.

The city-level analytical results offer important theoretical ramifications in their own right. The extant macro-level COTS studies use neighborhood as the largest level of analysis. While the neighborhood is an undoubtedly informative unit of analysis, the fact that this dissertation found significant differences across cities with respect to the relationship between perceptions of procedural justice and COTS attitude updates indicates that city conditions are equally important. Each city has changed in a specific way across time, resulting in a unique relationship between the police and residents. While it is too early to pinpoint definite mechanisms underlying the city-level differences, the results imply that existing criminological theories would do well to take a step back. For instance, social disorganization theory highlights the importance of *neighborhood* population heterogeneity, poverty, and population turnover; however, perhaps city-level differences in perceptions of police,

say, are equally as important in predicting crime rates. For subcultural theories, specifically, the fact that subcultural attitudes may develop differently across cities is important, particularly given that Anderson (1999)'s work was specifically conducted in Philadelphia. It is critical to consider how important mechanisms in COTS testing might vary according to different city climates. As it stands, COTS studies sometimes control for whether or not a given city is in the southern United States or not; future theoretical work can leverage these findings to go beyond the relatively simplistic "South or not" dichotomy.

Limitations

The results of this dissertation can advance research in a number of areas, but there are important limitations that shape these results. First, there are a set of *data-specific* limitations. Notably, the data offers no satisfying measure of socioeconomic status at the individual level, as the proxy measures available in the dataset do not have sufficient construct validity. In fact, several of the models that were subdivided by race and class in the supplemental analyses did not pass a universal F-test. Further, the survey only began measuring COTS attitudes at wave 3, when most respondents were 12 or 13 years old. As such, the survey administrators might not have captured very real patterns in attitude updating for respondents in waves 1 and 2, when they were between 10 and 12 years of age. Indeed, the finding that COTS attitudes essentially stop updating between wave 5 and wave 6, after around age 15 or 16, lends credence to the notion that the updating process may be taking place earlier than the survey properly captures. Thus, while this dissertation captures updating processes from wave 3 through 6, it is highly possible that the survey does not capture

the ages when attitudes are most malleable. As some scholars contend, attitudes are malleable starting from a very young age, indicating that a great deal of change occurs even before the study period (Roussos and Dunham, 2016).

Another set of problems relate to survey and panel studies, generally. The first potential hazard is that unidirectional quality of survey scale questions contribute to respondent fatigue (Pickett and Baker, 2014). As such, patterns in updating, or lack thereof, may be partially a matter of respondents consistently endorsing a certain answer to similar, unidirectional scale questions. It is unclear how large a role the nature of the questions, rather than real changes (or stasis) in COTS attitudes, affected the differences or similarities from wave to wave. Second, panel fatigue is always a potential worry in studies where the same individuals are given the same survey over multiple waves. Specifically, the fear is that individuals learn ways to minimize engagement with the survey; however, this is more problematic when certain questions screen individuals for potential additional questions. In this dissertation, there were no such screening questions, so it is less problematic. However, the general concern of error caused by panel and question fatigue is warranted and may, in fact, be related to the relative stability in COTS measures across wave five and six. It is something that one must consider, regardless, in evaluating the results.

Finally, while the GREAT II survey addresses many of the main sample selection concerns, the trade-off is that the sample is not as criminogenic as serious offender datasets, such as the Pathways to Desistance. It may be that the effect of arrest or police questioning is more salient in more targeted samples. Future research

would obviously do well to replicate results using other samples, including one where offending is more common.

The analysis itself also has some limitations, above and beyond the data. Fixed-effects analyses are advantageous in that, by examining within-individual change across waves, they eliminate omitted variable bias related to persistent unobservable heterogeneity, but they do not allow for causal inferences. Thus, while the results show a significant relationship between perceptions of procedural justice and COTS attitude updating across a number of modeling specifications, it does not necessarily mean that there is a causal relationship between the two, nor between any independent variable and COTS attitude updating. After all, there may be time-variant sources of unobserved heterogeneity that could render the observed relationships spurious.

Similarly, the fixed-effects analyses are meant to capture change from wave to wave. However, as previously noted, a viable concern with this strategy (and limitation of available information) is that analyses do not capture catalysts of intra-wave changes that may occur. While this concern is common among any annually collected panel data, it is worth repeating as a cautionary note. For instance, the influence of particular experiences with arrest or police questioning is only measured at the end of a particular wave, not in the immediate aftermath of the incident. In this way, the dissertation cannot speak to the length of time between experience with the police and COTS attitude updating, or indeed, whether the length of time even matters for COTS updating. Moreover, the results cannot speak to the functional form of the relationship between perceptions of procedural justice and COTS attitude

updating (and the interplay with experiences with the police). For instance, do experiences with police immediately affect COTS attitudes, but the effect decays thereafter? Conversely, there may be more of a linear relationship. Future research could address this limitation.

Conclusion: Paths Forward

Despite the limitations to the current dissertation, the results are still provocative and offer several intriguing possibilities for future work. The largest takeaway is that COTS attitudes are malleable. People respond to cues and contexts around them and adjust their cognitive scripts accordingly to best situate themselves within their given confines. This opens a line of inquiry into how shifting or manipulating contexts affect individuals' adjustments. A future study could directly follow this dissertation's implications and examine how shifts in policing tactics affect residents' calculus. For instance, scholars like Kochel (2011) and Weisburd et al. (2011) have noted that policing tactics can have a residual effect on sentiments like perceptions of police legitimacy, fear, feelings of discrimination, and more. It would be equally informative to take it a step further and connect the residual impact of such tactics with changes COTS attitudes, or other similar subcultural mindsets. This dissertation found that experiences with police questioning had a significant relationship with COTS attitude updates. Thus, given that directed police tactics likely increase police-citizen interactions in a particular area, there is a very logical argument that they also, in turn, affect COTS attitude changes. As a whole, understanding implications of criminal justice policies beyond only resident

sentiments about that policy, especially with respect to subsequent subcultural attitudes seems like a very fruitful research path.

There are also important theoretical paths forward to shed more light on the mechanisms underlying the relationships shown in this dissertation. For instance, the models showed that there was a significant, independent effect of experiences with police questioning, beyond perceptions of procedural justice, on COTS attitude updating. Future research should investigate if these are two truly independent variables or if experiences with police questioning moderates, or mediates, the effect of procedural justice perceptions on COTS attitude updates. Speaking more generally, this is the first study overtly connecting perceptions of police with COTS attitude change, despite all the observational evidence scholars like Anderson (1999) provide. This is an undeniably important link because it provides direct evidence that social control agents play a role in affecting COTS attitude changes, which scholars know to affect crime and victimization rates. Thus, theoretical work would do well to extend the results of this study by using participation in crime, or victimization experiences, as a dependent variable to see the cascading effects of changes in perceptions of the police.

Third, the inability to speak to effects of class, and the complicated nature of the co-occurrence between it and race, should not preclude future research on the matter. For instance, this dissertation's analyses found that the relationship between perceptions of procedural justice and COTS attitude updating varied by race/ethnicity. Further, a multitude of research has found that neighborhood milieu affects individual COTS values beyond their own characteristics. Although the

individual measures of class were not useful, the control variable measuring perceptions of disorder was significant in each iteration of the fully-specified model. Potentially problematically, the disorder variable was not objective, and may have merely been reflective of the same underlying latent characteristic that affected individuals' COTS attitudes. However, the fact that it is significant means that it is worth investigating further. Interestingly enough, the disorder variable is significant for only White residents in the race-specific models. This is an interesting finding, but again, is hard to draw implications from it without a more robust class measurement.

The finding that there were significant differences by geographic context in the relationship between perceptions of the police and COTS attitude updating again speaks to the need for future work to incorporate different modeling decisions that can explicitly speak to the amount of variance explained by macro-economic contextual conditions. While the sample was sub-divided by city, there are many nuances by neighborhood in each city and even other variables that could be parsed out for each city itself, such as population density, racial makeup, and so on. This result implies that future theoretical work should overtly consider the multiplicity of responses to police. Indeed, the history of policing in a certain city might have direct ramifications for the nature of police-citizen interactions and, as a result, COTS attitude updates.

Additionally, both the racial and geographic results serve as an empirical caution about the importance of external validity and replicating results with different samples and in different contexts. As noted, most of the research to date has used racially homogenous samples from the FACHS, which does not seem to tell the

whole picture. Similarly, that sample draws from only two cities and does not make an extensive effort to compare across sample cities. In sum, this dissertation highlights the utility in extending COTS literature, including attitude updating, with an eye for differences across many contexts.

This leads to implications for future sampling decisions. There are undoubtedly downsides for utilizing a school-based sample, as I have noted. However, compared to prior work, predominantly FACHS, which overwhelmingly utilizes racially and geographically homogenous samples, GREAT II offers a lot more heterogeneity, which I exploited in these analyses. While undoubtedly, those who are absent from school are probably different with respect to important qualities than those who aren't, the sample attempted to overcome this issue by picking schools with higher levels of gang activity so that more deviant children were included in the survey than a typical school-based study. In this vein, GREAT II is a very useful school-based survey; indeed, the sample offers an intriguing context for future work looking at attitude development within a school context. For instance, while this dissertation specifically focuses on the role of the police, there are other social control agents more salient in the lives of school children, such as principals, security guards, or school resource officers (SROs). Future work could consider the implications of the results here for the importance of a student's relationship with these more proximate authority figures. Finally, the results of the dissertation are important for understanding all sorts of developing attitudes in adolescents, not necessarily specifically COTS attitudes. It would be prudent to explore if perceptions of social

control agents are instrumental in affecting updating for a range of attitudes, including attitudes about violent aggression, bullying, and so on.

In sum, there are many paths forward for social scientists interested in criminal justice and theory, alike; this section offers merely a few broad areas for expansion. This dissertation aimed to provide the next evolution in subcultural research, particularly with respect to COTS attitudes, by explicitly linking it to separate lines of criminological thought on updating processes and on perceptions of the police. This dissertation also used within-subjects fixed-effects models, relatively novel in this application, to understand the changing, malleable nature of COTS attitudes over time. In sum, the results provide the base for the next stage of subcultural research, offering multiple ways forward to further hone in on nuances of the updating process and the role the police and demographic contexts play in shaping and honing residents' changing perceptions.

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