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Morality and Offender Decision-Making: Testing the Empirical Relationship and Examining Methodological Implications

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Morality and Offender Decision-Making: Testing the Empirical Relationship and Examining
Methodological Implications

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts
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TABLE OF CONTENTS

List of Tables	ii
List of Figures	iii
Abstract	iv
Chapter I: Introduction.....	1
Chapter II: Literature Review	4
The Role of Morality in Offender Decision-Making	4
Morality as a Moderator.....	6
Morality as a Mediator	10
Addressing the “Zero-Chance” Phenomenon and Methodological Implications	12
Chapter III: Present Study	18
Chapter IV: Methodology	19
Data	19
Sample.....	21
Measures	22
Dependent Variables	22
Independent Variables	25
Control Variables	28
Analytic Strategy	29
Chapter V: Results	30
Morality and Willingness to Offend	30
Morality as a Moderator.....	32
Morality as a Mediator	36
Examining Substantive Findings Across Alternative Methodologies	37
Chapter VI: Discussion	40
References.....	51
Appendix A: Supplemental Tables and Figures	65

LIST OF TABLES

Table 1: Scenario Manipulations	21
Table 2: Descriptive Statistics.....	22
Table 3: Iterative Ordinary Least Squares Regression Models.....	31
Table 4: Ordinary Least Squares Regression Coefficients with Interaction terms to Capture Moderating Effects of Morality on Rational Choice Constructs	33
Table 5: Mediating Effects of Morality on Willingness to Offend Through Rational Choice Constructs	37
Table 6: OLS, Tobit, Logged, and Logistic Results for Willingness to Drink and Drive	39
Table A1: Items Included in Study Scales	65

LIST OF FIGURES

Figure 1: Mediation Models	11
Figure 2: Distribution of Continuous Willingness to Offend	23
Figure 3: Distribution of Logged Willingness to Offend	24
Figure 4: Distribution of Dichotomous Willingness to Offend	25
Figure 5: Moderating Effects of Morality on Situational Context	35
Figure 6: Moderating Effects of Morality on Situational Risk.....	36
Figure A: Moderating Effects of Morality on Cost Certainty	67
Figure B: Moderating Effects of Morality on Cost Severity.....	68
Figure C: Moderating Effects of Morality on Situational Benefit	69
Figure D: Moderating Effects of Morality on Benefit Certainty.....	70
Figure E: Moderating Effects of Morality on Benefit Magnitude	71

ABSTRACT

Rational Choice (RC) theory has become one of the most influential theories in criminology and social science with a wide body of empirical support indicating that offending is associated with anticipated costs and benefits. Although RC theory has been widely researched and supported, one area that is largely underemphasized in this theory's discourse is morality. The present study draws on a sample of undergraduate students from a large southeastern university using a drinking and driving scenario to extend the RC literature theoretically and methodologically.

The theoretical results indicate that, consistent with prior literature, morality, certainty, and severity were directly, inversely related to willingness to offend (WTO). In sum, those with high morals are less likely to offend regardless of context. In fact, context-specific variables did not significantly predict WTO, supporting a moderating hypothesis. Consistent with this idea, results show that morality moderates situational risk such that those who heard about a police presence from the news were *more* likely to offend. Morality also moderates situational context such that with low morals were more likely to offend if they were in an unfamiliar bar.

Regarding mediation, results show that morality partially mediated cost certainty's effect on WTO, indicating that punishment of any kind shapes moral belief. Finally, substantive differences were not found when the dependent variable, WTO, is operationalized in different ways and analyzed in different models. Taken together, results of this study suggest a need for researchers to focus on theoretical frameworks that consider context-specific measures, rather than general measures. Theoretical implications and directions for future research are discussed.

CHAPTER I: INTRODUCTION

Popularized by Cornish and Clarke (1986), rational choice (RC) theory attempts to attribute criminogenic and conventional behavior to a calculated choice – a weighting of costs and benefits akin to any other economic decision (Becker, 1968). Expanding on deterrence theory, RC scholars within criminology typically consider the perceived severity and certainty of formal sanctions, like arrest, sentencing, and fines (Gibbs, 1968; Nagin & Paternoster, 1993), as well as informal sanctions like shame, guilt, and remorse (Grasmick & Bursik, 1990; Williams & Hawkins, 1986). In addition, this literature increasingly focuses on anticipated benefits of crime such as monetary gains, a sense of thrill or excitement, and status (Anderson, 1999; Katz, 1988; Piliavin et al., 1986).

RC theory has become one of the most influential theories in criminology and social science with a wide body of empirical support indicating that offending is associated with anticipated costs and benefits (Anwar & Loughran, 2011; Gibbs, 1968; Grasmick & Bursik, 1990; Grasmick & Green, 1980; Klepper & Nagin, 1989; Nagin & Paternoster, 1993; Piliavin et al., 1986; Saltzman et al., 1982), and that findings are generalizable across key subgroups and offending outcomes (Chalfin, & Wilson, 2016; Loughran, Paternoster). Although RC theory has been widely researched and supported, one area that is largely underemphasized in this theory's discourse is morality. The theory's early origins hail from Adam Smith's (1776) assertion that *self-interest* guides human behavior; an assumption which persists today. In fact, in his 2013 Presidential Address to the American Society of Criminology, Agnew (2014) highlighted that it was time for the field to expand its *core self-interest assumption* to recognize *social concern*.

This is not to say, however, that RC scholars have completely ignored heterogeneity in social concern, as there has been at least two key advances in RC scholarship that consider morality. The first is theoretical, as RC researchers have assessed the relationship between morality and offending through considering morality as both a direct informal cost of crime (Antonaccio & Tittle, 2008; Nagin & Paternoster, 1993, 1994), as a moderator of rational choice inputs such as perceived risk of sanctioning, certainty of arrest, and severity of punishment (Gallup & Baron, 2014; Grasmick & Green, 1980, 1981; Pogarsky, 2002; Wikström, 2004), and as a mediator of these RC inputs (Ishoy, 2017; Svensson et al., 2013). However, there are mixed findings and a lack of consensus as to the role of morality within this framework – a key gap in the literature that this study seeks to address.

The second key advancement is methodological, as RC scholars have utilized analytical techniques to account for the large number of individuals who report they are unwilling to offend, which will be referred to within this context as the “zero-chance” phenomenon. These techniques include log transforming (Gallupe & Baron, 2014; Shelmon et al., 2011) and dichotomizing the dependent variable (0=no willingness to offend; 1=some willingness to offend) (Bachman, Paternoster, & Ward, 1992; Nagin & Paternoster, 1993). Though these authors “solve” the methodological “zero-chance” issue, they do so without considering how these manipulations affect substantive findings nor discussing the implications of these manipulations for criminological theory. In fact, no known prior research has considered the role of morality and these various methodological techniques in a unified framework – this could be an explanation for the lack of consistent findings. This is another limitation this research seeks to address.

The present study draws on a sample of undergraduate students from a large southeastern university to extend the RC literature in two important ways. First, this paper seeks to evaluate the relationship between morality and offending and assess the conditional effects of morality on RC theory constructs. Second, because prior studies have been inconsistent in their manipulations of the offending outcome to address the large number of individuals who are unwilling to offend, this paper seeks to determine if substantive conclusions differ based on the operationalization of the dependent variable. The following sections will first offer a theoretical discussion on the role of morality in RC theory. A review of the extant research will then be provided, as well as a description of the current study's sample, methodology, and analytic plan.

CHAPTER II: LITERATURE REVIEW

The Role of Morality in Offender Decision-Making

The idea that those who have a high level of morality are less likely to offend is present in many areas of criminological theory. One of the most prominent areas is within theories of social control since Hirschi (1969) suggested that morality is a component of the social bonding, incorporated through the element *belief*. He specifically argued that there is a single, moral norm and belief, and heterogeneity in the extent to which an individual is socialized to adopt it. He further suggested that those with a stronger belief in moral norms are less likely to deviate, stating:

“It is an oversimplification to say, however, that strain theory assumes a moral man while control theory assumes an amoral man. Control theory merely assumes variation in morality: for some men, considerations of morality are important; for others they are not. Because his perspective allows him to free some men from moral sensitivities, the control theorist is likely to shift to a second line of social control – to the rational, calculational component in conformity and deviation. This emphasis on calculation is reflected in recent proposals by theories operating from within this perspective.” (p.11)

The idea that morality is correlated with offending has been empirically supported (Antonaccio & Tittle, 2008; Bandura et al, 2001; Blasi, 1980; Burkett & Ward, 1993; Cochran, 2016; Gallupe & Baron, 2010; Gregg et al., 1994; Hannon et al, 2001; Hindelang, 1974; Mears et al, 1998; Nelson et al., 1990; Palmer & Hollin, 1998; 2000; Paternoster & Simpson, 1996; Pelton et al, 2004; Piquero et al., 2016; Rogers et al, 2006; Silver & Silver, 2020; Svensson, 2015; Thurman, 1984).

While these studies focused largely on assessing the relationship between morality and offending, specifically in deterrence frameworks (Erickson, 1962; Gibbs, 1968; Grasmick & Green, 1980; Tittle, 1977), other studies have focused on integrating morality into a *rational choice* framework. Nagin and Paternoster (1993) were among the first to formally do so, through testing the strength of individual-level factors and situational contexts on offending. They focused on possible informal sanctions like morality level and social attachments, deterrence variables like perceived certainty and severity, and the feeling of “fun” as an intrinsic benefit. Their findings showed evidence that morality should be included within RC theory because perceived formal and informal sanctions (like self-imposed shame) together “effectively controlled respondent’s intentions to offend” (p. 489). In a later study, Nagin and Paternoster (1994) also found significant effects of individual differences in morality level on criminal propensity. Together, both studies suggest that morality should be included in studies of RC.¹

While Nagin and Paternoster’s (1993, 1994) work exemplifies the need to include varying morality in a RC framework, other scholars have also argued morality should be a key consideration. For instance, research has followed Agnew’s (2014) advice to consider more than just self-interest. In his account, Agnew suggests that people have “social concern” for the well-being of others. Some themes that emerge from this growing literature include 1) caring about the welfare of others; 2) craving emotional ties to others; and 3) conforming to the behavior of others and following moral insights. While these ideas are broader than self-interest, they encompass the very nature of RC theory. Adhering to a strict moral code may operate within the

¹Relatedly, feelings of guilt, remorse, and shame influence the decision to offend, something that Braithwaite (1989) referred to as “pangs of conscience”.

costs and benefits framework of RC theory; people may view sacrificing their morals as a cost to offending and some will see the beneficial effects of upholding their morals.

Consistent with Agnew's (2014) plea, Paternoster, Jaynes, and Wilson (2017) tested the relationship between pro-social preferences and willingness to offend. They found that self-interested participants were more willing to offend and that "acting in a strictly self-interested way" (p. 860) was related to a higher level of willingness to offend. Later, Jaynes and Loughran (2019) explored whether differences in social concern were able to distinguish offenders from non-offenders. While their results did not support the notion that prosocial preferences were the underlying difference between these two groups, their work illustrates the need to move past focusing exclusively on the costs and benefits traditionally considered within RC theory and the need to focus on the role of heterogeneity in morality in offender decision-making research.

Morality as a Moderator

While the literature has established that violating one's morality can be perceived as a social cost of offending (Antonaccio & Tittle, 2008; Bachman et al., 1992; Bandura et al., 2001; Burkett & Ward, 1993; Grasmick & Bursik, 1990; Grasmick & Green, 1981; Palmer, 2003; Paternoster & Simpson, 1996; Tittle, 1977), RC scholars have also considered the ways in which morality influences other cost-benefit considerations, evaluating morality as a moderating variable. This is perhaps most exemplified within deterrence research (Svensson, 2015). For example, over 45 years ago, Andenaes (1974) proposed a typology that detailed the varying effectiveness of traditional deterrent tenets for those who are morally guided and who are, therefore, restrained extralegally rather than by legal sanctions—an area of inquiry that is now commonly referred to as differential deterrence.

Consistently, Grasmick and Green (1980, 1981) reported that the deterrence literature was turning to a *conditional hypothesis* that the threat of legal sanctions is only effective among those who have *lower morals*. Consistently, individuals who are morally committed to upholding the law are not directly deterred by the punishments of crime because the punishments are ultimately irrelevant. Bachman, Paternoster, and Ward (1992) further explored the effect of formal sanctions, informal sanctions, and moral beliefs on willingness to offend in criminal opportunity scenarios. They clarified that they “do not view moral commitments as a type of cost” but that “behavior may be guided and influenced” by its factors (p. 347). Their findings suggest that moral evaluations of conduct may condition the utilitarian effects, showing that “the threat of formal punishment had no effect on the respondent’s projection of committing sexual assault” when the respondent had high morals. Alternatively, those who had low moral beliefs were deterred by the threat of formal sanctions rather than their self-inflicted controls, suggesting that the cost-benefit analysis is more important for these respondents. Further, although a deterrent effect existed for the perceived risk of sanctions, moral beliefs were a stronger source of social control than perceived risk of social sanctions, and the threat of formal sanctions was severely minimized with respondents who had higher morality levels. This finding suggests the need to move past focusing purely on the effect of deterrence without considerations of morality influencing the RC calculus.

A more recent study also focused on morality as a moderator of deterrability (Gallup & Baron, 2014). Analyzing survey responses from 300 youths, the authors found that morality was a direct predictor of future drug use. Morality was also a stronger predictor than self-control and perceived certainty on future drug use. They also found that, in general, morality and deterrent effects operated *independently* from each other. Notably, however, one key finding shows that

the effect of perceived certainty was influenced by morality level such that the deterrent effect on drug use was stronger for those with *higher* moral levels. This specific finding is in direct opposition to previous findings of morality's effect on deterrence (Bachman, Paternoster, & Ward, 1992; Grasmick & Green, 1980, 1981).

Gallup and Baron used a broad measure of morality compared to other scholars in deterrence literature; this change might account for the contrasting findings. They measured morality by asking how wrong it is to break the law, if you should break the law knowing you could get away with it, and how important it is to obey all laws. While these questions certainly capture some aspects of morality, they are lacking specifications and context. In other words, an individual might respond that it is very wrong to break the law but could ultimately change their answer if given a specific example. "Breaking the law" is a vague concept, and there will be much variation between "speeding is wrong" and "murder is wrong." Gallup and Baron's morality measure might overlook some nuanced responses by excluding context (Wikström, 2004).

Also focusing on morality's role in deterrability, Pogarsky (2002) highlighted that not every offender is deterred by the same threats or at all. Morality and a belief in the law affect an offender's cost-benefit considerations. To illustrate this, he categorized offenders based on their level of deterrability. One of the typologies, the *acute conformists*, are deterred by the threat of extralegal sanctions, such as social disapproval and shame. Therefore, a moral objection, often in the form of self-disapproval, deters the acute conformist rather than the threat of legal sanctioning. Pogarsky tested this notion and found that acute conformists reported self-disapproval scores "at least 33% higher than those of the other two groups" (p. 441). The idea here is that acute conformists comply with the law because of extralegal influences such as

morality; the threat of formal sanctions is ultimately insignificant in the RC setting to the acute conformists because their morality level causes them to more heavily focus on informal sanctions. Pogarsky's typologies are integral to the understanding of offender differential deterrability and, by extension, the decision-making process.

While these scholars have studied the moderating effects of morality on offending, Wikström (2004, 2006) contributed to this literature by overtly underscoring that morality is a part of the decision-making process. Wikström outlined that morality often acts as a filter; people do not see crime as a viable action and, therefore, do not consider the costs and benefits of crime that are most traditionally emphasized within RC theory. Those who *do* see crime as an option will experience the costs and benefit calculus, resulting in a two-step decision making process: the offender will 1) see crime as an opportunity and 2) consider the costs and benefits of the crime to make a decision. Wikström asserts that those with higher levels of morality do not see crime as an action opportunity and, therefore, are not tempted to commit. That is, morality negates an individual's need to weigh the costs and benefits of an offense.

Empirical tests of Wikström's theory demonstrate this moderating effect of morality on the decision-making process. Some findings show that perceived certainty and severity are not significant for those with high morals (Barton-Crosby & Hirtenlehner, 2020; Wikström & Svensson, 2008; Wright, Caspi, Moffit, & Paternoster, 2004). Some studies suggest morality affects perceived certainty only (Piquero et al., 2016), while others show mixed (Cochran, 2015; Schepers & Reinecke, 2015; Pauwels, Svensson, & Hirtenlehner, 2018). Ultimately, there is some evidence that morality moderates the facets of the decision-making process, although the findings are inconsistent.

Although empirical evidence suggests that morality plays *some* role in the decision to offend, where or how morality fits into rational choice is not fully explained or agreed upon. In addition, most individual differences research focuses on how morality affects deterrence constructs (e.g., Gallupe & Baron, 2014; Nagin & Paternoster, 1993, 1994) rather than the effects of morality on the benefits and other perceived costs of offending. This study seeks to fill the gap in the literature by moving beyond a deterrence focus to investigate the effects of morality within a broader RC context.

Morality as a Mediator

While scholars have analyzed the direct and moderating effects of morality on offending, morality might also *mediate* the effects of perceived certainty, severity, and benefits on WTO. For example, if the perceived certainty and severity of an offense are high, then one's moral outlook of that crime may be negative. In other words, the perceived certainty and severity cause the individual to have high morals about committing that crime. This high morality then decreases WTO. Figure 1 depicts this hypothesized mediating relationship in more detail.

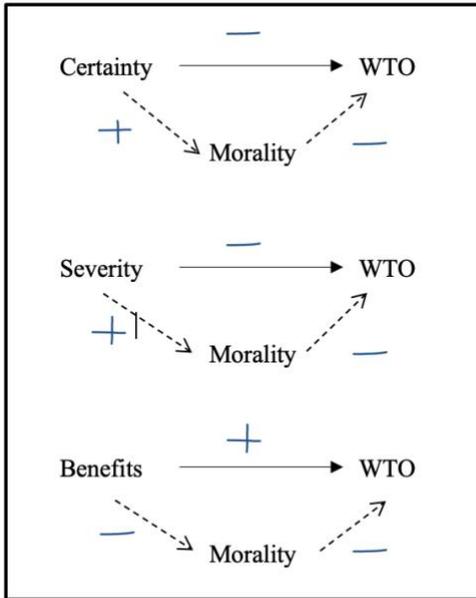


Figure 1. Mediation Models.

A theoretical explanation of this mediating relationship comes from the idea of moral condemnation. Though often rooted in religious beliefs (Burkett & Ward, 1993), moral condemnation can also be self-inducing. This latter idea is best known as the arousal hypothesis (Cheng, Ottati, & Price, 2013). This hypothesis posits that “arousal may be misattributed, intensifying the perceived immorality of the target’s behavior” (p. 1013). In an offending context, one’s perceived certainty and severity might activate one’s moral compass, *causing* them to determine that a specific act is immoral (assuming that the perceived certainty and severity are high).

Some scholars have tested these mediating effects of morality on willingness to offend. For example, Ishoy (2017) investigated the mediating effects of morality through parental monitoring on juvenile offending patterns. While morality did not have a mediating effect on

violent crime, it did mediate the effects for property offending. These mixed results make sense within their sample because property crime is more accessible to teens, whereas most would not immediately turn to violent crime. In this case, parental monitoring served as the certainty construct akin to rational choice; because their parents are monitoring them closely this increases the certainty of detection. The increased certainty then signals that society views this act as immoral, and the teen perceives violent crime to be immoral, which ultimately decreases their likelihood of offending. In contrast, parental monitoring of property crimes is lower than violent crime, signaling to the teen that this act is more moral than violent crime. This decreased certainty causes a lower morality, indicating a higher likelihood of offending. Svensson et al. (2013) also found similar mediating effects, where shame and guilt mediated the effects of parental monitoring on juvenile offending.

To my knowledge, this study will be among the first to test the possible mediating effects of morality directly on RC constructs like anticipated certainty, severity, and benefits, rather than the use of parallel measures like parental monitoring.

Addressing the “Zero-Chance” Phenomenon and Methodological Implications

To evaluate offender decision-making within a RC context, scholars have often employed a vignette survey methodology (e.g., Anwar & Loughran et al., 2011; Bachman et al., 1992; Nagin & Paternoster, 1993, 1994; Paternoster & Simpson, 1996), where the outcome is one’s hypothetical willingness to offend (WTO). Though some scholars have questioned the use of self-report surveys as a valid measure of intent to offend (Huzinga & Elliott, 1986; Loughran, Paternoster, & Thomas, 2014; West & Farrington, 1977), self-report surveys are generally considered to be an acceptable measure of WTO (See Thornbury & Krohn, 2000 for an overview), especially when the populations being surveyed are “generally not seriously

delinquent populations.” (Hindelang, Hirschi, & Weis, 1981, p. 10). Typically, after reading a hypothetical scenario, respondents are asked to evaluate their willingness to engage in a crime on a scale of 0 (no chance) to 100 (100% chance).² This methodology is appealing for several reasons. First, scenarios give much needed context for the decision to offend. Second, within this detailed context of offending, researchers can randomize key RC perceptions which may influence the decision to offend – improving causal inference. Finally, measuring perceived costs and benefits of offending in a detailed context avoids the need to parse out temporal order often seen in cross sectional studies (Exum & Bouffard, 2010).

While there is often variation in the WTO distribution, there is also often a notable high density at zero – individuals who indicate there is *no chance* that they would offend regardless of the context. In the present study, I designate this density as the “zero-chance phenomenon.” This phenomenon may be particularly common among university convenience samples frequently employed within this literature (Bachman et al., 1992; Cochran, 2016; Nagin & Paternoster, 1993, 1994; Paternoster & Simpson, 1996; Paternoster et al., 2017; Pogarsky, 2007; Saltzman et al., 1982). Because RC theory’s foundation rests on the assumption of self-interest, those who are unwilling to offend, even when the costs are manipulated to be low and the benefits to be high, are particularly noteworthy and provide some indication that morality may play a role in one’s WTO (Bachman, Paternoster & Ward, 1992; Nagin & Paternoster, 1993, 1994).

Though prior studies do not always describe the distribution of their dependent variable in detail (Anderson et al, 1983; Anwar & Loughran, 2011; Paternoster et al., 2017), there are

²While some scholars have measured WTO on a 0-100 scale (Anderson et al., 1983; Exum & Bouffard, 2010; Paternoster et al., 2017; Pogarsky, 2002; Rossi et al., 1974), others have employed a 0-10 scale (Anwar & Loughran, 2011; Bachman et al., 1992; Nagin & Paternoster, 1993, 1994; Paternoster & Simpson, 1996).

examples of prior research observing this zero-chance phenomenon. For instance, Bachman, Paternoster, and Ward (1992) employed a sexual assault scenario to student respondents using a WTO outcome (0=no likelihood at all; 10=definitely would) while experimentally manipulating vignette characteristics. Notably, 17% of their respondents indicated that there was “no chance” of committing the offense. Nagin and Paternoster (1993, 1994) utilized a scenario-based methodology amongst a college student sample and found an even larger proportion of “no chance” responses for their drinking and driving scenario (63%). Also, nearly 30% of respondents in Paternoster and Simpson’s (1996) and 33% of respondents in Pogarsky’s (2002) tests of WTO reported that they were *not* willing to offend.

The “zero-chance phenomenon” creates a methodological problem for regression analysis. For instance, ordinary least squares (OLS) models are often used for analyzing morality and WTO (Antonaccio & Tittle, 2008; Bachman et al., 1992; Cochran, 2016; Gallupe & Baron, 2014; Paternoster & Simpson, 1996; Svensson, 2015) OLS models carry the assumption that the error terms are normally distributed around the regression line, minimizing the sum of the squared errors (Currit, 2002). However, with data that has a large number of 0s, this assumption is often violated. The model is also restricted in that it cannot assume negative values and estimates strictly linear relationships. However, it is likely that the predictors of the zero-chance phenomenon differ from predictors of other transitions in the WTO scale. That is, the predictors of why individuals would never offend (0%) relative to some willingness to offend (e.g., 1%) are likely distinct from the predictors of why individuals would place their willingness to offend at a six, instead of at a five. The one unit increase between 0% and 1% may also be explained by different factors than a one unit increase between 50% and 51%. Therefore, vignette data is most likely nonlinear. Fitting nonlinear data to a linear-assumed model is problematic because it

constrains coefficients to reflect a single average association, which may not be reflective of the non-linear differences in effect across the WTO distribution (Weisburd & Britt, 2014).

To address these concerns, scholars have turned to tobit models (Cochran, 2016; Nagin & Paternoster, 1993, 1994), a type of censored regression model that labels values based on their location above (or below) a determined cut off value (Wooldridge, 2010). An OLS regression could predict negative values because it fails to capture that a zero response is a true zero at the clustered cite (Osgood & Finken, 2002). Tobit models, however, account for the high density of responses at one end by cut off values at the 0 marker. That way, its predicted values will more accurately represent offending patterns (Osgood & Finken, 2002).

While tobit models can tackle the zero-chance phenomenon and provide more accurate predicted values without violating an OLS assumption, they also operate under strong assumptions: normality, proportionality, and homoskedasticity. A recent study suggests that self-report data almost always violates these assumptions (Wilson et al., 2020), resulting in biased and inconsistent estimates. In fact, in running simulation analyses, Wilson et al. (2020, p. 254) found that tobit models are the most popular model used with censored data regardless of the assumption violations, further highlighting that “scholars in our field should... be more aware of the substantial bias in tobit coefficients when model assumptions are violated.” More importantly, WTO measures are *not* censored. That is, the zero responses reflect an actual absence of willingness, rather than an end to the WTO scale—one cannot have negative willingness. In sum, while the use of tobit models represent a methodological advancement in attempting to address the high density of zeros, there are still estimate and measurement concerns that scholars should address.

Another way that scholars have addressed OLS assumption violations like non-normality is through log transformations (Burkett & Ward, 1993; Paternoster, Jaynes, & Wilson, 2017). Logging an outcome variable can take data that is not normally distributed and make it more normally distributed. This technique is often used in data with large amounts of zero responses after adding a constant to these values. Unfortunately, *what* constant a researcher adds to the zero values can affect the statistical significance of the outcome variable, as the p-value is dependent on what constant is added (Wooldridge, 2010). Therefore, conclusions drawn from an outcome that were arbitrarily given a constant can be inconsistent or can highlight significant differences that do not exist (Feng et al., 2014).

A final method that has been used in the literature to analyze morality and WTO is recoding the dependent variable dichotomously and running a logistic regression (Grasmick & Bursik, 1990; Pogarsky, 2007). A benefit of logistic regression is that it “is widely understood and easy to implement” (Bushway, 2013, p. 564). Although dichotomizing WTO has its advantages, it can also be problematic because those who have *any* WTO are grouped together. That is, those who report a 1% chance of offending and those who report a 99% chance of offending are ultimately recorded in the same way — as 1s. This recoding eliminates variation in the dependent variable which could give further insight into important heterogeneity in offender decision-making. As Bushway (2017, p. 565) states, “the field of criminal justice would be wiser to spend its time and energy investing in learning new techniques than in relying on logistic regressions...”

While scholars have adapted various methodological techniques to address the zero-chance phenomenon, there are limitations associated with the use of each. In addition, the methodological choice may result in inconsistencies in substantive conclusions, which have not

been discussed in prior literature. This study seeks to highlight the zero value responses by employing a scenario-based methodology with a sample of undergraduate university students — a population that is well known to produce the phenomenon. This study will then employ OLS, tobit, log transformed, and logistic regression models to consider whether there are substantive differences between models in the role morality plays within a RC framework.

CHAPTER III: PRESENT STUDY

As Chapter II noted, there is a rich literature examining the effect of morality on willingness to offend, though gaps in this literature persist in understanding how morality moderates and mediates traditional RC constructs. Additionally, studies of morality and RC often implement inconsistent methodologies and very little is understood about the inconsistencies this may cause in substantive findings. This study seeks to fill these gaps in the literature by using a scenario-based method and applying various models to test the robustness of substantive conclusions. Specifically, the following four hypotheses will be examined:

H1: Morality will be inversely related to willingness to offend. That is, those who have a higher morality level will be less willing to offend.

H2: There will be moderating effects of morality on RC constructs, ultimately affecting willingness to offend. Specifically, RC constructs will have a smaller effect on willingness to offend among those with higher morality.

H3: There will be mediating effects of morality on RC constructs, ultimately affecting willingness to offend. Specifically, the effects of perceived certainty, severity, and benefits on willingness to offend will be indirect through morality.

H4: There will be differences in substantive findings across analytic strategies.

CHAPTER IV: METHODOLOGY

Data

The primary data collection for this study was taken from a large public southeastern university. A survey was distributed to undergraduate classes which included a variety of majors spanning June 2019 to February 2021. Students who completed the survey received extra credit as an incentive for participation. Although there was an option for students to opt out of the survey for an alternate assignment, no one selected this option.

This study utilized a fully crossed factorial design with 24 treatments surrounding a drinking and driving scenario (see Table 1). All conditions were randomized, so each respondent had an equal chance of receiving each version of the scenario.³ A drinking and driving vignette was implemented, which is beneficial for this sample because it is both relevant to college students and highly prevalent in RC studies (Grasmick & Bursik 1980, 1990; Grasmick & Green, 1981; Nagin & Paternoster, 1993; Pogarsky, 2002).

Although many participants in this sample are under the legal drinking age, a drinking and driving scenario is still relevant. That is, participants aged 18-20 should not substantially change the results, “as this group exhibits higher rates of alcohol-related risky behaviors and slower progress in reducing these behaviors than other age groups” (Harding et al., 2016, p. 150). Because of the culture of universities where underage drinking is prevalent (Wecshler & Kuo,

³Chi square = 0.02 $p > 0.99$. This finding indicates there are no significant differences in the number of each condition that was given to the respondents. In other words, all conditions were successfully randomized.

2000), many college students will find themselves in a situation similar to this scenario and will have to make a similar decision. Therefore, even though many students are underage, they are an ideal sample for this specific vignette.⁴

The scenario was presented as follows:

“Now imagine, it's about two o'clock in the morning and you have spent most of the night drinking with friends at a local bar you come to often. You hear the bartender yell "last call!" and you realize it's time to head home. Although you had driven to the bar, you are now drunk and wonder if you should drive yourself home since you didn't see any cops on the road when you drove to the bar earlier. You consider getting a ride home so you call your friend who is pissed you called so late because they have to work in the morning. They say they will come and get you if you want, but it will take over an hour to get there and you will still have to return to the next day to get your car.

Underlined are the scenario manipulations, influencing situational context, situational risk, and situational benefit of the offense. For example, the situational context was manipulated to read:

1) “A local bar you come to often” or 2) “An unfamiliar bar.” This distinction is important because situational context can affect a respondent’s WTO (Wikström, 2006). The type of situational risk was also manipulated by stating that the respondent: 1) Did not see cops on the drive in, 2) Did see the cops on the drive in, 3) Heard from a friend that there were cops on the road, or 4) Heard on the local news of a police crackdown on drinking and driving. Finally, the situational benefits of offending were also manipulated by indicating the respondent either: 1) Has to make their friend angry by calling them, 2) Does not have to make their friend angry by ordering an Uber, or 3) No option presented. Table 1 summarizes the manipulations.

⁴ Sensitivity tests also indicate that initial results are substantively robust to the exclusion of those less than 21 years old.

Table 1. Scenario Manipulations.

Situational Context (2)	Situational Risk (3)	Situational Benefit (3)
1) Local bar you come to often	1) You didn't see any cops on the road when you drove to the bar earlier	1) You call your friend, who is pissed you called so late because they have to work in the morning
2) Unfamiliar bar where you met your friends for the first time	2) Noticing a lot of cops on the road when you were driving to the bar earlier 3) Hearing from a friend that there were many cops on the road that night 4) Hearing on the local news that there has been a police crackdown on drinking and driving	2) Consider getting a ride home, but the taxi/Uber would be costly 3) No option presented

Sample

Of the 1,054 respondents that completed the survey, 25% were male and 75% were female. The mean age of this sample was 22 years old, with the youngest participant being 18 and the oldest 61. The racial composition of the sample includes 59% white, 11% Black, and 22% Hispanic, with the remaining 8% comprised of Asian, Native American, and other. The survey also asked about previous criminal histories (2% of respondents have a criminal record), perceptions of certainty and severity, self-control, benefits of offending, and morality level. Table 2 provides descriptive statistics for the sample and all of the measures included in the study.

Table 2. Descriptive Statistics (N=1,054)

Variable	Mean	SD	Minimum	Maximum
<i>Willingness to Offend (WTO)</i>				
Continuous	12.29	22.42	0	100
Dichotomous	0.40	-	0	1
Logged	1.22	1.62	0	4.62
<i>Rational Choice Constructs</i>				
Morality	3.45	0.43	1	4
Cost Certainty	64.44	29.00	0	100
Cost Severity	8.81	2.03	0	10
Benefit Certainty	2.68	1.12	1	5
Benefit Magnitude	2.15	0.90	1	4
<i>Vignette Manipulations</i>				
Situational Context	-	-	0	1
Situational Risk	-	-	0	3
Situational Benefit	-	-	0	2
<i>Demographic</i>				
Self-Control	2.87	0.37	1.39	3.77
Male	0.25	-	0	1
Black	0.13	-	0	1
Age	21.94	5.42	18	61
Income	3.64	2.20	1	9
Marital Status	0.06	0.23	0	1
Criminal Record	0.02	0.14	0	1

Measures

Dependent Variables

Willingness to Offend (WTO) was measured by asking respondents immediately following the scenario “what do you think the chance is that you would drive yourself home in this situation?” on a 0 to 100 scale, where 0 indicates there is no chance and 100 indicates there

is 100% chance. To enable the variety of methodologies which will be explored in this study's analytic plan, WTO is operationalized in three alternative ways. First, WTO is kept as a continuous variable for OLS and tobit models (Antonaccio & Tittle, 2008; Paternoster & Simpson, 1996). As expected, and shown in Figure 2, the distribution of this variable is considerably skewed to the right with the majority of responses (64%) indicating there is no willingness to offend.

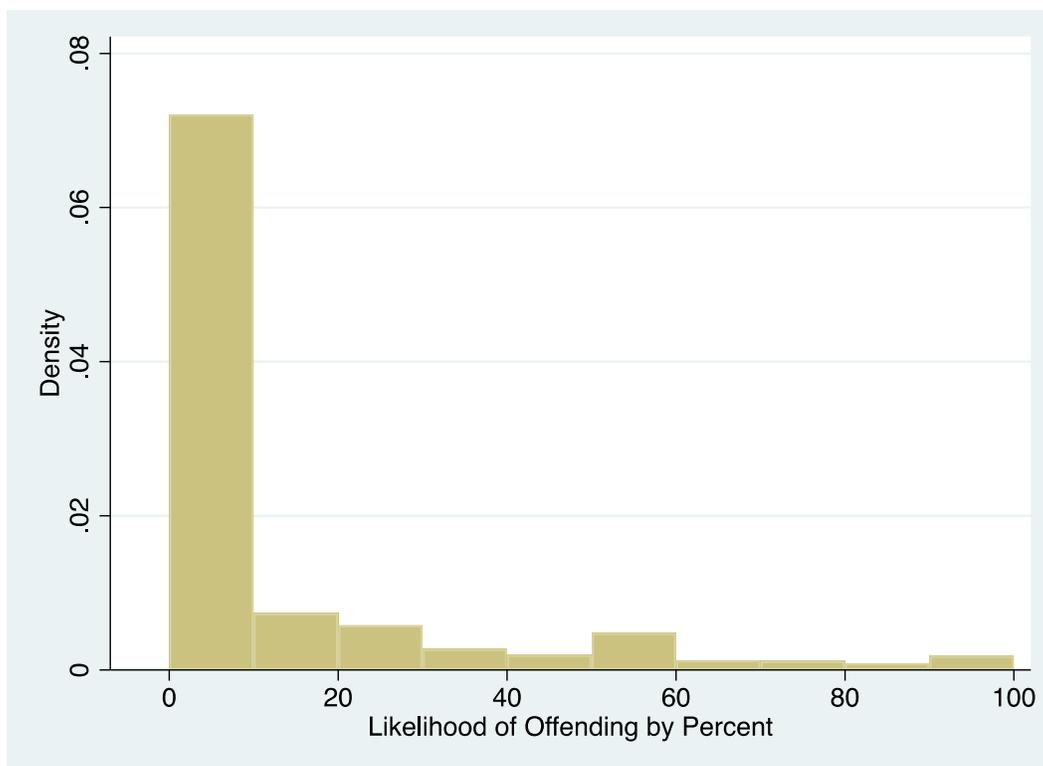


Figure 2. Distribution of Continuous Willingness to Offend.

Second, WTO is log transformed with a constant of 1 (Osborne, 2002) to normalize the distribution. Figure 3 shows the distribution of WTO after this transformation, which as expected, is more normally distributed than the continuous variables.

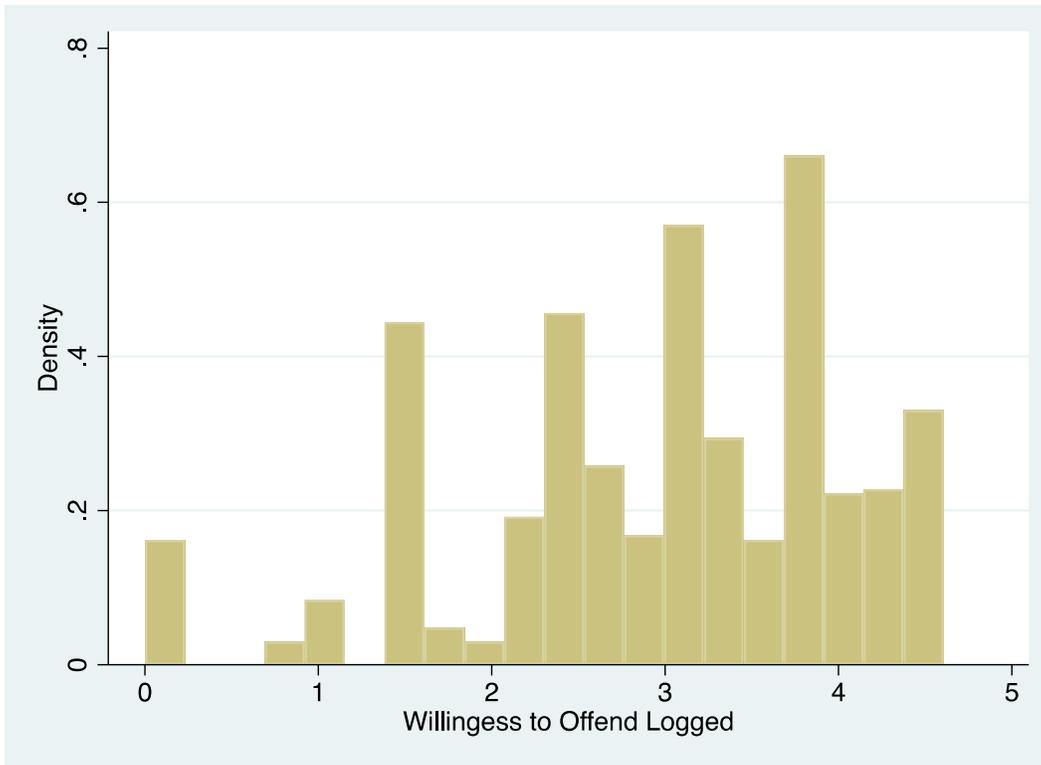


Figure 3. Distribution of Logged Willingness to Offend.

Finally, WTO is dichotomized to facilitate logistic regression (Grasmick & Bursik, 1990; Pogarsky, 2007); those who report there is no chance they would offend are scored as “0” and those who mark there is some willingness to offend (1-100) are scored as “1”, consistent with prior literature (Grasmick & Bursik, 1990; Pogarsky, 2007). As shown in Figure 4, the dichotomous WTO distribution shows that a majority of respondents (64%) indicated there was no chance that they would drive home in response to the hypothetical scenario, whereas 36% of respondents indicated there was some chance they would drive home.

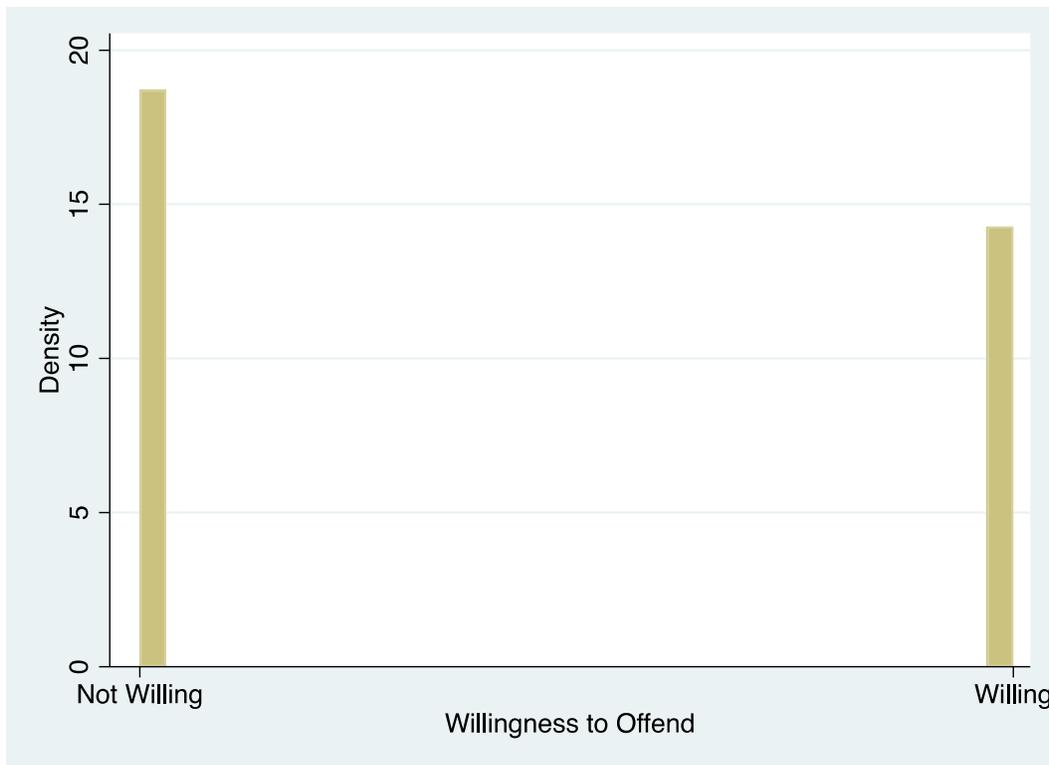


Figure 4. Distribution of Dichotomous Willingness to Offend.

Independent Variables

Morality was measured with Likert scale responses (1=Strongly Agree; 2=Agree; 3=Disagree; 4=Strongly Disagree) to several general moral questions surrounding theft (“it is okay to steal if you need the money to feed your family...”); physical violence (“it is okay to fight to protect yourself or someone close to you”); and selling drugs (“It is okay to sell drugs, because if you don’t, someone else will”). These “I” statements are common in studies that measure morality (Cochran, 2016; Gallup & Baron, 2014). A 16-item summated average scale was created, with the scale demonstrating high internal validity (Cronbach’s $\alpha = 0.92$). This morality scale is considered a global measure of morality because it considers several crimes to

measure a respondent's *general* moral value (Herman and Pogarsky, 2020)⁵. Higher values within this scale indicate increased morality. Those who report a higher morality level are expected to report a lower WTO. Although a majority of the participants in this study show high morality scores (greater than three; 80%), there is variation. Table A within the Appendix shows a full list of the morality items used within each scale.

The present study also considers a series of rational choice constructs consistent with prior literature (e.g., Loughran et al., 2016), the first of which is perceived *Cost Certainty*. Perceived certainty was measured on a scale of 0 to 100 (where 0 indicates there is no chance the respondent would be caught and 100 indicates there is a 100% chance that the respondent would be caught) by asking respondents two questions: "What do you think the chance is that you would be caught by the police if you chose to drive yourself home in this situation?" and "what do you think the chance is that you would be caught by your friends, family, employer (etc.) if you chose to drive yourself home in this situation?" A summated average of these items was then taken ($r = 0.73$). Higher values of this measure indicate greater perceived certainty, and those who report a higher certainty of being caught are expected to report a lower WTO.

The second RC construct this study considers is perceived *Cost Severity* (Nagin & Paternoster, 1993), which was measured by answering respondents "how much of a problem would it be for you if you got caught by the police?" on a scale of 0 to 10, with 0 indicating "it would be no problem at all" and 10 indicating "it would cause so many problems that I can't even think about it." Respondents also answered this question regarding getting caught by their friends/family/employer. A summated average of these items was then taken ($r = 0.78$). Higher

⁵ Findings are consistent when sensitivity checks are completed analyzing drinking and driving-specific morality indicators (Cronbach's $\alpha = .94$). In other words, using a global moral scale in Model 4 and drinking and driving-specific moral indicators provide virtually the same results.

values of this measure indicate greater perceived severity. Those who report that being caught would be more of a problem for them are expected to report a lower WTO.

The next RC constructs this study considers involve perceived benefits of offending. Benefits of offending are measured by asking respondents how *likely* the benefit is to occur (1=Very Unlikely; 2=Unlikely; 3=Neither; 4=Likely; 5=Very Likely) and how *much* of a benefit it would be (1=None At All; 2=A Little; 3=More Than A Little; 4=A Lot) for several measures. Some benefit to offending involves time and energy: “avoiding inconvenience” and “saving time and effort because you have chosen the easiest path.” There are a few other benefits to drinking and driving as well. Ubers and taxis are very expensive, as the scenario states, and it would be beneficial to save money and drive home. This benefit is measured by the item, “not having to worry about money or financial independence.” Offenders can also have beneficial feelings while offending (Katz, 1988): “feeling a rush or high because you are doing something exciting” and “removing the feeling that you are limited or restricted.” Another benefit of driving home is that the respondent could leave right away and not have to wait for their angry friend to pick them up, measured by “the convenience of not having to ask anyone for money or favors.” With these benefits in mind, it is easy to understand the urge to drive home after drinking. A 14-item summated scale of *Benefit Certainty* (how likely is the benefit to occur) and *Benefit Magnitude* (how much of a benefit it would be) was created (Cronbach’s $\alpha = 0.96$). Higher values of each scale indicate higher perceived certainty and magnitude of general benefits. Those who report higher perceived certainty and magnitude of benefits are expected to report a higher WTO.

In the drinking and driving scenario, there is *Situational Context*. A participant’s scenario states that they are either 1) at a local bar they come to often, or 2) at an unfamiliar bar.

Wikström contends that “settings to action [are involved in the] perception of alternatives and

process of choice” (Wikström, 2004, p. 8). One might feel more comfortable in a familiar bar than in an unfamiliar bar, making them more confident in their ability to offend successfully without apprehension, for example.

There are also *Situational Benefits* to driving home from the bar. Not having to return to the bar the next morning to pick up a car is the main situational benefit of driving home, which is held constant. There are, however, two additional situational benefits which were manipulated: 1) You call your friend, who is pissed you called so late because they have to work in the morning; and 2) You consider getting a ride home, but the taxi/Uber would be costly. In a third manipulation, neither of these options was presented – this third option will be the reference category.

The final RC variable is *Situational Risk*, which was manipulated to include 4 conditions: 1) You didn’t see any cops on the road when you rove to the bar earlier; 2) You noticed a lot of cops on the road when you were driving to the bar earlier; 3) You heard from a friend that there were many cops on the road that night; and 4) You heard on the local news that there has been a police crackdown on drinking and driving. These conditions are included as dummy variables where no law enforcement officers serves as the reference category.

Control Variables

Demographic variables such as *Age* (continuous), *Race/Ethnicity* (1=Black; 0=Non-black), and *Sex* (1=Male; 0=Female) will also be included. *Self-control* is also controlled for. This variable was measured by asking respondents how frequently they behave in certain ways such as “I plan tasks carefully”, “I am more interested in the present than the future”, and “I plan for job security” on a scale from 1 (Rarely/Never) to 4 (Almost Always/Always) (Spinella, 2007; also see Jaynes & Loughran, 2019). A 13-item summated average scale was then created

(Cronbach's $\alpha = 0.83$), where items were reverse-coded as necessary. Higher values of this scale indicate more self-control.

I also control for *Annual Household Income* (1=Under \$25,000; 2=\$25,000 to \$49,999; 3=\$50,000 to \$74,999; 4=\$75,000 to \$99,999; 5=\$100,000 to \$124,999; 6=\$125,000 to \$149,999; 7=\$150,000 to \$174,999; 8=\$175,000 to \$199,999; 9=\$200,000 or Over); *Marital Status* (1= Married; 0=Married); and *Criminal Record* (1=Has Criminal Record; 0=Does Not Have Criminal Record).

Analytic Strategy

I will first use an OLS model with a continuous measure of WTO to shed light on the relationship between morality and WTO, and assess moderation and mediation effects. Within the OLS analysis I will include variables incrementally. To examine whether morality moderates the effect of rational choice constructs (cost certainty, cost severity, benefit certainty, benefit magnitude, situational context, situational risk, and situational benefit) on WTO, I will include interaction terms in the model. I will then conduct a KHB analysis (Karlson, Holm, & Breen, 2011) to investigate the mediating effects of morality on the rational choice constructs (cost certainty, cost severity, benefit certainty, benefit magnitude, situational context, situational risk, and situational benefit).

Then, to assess whether results are substantively robust across analytic methods, I will use several models. First, I will use a tobit model with WTO again measured continuously, where 0 is the censored lower limit. Second, I will use the logged dependent variable to address non-normality. Finally, I will use a logistic regression with WTO dichotomized. These findings will evaluate if there are any meaningful differences when compared to the OLS regression and to one another that may be causing analytical discrepancies discussed in the literature review.

CHAPTER V: RESULTS

Morality and Willingness to Offend

Table 3 presents analysis conducted in an iterative process, where the focal variables are regressed onto WTO separately, and then together in a full model. The first model, Model 1, regresses morality on WTO, controlling for a respondent's self-control, sex, race, age, income, marital status, and criminal history. Second, in Model 2, general RC constructs (cost certainty, cost severity, certainty of benefits, and magnitude of benefits) are regressed on WTO. Then, Model 3 includes the manipulated scenario variables (situational context, situational risk, and situational benefit) regressed on WTO. Findings of each iterative model remain substantively consistent with Model 4, therefore only the findings from Model 4 (the aggregate model) will be discussed in depth.

The variables included in Model 4 explain 16% of the variation in offending patterns. The results also indicate that, consistent with prior research, morality has a significant effect on a respondent's WTO ($b = -7.58, p < 0.001$), where higher levels of morality are associated with lower willingness to drive drunk. These findings support Hypothesis 1.

Table 3. Iterative Ordinary Least Squares Regression Models.

	Model 1		Model 2		Model 3		Model 4	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
morality	-11.21***	1.61	--	--	--	--	-7.58***	1.61
cost certainty	--	--	-0.20***	0.03	--	--	-0.18***	0.03
cost severity	--	--	-1.03**	0.38	--	--	-0.96*	0.37
benefit certainty	--	--	1.29	0.77	--	--	0.64	0.78
benefit magnitude	--	--	1.27	0.96	--	--	1.32	0.95
situational context								
<i>Local bar</i>	--	--	--	--	-0.33	1.38	-0.29	1.29
situational risk								
<i>Saw Cops</i>	--	--	--	--	0.62	1.90	0.64	1.78
<i>Heard from a Friend</i>	--	--	--	--	-0.57	1.91	-1.64	1.79
<i>Heard on the News</i>	--	--	--	--	-1.65	2.01	-2.26	1.87
situational benefit								
<i>Angry Friend</i>	--	--	--	--	0.55	1.71	0.49	1.60
<i>Uber/Taxi</i>	--	--	--	--	2.87	1.65	2.33	1.55
self-control	-6.59***	1.84	-6.29***	1.75	-8.95***	1.85	-4.58*	1.78
male	-0.37	1.57	-2.22	1.53	0.97	1.61	-2.32	1.55
black	2.90	2.03	0.86	1.98	3.65	2.09	0.95	1.99
age	0.09	0.16	0.10	0.15	0.04	0.16	0.12	0.15
income	-0.23	0.31	-0.15	0.30	-0.20	0.32	-0.17	0.30
marital	-1.11	3.61	-3.55	3.49	-2.07	3.70	-2.57	3.47
record	5.08	4.98	4.44	4.82	4.45	5.10	5.24	4.78
_cons	68.33***	7.46	44.76***	6.85	36.59***	6.53	65.54***	8.42

Note: N= 1,054; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Perceived cost certainty is significantly associated with WTO ($b = -0.18, p < 0.001$), where those who have a higher perceived certainty of apprehension are less likely to offend. Perceived severity of punishment is also significantly associated with WTO ($b = -0.96, p < 0.05$) and in the expected direction. That is, as perceived severity increases, their projected willingness to drink and drive decreases.

General benefits of crime were not significantly related to WTO (benefit certainty: $b = 0.64, p > 0.05$; benefit magnitude: $b = 1.32, p > 0.05$), as well as situational context (local bar: $b = -0.29, p > 0.05$), situational risk (saw cops: $b = 0.64, p > 0.05$; heard from a friend: $b = -1.64, p > 0.05$; heard on the news: $b = -2.26, p > 0.05$) and situational benefit (angry friend $b = 0.49, p > 0.05$; Uber/taxi: $b = 2.33, p > 0.05$).

With respect to the control variables, sex, race, age, income, marital status, and criminal record were not significantly associated with one's WTO. In fact, the only statistically significant control is self-control, in the expected direction such that those who have higher levels of self-control are less likely to drive home drunk ($b = -4.58, p < 0.05$).

Morality as a Moderator

Table 4 illustrates the moderation analysis. To facilitate interpretation of significant findings, Figures 5 and 6 plot predicted probabilities.

Table 4. Ordinary Least Squares Regression Coefficients with Interaction Terms to Capture Moderating Effects of Morality on Rational Choice Constructs.

Willingness to Offend	Coef.	Std. Err.	[95% Conf.	Interval]
morality	-17.18*	8.39	-33.64	-0.73
cost certainty	-0.55**	0.21	-0.97	-0.14
cost severity	-1.88	2.59	-6.96	3.20
benefit certainty	6.82	6.54	-6.01	19.65
benefit magnitude	3.65	7.82	-11.69	19.00
situational context				
<i>Local Bar</i>	-30.76**	10.49	-51.34	-10.17
situational risk				
<i>Saw Cops</i>	-2.28	14.67	-31.06	26.50
<i>Cops- Heard from a Friend</i>	-18.59	14.28	-46.60	9.43
<i>Cops- Heard on the News</i>	-48.49**	15.33	-78.58	-18.39
situational benefit				
<i>Option Omitted</i>	-10.47	13.21	-36.40	15.46
<i>Uber/Taxi</i>	22.68	12.56	-1.97	47.33
morality # cost certainty	0.11	0.06	-0.01	0.22
morality # cost severity	0.30	0.74	-0.01	0.22
morality # benefit certainty	-1.71	1.83	-5.30	1.86
morality # benefit magnitude	-0.72	2.21	-5.06	3.62
morality # situational context				
<i>Local Bar</i>	8.85**	3.02	2.93	14.76
morality # situational risk				
<i>Saw Cops</i>	1.00	4.19	-7.20	9.22
<i>Cops- Heard from a Friend</i>	4.96	4.13	-3.14	13.06
<i>Cops- Heard on the News</i>	13.50**	4.40	4.85	22.13
morality # situational benefit				
<i>Option Omitted</i>	2.94	3.77	-4.47	10.36
<i>Uber/Taxi</i>	-5.99	3.63	-13.12	1.15
_cons	97.86**	30.11	38.76	156.95

Note: N= 1,054 * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

There is evidence that morality moderates situational context ($b = 8.85, p < 0.01$). Specifically, Figure 5 illustrates that those with high morals have a similar WTO regardless of context, however as one's morality level decreases, they are much more likely to offend if the context is an unfamiliar bar rather than a local bar. Morality also moderates situational risk (hearing on the news $b = 13.50, p < 0.001$; Figure 6). An increase in morality has a negative effect on one's WTO regardless of whether they saw cops or heard about cops from a friend. However, the negative effect of morality is *weaker* among those who only heard about a police presence from a friend, rather than seeing cops for themselves. Interestingly, among those who heard about an increase police presence on the news, there is a *positive* association between WTO. Notably, among those with the lowest morals, hearing on the news that there were cops on the road had the strongest deterrent effect across all situational risk categories. Among those with the highest levels of morality, there was little difference in the deterrent effect of situational risk messages. The remaining variables of interest, cost certainty, cost severity, benefit certainty, benefit magnitude, and situational benefit (whose probability plots can be found in the appendix) were not moderated by morality. Together, all of the moderating results partially support Hypothesis 2.

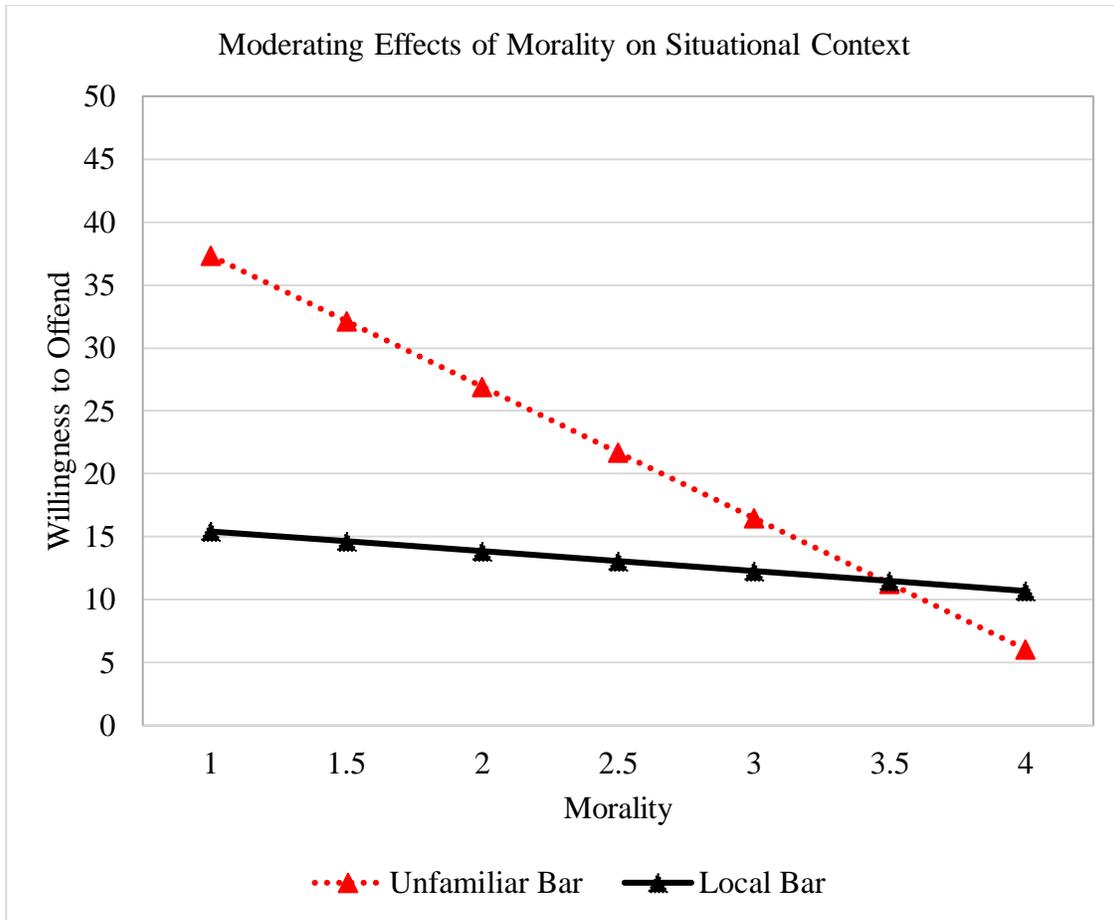


Figure 5. Moderating Effects of Morality on Situational Context.

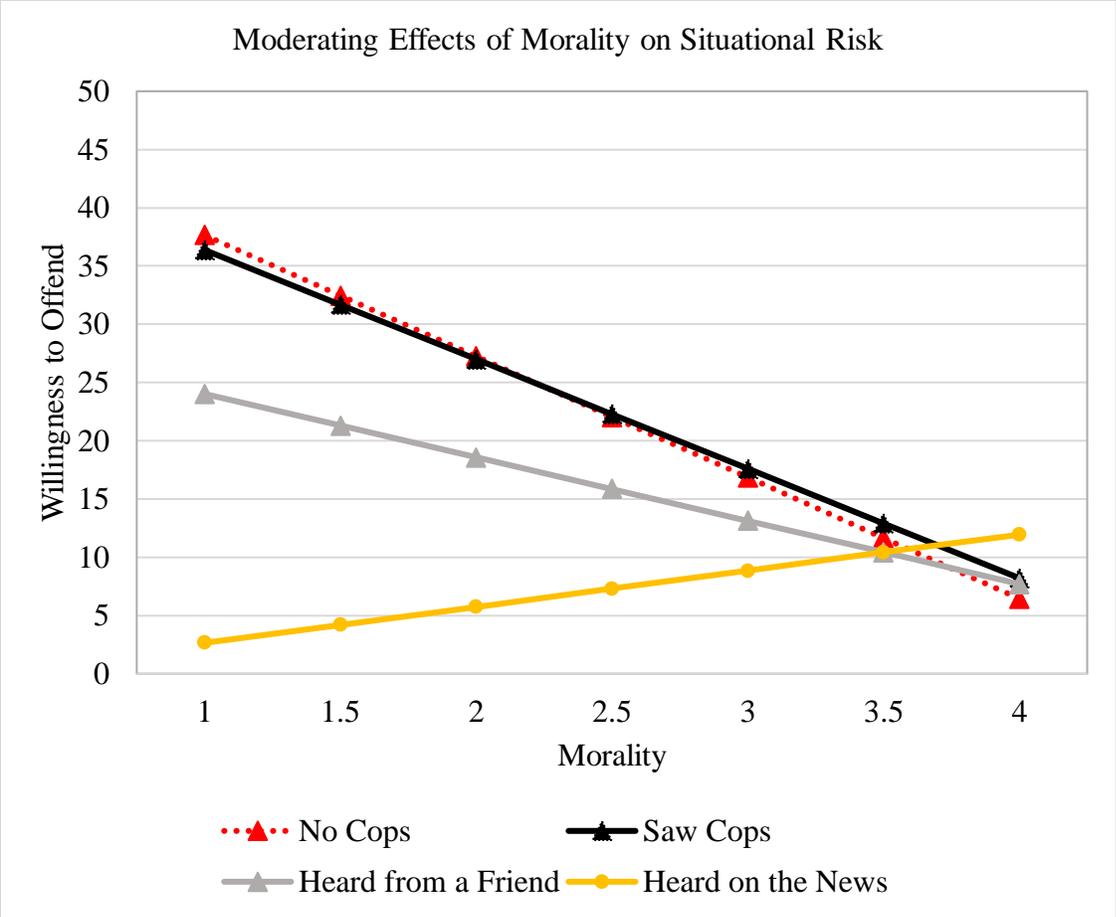


Figure 6. Moderating Effects of Morality on Situational Risk.

Morality as a Mediator

Table 5 shows the mediation analyses, partially supporting Hypothesis 3. 8.63% of the effect of cost certainty on WTO was mediated by morality ($b = -0.2, p < 0.001$). There was no evidence of mediating effects for severity. The remaining variables of interest, benefit certainty, general benefit magnitude, situational context, situational risk, and situational benefit, were not significantly mediated by morality.

Table 5. Mediating Effects of Morality on Willingness to Offend Through Rational Choice Constructs.

Independent Variable	<i>Indirect</i>	<i>Direct</i>	% effect mediated	Type of mediation
	<i>Effects</i>	<i>Effects</i>		
	<i>b</i>	<i>b</i>		
cost certainty	-0.2***	-0.18***	8.63	partial
cost severity	-1.07**	-0.98**	--	none
benefit certainty	1.41	0.69	--	none
benefit magnitude	1.40	1.35	--	none
situational context				
<i>Local Bar</i>	-0.50	-0.46	--	none
situational risk				
<i>Saw Cops</i>	0.48	0.71	--	none
<i>Cops- Heard from a Friend</i>	-1.38	-1.91	--	none
<i>Cops- Heard on the News</i>	-2.33	-2.46	--	none
situational benefit				
<i>Angry Friend</i>	1.08	0.68	--	none
<i>Uber/Taxi</i>	3.25	2.66	--	none

Examining Substantive Findings Across Alternative Methodologies

Hypothesis 4 suggests that various methodologies would result in substantive differences across findings. Table 6 shows the results of the tobit regression (Table 6, Model 5), logged variables (Table 6, Model 6), and logit regression (Table 6, Model 7) compared with the final OLS model (Table 3, Model 4, also included within Table 6 for ease of reference) to assess whether there are any substantive differences between methodological techniques.

With regards to morality and cost certainty results remain consistent across all methods. That is, the results of morality for OLS, tobit, logged, and logit models are all statistically

significant ($p < 0.001$). Similarly, benefit certainty, benefit magnitude, and context-specific variables were consistently insignificant across methodologies. The results are also consistent for a large majority of the control variables. In fact, the only substantive difference between the models are the significant/non-significant effects of cost severity on the outcome variable. Specifically, cost severity is significant in the OLS model ($b = -0.96, p < 0.05$), but is insignificant in the tobit model ($b = -1.31, p = 0.092$), the logit model ($OR = 0.99, p = 0.887$), or when logging the variable ($b = -0.05, p = 0.08$). However, given the number of statistical tests conducted, this significant finding within the OLS model may have resulted from chance alone. It is also noteworthy that across all models, the association between cost severity and offending is consistently negative.

Table 6. OLS, Tobit, Logged, and Logistic Results for Willingness to Drink and Drive.

	Model 4		Model 5		Model 6		Model 7	
	OLS		Tobit		Logged		Logit	
Willingness to Offend	Coef	Std. Err.	Coef	Std. Err.	Coef	Std. Err.	OR	Std. Err.
morality	-7.58***	1.60	-18.17***	3.44	-0.60***	0.11	0.40***	0.07
cost certainty	-0.18***	0.23	-0.51***	0.06	-0.02***	0.002	0.98***	0.003
cost severity	-0.96*	0.11	-1.31	0.78	-0.05	0.03	0.99	0.04
benefit certainty	0.64	0.77	2.03	1.79	0.06	0.06	1.11	0.10
benefit magnitude	1.32	0.93	2.69	2.15	0.08	0.07	1.05	0.11
situational context								
<i>Local Bar</i>	-0.29	1.28	-1.27	2.89	-0.06	0.09	0.91	0.13
situational risk								
<i>Saw Cops</i>	0.64	1.76	-0.61	3.97	-0.08	0.13	0.83	0.16
<i>Cops-Heard from a Friend</i>	-1.64	1.77	-4.21	3.98	-0.16	0.13	0.78	0.15
<i>Cops-Heard on the News</i>	-2.26	1.85	-4.81	4.20	-0.18	0.13	0.82	0.17
situational benefit								
<i>Angry Friend</i>	0.49	1.59	0.35	3.62	0.08	0.11	1.06	0.19
<i>Uber/Taxi</i>	2.33	1.53	3.14	3.46	0.11	0.11	1.04	0.18
self-control	-4.58*	1.76	-13.43**	3.95	-0.38***	0.12	0.52**	0.10
male	-2.32	1.50	-5.70	3.41	-0.23	0.11	0.73	0.12
black	0.95	1.94	3.69	4.24	0.05	0.14	1.11	0.23
age	0.12	1.50	-0.05	0.35	-0.004	0.01	0.98	0.02
income	-0.17	0.29	-0.25	0.66	-0.007	0.02	0.99	0.03
marital status	-2.57	3.42	-2.92	7.94	-0.08	0.25	0.99	0.38
criminal record	5.24	4.73	14.85	10.27	0.48	0.34	2.10	1.08
_cons	65.54***	8.15	126.79***	18.76	5.83***	0.60	600.70***	571.00

Note: N= 1,054

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

CHAPTER VI: DISCUSSION

Scholars have demonstrated the empirical relationship between morality and criminality over the last several decades (e.g., Antonaccio & Tittle, 2008; Paternoster & Simpson, 1996; Piquero et al., 2016) but have largely avoided discussion of morality's role within the RC framework. Those that *have* attempted to integrate morality into the RC perspective (e.g., Bachman et al., 1992; Jaynes & Loughran, 2019; Nagin & Paternoster, 1993, 1994) have debated the role morality should play. For example, while some have proposed that violating one's moral beliefs can be considered a cost of crime, having direct negative effects on willingness to offend (Nagin & Paternoster, 1993, 1994), others have highlighted that morality may moderate the effect of classic RC inputs (certainty, severity, benefits) on WTO (Grasmick & Green, 1980, 1981; Pogarsky, 2002; Wikström, 2004, 2006). In addition, scholars have suggested that there may be mediating effects of morality on RC constructs (Ishoy, 2017; Svensson et al., 2013). In other words, if the perceived certainty and severity of an offense are high, this will result in the individual increasing their morals about committing that crime. Despite the various hypotheses surrounding the role of morality in RC theory, scholars have rarely considered them all within a unified framework – a key gap in the literature the present study sought to fill.

In addition, the literatures surrounding each hypothesis are largely inconsistent. One reason for the inconsistent findings could be the various methodologies utilized. While a majority of these studies consistently employed the vignette method to measure WTO, this often results in a high density of zeros reflecting those that have no WTO. Scholars have attempted to address this “zero-chance phenomenon” using diverse models, including OLS (Bachman et al.,

1992; Cochran, 2016; Gallup & Baron, 2014), tobit (Nagin & Paternoster, 1993, 1994), log transformations (Burkett & Ward, 1993; Paternoster, Jaynes, & Wilson, 2017), and logit regressions (Grasmick & Bursik, 1990; Pogarsky, 2007). While each methodology has its strengths and weaknesses, the present study hypothesized that inconsistent findings in prior literature may purely be the result of difference in analytic strategy. To test the empirical relationship between morality and WTO, and evaluate if there are resulting inconsistencies, this study sampled 1,054 young adults from a large public southeastern university and implemented a fully crossed factorial vignette design.

The first notable finding is that there was variability in morality, supporting Hirschi's (1969) idea that morality is a spectrum. In fact, the data included responses within the full range: from 0% to 100% chance that they would drive home. Consistent with prior literature (Bachman et al., 1992; Nagin & Paternoster, 1993, 1994; Paternoster & Simpson, 1996; Pogarsky, 2002), I also observed the "zero-chance phenomenon" where 56% of respondents indicated they were not willing to offend (0% chance). This descriptive result underscores the methodological concern researchers often face when studying WTO.

With respect to morality, findings were consistent with prior literature (Gibbs, 1968; Grasmick & Green, 1980; Nagin & Paternoster, 1993, 1994) in that morality had a significant direct negative association with WTO, where higher morality was associated with a decreased willingness to drink; in support of Hypothesis 1. Additionally, perceived cost certainty and perceived cost severity were both significantly related to WTO. That is, as expected, both cost certainty and cost severity were negatively associated with WTO — as they increased, WTO decreased. These findings are consistent with classic deterrence and RC literature (Beccaria,

1963; Cornish & Clarke, 1986; Tittle, 1977), which suggests that perceived cost certainty and severity should have an inverse relationship with criminal behavior.

With respect to benefits, neither benefit certainty nor benefit magnitude were significantly related to a person's willingness to drive drunk. This is surprising given that literature suggests perceived benefits have a positive relationship with one's WTO (Cornish & Clarke, 1986; Katz, 1999; Nagin & Paternoster, 1993). It is possible that a scale of *general* benefits does not accurately predict a person's WTO for a specific context. In this sense, it is possible that only specific forms of benefits influence this form of offending. This notion is consistent with theorists who emphasize the situational nature of offending (Cornish & Clarke, 1986; Wikström, 2006).

Context-specific variables (situational context, risk, and benefit), however, were not significantly associated with WTO. This is not completely surprising and should not be taken as contradicting the above situational emphasis. These results contribute to the mixed findings of contextual variables in previous literature (Barton-Crosby & Hirtenlehner, 2020; Pauwels, Svensson, & Hirtenlehner, 2018). Although Pogarsky (2002) and Wikström (2004) state that context *should* matter, one should not call this finding unsupportive of their theories: Wikström's concept of a two-step decision-making process claims a person who identifies crime as a viable option will experience the inputs of RC. However, those who do not see an offense as an action will not experience the RC decision-making process. It is possible that context is considered as part of the decision-making process only after a criminal action is identified as possible. Therefore, those with high morals do not consider context because they do not consider committing the crime in the first place. Those with low morals, however, might not perceive context as part of the decision-making process; it is possible that the threat of formal sanctions,

and formal sanctions *only*, influence those with low morals. Taken together, context-specific variables may only have an effect for *some* individuals, in line with a moderating hypothesis.

Although I expected to find moderating effects of morality on RC constructs, there were no significant moderation effects morality on cost certainty and cost severity. These null findings are partially unresponsive of Wikström's claims. If Wikström is correct, we would have found moderating effects of morality on perceived cost certainty and severity, where those with high morals do not consider these costs. One explanation for this null finding is the particular sample used for this study. Specifically, all students — regardless of morality level — would face severe consequences if apprehended and punished for drunk driving, potentially resulting in failed classes, loss of student status, and even loss of scholarships. These penalties become harsher when we factor in general financial instability and lack of career experience among most college students. Additionally, the chances of being apprehended may be higher for a student sample because warnings may be more explicitly stated via general campus communications about alcohol consumption during sporting events. On campus student residents may also have stricter rules about alcohol possession within the dorm rooms, regardless of legal/illegal age. In sum, it is possible that the threat of apprehension and penalties are so great for students specifically that everyone is deterred regardless of morality level. There were also no moderating effects of morality on general benefits, but since general benefits did not predict WTO, it is unsurprising that we find no moderating effects.

Consistent with a moderating hypothesis, results show that morality moderates situational context such that those with higher morals have a similar low WTO regardless of the type of bar, and those with lower morals report more WTO when in an unfamiliar bar. This result is interesting for a few reasons. First, perhaps being in an unfamiliar bar reminds the respondent

that they are not in a familiar place, and they do not know anyone in the area, making them more comfortable offending. On the other hand, drunk driving home from an unfamiliar bar poses a more difficult time in actually getting home. In other words, someone with high morals in an unfamiliar bar is less willing to drive drunk because the route home is different, and it is much easier to drive home after drinking if the respondent is familiar with directions home.

Morality also moderates situational risk such that high morals had a negative effect on WTO for those who saw no cops, saw cops, or heard from a friend about a police presence. In fact, not seeing cops and seeing cops on the way to the bar had similar effects of morality on WTO. These similar scores of WTO might be a simple case of common sense: if an individual saw cops on the road on the way to the bar, they might assume that the patrolmen are no longer there several hours later (Pogarsky & Piquero, 2003). Another explanation is that there is an omnipresent perception of police presence regardless of actually seeing police cars in the area. In other words, there could be a sustained belief that there is continuous police presence, so increasing police appearances or decreasing them will have no effect on deterrence (Buck, Gross, Hakim, & Weinblatt, 1983; Kleck & Barnes, 2014).

The negative effect of morality was weaker for those who heard about police presence from a friend. One explanation for this is that morality has less of an effect on WTO when the information came from a friend who, according to psychological literature of social group dynamics, have similar beliefs about crime and the law (Chen, Pillutla, & Yao, 2009). Another explanation is the idea of Bayesian updating, or vicarious information transfer. That is, people learn new information and change their perceptions based on other people's experiences (Gioia & Manz, 1985; Holt & Smith, 2009; Jaffray, 1992; Park & Puranam, 2020; Wilson, Paternoster, & Loughran, 2016). In fact, some scholars even suggest that indirect information transfer like

this is more influential than direct experience in forming beliefs (Rosenbaum et al., 2005). Then, it may be that people's perceptions of risk were increased by the information of others, relying less on their morality to guide them through the decision-making process.

The most interesting aspect of the risk information transmission, however, is the positive association between morality and WTO when one hears about police presence from the news. While high levels of morality result in a consistently low likelihood of offending regardless of the type of messaging (if there are police at all), among those with the lowest levels of morality, the policing message that seems to be the most influential is hearing on the news. It is possible that the language used for the scenario manipulations regarding situational risk accounts for this positive association. For example, perhaps a "police crackdown" is perceived as more serious than a general police presence among those with low morals. Taken together, then, these moderating results suggest that morality does not moderate generalized cost certainty, severity, and benefits, and instead provide support for a context-specific decision-making process, which is consistent with Wikström's theory in that key importance is placed in *situational* factors (2004, 2006).

This study also analyzed the mediating effects of morality. Morality mediated 8.63% of costs certainty's effect on WTO, resulting in a partial mediation, but perceived severity was not mediated by morality at all. These findings suggest that the severity of the punishment does not shape moral beliefs, but the probability of receiving punishment of any kind does. These findings are consistent with early deterrence literature (Antunes & Hunt, 1973; Beccaria, 1963, p. 58) which states that "one of the greatest curbs on crime is not the cruelty of punishments, but their infallibility...", as well as more recent literature testing this idea (Ishoy, 2017; Svensson et al., 2013). This finding is also consistent with the idea that a child can develop high morals if

parental units and schools monitor their behavior carefully and correct behavior that is wrong. Additionally, the adult criminal justice system can deter offenders by focusing on increasing certainty of offending, rather than focusing on more punitive measures. In fact, a passage in Zimring and Hawkins's *Deterrence* (1973, p. 161) states that "...if punishment could be made certain almost all crime would be eliminated." This finding suggests the effect of certainty is not only direct, but also influential because of its moral signaling. Mediation effects were not observed for cost severity, benefit certainty, benefit magnitude, situational context, situational risk, or situational benefit.

Hypothesis 4 stated there would be substantive differences in results across various methodologies, which would explain the inconsistent findings in prior literature. Interestingly, there were no substantive differences in most effects of the variables across analytic strategies. In fact, the only substantive difference found across model types was the significant/non-significant effect of cost severity on WTO, which could have resulted from chance alone given the number of statistical tests conducted or due to the constant that was added prior to logging the variable (Feng et al., 2014), rather than a true, meaningful difference across models. Given the similar findings across various models, it seems that differences in analytic methodology are not responsible for inconsistent findings in prior literature. Together these findings do not lend support to Hypothesis 4.

What, then, accounts for the inconsistent findings? One explanation is the specific scenario that is chosen for studies that utilize a vignette methodology. Differing crime types might result in different distributions of WTO, ultimately altering any predictive effects of the independent variables. For example, among morality and deterrability-focused studies, vignettes addressed sexual assault (Bachman et al., 1992), corporate crime (Nagin & Paternoster, 1993;

Paternoster & Simpson, 1996), and drug use (Gallup & Baron, 2014); although drunk driving is the most frequently applied (Nagin & Paternoster, 1993; Paternoster et al., 2017; Pogarsky, 2002). Differences in findings may also be due to differences in sample composition. For instance, Gallup and Baron's (2014) study sampled homeless youths, Bachman and colleagues (1992) sampled only college males, and Paternoster and Simpson's (1996) study sampled *graduate* students only.

Differences in findings may also be due to measurement differences. For example, Nagin & Paternoster (1993) used social shame as a direct cost to measure morality, whereas Paternoster et al. (2017) used the dictator and ultimatum game results as indicators of other-regarding preferences, and Pogarsky (2002) used a measure of social disapproval. None of these concepts directly measure morality; although an argument can be made about morality subsuming these concepts in its definition, any differences in interpretation could account for the mixed findings between morality's role in predicting WTO. Determining what accounts for differing findings in prior literature is a daunting task when measures, samples, and analytic strategies represent opportunities to diverge from prior methodology; these are all key directions for future research.

While this study was primarily framed within a RC context, the findings have theoretical implications outside of this theory. First, my findings are generally supportive of Wikström's (2004) situational action theory (SAT). Although context did not directly impact WTO, context seemed to matter among people who identify crime as an option. Because "perception alternatives and the process of choice [does] not rest fully in either the individual or the setting but emerge from the interaction between the two" (Wikström, 2004, p. 9), for those with high morals, their level of morality nullifies any effect from the setting or context. So, although we did not find a direct effect of context on WTO, SAT is still theoretically supported. It is

important to note, however, that I did not find interaction effects among morality and generalized rational choice constructs (certainty, severity, benefits). This suggests that the moderating effects in Wikström's theory are largely *situational* rather than general.

Second, findings of this study were not only supportive of RC theory and SAT, but also supportive and applicable to other criminological theories as well, such as Akers' (1998) social learning theory (SLT). For example, cost certainty was partially mediated by morality such that a higher perceived likelihood of "being caught" was associated with increased morality where one views a high perceived certainty as reflective of something for which you *should* be caught. This idea is consistent with "definitions" within SLT, where experiences and interactions shape a person's positive or negative definition about an offense. Those who perceive certainty of apprehension to be high will form negative definitions toward that offense and should have a low WTO. Likewise, if a person perceives certainty of apprehension to be low, perhaps because of parents or peers that condone deviant behavior, then they may think an action is "not that bad" or is more moral than actions that have a higher certainty of apprehension. This would then shape their definition of this action to be favorable. This differential association (Akers, 1998) will in turn reinforce the definitions conducive to criminal behavior. Moreover, the general idea that costs and benefits influence decision making is consistent with Akers' (1990) notion of differential reinforcement.

Finally, results of this study have implications for control theories more broadly. Take, for example, the finding that morality is indeed a significant predictor of offending is in line with Hirschi's (1969) notion of belief as an element of the social bond. In addition, findings that informal sanction certainty and severity (within the general certainty and severity measures) are associated with offending are consistent with Becker's (1960, p. 35) notions of "side-bets" or

social institutions/relationships being perceived as valuable and deterring offending (see also Sampson and Laub, 1993). Mediating findings are also consistent with Becker's (1960, p. 36) idea of "generalized cultural expectations" where society/culture (which determine sanction certainty and severity through allocation of resources) shape a person's morality; once a behavior or set of expectations is formed (morality), then behavior becomes consistent to maintain that set of expectations, ultimately acting as controls.

This study had several limitations. First, the sample was comprised only of college students within a specific region, which is not necessarily generalizable for populations in different regions (or the country as a whole) or different age groups. As previously stated, however, this sampling frame was intentionally selected because of its prevalence in prior literature (Grasmick & Green, 1981; Nagin & Paternoster, 1993; Pogarsky, 2002). Second, only one crime type was used for this study, eliminating any heterogeneity in WTO across differing crime types. While this crime is also the most commonly applied scenario within offender decision-making research (Nagin & Paternoster, 1993; Paternoster et al., 2017; Pogarsky, 2002), likely due to the frequent use of student samples, it is unknown whether findings would be consistent across scenarios. It is also possible that different crime types/scenario manipulations would result in different degrees of "the zero-chance phenomenon." Additionally, because this study was cross-sectional, there might be mediating effects in a different causal ordering than what was analyzed, reported, and theoretically hypothesized, where morality may influence sanction perceptions. Future studies should investigate all mediating possibilities using longitudinal data. Further, the lack of standardization among coefficients precludes the reader from directly comparing the effects of each independent variable; this would have been particularly helpful when comparing methodologies to further investigate the potential

differences between analytical models and is a direction for future research. A final limitation of this study is the low r-squared, specifically that only 16% of the variability among the dependent variable is explained by the variables included in the final model (Table 3, Model 4). Although this number is common among micro-level research focusing on individuals (rather than the macro level), there is 84% unexplained variance. Alternative variables or stronger measures should be considered in future research to try and close the gap between unexplained and explained variance.

Despite these limitations, this study presented a strong test of the empirical relationship between morality and offending within a RC context. First, this study offers a comprehensive examination of morality's effects in a direct, moderating, and mediating fashion. Also, not only is this study the first of its kind to measure morality's mediating effects *directly* on perceived cost certainty rather than using parallel measures like parental monitoring, but it is also one of the first to investigate the mediating effects of morality on benefits of any type. This study lays the groundwork for future studies to move past a deterrence framework to test morality's effect on offending and to further question what accounts for inconsistent findings in prior literature.

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APPENDIX A: SUPPLEMENTAL TABLES AND FIGURES

Table A1. Items Included in Study Scales.

Morality (Cronbach's $\alpha = 0.92$)

1. It is okay to steal if you need the money to feed your family, to pay rent, or to help a friend
2. It is okay to steal because if you don't, someone else will
3. It is okay to steal as long as you are not physically hurting anyone
4. It is okay to steal from someone who is rich and can afford to lose it
5. Stealing a little bit of money is not too serious because others steal a lot more
6. It is okay to steal from an unlocked car if the owner is not responsible enough to lock their car
7. It is okay to steal to teach someone a lesson
8. It is okay to drive while intoxicated if you cannot afford an Uber
9. It is okay to drive while intoxicated if you have done it many times and never hurt anyone
10. It is okay to drive while intoxicated in order to prevent bothering any of your family members or friends to pick you up
11. It is okay to fight to protect yourself or someone close to you
12. It is okay to fight if someone disrespects you or someone close to you
13. It is okay to sell drugs because it is not really harming anyone
14. It is okay to sell drugs if it is your only way to make money
15. It is okay to sell drugs because if you don't, someone else will
16. It is okay to sell drugs because using them isn't that bad

Perceived Certainty of Getting Caught ($r = 0.73$)

1. What do you think the chance is that you would be caught by the police if you chose to drive yourself home in this situation?
2. What do you think the chance is that you would be caught by your friends, family, employer (etc.) if you chose to drive yourself home in this situation?

Perceived Severity of Getting Caught ($r = 0.78$)

1. How much of a problem would it be for you if you got caught by the police?
2. How much of a problem would it be for you if you got caught by your friends, family, employer (etc.)?

Certainty of Offending Benefits (Cronbach's $\alpha = 0.96$)

1. Feeling a rush or "high" because you are getting away with something wrong
2. Feeling a rush or "high" because you are doing something exciting
3. Feeling in control or powerful
4. Feeling a sense of confidence
5. Feeling free
6. Feeling independent or self-sufficient

Table A1 Continued. Items included in Study Scales.

7. Feeling energetic and youthful
8. Feeling a sense of excitement
9. The convenience of not having to ask anyone for money or favors
10. Freedom to be or do whatever you want
11. Saving time and effort because you have chosen the easiest path
12. Not having to worry about money or financial independence
13. Avoiding inconvenience
14. Removing the feeling that you are limited or restricted

Severity of Offending Benefits (Cronbach's $\alpha= 0.96$)

1. Feeling a rush or "high" because you are getting away with something wrong
2. Feeling a rush or "high" because you are doing something exciting
3. Feeling in control or powerful
4. Feeling a sense of confidence
5. Feeling free
6. Feeling independent or self-sufficient
7. Feeling energetic and youthful
8. Feeling a sense of excitement
9. The convenience of not having to ask anyone for money or favors
10. Freedom to be or do whatever you want
11. Saving time and effort because you have chosen the easiest path
12. Not having to worry about money or financial independence
13. Avoiding inconvenience
14. Removing the feeling that you are limited or restricted

Self-Control (Cronbach's $\alpha= 0.83$)

1. I plan tasks carefully
2. I do things without thinking
3. I don't "pay attention"
4. I concentrate easily
5. I save money on a regular basis
6. I am a careful thinker
7. I plan for job security
8. I say things without thinking
9. I act "on impulse"
10. I get easily bored when solving thought problems
11. I act on the spur of the moment
12. I am more interested in the present than the future

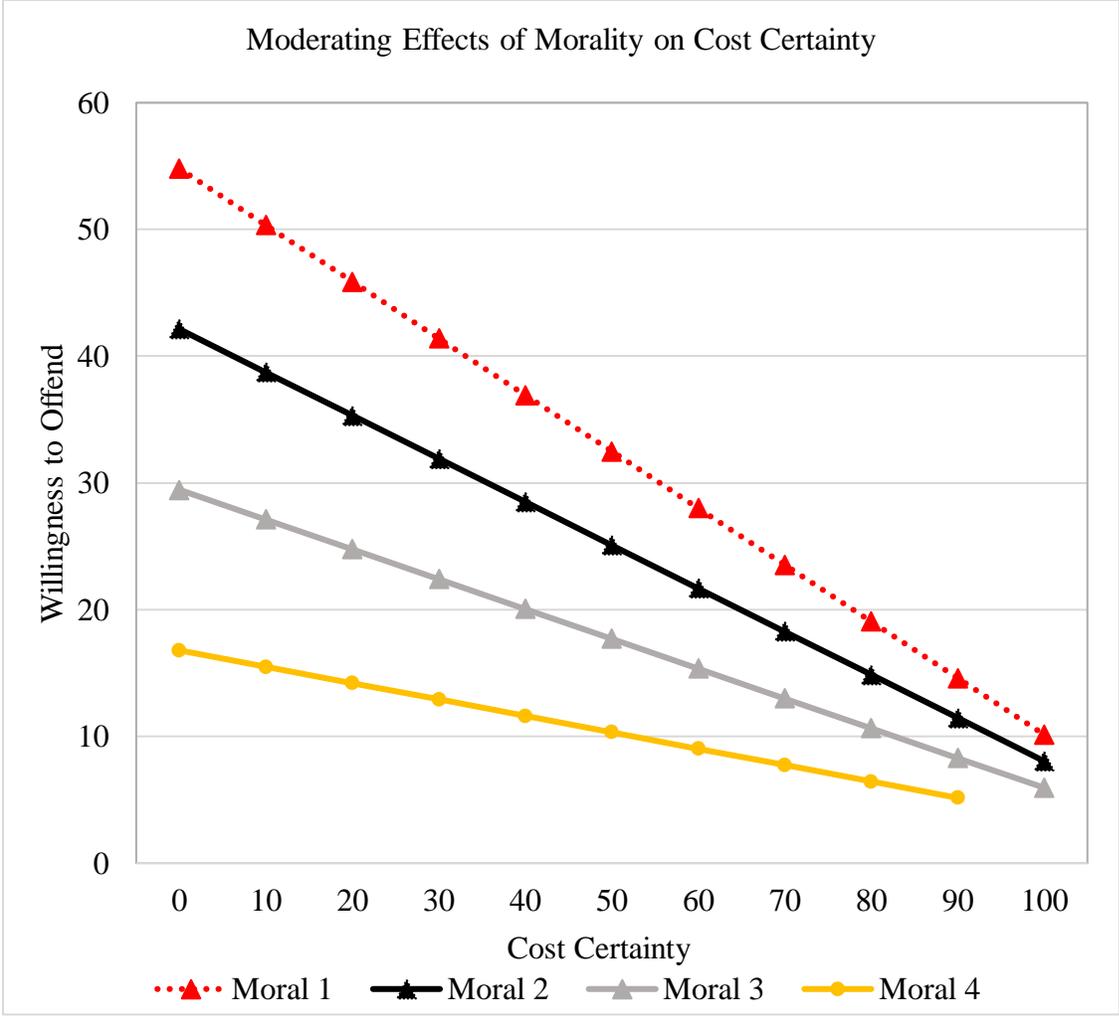


Figure A. Moderating Effects of Morality on Cost Certainty.

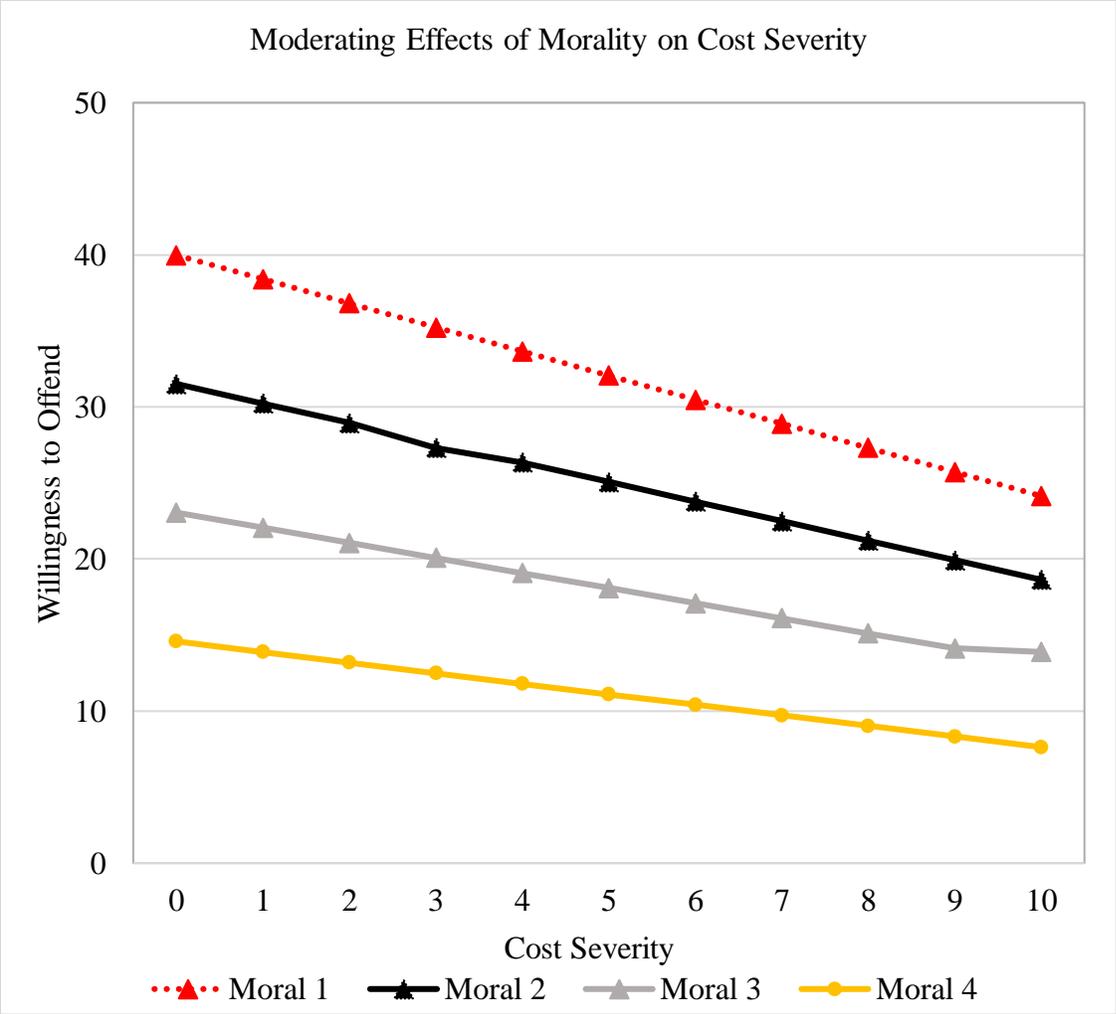


Figure B. Moderating Effects of Morality on Cost Severity.

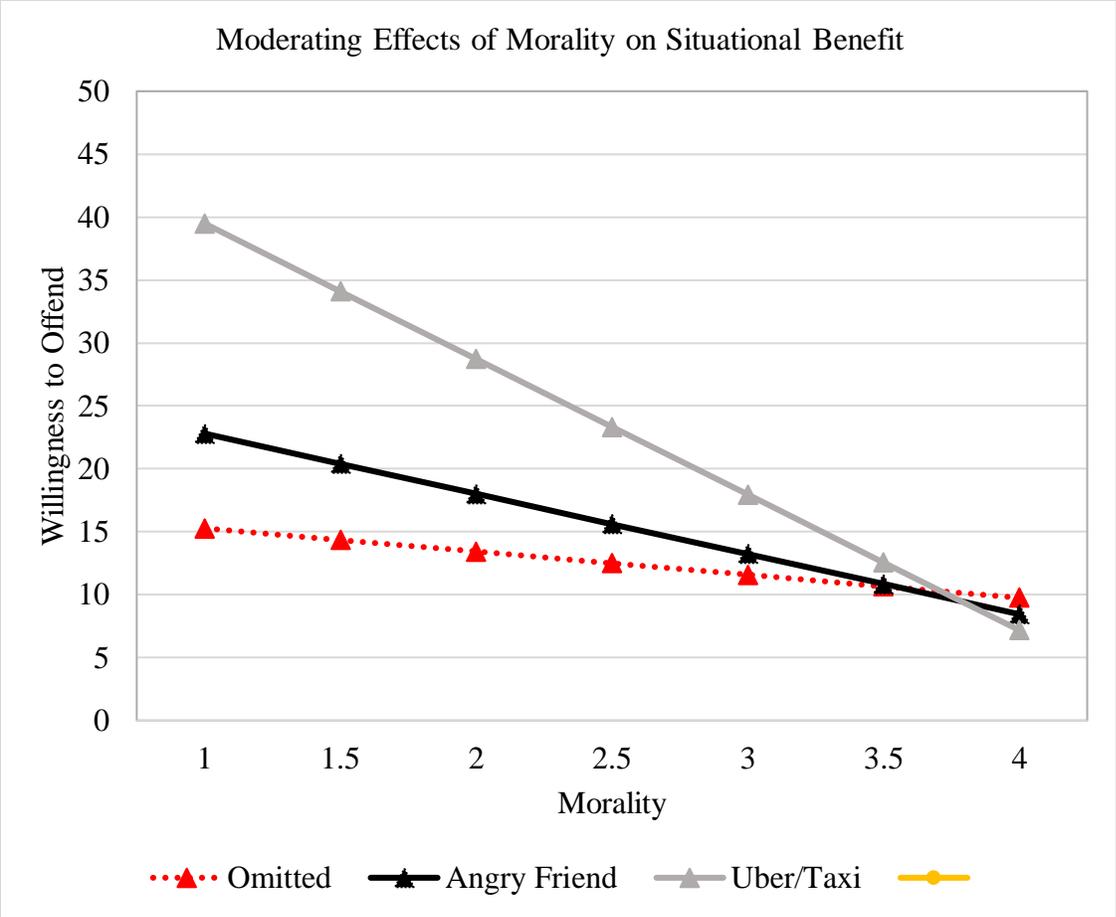


Figure C. Moderating Effects of Morality on Situational Benefit.

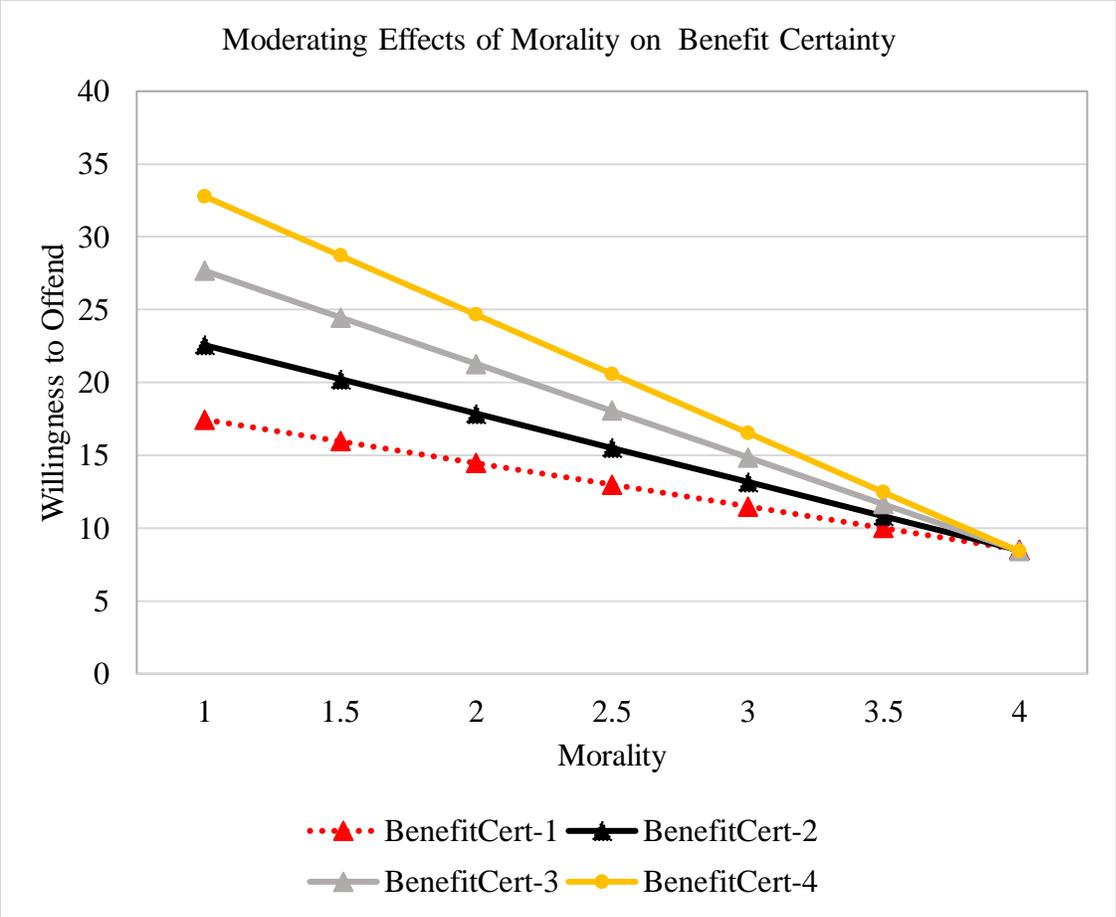


Figure D. Moderating Effects of Morality on Benefit Certainty.

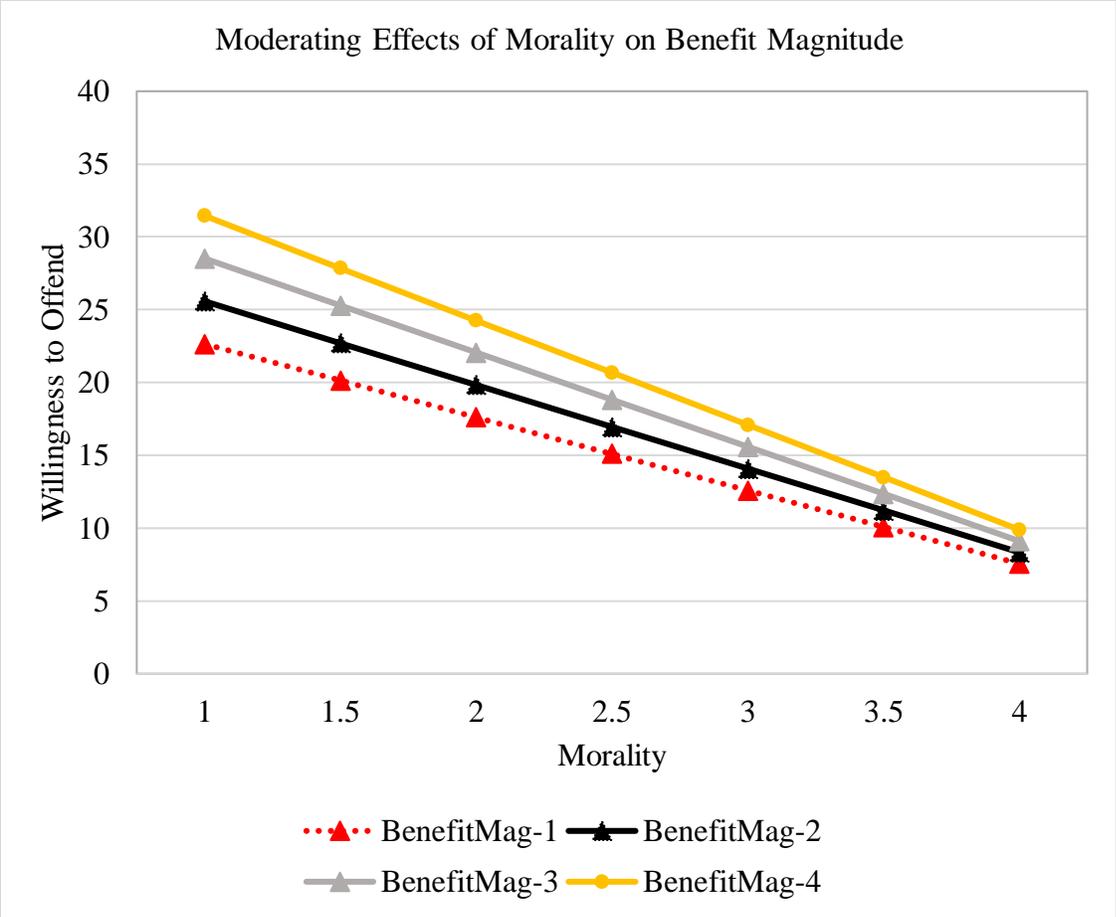


Figure E. Moderating Effects of Morality on Benefit Magnitude.