

The Effect of Procedural Justice During Police-Citizen Encounters:

A Factorial Vignette-Based Study

by

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ABSTRACT

Many studies testing the effects of procedural justice judgments rely on cross-sectional data. The shortcomings of such a strategy are clear and alternative methodologies are needed. Using a factorial vignette design, this study tests a variety of hypotheses derived from the process-based model of regulation, most of which involve the posited outcomes of procedural justice judgments during police-citizen encounters. This technique allows the researcher to manipulate police process during citizen encounters via hypothetical scenarios. Experimental stimuli are used as independent variables in the regression models. The results show that participants who were administered vignettes characterized by procedural injustice had lower levels of encounter satisfaction, decision acceptance, immediate compliance and greater expectations that police handle similar situations in the future differently relative to individuals who did not receive the negative stimulus. These effects are statistically significant across encounters involving traffic stops and noise complaints. As anticipated, the effect of procedural injustice often proved more salient regardless of whether participants were administered vignettes where they received a citation. Given the utility of the vignette design, future researchers are encouraged to apply the design to additional causal questions derived from the process-based model.

TABLE OF CONTENTS

	Page
LIST OF TABLES	iv
INTRODUCTION.....	1
PROCESS-BASED MODEL OF REGULATION	2
RESULTS FROM PROCESS-BASED MODEL RESEARCH	4
UTILITY OF VIGNETTE METHODOLOGY	7
CURRENT FOCUS	9
METHODS	10
Data.....	10
Sample.....	10
Design.....	11
MEASURES	12
Dependent Variables.....	12
Independent Variables	13
Hypotheses.....	14
ANALYTIC STRATEGY	15
RESULTS	15
Judgments of Injustice Stimuli	15
Multivariate Regression Models.....	16
Robustness Check.....	18
DISCUSSION	19
REFERENCES.....	23

APPENDIX

Page

A HYPOTHETICAL SCENARIOS 27

LIST OF TABLES

Table		Page
1.	Summary Statistics for Dependent Variables	13
2.	Procedural Justice Judgments of Injustice Stimuli	16
3.	Ordinal Logistic Regression for Noise Complaint Subsample	17
4.	Ordinal Logistic Regression for Traffic Stop Subsample	18

INTRODUCTION

The process-based model of regulation posits that police legitimacy is directly affected by how fairly officers treat citizens during encounters. Tyler's (1990) seminal study found support for this argument. A recent meta-analysis reports that, across cultural contexts, police legitimacy increases when the dialogue of police interventions centers on increasing procedural justice (Mazerolle et al., 2013). The process-based model also holds that the nature of police encounters affects a variety of other outcomes, such as compliance with the law, cooperation with the police, satisfaction with how the encounter was handled, and acceptance of police officer decisions (Tyler & Huo, 2002). Current research is largely supportive of this part of the model too (see Tankebe, 2014, for a review). All else equal, theory and research suggest the police can help themselves and reduce criminal and disorderly behavior by practicing procedurally-just tactics (e.g., fair and respectful interpersonal treatment during citizen encounters). For example, the President's Task Force report (2015) findings are paramount to police today. The report formulated from existential research and meetings with organizational leaders provides insight into the importance of procedural justice tactics by police toward citizens.

One problem with much of the extant research is that it tests causal hypotheses (e.g., procedural justice predicts police legitimacy) using cross-sectional data. It is well-known that a limitation with cross-sectional survey data is that it makes drawing causal inferences difficult. Field experiments of police interventions, which are better able to isolate causal mechanisms, have produced mixed support for the process-based model (see, e.g., MacQueen & Bradford, 2015). While such experiments yield valuable information, administering such studies is usually expensive and time consuming. Not

surprisingly, field experiments in this area are not terribly common. Other methodologies are available to test directional hypotheses without expending a great deal of time and resources. For example, factorial vignette-based designs offer a relatively inexpensive and time efficient alternative. Though common in criminological research more generally, vignettes have been underutilized in testing process-based model hypotheses.

This study examines the causal links between procedural justice and a several outcome measures (e.g., immediate compliance & decision acceptance) using vignette methods. To do so, a university-based sample was administered full factorial vignettes (i.e., the maximum combinations based on stimulus and baseline measures) via self-administered surveys (see Alexander & Becker, 1978). These data are used to estimate multivariate regression models. The results will shed light on whether variation in procedural justice exhibited by police officers in two different types of encounters (i.e., traffic stop and noise complaint) predicts encounter satisfaction, immediate compliance, decision acceptance, and the like. This research will also speak to the broader concern as to whether the police can help their own cause by using procedurally-just tactics to accomplish their mandate.

Process-Based Model of Regulation

Prior research shows that police process matters with regard to fostering an environment of public cooperation, compliance with the law, and establishing police legitimacy in the eyes of citizens (see Tyler, 2003, for a review). However, much of the research testing process-based model hypotheses uses cross-sectional designs. Given the weaknesses associated with such designs (e.g., temporal ordering issues), it is far from an

empirical fact that police process promotes compliance, cooperation, and other outcomes of interest.

The process-based model is described by Tyler (1990) as “normative” because it seeks to understand what people view as fair during an encounter with police (e.g., neutrality and polite treatment). The two key variables at the heart of the model are procedural justice and police legitimacy. The former is defined as police treatment that is fair, respectful, and evenhanded (Bradford, Jackson, & Hough, 2012). In terms of research, procedural justice is frequently operationalized as quality of interpersonal treatment (e.g., polite and respectful behavior) and quality of decision making (e.g., considering all sides before making a decision; Reisig et al., 2007; Sunshine & Tyler, 2003). According to Tyler (2003, p. 284), procedural justice judgments directly influence perceptions of police legitimacy and other salient outcomes (e.g., willingness to cooperate, immediate compliance, & decision acceptance). Procedural justice judgments, according to Tyler, also affect outcomes indirectly via police legitimacy.

The definition of police legitimacy is contested. Drawing on Weber (1978), Tyler (1990) describes the existence of legitimacy for police as when people feel obligated to voluntarily obey police commands, requests, and directives. Obligation to obey the police measures are frequently combined with trust scales when operationalizing police legitimacy to capture whether citizens trust the police act in their interests (Tyler, 2011). Another approach involves viewing legitimacy as multidimensional in nature, consisting of police lawfulness, distributive justice, procedural justice, and police effectiveness. This approach conceptualizes obligation to obey as an outcome of legitimacy, not a key component (Bottoms & Tankebe, 2012). Recent research has shown support for the

Bottoms-Tankebe police legitimacy model (Tankebe, 2013; Tankebe, Reisig, & Wang, 2016). While this approach may have its benefits, it presents procedural justice as a constituent element of police legitimacy. As such, this particular approach is not workable for the present study and the explicit focus on the direct effects of procedural justice judgments.

A third perspective to understanding police legitimacy builds on Tyler's (1990; Sunshine & Tyler, 2003) earlier approach. More specifically, Jackson et al. (2012) operationalize police legitimacy by adding moral (or normative) alignment to obligation to obey and trust/confidence in the police. Moral alignment reflects variation in the values police and citizens share in common. People will follow laws voluntarily, according to Jackson and his associates, because the police are enforcing laws that people believe are consistent with their values. In practice, research simply sums the three subscales—obligation to obey, trust/confidence, and moral alignment—to operationalize police legitimacy (Jackson et al., 2012; Tyler & Jackson, 2014; see Reisig & Bain, 2016, for a factor-analytic approach). The current study adopts this strategy for conceptualizing and measuring police legitimacy.

Results from Process-Based Model Research

Much of the research on the link between procedural justice and police legitimacy has been supportive. For example, using mail survey data from New York City, Sunshine and Tyler (2003) found that police legitimacy was driven by procedural justice judgments, net of police performance and crime problems. In another study, Reisig et al. (2007), who used national telephone survey data to construct more psychometrically-sound process-based measures than previously used, found that participants who

perceived that the police treat citizens with dignity and respect (i.e., procedurally-just) reported higher levels of police legitimacy, after controlling for distributive justice judgments. Finally, Gau et al.'s (2012) multi-level study, which used telephone survey data from a mid-sized Midwestern city, found that procedural justice was related to police legitimacy, even after accounting for concentrated disadvantage. In short, the procedural justice–police legitimacy link has been shown to be robust across different samples, measurement approaches, and statistical modeling strategies.

The empirical work on the effects of legitimacy is also supportive of the process-based model. For example, Tyler's (1990) Chicago study showed that police legitimacy predicted compliance with the law using panel data, even after controlling for personal morality and sanction risk. Another study, conducted by Reisig, Tankebe, and Mesko (2014) using survey data from young Slovenian adults (ages 18-23), found that police legitimacy shaped compliance with various legal codes, net of low self-control and personal morality (also see Reisig, Wolfe, & Holtfreter, 2011). Finally, Murphy et al. (2016) examined survey data from tax offenders in Australia and found that legitimacy of legal authorities was linked to compliance with tax codes, after accounting for stigmatization, deterrence, and social identity. Overall, then, the weight of the evidence supports the link between police legitimacy and compliance with the law (see Tankebe, 2014). It also appears that the espoused relationship has been confirmed in a number of different research sites, and by researchers using different measurement approaches and multivariate modeling strategies.

Despite support for these links (i.e., procedural justice → police legitimacy and police legitimacy → compliance with the law), the majority of the studies have used

cross-sectional methodologies. Put differently, a great deal of process-based research has used data from one point in time (Busk, 2005). One potential cause for concern with cross-sectional data is that researchers are only able to estimate correlational (not causal) relationships, so it is impossible to rule out rival hypotheses (e.g., police legitimacy → procedural justice). While cross-sectional studies have laid the foundation for process-based model research, other methodologies must be used to ensure that the reported findings are empirically valid.

Experimental research testing procedural justice and police legitimacy has been relatively rare. Mazzerolle et al. (2013b) used data from a randomized field trial testing the procedural justice—police legitimacy relationship (i.e., the Queensland Community Engagement Trial or QCET). The authors studied the causal relationship between the manipulated experimental group (RBT) encounter with police and the control group. The study found support for the procedural justice—police legitimacy link in that those who were in the experimental group rated police as more legitimate. Finally, MacQueen and Bradford's (2015) matched-pairs design study conducted in Scotland found that the effect of procedural just tactics was zero. Overall, results from prior experiments are more mixed relative to cross-sectional designs. Of course, experiments have drawbacks too. They are costly to perform, time consuming for the researchers and agencies to carry out, and ethical concerns can be a problem when police interventions are randomly used during citizen encounters (e.g., potentially harming participants and absence of voluntary consent). Experiments involving the police can also be coercive and intimidating to participants.

Utility of Vignette Methodology

Vignettes are an attractive alternative because they can overcome some of the shortcomings associated with both cross-sectional (e.g., temporal ordering) and experimental designs (e.g., time and resource investments). The methodology involves presenting sample members short stories or descriptions of a hypothetical situation (Ludwick & Zeller, 2001). There are different types of vignettes (e.g., constant variable vignettes, fractional replication design, and full factorial vignettes). Constant variable vignettes (CVV) give every participant an opportunity to read and react to the same scenario (Hyman & Steiner, 1996). The fractional replication design (FRD) is used when there are too many possible variations of the stimuli so researchers use only a “fraction” of the total possible variations (Alexander & Becker, 1978). There are weaknesses associated with both of these methods. CVV does not allow for assessing more than intergroup differences in judgments because everyone is administered the same vignette, and FRD introduces the possibility of bias because all possible combinations of stimuli are not administered to participants.

Full factorial vignettes (FFV) take into account all possible combinations of systematically altered variables and the different versions of the vignette are distributed randomly to respondents. In other words, FFV allows for the assessment of individual responses based on systematic and exhaustive presentations of stimuli and then calls for administering post-vignette questions that approximate real-life decisions (Alexander & Becker, 1978). The present study adopts FFV because it allows researchers to test complex judgments in an exhaustive set of simulated situations (Ludwick & Zeller, 2001).

FFV methodology can be used across different research contexts (e.g., jury decisions; see Prytula et al., 1975). Several studies have used FFV in crime and justice research. For example, Thurman (1989) used vignettes to assess decisions of citizens to pay taxes, altering the likelihood they would be able to evade a penalty. Thurman found citizens who were most likely to evade taxes would be less inclined to do so when tax rates were lower. Piquero and Tibbetts (1996) assessed hypotheses derived from self-control theory using vignettes. Each participant was presented with a scenario that described in detail an offender who commits a crime randomizing between two different vignettes (i.e., drunk driving and shoplifting) to assess intentions to offend and the risks/rewards of those behaviors. Piquero and Tibbetts found support for integrating low self-control into the rational choice framework. Finally, Nagin and Pogarsky (2001) administered vignettes to assess the likelihood of driving intoxicated. They altered the certainty, celerity, and severity in each vignette using a 3x3 factorial design. The authors found support for certainty and severity in predicting offending, but not celerity. What is more, the authors found that extralegal consequences (e.g., shame and embarrassment) are as powerful as legal consequences. Thus far, vignette research has not been widely used to test hypotheses derived from Tyler's (1990) process-based model of regulation (but see Barkworth & Murphy, 2015).

Using vignettes to test Tyler's (1990, 2003) process-based model would entail altering key variables in hypothetical scenarios (e.g., procedural justice and outcome favorability). The potential benefits of using this method to test process-based hypotheses include presenting participants with situations involving the police behaving in different ways and determining whether participants' judgments of the nature of the encounters

influence their subsequent decisions (e.g., accept the officer's decision). It will also allow for assessing how citizens react during an encounter instead of just asking questions based on past experiences or general perceptions. Though the strengths are clear, this method still presents challenges. After all, interactions with police are not typical for most citizens. It would also be important that the participants feel that the hypothetical scenarios presented in the vignettes are realistic.

Current Focus

To date, research is largely supportive of key hypotheses derived from the process-based model of regulation (e.g., procedural justice matters more than outcome favorability during interactions with police). However, this growing mountain of research is largely limited by the reliance on cross-sectional data. Accordingly, causation is often inferred using correlational research findings. Though many of the findings are consistent with theoretical expectations, cross-sectional data does not allow researchers to rule out rival hypotheses. Because experimental research is prohibitively costly for many researchers, other methodologies must be sought out to better test causal process-based hypotheses. One attractive alternative approach entails the use of vignette designs, where participants are randomly presented realistic hypothetical scenarios involving police encounters with alterations to key stimuli (e.g., procedural injustice). This study uses a university-based sample to test the influence of procedural justice on key outcomes (e.g., immediate compliance and decision acceptance) in two contexts—noise complaints and traffic stops—using vignette methodology. The primary objective is to test process-based model hypotheses. The larger objective is to determine whether the nature of formal social control (e.g., procedurally-just versus coercive police treatment) matters.

Methods

Data

This study uses data from self-administered surveys, distributed to undergraduate criminology and criminal justice (CCJ) students at Arizona State University (ASU) aged 18 and older. Surveys were administered during the fall 2015 and spring 2016 semesters. Students from 13 different CCJ courses were surveyed. Of the 13 courses, 10 were introductory classes, open to all ASU students ($n = 466$). The other three classes were upper-division CCJ courses that were only open to CCJ majors ($n = 130$). Participants were informed that the survey was completely voluntary and that their responses were anonymous prior to administering the survey. A member of the research team was made available to answer any questions while the survey was being administered. The survey took about 20 minutes to complete. The research protocol was approved by ASU's institutional review board. A total of 596 of the 605 surveys that were distributed were returned (participation rate = 98.5%). Missing case values were handled using similar-response pattern imputation, which is available in LISREL 8.80 (Scientific Software International, Chicago, IL).

Sample

The ASU undergraduate population is very diverse. The admission rate in 2015-16 was 84.3%. Though not random, the sample drawn for this study is quite heterogeneous. The sample has 332 females (57.3%) and 247 males (42.7%). A little less than half of the sample identified as White (45.2%), 38% Latino, 6.2% African American, 4.0% Asian, 3.4% Native American, and 2.9% identified as "other" minority. More than half of the students were between the ages of 18 and 19 (55.4%), 12.7% were

age 20, and 31.8% of the sample was 21 years of age or older. When compared to the overall university student population, the sample for this study is more racially diverse, is younger, and includes a higher proportion of females. Because of these differences, the results should not be generalized to the overall student population. However, the data are well-suited for testing the process-based model hypotheses using vignette methodology.

Design

Originally developed by Rossi and Anderson (1982), the full factorial vignette (FFV) methodology used in this study involved administering each student a survey that contained a single hypothetical scenario involving one of two contexts (either traffic stop or noise complaint). Presenting participants with a single vignette (as opposed to many scenarios) reduces the chances of satisficing (i.e., when participants process less carefully due to length and complexity). This should not be a problem for this study as the vignettes presented are short, concise and realistic (Stolte, 1994). Each survey altered the experimental stimulus and baseline for two different variables (e.g., procedural injustice & citation outcome), making for a total of eight different possible versions of the survey (i.e., 2 x 2 x 2). Immediately after reading the scenario, participants were asked to answer a variety of questions related to their hypothetical police encounter. Some of these items were used as outcome variables and other questions will be used to determine whether the procedural injustice stimuli was valid in the eyes of participants.

Measures

Dependent Variables

Four dependent variables are included in the study. The first measure, *encounter satisfaction*, is a single item that asked each participant, “How satisfied are you with the way the police officer handled the situation?” Similar items have been used previously to evaluate police-citizen encounters (see, e.g., Reisig & Chandek, 2001, p. 92). This item featured a closed-ended Likert-type scale that ranged from very dissatisfied (coded 1) to very satisfied (coded 4). A second survey item asked participants, “In a similar situation would you like to see the encounter handled differently?” This item is also similar to one used previously (see Tyler & Huo, 2002, p. 44). This survey item was used as the second outcome measure (i.e., *handle situation differently*). The four-point response set ranged from strongly disagree (coded 1) to strongly agree (coded 4). To capture whether respondents felt compelled to do what officers asked them to do after reading the hypothetical encounter, participants were asked, “How likely would you be to do what the officer asked you to do?” (termed *immediate compliance*; see Tyler & Huo, 2002, p. 44; Tyler, 2003, pp. 288-289). A Likert-type scale ranging from very unlikely (coded 1) to very likely (coded 4) was used. Finally, *decision acceptance* reflect participants’ willingness to accept the officer’s decision during the hypothetical encounter. The survey item read, “How willing would you be to accept the officer’s decision?” (Tyler & Huo, 2002, p. 44). This item also featured a four-point Likert-type scale (i.e., 1 = very unwilling to 4 = very willing). Summary statistics for the outcome measures used in this study are provided in Table 1.

Table 1: Summary Statistics for Dependent Variables

	Mean	SD	Min	Max
<i>Traffic Stop Subsample</i>				
Encounter Satisfaction	2.78	0.97	1.00	4.00
Handle Situation Differently	2.63	0.95	1.00	4.00
Immediate Compliance	3.35	0.68	1.00	4.00
Decision Acceptance	3.28	0.83	1.00	4.00
<i>Noise Complaint Subsample</i>				
Encounter Satisfaction	2.55	1.06	1.00	4.00
Handle Situation Differently	2.73	0.96	1.00	4.00
Immediate Compliance	3.17	0.79	1.00	4.00
Decision Acceptance	3.10	0.90	1.00	4.00

Independent Variables

Two independent variables for each type of encounter are used in this study. These items capture the experimental stimuli in each hypothetical scenario. The first stimuli features a police officer behaving in a procedurally unjust manner. For example, in the noise complaint scenario, the police officer says, “We received a noise complaint from one of your neighbors. It’s no fucking wonder, I could hear your shitty music from the parking lot. Are you all deaf?” In the traffic stop encounter, the officer in question behaves similarly by stating, “Why did you run that stop sign? Do you have any fucking idea how dangerous that is? Do you?” *Procedural injustice* is binary coded and reflects whether participants were administered a vignette that included the experimental stimuli for police behavior (1 = yes, 0 = no). The second independent variable, *citation issued*, simply reflects whether the participant received a citation in their hypothetical encounter with the police (1 = yes, 0 = no). Because the distribution of surveys to participants was near random in nature, no additional independent variables were included in the featured

statistical models. Nonetheless, because pure random distribution was likely not achieved, robustness checks are conducted to ensure that bias was not introduced because of variable omission.

Hypotheses

This study tests the following hypotheses in two police-citizen encounter contexts (i.e., noise complaint & traffic stop):

H_{1,1}: Procedural injustice is inversely associated with encounter satisfaction.

H_{1,2}: The relationship between procedural injustice and encounter satisfaction is stronger than the relationship between citation issued and encounter satisfaction.

H_{2,1}: Procedural injustice is positively associated with handle situation differently.

H_{2,2}: The relationship between procedural injustice and handle encounter differently is stronger than the relationship between citation issued and handle encounter differently.

H_{3,1}: Procedural injustice is inversely associated with immediate compliance.

H_{3,2}: The relationship between procedural injustice and immediate compliance is stronger than the relationship between citation issued and immediate compliance.

H_{4,1}: Procedural injustice is inversely associated with decision acceptance.

H_{4,2}: The relationship between procedural injustice and decision acceptance is stronger than the relationship between citation issued and decision acceptance.

Analytic Strategy

The first step in the analytic strategy is to enter the procedural injustice independent variable for each type of police-citizen encounter into a correlation matrix with procedural justice items that were administered to participants after reading the hypothetical scenarios. Doing so will help determine whether the procedural injustice stimuli was judged as such by study participants. Next, rigorous testing of the stated hypotheses is carried out using multivariate models. Shapiro-Wilk tests indicated that the score distributions from the dependent variables departed from normality. Accordingly, the ordinal logistic regression model will be used. Unless otherwise noted, the parallel lines assumption was met for the regression models presented below. A total of eight regression models are estimated to assess the effect of procedural injustice on each outcome across both types of police-citizen encounters. These same models will also provide estimates on the impact of citation issued on the outcome measures. Multivariate regression models are estimated using Stata 14 (StataCorp, College Station, Texas). Finally, SPost 13 was used to calculate standardized partial ordinal logistic regression coefficients (Long & Freese, 2014).

Results

Judgments of Injustice Stimuli

The purpose of this analysis is to assess whether each of the procedural injustice stimuli are judged accordingly by participants (see Table 2). This is accomplished by asking respondents to rate police behavior in each vignette. One item asked, “The officer treated you with respect” (i.e., Officer Respectful in Table 2). The second item asked, “The officer treated you politely” (i.e., Officer Polite). The third and final item read, “The

officer showed concern for your rights” (i.e., Officer Respected Rights). Each item featured a Likert-type scale ranging from strongly disagree (coded 1) to strongly agree (coded 4). As shown in Table 2, the results indicate that when treated unfairly by the police officer during a hypothetical encounter, participants judged such behavior as disrespectful, impolite, and lack of concern for personal rights. Overall, the estimates in Table 2 suggest that what the officer says to the participant and does during the encounter matters for how the latter evaluates the police behavior.

Table 2: Procedural Justice Judgements of Injustice Stimuli

	Officer Respectful	Officer Polite	Officer Respected Rights
<i>Traffic Stop Subsample</i>			
Procedural Injustice	-0.77	-0.78	-0.48
<i>Noise Complaint Subsample</i>			
Procedural Injustice	-0.76	-0.74	-0.58

Note. Entries are Pearson’s r correlation coefficients.

Multivariate Regression Models

In Tables 3 and 4, eight ordinal regression models are presented (four for each type of encounter). Each model contains two variables that reflect vignette stimuli (i.e., procedural injustice & citation issued). The Likelihood Ratio Chi-Square (χ^2) for each model was significant at 0.001 indicating the models are superior to constant-only models. Shown in the tables are standardized coefficients (β) and test statistics (i.e., z -test). The results show that procedural injustice is inversely associated with encounter satisfaction (supporting H_{1.1}), positively related to handle the situation differently (supporting H_{2.1}), negatively related to immediate compliance (supporting H_{3.1}), and inversely associated with decision acceptance (supporting H_{4.1}). The results testing these

hypotheses over two different types of encounters (i.e., noise complaint and traffic stop) suggest that treatment matters.

Table 3: Ordinal Logistic Regression for Noise Complaint Subsample (N = 298)

Variables	Encounter Satisfaction		Handle Situation Differently		Immediate Compliance		Decision Acceptance	
	β	z-test	β	z-test	β	z-test	β	z-test
Procedural Injustice	-0.52	-10.44***	0.51	9.54***	-0.38	-6.50***	-0.35	-6.78***
Citation Issued	-0.54	-10.68***	0.44	8.61***	-0.29	-5.14***	-0.56	-9.78***
Likelihood Ratio χ^2	228.23***		168.06***		69.68***		153.43***	
McFadden's R^2	0.28		0.21		0.10		0.21	

Note. Entries are standardized partial regression coefficients (β) and z-tests. Threshold values indicating cut points in latent variables are not shown in table.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (2-tailed test).

The second set of hypotheses are also tested in Tables 3 and 4. The results show that the effect of procedural injustice is greater in magnitude than citation issued in both the “handle situation differently” and “immediate compliance” models for both subsamples (supporting H_{2.2} and H_{3.2}). Similarly, procedural injustice is a stronger correlate in the encounter satisfaction model for the traffic stop subsample, thus providing some support for H_{1.2}. These results support the process-based argument that treatment during police-citizen encounters matter more than the outcome itself.

Despite the strong support for a majority of the hypotheses observed thus far, additional estimates in Tables 3 and 4 do not support the stated hypotheses. For example, H_{1.2} was not supported in the noise complaint subsample (see Table 3). That is the relationship between procedural injustice and encounter satisfaction ($\beta = -0.52$) was slightly weaker than the observed relationship between citation issued and encounter satisfaction ($\beta = -0.54$). The other hypothesis that was not supported was H_{4.2}. In both

cases, citation issued was stronger with regards to participants' willingness to accept the officer's decision. Because these hypotheses were not supported, the results suggest that the process-based model underestimates the salience of outcomes.

Table 4: Ordinal Logistic Regression for Traffic Stop Subsample (N = 295)

Variables	Encounter Satisfaction		Handle Situation Differently		Immediate Compliance		Decision Acceptance	
	β	z-test	β	z-test	β	z-test	β	z-test
Procedural Injustice	-0.59	-10.07***	0.59	9.91***	-0.29	-4.72***	-0.23	-3.92***
Citation Issued	-0.27	-5.60***	0.13	2.74**	-0.20	-3.25***	-0.42	-7.01***
Likelihood Ratio χ^2	151.79***		125.72***		32.91***		67.66***	
McFadden's R^2	0.20		0.16		0.06		0.10	

Note. Entries are standardized partial regression coefficients (β) and z-tests. Threshold values indicating cut points in latent variables are not shown in table.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (2-tailed test).

Robustness Check

Because the randomization process used in this study departed from pure random assignment, additional tests were conducted to determine whether the results were robust when additional variables were included in the regression models featured in Tables 3 and 4. These checks included traditional demographic variables, such as *sex* (1 = male, 0 = female), *age* (1 = 18 to 4 = 21 years or older), *Hispanic* (1 = yes, 0 = no), and *racial minority* (1 = yes, 0 = no), and also variables used in prior process-based research. This batch of variables included *low self-control* (Tankebe, Reisig, & Wang, 2015; Tangney, Baumeister, & Boone, 2004), *police legitimacy* (Tyler & Jackson, 2014), *police effectiveness* (Tankebe, 2013), *criminal offending* (Reisig et al., 2011), *procedural justice* (Reisig et al., 2007), and *social identity* (Bradford, 2014). All of the variables were operationalized as additive scales that possessed acceptable levels of internal consistency (Cronbach's $\alpha \geq 0.70$). The inclusion of these variables in the model specification did not

alter the parameter estimates in the equations presented in Tables 3 and 4, nor did the test statistics for the additional variables achieve statistical significance. Overall, these findings indicate that the attempt to randomly distribute the different vignettes was successful.

Discussion

The results from this study largely support key hypotheses derived from Tyler's (2003) process-based model. Procedural justice is significantly related to salient outcomes and, for the most part, citation outcome is less important in the hypothetical encounters with the police. These results support Tyler and Huo's (2002) assertion that process matters more than the outcome itself. Not all of the results, however, were consistent with theoretical expectations. Citation outcome was more important than procedural justice in terms of decision acceptance. Overall, then, the findings indicate that *both* process *and* outcomes are important during police encounters.

Counter evidence regarding the process over outcome hypothesis has theoretical implications. More specifically, the results allow for one of two conclusions. Either the results of the study are wrong or the theory is wrong. Is it possible that the theory is age-graded? Do younger people have less to lose so they are more sensitive about whether they are ultimately issued a citation? Do older adults accept citation decisions more readily because such sanctions are financially less punitive in a relative sense? More research is needed before definitive conclusions can be made. However, the theory has been tested using multiple methodological approaches, such as using survey research, experimental designs, and systematic social observation research (McCluskey, 2003).

Now vignettes are being used and the results largely support the theory. This does not mean, however, that research opportunities have been exhausted.

Vignette methodology is cost efficient and should be used to assess other aspects of the theory. This approach could be used to assess the role of procedural (in)justice in other types of encounters (e.g., voluntary police contacts, such as calling the police to report a crime). One of the only other known vignette study used the approach to test whether negative emotions mediate the relationship between procedural justice and future compliance (Barkworth & Murphy, 2015). The authors found negative emotions mediate the relationship between procedural justice and future likelihood to comply. Likewise, vignettes could be used to assess whether procedural justice is more salient than distributive justice (i.e., the fair distribution of criminal justice resources) in hypothetical police-citizen encounters. There are many other questions and future vignette process-based model studies are encouraged.

The practical significance of these findings suggest that police officers can use more procedurally-just tactics to increase the efficiency of their encounters with citizens. By treating citizens with dignity and respect, officers will be more successful at getting citizens to obey their commands (i.e., immediate compliance) and accept their decisions. However, Skogan's (2006) study would suggest these results may only show that being treated procedurally (in)just has a more negative effect on citizens perceptions of an encounter than a positive experience would have. That being said, police departments should promote the use of procedurally-just tactics and encourage applied research to determine whether such practices yield desired outcomes. If they do, implementing these in the academy and in-service training could be a cost effective way

to start the new procedure protocols (President's Task Force on 21st Century Policing, 2015).

Though vignettes are a useful research tool, they do come with limitations. Vignettes are criticized because the situations described are hypothetical, so it is (at best) unclear as to whether participants would make the exact same decisions and feel the exact same way if the situation had actually happened to them. For example, Hughes and Huby (2004) point out that vignettes are hypothetical and may thus result in answers that are hypothetical. This study overcomes this potential shortcoming by using previous process-based research, specific officer language to elicit realistic responses, and research from Ajzen (1991) theory of planned behavior (i.e., behavioral intentions are correlated with reality). Constant et al. (1994) notes concerns with social desirability bias (i.e., participants may respond with what they think is the desired response instead of what they would actually do). Asking participants to respond from their own perspective (like in this study) instead of based on another character can reduce this form of bias. Kinicki et al. (1995) proposes too that paper vignettes, like those used in the present study, are less cognitively stimulating relative to video/audio vignettes, the latter of which allow participants to pick up on verbal cues and body language (see, e.g., Braga et al., 2014). Despite these limitations vignettes are a useful method for testing theoretical relationships and should continue to be explored.

Overall, this study found support for the process-based model in most situations. However, encounter outcome also matters and should not be overlooked. The difference between the two may be that police cannot necessarily change the outcome, but they can decide how they treat the citizen during an encounter. This study has contributed to the

growing procedural justice research and has provided an alternative to using cross-sectional data. It has also demonstrated how future research can test causal hypotheses using police-citizen encounters in a cost effective fashion. All else being equal, research and theory suggest the police can help themselves satisfy a portion of the police mandate by practicing procedurally-just strategies (e.g., fair and respectful interpersonal treatment during citizen encounters).

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APPENDIX A
HYPOTHETICAL SCENARIOS

Vignette 1.1: Noise Complaint / Procedural Justice, No Citation Issued

You are hosting a party at your apartment in Arizona. You and your friends are having a good time, getting a little rowdy, when you hear a knock at the door. You turn down the music and open the door to find a police officer standing in front of you. The officer says to you, “Hi there, I am here tonight because we received a noise complaint from one of your neighbors. I need to speak with the residents of the apartment for a moment.” You answer that it’s your apartment and after talking to the officer for a few minutes regarding the complaint and the occasion for the party the officer says that he is not going to break up the party as long as you can keep the noise down.

Vignette 1.2: Noise Complaint / Procedural Injustice, No Citation Issued

You are hosting a party at your apartment in Arizona. You and your friends are having a good time, getting a little rowdy, when you hear a knock at the door. You turn down the music and open the door to find a police officer standing in front of you. The officer says to you, “Open this door all the way! We received a noise complaint from one of your neighbors. It’s no fucking wonder, I could hear your shitty music from the parking lot. Are you all deaf?” After talking to the officers for a few minutes regarding the complaint and the occasion for the party, the officer says that he is not going to break up the party as long as you can keep the noise down.

Vignette 1.3: Noise Complaint / Procedural Justice, Citation Issued

You are hosting a party at your apartment in Arizona. You and your friends are having a good time, getting a little rowdy, when you hear a knock at the door. You turn down the music and open the door to find a police officer standing in front of you. The officer says to you, “Hi there, I am here tonight because we received a noise complaint from one of your neighbors. I need to speak with the residents of the apartment for a moment.” You answer that it’s your apartment and after talking to the officer for a few minutes regarding the complaint and the occasion for the party, the officer says your guests need to exit the apartment immediately and he gives you a ticket for violating the local noise ordinance.

Vignette 1.4: Noise Complaint / Procedural Injustice, Citation Issued

You are hosting a party at your apartment in Arizona. You and your friends are having a good time, getting a little rowdy, when you hear a knock at the door. You turn down the music and open the door to find a police officer standing in front of you. The officer says to you, “Open this door all the way! We received a noise complaint from one of your neighbors. It’s no fucking wonder, I could hear your shitty music from the parking lot. Are you all deaf?” After talking to the officer for a few minutes regarding the complaint and the occasion for the party, the officer says your guests need to exit the apartment immediately and he gives you a ticket for violating the local noise ordinance.

Vignette 2.1: Traffic Stop / Procedural Justice, No Citation Issued

You are driving down an unfamiliar road when you notice a police car with flashing lights behind you. You pull over. The officer pulls in behind you, gets out, and approaches your car. Standing outside your window, the officer says to you: “Hi there. I pulled you over because you ran a stop sign a few streets back. May I have your license, registration, and proof of insurance please?” You hand the officer your information and he walks back to his car. After a few minutes he comes back and says that he is not going to write you a ticket but asks that you be careful not to run any stop signs in the future.

Vignette 2.2: Traffic Stop / Procedural Injustice, No Citation Issued

You are driving down an unfamiliar road when you notice a police car with flashing lights behind you. You pull over. The officer pulls in behind you, gets out, and approaches your car. Standing outside your window, the officer says to you: “Why did you run that stop sign? Do you have any fucking idea how dangerous that is? Do you? You could have seriously hurt someone. Before you give me your excuses, get out your license, registration, and proof of insurance. I need to see it.” You hand the officer your information and he walks back to his car. After a few minutes he comes back and says that he is not going to write you a ticket but asks that you be careful not to run any stop signs in the future.

Vignette 2.3: Traffic Stop / Procedural Justice, Citation Issued

You are driving down an unfamiliar road when you notice a police car with flashing lights behind you. You pull over. The officer pulls in behind you, gets out, and approaches your car. Standing outside your window, the officer says to you: “Hi there. I pulled you over because you ran a stop sign a few streets back. May I have your license, registration, and proof of insurance please?” You hand the officer your information and he walks back to his car. After a few minutes he comes back and says, “I am issuing you a ticket. You can pay it online or mail it in. Or if you wish to challenge it be sure to mark the “not guilty” box and they will mail you your court date.”

Vignette 2.4: Traffic Stop / Procedural Injustice, Citation Issued

You are driving down an unfamiliar road when you notice a police car with flashing lights behind you. You pull over. The officer pulls in behind you, gets out, and approaches your car. Standing outside your window, the officer says to you: “Why did you run that stop sign? Do you have any fucking idea how dangerous that is? Do you? You could have seriously hurt someone. Before you give me your excuses, get out your license, registration, and proof of insurance. I need to see it.” You hand the officer your information and he walks back to his car. After a few minutes he comes back and says, “I

am issuing you a ticket. You can pay it online or mail it in. Or if you wish to challenge it be sure to mark the “not guilty” box and they will mail you your court date.”