APPLYING TYLER'S PROCESS-BASED MODEL OF LEGITIMACY IN A DEVELOPING COUNTRY

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ABSTRACT

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Few national attributes are likely to predict countries with track records for good governance and human rights than their citizens' judgments on the fairness and legitimacy of their law enforcement institutions. Since Tom Tyler first articulated his theoretical model of police legitimacy in 1990, a wave of scholars in North America, Western Europe, and Australia continue to demonstrate that the public's perceptions of procedural justice are the strongest predictor of their judgments on the agency's legitimacy which then predicts the public's willingness to comply with the law or cooperate with the police. Countries across the globe increasingly turn to the Tylerian theory of police legitimacy to model these judgments and guide vital procedural justice reform. Unfortunately, the theory of police legitimacy has failed to predict the willingness to cooperate with the police in countries still confronted with serious development issues. Tests of Tyler's theory of police legitimacy in Ghana, Jamaica, and China failed in finding a significant role for Tyler's construct of legitimacy in the process-based model. This study supports past studies testing the full model in developing countries in finding that legitimacy did not mediate the relationship between perceived procedural justice and willingness to cooperate with the police in Ukraine.

New variables added to the model test Tankebe's proposition that the weakness in the Tylerian model is likely due to the lack of a normative commitment between the public and law enforcement agencies in developing countries. The finding that postmaterialism, as an indicator of normative values, significantly predicted the willingness to cooperate with police supports

Tyler's argument that shared normative values drive the significant paths in the model. Despite the existence of this normative pathway to associating with cooperation with the police, trustworthiness did not mediate the model. Countries plagued by the twofold scourge of systemic corruption and poor governance appear to diverge from developed countries in how their citizens evaluate law enforcement institutions. This may explain why legitimacy in developing countries fails to reflect the shared values that Tyler argues favor or rebuff cooperation with the police.

The study's data analysis found a very high correlation and lack of divergence between respondents' evaluations of the two antecedent variables in the model, procedural justice and police effectiveness. In countries where the police are indifferent to serving the public and are closely associated with organized crime and corruption, the public appears to struggle to determine if an officer doing their job (or in the opposite case, avoiding their responsibilities) should be evaluated in terms of effectiveness or procedural justice. The overlap between these two judgements appears to be much greater than in North America and Western European tests of the model. This may explain why Ukraine continues the findings in developing countries that procedural justice and effectiveness have the strongest correlation among all the variables.

Finally, the adoption of multi-group confirmatory factor analysis to a test of the Tylerian model found only a modest level of bias in how respondents interpret test items of procedural justice across different demographic groups in Ukraine. The most important of the findings of partial invariance across different demographic groups is in regard to direct experience with the police. The study supports the current de-facto practice in legitimacy research that does not limit survey samples to citizens with recent interaction with the police but assumes that judgments of procedural justice can also be based on global attitudes.

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I lovingly dedicate this dissertation to my wife and best friend Tetyana
and our incredible children Alex and Maria.

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I would like to thank my graduate advisor and committee chairperson Dr. Sanja Kutnjak Ivković. She has been a constant source of support and guidance from the first day of my doctoral studies to the defense of my dissertation. I also would like to thank my dissertation committee members, Drs. Edmund McGarrell, Meredith Gore, and Joe Hamm for their patience and flexibility in working with a dissertation writer located halfway around the world.

Not long after the public survey for this dissertation was completed in Ukraine, the Maidan Protests began the start of a revolution that would dramatically change my own future as well. A carefully laid plan to complete my dissertation while managing a sleepy Department of Justice project office of eight employees in Kyiv was turned upside down. By the start of 2015, I would be overseeing an office that at one point exceeded 320 full-time and part-time advisers, trainers, and staff tasked with independently recruiting, selecting, training, and standing up a national patrol police department that would reach 18,000 new line and command officers by 2018. Over a 12-month period, my project team was recruiting, training, and helping stand up a police agency the size of the Richmond (Virginia) Police Department every two weeks. I am grateful to the U.S. Department of Justice for giving me this opportunity and then providing me with the additional management support and flexible schedule to allow me to return to completing my doctorate.

Finally, this dissertation would not exist without the support of my wife Tetyana and our two beautiful children Maria and Alex. Their sacrifices over the eight years of my doctoral studies, include following me to the other side of the globe and back twice, gave me the opportunity to complete this dissertation. I now look forward to fulfilling my end of our pact as we make our last move to find our future home and open a new chapter in our lives.

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CHAPTER I

Introduction

Trust in the police and other public order institutions has fallen dramatically across the globe over the last half-century (Catterberg & Moreno, 2005; Inglehart, 1999; OECD, 2013). Law enforcement institutions often ignore the decline in trust until a singular case of misconduct leads to public scandal or worse. The 2011 London riot, the 2013 Maidan Protests in Ukraine, the 2015 Bharuch riots in India, the violent protests in Charlotte, North Carolina in 2016 or the Teheran Riots in 2018 were civil disturbances that ignited in communities or societies that did not view the enforcement agencies as fair, just, or legitimate.

In developed countries, the growing perception of police misconduct has been fueled in part by the rapid growth in the availability of officer, vehicle, and third-party video surveillance of police-public interactions. As officer relations with communities come under the microscope, police agencies have found that the traditional actions used to address public dissatisfaction, such as lowering crime rates or other displays of police effectiveness, have not reversed the decline in police legitimacy (Sherman, 2001). In fact, the nearly two-decade drop in violent crime in the developed world[1] at the turn of the current century has failed to improve public perceptions of law enforcement legitimacy in the countries that benefited from the significant reduction in violence (Tseloni, Mailley, Farrell &Tilley, 2010). As a result, police agencies increasingly have been forced to look beyond traditional answers to declining public support.

The theoretical seed for a paradigm shift in the criminal justice literature was planted in the late 1970s when Tom Tyler and Robert Folger (1980) made use of a new dispute settlement

[1] No consensus exists in the social sciences on the categorization of countries based on political or economic development, this study will compare Ukraine with a broad range of countries but define the category of developed country status to members of the Organization for Economic Development (OECD).

construct, procedural justice, to measure the public's judgments on citizen-police interactions to predict their satisfaction with the agency. Though scholars routinely change or add test items, most police legitimacy models tested around the globe are based on the classic, process-based model that Tyler (1990) introduced in *Why People Obey the Law*. Tests of the Tylerian process-based model of police legitimacy in North America, Europe, and Australia found that the most important factors shaping public judgments were not the traditional measures of police effectiveness, but rather the residents' views on the overall quality of decision-making and the perception of the police's treatment of others in the community (Hinds & Murphy, 2007, Hough, Jackson & Bradford, 2013; Tyler, 2002).

The Tylerian process-based model argued that the public perception on the fairness of the procedures used by law enforcement is the most influential predictor of the public's willingness to comply with the law and cooperate with officers through the mediating construct of police legitimacy (Tyler, 2003). The timing could not have been more auspicious for researchers and practitioners unable to explain the continued decline in public satisfaction over a period that many agencies viewed as their most effective in decades. By placing the focus on each officer's interaction with the public, the Tylerian process-based model offered law enforcement institutions an alternative paradigm for reform that breaks from the traditional police emphasis on lowering the crime rate or increasing the number of arrests in order to improve public perceptions of the agency.

As legitimacy theory developed, the Tylerian process-based model linking procedural justice with agency outcomes became an informal roadmap for governments and police agencies in the US, Western Europe, and Australia. Law enforcement agencies began to focus on public perceptions of fair and impartial police practices, particularly in marginalized communities, so as

to improve public judgments on legitimacy (Quinlan & Ramirez, 2014; Wagner, 2015). The Chicago Police Department, the UK's Greater Manchester Police, and the Queensland Police Service in Australia are three examples of agencies in developed countries using procedural justice initiatives to improve institutional legitimacy in the communities they police (Mazerolle, Antrobus, Bennett & Tyler, 2013; Skogan, Craen & Hennessy, 2014; Wheller, Quinton, Fildes & Mills, 2013).

Statement of the Problem

The classic Tylerian model of legitimacy first tested in metropolitan Chicago has grown to become one of the most influential theories in the fields of criminology and criminal justice (Tyler, 1990; Tankebe et al., 2016). Worden and McLean (2017a) argue that the "unprecedented attention" of government officials, police executives, and the media to police-community relations has led to an "explosion" of empirical research on police legitimacy in developed countries (pp. 480-481). A secondary shock wave of this research explosion can be seen in developing countries over the last decade (Bradford, Huq, Jackson & Roberts, 2013; Czapska, Radomska, & Wójcik, 2016; Jackson, Asif, Bradford & Zakar, 2014; Karakus, 2017; Reisig, Tankebe & Mesko, 2014; Rinehart Kochel, Parks & Mastrofski, 2013; Sun, Wu, Hu, & Farmer, 2017; Tankebe, 2008; Tsushima & Hamai, 2015). Unfortunately, while theoretical research designed for the United States rarely needs adaptation to function in other advanced democracies, the more dramatic changes in the cultural setting found in developing countries can significantly alter the relationships and results produced by the same theories (Bennett & Flavin, 1994).

The growth in researcher and practitioner use of the Tylerian theory of police legitimacy is built on the empirical support for the process-based model in the United States, Western

Europe, and Australia (Tyler, 2002, Hinds & Murphy, 2007; Murphy, 2009; Hough et al., 2013). In contrast, the three tests of the Tylerian process-based model that have been conducted in developing countries (Jamaica, Ghana, and China) found that the legitimacy construct did not mediate the relationship between procedural justice and cooperation with law enforcement (Reisig & Lloyd, 2009; Sun et al., 2017; Tankebe, 2009). Moreover, scholars that limited their research to the strongest relationship in the model (procedural justice predicting legitimacy) or developed an alternative construct of legitimacy for the model, report that in Pakistan, South Africa, and Turkey the role of procedural justice was weaker than found in the previous studies based largely in Western Europe and North America (Bradford et al, 2013; Jackson et al., 2014; Karakus, 2017).

The limited support for the classic Tylerian process-based model of legitimacy in developing countries suggests that there could be systemic differences between developed and developing countries that significantly alter the model's key relationships or require an entirely different model for developing countries. This uncertainty has led to ambiguity among researchers on how the theory should be adapted outside developed countries. Tankebe (2009) proposed that citizens interacting with the police in developing countries may prioritize other normative and instrumental goals over fair treatment. After finding weak support for a legitimacy construct in a developing country, Tankebe, Reisig, and Wang (2016) advocated for further research into the socio-political variables that may alter the police legitimacy model in developing countries. This study in Ukraine seeks to test two variables in the model that may shed light on the failure of the legitimacy indicator that Tyler (2003) has hypothesized as mediating the shared values that are the basis of the prediction that procedural justice will predict agency legitimacy and the willingness to cooperate with the police.

Significance of the Study

In developed countries, the police legitimacy model holds considerable promise as tool researchers can use to identify the changes in police training, policies, or procedures that may increase the agency's legitimacy as well as the community's willingness to comply and cooperate with law enforcement. This same promise has been undermined in developing countries by much weaker empirical support for the legitimacy measure and the process-based model.

Legitimate criminal justice institutions are widely perceived in development studies as a key precursor to stable and prosperous democracies. Unfortunately, practitioners and researchers seeking to model police legitimacy in developing countries also face unique challenges to adopt constructs and relationships that were established through empirical studies limited to OECD member countries. In preparing an assistance program focused on police reform, the Development Bank of Latin America recently stated that "the best place to begin building trust and legitimacy in the system is not readily apparent" (Ortega, 2016, p. 2). High crime rates, low police wages, institutional corruption, human rights abuses, and limited trust in the effectiveness of the police are a few of the challenges facing police researchers and reformers in the developing world.

Whether a Latin American development specialist or a Cambridge criminologist working in Ghana, the key challenges are largely the same in adapting a process-based model of police legitimacy to countries with transitioning or emerging economies. Comparative studies suggest that the respondents in developing countries will have different priorities driven in part by their greater need to prioritize immediate survival over broader societal goals (Inglehart & Baker, 2000; Rogowski, 1974). In addition, researchers and practitioners in developing countries must

account for a highly skeptical public that does not trust official crime statistics or the uncertain and sometimes hostile police response to their calls for service.

This dissertation will be the first test of the process-based model of police legitimacy in a republic of the former Soviet Union, but the significance of the study rests on whether the hypothesized variables serve as a modest first step to understanding the failure of the legitimacy indicator in developing countries to predict the willingness to cooperate with police in countries still transitioning in terms of prosperity and good governance. Specifically, the study introduces two measures (postmaterialism and fear of crime) that are hypothesized as reflecting normative values that, similar to the legitimacy construct, could predict the police outcome variable in a new model to test the theory of police legitimacy. If the hypothesized measures of normative values have a significant association with the willingness to cooperate with the police, the finding would infer that the lack of shared normative values with police explains the weak role of police legitimacy indicators in tests of the classic Tylerian model in developing countries.

Context of the Study

The research context for this explanatory model of the Tylerian theory of police legitimacy is Ukraine (see Figure 1); a developing country noted for weak public trust in its systemically corrupt government institutions (Darden, 2001; Beck, 2005). At the time of this study's 2013 data collection, Ukraine was governed by the country's fourth president, Viktor Yanukovych, who would be ousted by 2014 protests against his increasingly authoritarian and corrupt administration. The Ukrainian police (Militia) in 2013 consisted of approximately 150,000 officers and support personnel[2]. Besides municipal divisions, the militia were divided

[2] In a continuation of Soviet policies, the size of the Ukrainian militia in 2013 was classified. The Chief of the new National Police, Khatia Dekanoidze, in 2015 interviews with the author still struggled to find an accurate number of personnel from the former Militia largely because of the uncertain organizational boundaries with the larger Ministry of Internal Affairs.

into functional components, such as investigations, district inspectors, juvenile police, traffic police, privately-funded security police, and a non-sworn patrol (MIA, 1996).

Figure 1: 2013 Map of Ukraine

Source: Nations Online Project (http://www.nationsonline.org/oneworld/map/ukraine-administrative-map.htm).

As in the Soviet period, the primary role of the post-Soviet militia was protecting the state (Beck, 2005). This meant officers spent most of their days at a desk or on guard duty while the traffic and foot patrol units that most often interacted with the public were primarily composed of poorly-trained, non-sworn officers (Beck, Barko, & Tatarenko, 2002; Beck & Robertson, 2009, Shelley, 1999). The organization barely differed from the militia in the former Soviet

Republic of Ukraine and the legal underpinning for the structure remained a 1990 Law on Militia that actually preceded the independence of Ukraine in 1991.[3]

A defining feature of the militia was systemic corruption that, beyond petty bribery, involved collaboration among employees or between agencies to extort money from the public (Karklins, 2005; Shelley, 1999). Officers in this period typically paid their way into the ministry as well as each new position, while public bribes were often the largest portion of an officer's income (Beck, 2005; Gerasymenko, 2011; Sahakyan, 2015). Transparency International (2013) reported just prior to the study's survey that nearly 85 percent of the public considered the militia to be corrupt or highly corrupt.

Locating the study in Ukraine allows for the second test of the full Tylerian model in a country located in the bottom half of the rankings on institutional corruption and ineffective government institutions (TI, 2013; World Bank, 2016). The cornerstone empirical cases for the validity of the Tylerian model were based on surveys in countries that consistently rank in the top 15% of the Corruption Performance Index (CPI) and the World Governance Indicators (WGI). Other empirical tests of the model's core relationships were in OECD member Turkey and non-OECD countries China, Ghana and Jamaica, which consistently score in the top 50% of the CPI and WGI rankings (Karakus, 2017; Reisig & Lloyd, 2009; Sun et al., 2017; and Tankebe, 2009). Akinlabi's (2018) tests of the full Tylerian model in Nigeria is the first study in a country located in the bottom half of the rankings of institutional corruption and ineffective government institutions.

As a result, this study's data sample comes from a survey that was administered to a public that had every reason to view the existing law enforcement as corrupt, ineffective, and

[3] The Ukrainian Parliament passed the Law on Police that liquidated the Militia in July, 2015.

largely untrustworthy. Officers actively participated in crimes that ranged from selling drugs seized in police raids to shaking down businesses for protection money (Peacock & Cordner, 2016). Moreover, an officer's success in the organization was dependent on the use of connections or bribes to obtain a promotion to a more lucrative position. Therefore, it is not a surprise that Hough and colleagues (2014) found in a comparison of public surveys over this period that Ukraine stood out in Europe for the high levels of bribes and low trust in the police. Although researchers have not previously reported a measure of agency legitimacy in Ukraine, past surveys have repeatedly demonstrated that the majority of the Ukrainian public viewed the militia as ineffective and untrustworthy (Beck & Chistyakova, 2002; KHPG, 2013; Kulik, 1994). The level of mistrust appeared to be at a nadir at the time of this study's data collection, when the Ukrainian Academy of Science reported that less than nine percent of the public responded in a survey that they either "completely trusted" or "mostly trusted the militia" (OSCE, 2013).

Research Questions

The objective of this study was to test the influence of measures of societal insecurity in the Tylerian theory of police legitimacy as part of the larger goal of adapting the process-based model for use in developing countries. The study addressed the following six research questions that are important steps to the further development of the process-based model in developing countries.

Research Question #1. Do perceptions of procedural justice predict cooperation with the police in a Ukraine?

Research Question #2. Do perceptions of police legitimacy mediate the relationship between measures of procedural justice and public cooperation with the police in Ukraine?

Research Question #3. Do perceptions of police legitimacy mediate the relationship between measures of effectiveness and public cooperation with the police in Ukraine?

Research Question #4. Does a post-materialism index predict cooperation with the police in Ukraine?

Research Question #5. Does fear of crime predict cooperation with the police in Ukraine?

Research Question #6. Does measurement invariance hold for the procedural justice indicator regardless of whether the respondent had recent experience with the police?

CHAPTER II

Literature Review

Development of the Tylerian Model

Tom Tyler (1990; 2003) developed the process-based theory of police legitimacy at the turn of this century to model voluntary compliance with the law and assistance to the police. Traditionally, the criminal justice system was based on a deterrence model that views compliance and cooperation with law enforcement as an instrumental calculus by the public to minimize costs (punishment) through obeying the law or maximize a reward (eliminating disorder in your neighborhood) through cooperation with the police. Tyler (2009) viewed his new process-based model as a means to test an alternative antecedent to police outcomes based on the public's internal motivation (normative values) for choosing to voluntarily obey the law or cooperate with the police. Tyler (2003) hypothesized that a public that perceives procedural justice in officer-citizen relations would then judge the law enforcement agency as more legitimate and would be more likely to voluntarily obey the law and cooperate with the police.

Social Control Roots. With dependent variables that generally represent the opposite of committing a crime (obeying the law and cooperating with police), it is surprising that the theoretical ties between the process-based model of police legitimacy and the major theories of crime has received little scholarly attention. As with most of the criminology canon, the Tylerian model provided a causal relationship for the dependent measures of crime (or its absence). The process-based theory hypothesized that police officers adopting more just procedures (as defined by public perceptions of respect, consideration, and fairness) would then influence citizens' decisions on cooperating with police or complying with the law.

Among the major theories of crime, the Tylerian model shared the key assumptions and hypothesized causal relationship with the social control theory of crime. The social control theory and the Tylerian model placed their conceptual relationship in a society defined by Durkheim's focus on norms. Tyler (1990) in *Why People Obey the Law* credits Durkheim with pioneering the focus in criminology on the norms that explain why societies conform to rules. In the case of the Tylerian model, the same core assumption was that the public's judgments of police are not solely a function of the agency's instrumental role in deterring crime. Instead, the Tylerian theory argued that the public views the institution as sharing the same values was no less important (Sunshine & Tyler, 2003a).

Control-based theories of crime may have begun with Durkheim, but their influence on criminology waned in the middle of the 20th century as scholars focused instead on the strain and social learning theories that were explanations on why people offend. Travis Hirschi's (1969) *Causes of Delinquency* sparked a return in criminology to the question of why people comply with the law. Hirschi's tests of social control theory arguably formed the most important empirical groundwork for the core assumptions of Tyler's (1990) process-based theory of police legitimacy.

As with social control theory, Tyler (2003) argued that compliance with the law and institutions is based primarily on perceptions of shared values and beliefs. Social control theories place their central focus on positive attachments to institutions and the expectation that citizens obey the law if they are constrained by perceptions of common values with their social peers and institutions in which they regularly interact (Hirschi, 1969). In terms of the legitimacy model, the more the public viewed the police as sharing the same values, the more likely that they perceived the agency as legitimate which in turn influences their decisions to obey the law

and cooperate with the police. As a result, Tyler's (2003) model argued that a society's willingness to comply with the police can be altered by changing the public's judgment of shared values with the law enforcement officers in their communities. Hirschi's (1969, 205) description of the roots of social control theory also further linked social control theory to legitimacy because he credits Weber (1968) as first arguing that the decision to obey the law was not a moral decision but a judgment based on the public perception of whether the law or institutions are legitimate.

Legitimacy Scholarship Redux. During the same socially-turbulent 1960s in which Hirschi (1969) revived social control theories, several political scientists returned to Weber's (1968) posthumous work on legitimacy to develop a modern version of the classic legitimacy construct. A concept first chronicled in Greek debates (Beetham, 2002), Weber introduced the modern concept of institutional legitimacy to explain the need for government agencies to gain voluntary compliance with law or authority given the inherent limits to maintain a standing army or constantly turning to armed coercion for compliance and cooperation. Weber (1968) pioneered the idea that Durkheim's social norms were critical for institutions to gain the voluntary compliance of individuals.

Weber (1968) profiled three legitimating ideologies for institutions: traditional authority, charismatic authority, and rational (rule-of-law) bureaucratic authority. Weber saw these as overlapping descriptions that essentially explained how charismatic rulers come to power or maintain their authority through tradition, while also allowing for the more modern legitimating role of written law. By the end of the 1960s, a new wave of scholars revived Weber's nearly century-old legitimacy construct, in particular his myth of a rational bureaucratic authority, to

hypothesize that the adoption of legalistic or just procedures will raise police institutional legitimacy.

The empirical development of the legitimacy construct was closely interwoven with the rise of deadly riots in U.S. and European cities over the late 1960s. The expression "legitimacy crisis" was coined in this period to describe the faltering public support for government institutions in developed countries that faced mounting crime and societal conflict (Gilley, 2009). The first scholars to empirically test Weber's concept of organizational legitimacy (Aberbach and Walker, 1970; Paige, 1971; Wright, 1976) were specifically looking at the role legitimacy and public trust had on the public's choice to riot or comply with the law and its enforcement. They used Easton's (1965) systems model to pioneer the application of quantitative methods to support the Weberian assumption that coercive methods (deterrence) are not sufficient for an institution to gain legitimacy which, instead, depends on shared norms between the institution and the public they regulate (McEwen & Maiman, 1986).

Tyler (1990) credited these studies for expanding the classic Weberian focus on legitimacy as support for a specific authority to a new definition that would be based on diffuse support for rules and institutions. This scholarship demonstrated the impact institutional legitimacy, often measured in these studies with an index of political trust, had on compliance with the law (see Aberbach and Walker, 1970; Easton, 1975; Paige, 1971; Wright, 1976). Besides adapting quantitative methods to institutional legitimacy studies, this wave of post-riot scholars also differed from Weber on viewing legitimacy as a product of citizen consent (Dogan, 1992). As Weber did not include a role for justice or fairness in his description of legitimacy, his theoretical model of legitimacy was often criticized for failing to differentiate between a democratic or dictatorial authority. Blau (1963) and Grafstein (1981) specifically argued that

Weber's model of legitimacy does not differentiate between forced compliance (ie. a slave that no longer needed to be whipped to comply) and those freely choosing to comply with law or authority.

Starting in the late 1960s, social scientists increasingly defined institutional legitimacy as a public belief that the institution is the most appropriate or morally proper for society (Dogan, 1992). Easton (1965) provided a foundation for this scholarship by viewing stable society as dependent on the values in favor of legal compliance. Easton (1965, p. 273) described this diffuse support as a "reservoir of favorable attitudes or good will" that helps an institution gain consent or tolerance for even unfavorable outcomes. Gamson (1968) argued that this was diffuse support. He differentiated these attitudes from the specific support for institutions that is a product of instrumental calculations on whether the institution's concrete outcomes benefited the citizen or not (Gamson, 1968). Moreover, Gamson argued that institutional legitimacy was a significant control in a society to the degree that citizens recognized an obligation to obey and developed trust in the institution. Tyler (1990) later combined these two conditions (obligation to obey and trustworthiness) to form his new construct of legitimacy. Tyler (1990) cited Gamson's (1968) observation that when the reservoirs of diffuse support were high, then New England local governments could readily gain support for new initiatives, but when they were depleted it grew difficult to govern effectively.

The early empirical tests of these legitimacy models treated trust and legitimacy as interchangeable concepts. Public policy scholars (e.g., Aberbach, 1969; Aberbach & Walker, 1970; Paige, 1971; Seligson, 1980) used the concept of trust in institutions to operationalize legitimacy in their tests of the impact legitimacy has on compliance with the law. A second wave of scholars (e.g., Brown, 1974; McEwen & Maiman, 1986; Rodgers & Lewis, 1974; Sarat,

1975) followed with studies that focused on the legitimacy of the law or trust in criminal justice institutions as a predictor of compliance with the law. The late 20th-century studies of legitimacy primarily sought to determine the role the construct had on public behavior, but scholars rarely examined the precursors of this legitimacy (Hyde, 1983).

Birth of Procedural Justice. The second major theoretical breakthrough in the development of the Tylerian theory of police legitimacy followed the 1975 publication *Procedural Justice: A Psychological Analysis* by social psychologist John Thibaut and legal scholar Laurens Walker. Their book introduced a process-based explanation of citizen perceptions of their interactions with public institutions. Specifically, Thibaut and Walker's (1975) process-control model was based on the proposition that procedural justice (how justice takes place) is just as important in shaping satisfactory resolutions of disputes as the actual outcome of the disputes.

Tyler and other social psychologists initially adopted the same variables used in the control model of Thibaut and Walker (Tyler & Folger, 1980). As a result, the first decade following the publication of *Procedural Justice* produced a wave of empirical studies focused solely on the potential impact that perceptions of just procedure had on public satisfaction. For example, in Tyler and Folger's (1980) pioneering application of the concept of procedural justice to police-citizen encounters, they framed their model in terms of whether the respondents' perception of police procedures in the resolution of a dispute influenced their evaluation of satisfaction with the law enforcement institution.

Legitimacy as a Measurable Construct. In *Why People Obey the Law*, Tyler (1990) formed a two-dimensional definition of legitimacy that would mediate the precursors to compliance with the law. The wave of legitimacy studies in the 1970s had either operationalized

legitimacy through a support for the police measure (often a survey question on trust in the police) or a perceived obligation to obey the law (e.g., Brown, 1974; Rodgers & Lewis, 1974; Sarat, 1975). Brown (1974) was the exception as he used independent, attitudinal variables (support for the police as an institution and support for the law in general) to predict compliance with the law. Tyler and colleagues (Sunshine & Tyler, 2003a; Tyler, 1990) chose to combine a support for police index (in later studies referred to as trust in the police or trustworthiness of police) and the obligation to obey to form his new construct of legitimacy that would predict compliance with the law as well as cooperation with police.

Tyler and colleagues (Sunshine & Tyler, 2003a; Tyler, 1990; Tyler & Huo, 2002) refined what would become their trust sub-construct for legitimacy by operationalizing the concept using test items that represented different forms of support for the police agency. Initially, Tyler (1990) drew on past studies to devise a four-item index that asked whether the public had "respect," "pride," "support" for the police and whether they viewed the police as "honest." More test items were added in subsequent studies (Tyler and Huo, 2002; Sunshine & Tyler, 2003a) that resulted in six, ten, and later a thirteen-item measure for institutional trust. The new test items asked the respondent whether they felt "proud," "encouraged," "confident," "protected," or "not embarrassed" by the police as well as if they "respected," had the "same values," or "trusted [the police] to make decisions." The indexes demonstrated that Tyler and colleagues viewed trust in the police as representing a composite of the many different judgments of independent facets of an institution's capacity to be viewed as trustworthy by the public. Sunshine and Tyler (2003a) and an abundance of other studies (e.g., Hawdon, Ryan & Griffin, 2003; Murphy, 2013; Paternoster, Brame, Bachman & Sherman, 1997; Wells, 2007;

Wolfe, 2011) supported the trustworthiness component of the legitimacy construct in criminal justice research.

The second of the two components in Tyler's (1990) legitimacy construct was the obligation to obey. As with Tyler's additive index for trustworthiness, the test items for the obligation to obey sub-construct have differed between Tyler's key studies from as low as three test items to as high as nine test items. Tyler (1990) sought to develop a measure of how strongly the respondent supported the law regardless of personal feelings. He drew from Sarat's (1975) study on support for the legal system that ranked respondents based on their willingness to support the law even if they personally opposed the required legal action. As a result, the test items that formed this additive index generally ask the respondent if they would obey police requests even if they believed the police or the action was wrong.

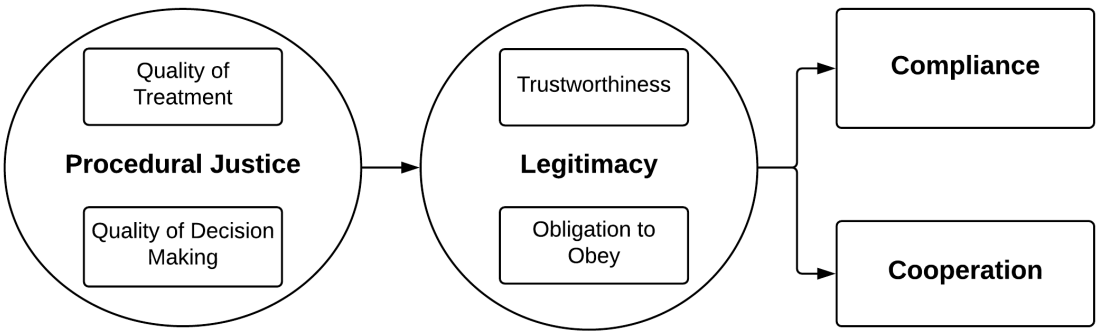
The obligation to obey sub-component to legitimacy may be the most disputed in the process-based model. Tyler and Huo (2002) and Tyler (2006) first reported that the test items used for the sub-construct resulted in low Cronbach's alphas while more recent scholarship (Gau, 2011; Reisig, Bratton & Gertz, 2007) raised questions whether obligation to obey loads on the same factor as trustworthiness. Reisig and colleagues (2007) removed three of the five items used to measure obligation to obey because their factor analysis found that those items did not load on the construct. Despite concerns over the validity of some test items used for this indicator, researchers continued to find empirical support that obligation to obey predicts legitimacy and police outcomes (Gau, 2011; Sunshine & Tyler, 2003a; Tyler, 2006).

Classic Process-based Model of Legitimacy. Tyler (1990) used his new measure of legitimacy to forge together two disparate, empirically tested relationships: Thibaut and Walker's (1975) control theory expectation that public satisfaction with a

settlement is predicted by process-based precursors; and the legal and policy studies based on Easton's (1965) systems model in which institutional legitimacy predicts cooperation with the authorities or compliance with the law.

Tyler's assimilation of the two distinct models was a textbook example of end-to-end theoretical integration (Hirschi, 1979). The two theories were merged by equating two distinct, though related, variables from the two theories (public satisfaction and institutional legitimacy). Legitimacy would be operationalized by combining institutional trust, a concept Tyler (1990) initially termed support for the police, with the obligation to obey the authorities. The new model was process-based because perceptions of procedural justice and other encounter-based citizen evaluations, such as officer effectiveness, would serve as the precursors of the new police legitimacy construct.

Figure 2: Classic Process-based Model of Police Legitimacy



Source: Reisig, et al. (2007, 1007) as adapted from Tyler (2003)

In *Why People Obey the Law*, Tyler (1990) first presented his proposed relationship between the three primary nodes of his process-based model: procedural justice; the legitimacy of the criminal justice institution; and compliance with the law. At the center of his model (Figure 2), Tyler placed his new definition of institutional legitimacy as the mediator between

just procedures and police outcomes. In the classic process-based model, police legitimacy is predicted by a procedural justice construct that also consists of two components. Quality of treatment represents judgments on the degree to which procedures were respectful; quality of decision-making represents the degree to which police use reason and law rather than processes viewed as biased (Sunshine and Tyler, 2003a). No element of the police legitimacy model has had stronger empirical support than the foundational hypothesis that procedural justice predicts police legitimacy (Sunshine & Tyler, 2003a; Tyler, 1990; Tyler & Fagan, 2008; Tyler & Wakslak, 2004).

Tyler and colleagues continue to experiment with all three components of this model (procedural justice, police effectiveness, and the outcome variables that grew to include cooperation with the police and compliance with the law). This process-based model of police legitimacy has become a leading theoretical model used throughout the social sciences to explain the complex relationship between local authorities and the public they serve. A groundswell of studies over the last two decades in developed countries has revealed that perceptions of police legitimacy are primarily influenced by judgments about the fairness of procedures and assessments of police performance (Hinds & Murphy, 2007; Sunshine & Tyler, 2003; Tyler & Huo, 2002). Legitimacy, in turn, mediates the relationship between procedural justice and the dependent variables of cooperation with the police or compliance with the law (Hinds & Murphy, 2007; Reisig et al. 2007; Sunshine & Tyler, 2003; Tyler & Huo, 2002).

The empirical case for the influence of procedural justice and legitimacy on cooperation and compliance with legal authorities has been demonstrated across a variety of settings, including the police, courts, and corrections (Kaiser, 2016). Though initially the model was supported largely by US-based research, the key relationships between procedural justice,

legitimacy, and the police outcome variables have been supported by stringent tests in a half dozen OECD member countries (Hough et al., 2013; Jonathan-Zamir & Weisburd, 2013; Mazerolle et al., 2013; Murphy et al., 2008; Reisig et al., 2014; Tankebe, 2013a; Van Damme, Pauwels & Svensson, 2013). Moreover, the influence of procedural justice on police legitimacy and police outcome variables is fairly stable across different ethnic groups and communities (Cao, 2011). Murphy and Cherney (2011) reported that Australia may be an exception as tests across different ethnic groups found that procedural justice differed as a predictor of cooperation with police.

Normative vs. Instrumental Predictors. The process-based model of police legitimacy would have drawn far less interest from scholars and practitioners if the chief finding in tests of the theory was limited to strong support for the relationship between perceived just procedures and institutional legitimacy. Rather, the most influential outcome of the adoption of the Tylerian model in the developed world has been the finding that normative judgments on the fairness of police procedures are more influential than instrumental views of effective policing as predictors of the public's compliance and cooperation with the police (Tyler, 1990; Tankebe, 2009).

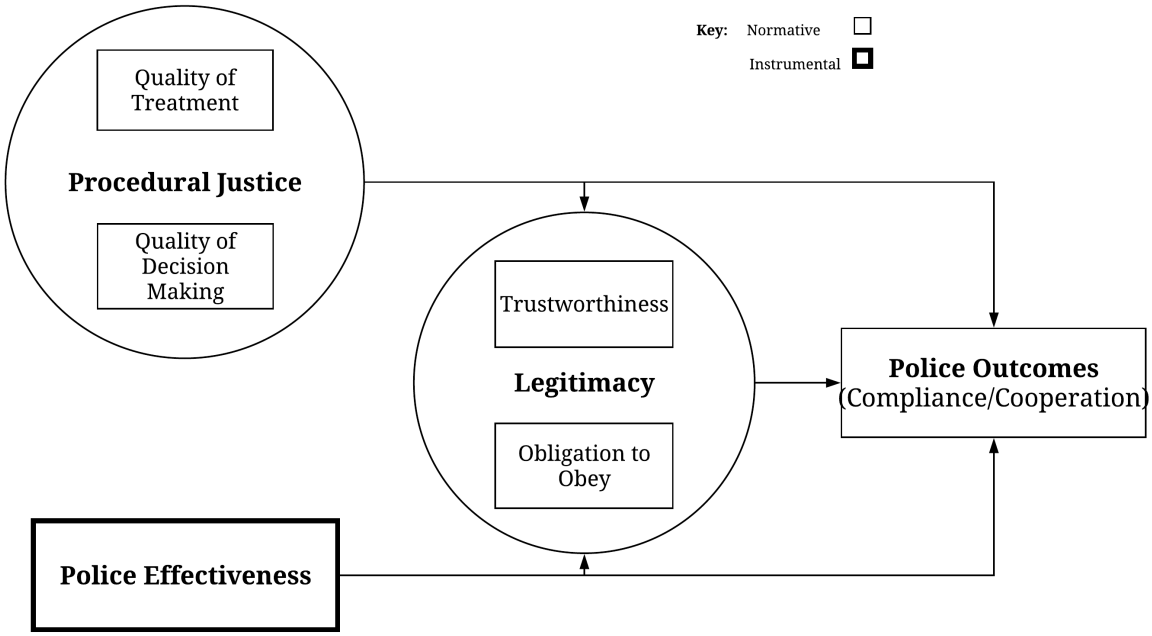
Prior to the empirical case made by Tyler and colleagues, most researchers and law enforcement practitioners focused on the instrumental motivations for the public's judgment of police legitimacy (Sherman, 1993; Manning, 2001). This was contradicted by a wave of studies using the Tylerian model (e.g., Tyler & Blader, 2000; Tyler & Huo, 2002; Sunshine & Tyler 2003a) suggesting that instrumental or deterrence-based policies would have limited influence on either the agency's legitimacy or public cooperation and compliance. After reviewing the dominant role of normative factors in a test of the process-based model in several U.S. cities, Tyler and Huo (2002) argued that the model of policing based on instrumental factors of

reducing crime was unlikely to significantly influence public opinion or garner the public's long-term support for the police.

Across the criminal justice literature, scholars have drawn from the Tylerian model in demonstrating the role procedural justice has on police outcomes ranging from domestic violence (Pasternoster et al., 1997) to public disorder and misdemeanor crimes (Sunshine and Tyler, 2003a). The Tylerian model paved the way for a research approach in developed countries that now assumes that the legitimacy of a law enforcement institution is a function not only of the agency's instrumental role in deterring crime but also the degree that the public views the institution as sharing the same values (Murphy, Hinds & Fleming, 2009; Sunshine and Tyler, 2003b). As a result, a scholar that planned to test the Tylerian model in a country for the first time would start by comparing the influence of the normative values forming perceptions of procedural justice with the instrumental judgments of the institutions effectiveness (Figure 3).

In developed countries, the strong empirical support for the Tylerian process-based model has attracted a new wave of research that, besides demonstrating the significance of the key relationships in the classic model, focused on establishing the validity of measurements used for the key concepts. Most notably, several scholars (e.g., Gau, 2011, 2014; Reisig et al., 2007; Tankebe, 2009) have experimented with the indexes used to operationalize police legitimacy in the model. Tyler and his colleagues' findings increasingly shape new policies and trainings on implementing procedural justice with the hope of raising agency legitimacy in applied settings (e.g., Mazerolle, Antrobus, Bennett & Tyler, 2013; Skogan, Craen & Hennessy, 2014; Wheller, Quinton, Fildes & Mills, 2013). This research was a direct result of the strength of evidence supporting the model's core findings in developed countries.

Figure 3: Normative Versus Instrumental Predictors of Police Outcomes



Source: Reisig, et al. (2007) as adapted from Tyler (2003a).

The Tylerian process-based model of police legitimacy, as developed in Tyler (1990) and Sunshine and Tyler (2003a), became the "most favored [theoretical] instrument in the current police literature" (Tankebe, 2009, p. 1273). As the authors of a leading alternative model of police legitimacy, Bottoms and Tankebe (2012, p.121) concede, the research supporting the process-based model of police legitimacy is "rightly regarded as the most important criminological scholarship on legitimacy currently available." Nevertheless, the abundance of police legitimacy scholarship includes several criticisms of the process-based model of police legitimacy.

Criticism of the Process-based Model

A review of the legitimacy literature suggested that the key criticisms of the Tylerian theory of police legitimacy could be categorized into five broad groups of concerns: 1) uncertainty on limiting data sample; 2) debate on authoritarianism in the model; 3) concern for

the validity of model indicators; 4) discussions on additional model antecedents; and 5) the weak empirical case in developing countries.

Uncertainty on Limiting Data Sample. The Tylerian model was referred to as the process-based model of police legitimacy because the theory starts from the assumption that individual perceptions of officer behavior is critical for the formation of public judgments of police legitimacy and willingness to comply with the law and cooperate with that agency. The legitimacy theory's focus on police-citizen interactions led to confusion over whether the process-based model should be tested only on populations that report some type of contact with the police.

The exceptional nature of contact with the police across the globe has required researchers to debate as part of their studies whether they should exclude survey respondents without the police interactions that shapes their judgments on the fairness of police procedures. Two of the largest surveys on police-citizen interaction were the European Social Survey (ESS) of 50,000 respondents from 28 European countries and the Bureau of Justice Statistics (BJS) of 250,000 US residents. The ESS (2010) survey found that 32.6% of the respondents had contact with the police in the last two years (ESS, 2010). The BJS survey found that more than 26% had contact with the police in 2011 (Durose & Langton, 2013). This suggests that limiting a data sample to those with contact in the last one or two years would significantly raise the scale of the sample required for a legitimacy study (Hohl, Bradford & Stanko, 2010).

The decision of researchers on whether to exclude those lacking recent experience with police for use in studies of the process-based model changed over time. Tyler's first procedural justice study of the police focused on making the case that those with personal contact with the police significantly differed from the rest of the public in their evaluation of the agency (Tyler

and Folger, 1980). Moreover, the two books that arguably did the most to establish the nascent theory of police legitimacy--Tyler's (1990) *Why People Obey the Law* and Tyler and Huo's (2002) *Trust in the Law*--tested procedural justice on legitimacy and police outcomes using population samples limited to those who reported recent experience with the police or courts. Over time, this expectation has been relaxed as some of the most influential research on police legitimacy theory, including Sunshine and Tyler (2003a), Tyler and Wakslak (2004), Reisig and colleagues (2007), as well as Gau (2011) did not limit their tests of the legitimacy model to just respondents that had recent experience with the police. With a few exceptions (e.g., Tyler and Fagan, 2008), scholars over the last decade generally have taken a position on this theoretical issue by not requiring recent experience with the police for the data samples used in their tests of the process-based model.

Tyler has not directly addressed the debate on the correct survey sample, though he has argued that perceptions of procedural justice do not have to result from direct experiences but can be vicarious experiences gained through friends, colleagues or the media (Tyler and Darley, 2000). Gau (2011) argued that there is limited evidence that police legitimacy or outcomes differ based on police contact. In the U.S., Gau (2011) and Wolfe (2011) reported that police contact did not independently predict a significantly different set of judgments on police legitimacy or outcomes, while Reisig (2007) found that police contact had only a modest effect on evaluations of procedural justice. Similar findings have been reported in Australia, where Murphy and colleagues (2008) found that contact with the police did not significantly influence the judgments on legitimacy or willingness to cooperate with the police; and in South Africa, where Bradford and colleagues (2013) reported that personal contact with the police had limited influence on the same judgments.

In presenting a case for not limiting samples to citizens with recent police contact, Gau (2011) highlighted the findings of Rosenbaum and colleagues (2005, p. 361) that "prior attitudes, whether positive or negative, seem to be more important than any type of recent experience with the police for determining current attitudes [toward the police]." This was supported by the randomized experiment in which Braga, Winship, Tyler, Fagan, and Meares (2014) found that prior interactions with the police did not significantly influence judgments while citizens' attitudes prior to the experience were the most consistent and strongest predictor of their evaluations of the police officer's behavior. These tests are in line with past criminal justice studies that first raised the question whether general perceptions of the criminal justice system can be more impactful than personal experiences (Brandl, Frank, Worden, & Bynum 1994; Skogan, 2006).

Besides dividing respondents based on their recent interaction with the police, legitimacy researchers generally have tested whether demographic control variables significantly influenced the model's key judgments. After all, Tyler (1990) stated that his legitimacy theory's key relationships may not be invariant in some circumstances. In a few cases, researchers demonstrated that demographic variables affect respondents' judgments in the model. For example, Hinds and Murphy (2007) found in Australia that age and education were significant predictors of police legitimacy, while Braga and colleagues (2014) in the U.S. found that the level of education was a significant predictor of the procedural justice evaluations on police behavior. Wolfe, Nix, Kaminski and Rojek (2016) sought to systematically test the invariance in the relationship between procedural justice and police legitimacy by comparing the impact that different demographic, experiential, and situational factors had on predictors of police legitimacy. Their test, based on a comparison of OLS regressions, generally supported the

process-based model's assumption that group differences, whether by race, gender, or police interaction, do not significantly influence the antecedents of police legitimacy (Wolfe et al., 2016).

Despite the recent wave of more stringent testing of legitimacy theory, scholars have yet to test whether a common understanding exists among respondents of the model's key concepts in order to produce stable psychometric properties (measurement invariance) across different sub-groups. In other words, tests of measurement invariance can determine whether items in the survey instrument mean the same things across groups, such as the group with recent experience with the police and the group lacking direct interaction with the police.

In a previous debate on the invariance of a criminological theory across different groups, Piquero and Rosay (1998) pioneered the use of multi-group confirmatory factor analysis in a criminology study to establish measurement invariance for the self-control index across gender. As the use of the process-based model of police legitimacy continued to expand across different countries and demographic groups, the comparison of differences in latent indicators is valid only to the degree that measurement invariance can be established across the groups being compared.

Debate on Authoritarianism in the Model. The philosophical debate over the role of authoritarianism in institutional legitimacy can be traced to Weber's (1968) categorization of the three means through which an authority can gain legitimacy. Beetham (1974) and other scholars in the post-civil unrest wave of scholarship on legitimacy criticized Weber's construct for a lack of concern whether the legitimacy gained by an institution was compelled through threat of violence or through voluntary submission to a governing authority viewed as sharing similar morals or beliefs.

The debate on the role of authoritarianism has continued in the contemporary dispute on whether legitimacy should include or exclude coercive submission to authorities. Since the 1960s, researchers have generally treated legitimacy as reflecting voluntary support to authorities. As legitimacy models increasingly were used to model police-citizen relationships in less democratic countries, some scholars argued that legitimacy constructs also must account for the involuntary precursors to compliance or cooperation with law enforcement. Harkin (2015) argued that because an authority produces legitimacy, as well as being a product of it, that Tylerian theory should incorporate the role of coercive measures in the public's perception of agency legitimacy. Likewise, Kochel (2012) warned that across different societies citizens may be compelled to obey police out of fear of the consequences of disobedience, rather than because they trust police or feel a moral obligation to their authority.

Concern for the Validity of Model Indicators. Over the last decade, concerns over the measurement of the latent constructs that compose the Tylerian model have become a common criticism of police legitimacy theory. Most notably scholars using factor analysis have found that scales used for key indicators often do not load in line with theoretical expectations, while test items used for key indicators of independent constructs have problems with their convergence or divergence. (Gau, 2011, 2013; Murphy, 2013; Reisig & Lloyd, 2009; Tankebe, 2008, 2009).

Scholars establish the validity of a model through the use of stringent testing and experimentation with the indicators. Campbell and Fiske (1959) developed the standard for establishing construct validity by examining the relationship within and between the measures developed in a theoretical model. Specifically, a validation process should start with scholars establishing that the indicators provide for (a) convergent validity; and (b) discriminant validity.

Convergence. Convergent validity is a judgment on whether the theory's scales, operationalized as related in the model, are unidimensional and actually interrelated (Gerbing and Anderson, 1988). Since Tyler and Huo (2002) first raised a concern over the dimensionality issue for police legitimacy, three empirical studies (Reisig et al., 2007; Tankebe, 2008; Gau, 2011) specifically employed different forms of factor analysis to examine the common variance between the sub-scales composing legitimacy (trust in police and obligation to obey). Those studies shared a consensus that the two sub-scales forming the process-based model's indicator for legitimacy were not unidimensional and should not be combined into one theoretical construct.

Divergence. In the simplest terms, divergent validity is the extent to which "a measure is novel in the sense of measuring something different from that provided by other measures" (Holton, Bates, Bookter, & Yamkovenko, 2007, p.387). Working in tandem with evaluations of the model's convergent validity, the tests for discriminant validity demonstrate that the indicator of a construct is not highly correlated with other scales measuring theoretically disparate concepts. Unfortunately, the classic studies testing the police legitimacy model (notably, Tyler, 1990; Tyler & Huo, 2002; Sunshine & Tyler, 2003) did not report bivariate correlations for the indicators used in their tests. Reisig, Bratton, and Gertz (2007) and Hinds and Murphy (2007) were the first empirical tests of the process-based model that called into question the discriminate validity of the indicators. The studies based on U.S. and Australian data showed strong bivariate correlations between the trust sub-scale in the police legitimacy indicator and the antecedent measure of procedural justice. The high bivariate correlations may be a warning to examine the indicators further for discriminant validity.

Researchers have expressed concern that the lack of divergence between the constructs is influenced by the respondents' problems in differentiating their views on very similar normative judgments (Reisig, et al., 2007; Maguire & Johnson, 2010; Gau, 2011). A review of the survey items in APPENDIX A, which Sunshine and Tyler (2003a) used in arguably the most cited test of the process-based model, suggests that similarities between test items could confound the disparate composite measurement scales. In one example, a test item in the procedural justice measure asked the respondent whether the police "make their decision based on the facts, not their personal biases or opinions;" while a test item in the police legitimacy scale asks whether the respondents "trust the leaders of the NYPD to make decisions that NYPD officers make."

Certainly, the process-based model provides a compelling case that the quality of decision-making by officers is a different construct from a judgment on trusting those decisions. Discriminant validity depends on the survey respondent discriminating between test items so as to produce measures of unrelated constructs. The similarity in the two questions' emphasis on *decisions* could lead to difficulty for respondents to form responses that are restricted to the two separate constructs whose relationship is a cornerstone of the theoretical model. Reisig and colleagues (2007) pointed out that this threat to construct validity may inflate the statistical relationship between the independent and dependent variables in the model.

The factor analysis by Reisig and colleagues (2007) and Gau (2011) further attested to the lack of discriminant validity in the classic legitimacy model's key indicators. Gau (2011) found that trust in police shared considerable variance with the two procedural justice sub-scales of quality of treatment (Pearson's $r = .86$) and quality of decision-making (Pearson's $r = .79$) despite these sub-scales representing independent elements in the theoretical model. Gau's

(2011) confirmatory factor analyses found that all three sub-scales loaded on a single latent factor.

Leading legitimacy scholars (e.g., Gau, 2011; Reisig et al., 2007; Tankebe, 2008) have advocated for a standardization of the key constructs found in the theory and the adoption of stringent tests of the model that would allow for a cumulative evaluation process across a broad and diverse set of methods and indicators. Worden and McLean (2017a), as well as Jonathan-Zamir and Weisburd (2013), argue that the diverse evaluation methodologies should include qualitative methods as well as systematic social observation of police-citizen interactions.

Additional Model Antecedents. A fourth common theme in the critical literature on legitimacy is the need for new antecedents that could add to the model's explanatory power on police legitimacy and the prospects that citizens will comply and cooperate with the police. Tyler and Sunshine (2003a) introduced risk and distributive fairness to the classic Tylerian model, while Sunshine (2007) made the case for moral identification as a mediator in the model. Other scholars continue to identify potential new antecedents to legitimacy and police outcomes including lawfulness (Tankebe, 2013a), social identity (Bradford, 2014), and legal cynicism (Gau, 2015).

The Weak Empirical Case in Developing Countries. The last general theme in the critical literature on the Tylerian model focuses on the limited empirical support for the theory in the vast majority of the world's countries which are still emerging in terms of prosperity and democratic governance. Tyler's process-based model of police legitimacy was tested outside of OECD member countries in 2008, when Tankebe reported that the classic process-based model of police legitimacy lacked empirical validity as a model of public cooperation with the police in Ghana. Through the end of 2017, the only other published full tests of the process-based model

in non-OECD countries were in Jamaica and China[4], where legitimacy failed as a mediating construct in the model (Reisig & Lloyd, 2009; Sun, et al., 2017). On the other hand, procedural justice did modestly predict police outcomes without the legitimacy mediator. The results in the three non-OECD countries did not provide strong support for the process-based model and leave unanswered the question of whether the theory serves as a valid model in developing countries.

The tests of the legitimacy theory in non-OECD countries call into question the Tylerian model's central conclusion that a society's normative concerns outweigh instrumental factors in influencing police legitimacy or police outcomes of compliance and cooperation with the police. Tankebe (2009) found that police effectiveness--an instrumental factor--was the only significant predictor of police outcomes in Ghana. The strength of the instrumental antecedent to police outcomes in Ghana was supported by Pryce and colleagues (2016) who studied Ghanaian immigrants to the United States. Pryce and colleagues (2016) found that, even after emigrating from Ghana, police effectiveness for the immigrants was the primary factor influencing perceived legitimacy and the willingness to cooperate with the police.

Scholars in South Africa (Bradford et al., 2013), and in Pakistan (Jackson et al., 2014) found that perceptions of just procedures were a weak predictor of legitimacy in comparison to police effectiveness in those two countries. In China, Sun and colleagues (2017) found that procedural justice was a modest predictor of cooperation with the police, but similar to the other developing countries, police effectiveness was the strongest predictor of police legitimacy.

Given the lack of a consensus in social research on the divide between developing and developed countries, tests of the Tylerian theory in borderline countries could also shape our

[4] Two partial tests of the Tylerian model also were conducted in non-OECD countries, but the South African study (Bradford et al., 2013) did not include police outcome variables while the study in Trinidad & Tobago (Rinehart Kochel et al., 2013) used a limited proxy for the procedural justice construct (the absence of police misconduct) In addition, Karakus (2017) tested the full Tylerian model but used police satisfaction for his mediator in the model.

understanding of the model's findings in developing countries. Hough and colleagues (2013) found that the strength with which procedural justice predicted the Tylerian legitimacy construct differed across Europe. Most notably, scholars have tested the model in former Soviet bloc countries of Slovenia and Poland that are now members of the OECD (Czapska et al., 2016; Reisig et al., 2014). Although the two countries are now ranked among the world's wealthiest countries, most of the population in Slovenia and Poland were raised in conditions that lacked their contemporary levels of prosperity and good governance.

Reisig and colleagues (2014) found in Slovenia that procedural justice (as well as police effectiveness) predicted legitimacy while legitimacy was a significant predictor of cooperation with the police. The study was the first test of the model in a former socialist country, but the students surveyed were born after the transition to a market economy and live in one of the world's wealthiest countries with a GNP/person equivalent to the Riverside/San Bernardino metropolitan area of California. The study suggests that despite being socialized by parents that were raised in far different circumstances that Slovenian youth respond similarly to respondents in developed countries. In contrast, Czapska and colleagues' (2016) found in their sample of Polish students that neither procedural justice nor police legitimacy were associated with the willingness to cooperate with police, instead, police effectiveness alone was the significant predictor of cooperation with the police.

Turkey is another OECD country in which the stringent test of the Tylerian model served as a comparison for the role of legitimacy in Ukraine. Turkey is a rapidly developing country with a high human-development ranking at 71 out of 187 countries by the United Nations Development Program (UNDP, 2016). This suggests that Turkey could occupy the middle ground between developed and developing nations in their normative expectations toward the

police. Karakus (2017) altered the Tylerian legitimacy indicator in his study by replacing obligation to obey with an index on satisfaction with the police. This hybrid measure of the Tylerian legitimacy construct proved empirically valid in Turkey. Nevertheless, the instrumental factor of police effectiveness was stronger than procedural justice as a predictor of police legitimacy and cooperation with the police (Karakus, 2017). The model's test in Turkey differed from previous studies in developing countries because the revised legitimacy indicator (adding satisfaction with the police sub-index) mediated the relationship between procedural justice and the willingness to cooperate with the police.

Normative Values and Legitimacy

Past legitimacy scholarship suggests that the problems transitioning the Tylerian theory of legitimacy to developing countries could partly be addressed through the addition of new measures that would shed light on the degree that Tyler's expectation of relations shaped by shared normative values across judgments on interactions with officers, the legitimacy of the agency, and the willingness to cooperate with the police. After finding weak support for the predictive role of legitimacy on predicting willingness to cooperate with the police in a developing country, Tankebe, Reisig, and Wang (2016) proposed that across societies different variables likely have a significant influence on the model's key relationships. Tankebe and colleagues (2016) advocated for future studies that would identify variables that could explain the failure of legitimacy theory in social contexts different from those in developed countries.

The pursuit of measures that represent societal differences in criminal justice models is not unique to the theory of police legitimacy. In the early years of police legitimacy research, Sherman (1993) argued that different social settings would bring divergent public reactions to identical acts of law enforcement. Sherman's observation primarily concerned different

communities, but his argument is no less true in comparing societies found in developed versus developing countries.

In discussing institutional legitimacy, Weber (1968) also accounted for the possibility that disparate societies judge their institutions differently. Weber (1968) did not categorize societies in terms of development but rather introduced three distinct paths by which authorities claim legitimacy. Nevertheless, he saw some governments increasingly were developing rational bureaucratic authority. This provides an early argument that rule-of-law policing and rational procedures could serve as a pathway to the legitimacy of an institution in a society. Nonetheless, Weber (1968) also argued that the normative values that determine institutional legitimacy could be shaped by the ideologies of charismatic and traditional authorities. In terms of debating differences across societies, Weber's (1968) classification of legitimate authority suggests that rational and just procedures may not be the path for an institution to gain legitimacy in a society still dominated by charismatic or traditional authorities.

Contemporary policing literature has rarely integrated different measures of societal values in evaluating theoretical models, but one of the few exceptions was, by coincidence, the first study of police procedural justice (Tyler & Folger, 1980). In an attempt to transition the legal dispute resolution theory to the topic of policing, the Tyler and Folger (1980) included in their study two indexes of values drawn from the research literature on political ideology. Tyler and Folger (1980) reported that the two indexes—developed in the 1950s for comparing political leanings--modestly influenced their respondents' evaluation of the Evanston Police Department. The authors did not address the two societal measures in their conclusions but opened the door to a new attempt 38 years later to evaluate the impact of social values on the theory of police legitimacy. This study will add to the Tylerian model two variables, postmaterialism and fear of

crime, that past research has supported as differing considerably across societies and represent the degree that normative values are prioritized by the public. The variables would serve to test whether a measure of normative values would predict the cooperation with police which Tyler (2004) viewed as a process in which shared normative values were critical for the model's mediating legitimacy indicator to predict cooperation with the police.

Role of Postmaterialism. This study will use a socio-cultural variable (Self-Expression vs. Survival Factor) that sociologists Ron Inglehart and Wayne Baker (2000) created to reveal the social values that prioritize daily survival in relation to normative priorities. Inglehart and Baker developed this index to track how changes over time alter a society's internal values. Scholars developed such postmaterialist indexes in support of Inglehart's (1990) theoretical argument that over the course of their development industrialized democracies also undergo a cultural shift as individual values move from an emphasis on the material/survival (instrumental) values to prioritizing quality of life/self-expression (normative) values.

The postmaterialism variable is expected to fit in to a Tylerian theory of police legitimacy that is a function of the interplay of instrumental and normative values in the public's judgments of the police. Tyler (2004) argued that social and cultural factors shape a society's views on whether the normative aspects of police behavior, such as just procedures, outweigh the public's concern for police effectiveness and other instrumental values in deciding whether to comply or cooperate with the police. Specifically, the theory assumes that "internalized values" either favor or rebuff compliance with the law and cooperation with the police (Tyler, 2004, p. 86). In adopting this approach, Tyler (1990) credited Easton (1965) for the assumption that the socialization processes forming these internal values differ across societies and lead to different priorities. Generally, legitimacy scholars (e.g., Gau et al., 2012; Tyler, 2004) have found the

most significant cross-cultural differences between countries rather than between different societies in a singular country.

Within the social sciences, postmaterialism measures were developed as part of Inglehart's (1990) theory of value shift and are used to track changes in the internal values of different societies (Pavlović, 2011). Inglehart (1977) labeled those favoring normative values as postmaterialists[5]. Past studies of the theory of values shift suggested that postmaterialists in a society are more likely to value just procedures and less likely to simply accept orders to obey if they do not consider their views are reflected in those decisions (Inglehart, 1977; Inglehart, 1996; Inglehart, 1999; Clark et al., 1999). Postmaterialist indicators mirrored the Tylerian model's expectation that the public's normative values demand fairness and openness to dialogue on the part of officers and would determine their judgments on obeying orders and trusting the police. Inglehart (1990) argued that societies slowly adopt postmaterialist values as younger generations are raised in periods of physical security and economic stability in which normative values increasingly compete for the more traditional concerns over personal survival (Curry & O'Connell, 2000).

Inglehart (2012) developed his values model by combining two antagonistic schools of thought: Weber's view that values shape economic development and Marx's contradictory view that the first step in a transition is economic change which produces new values. Inglehart's theory of values shift took a middle road in viewing developments in the economy and transformations in societal values as reinforcing each other over time. Moreover, the theory of values shift argued that the newly acquired values are found across different economic strata in a developed country. This fell in line with findings of Gau and colleagues (2012) that the

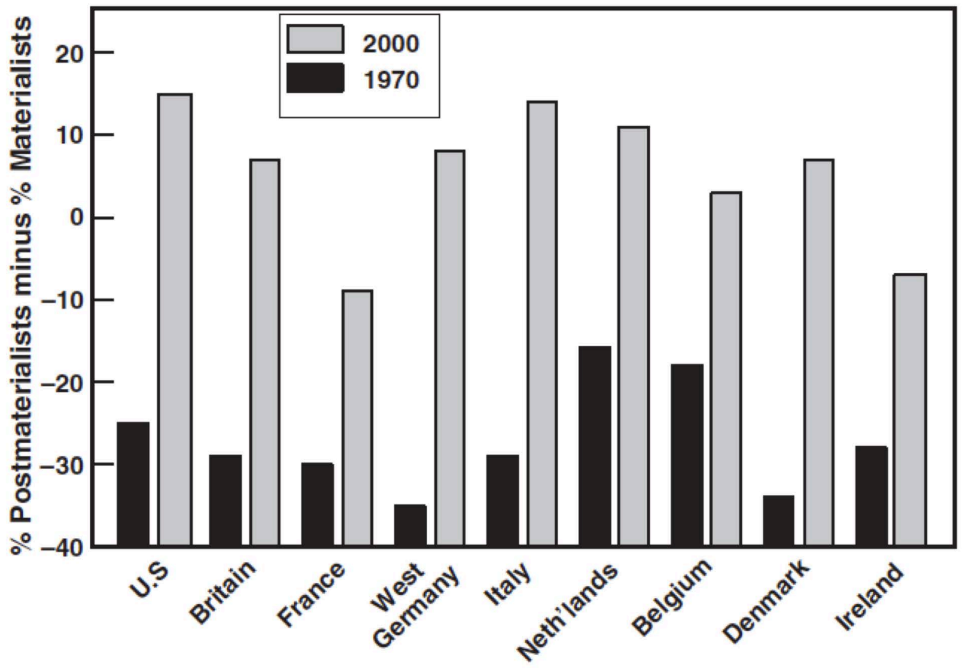
[5] This study uses the term postmaterialism for the index used in the study (self-expression vs. survival factor) as well as other indexes intended to measure internal normative values in a society.

normative value of procedural justice in influencing perceptions of legitimacy held up in tests of the Tylerian model across different communities regardless of whether the locality was classified as high or low in terms of economic disadvantage (Gau, Corsaro, Stewart & Brunson, 2012).

The foundational assumption of the theory of values shift was that for every country and their system of governance there is a unique set of norms, values, and other orientations consistent with that authority (Rogowski, 1974). Moreover, if these values reflect norms learned while citizens are young, changes in values across a society would require the passage of considerable time (Parsons, 1935; Inglehart, 1990). In the criminal justice canon, both Tyler (2004) and Sherman (1993) argued that internalized values are developed over time through judgments on the police's use of fair procedures. This suggested that differences in cultural values shape the balance between the public's instrumental and normative judgments of the police across countries. Outside policing, Brockner and colleagues (2001) also argued that societal values likely shaped perceptions of procedural justice and other attributes of the organizations they studied across Europe, Asia, and Latin America.

Studies applying postmaterialist indexes in developed countries demonstrated that the postmaterialist scores in those countries rose dramatically over eras of relative prosperity (Figure 4). Moreover, a scatter plot of global data (see Figure 5) suggested that a proportional relationship existed in which citizens in countries farther along in political and economic development demonstrated greater concern for postmaterialist values (e.g., fair and just procedures, intolerance of corruption) while prioritizing far less the instrumental concerns for personal materialism and survival (Inglehart, 1996).

Figure 4: Postmaterialist Results over Three Decades



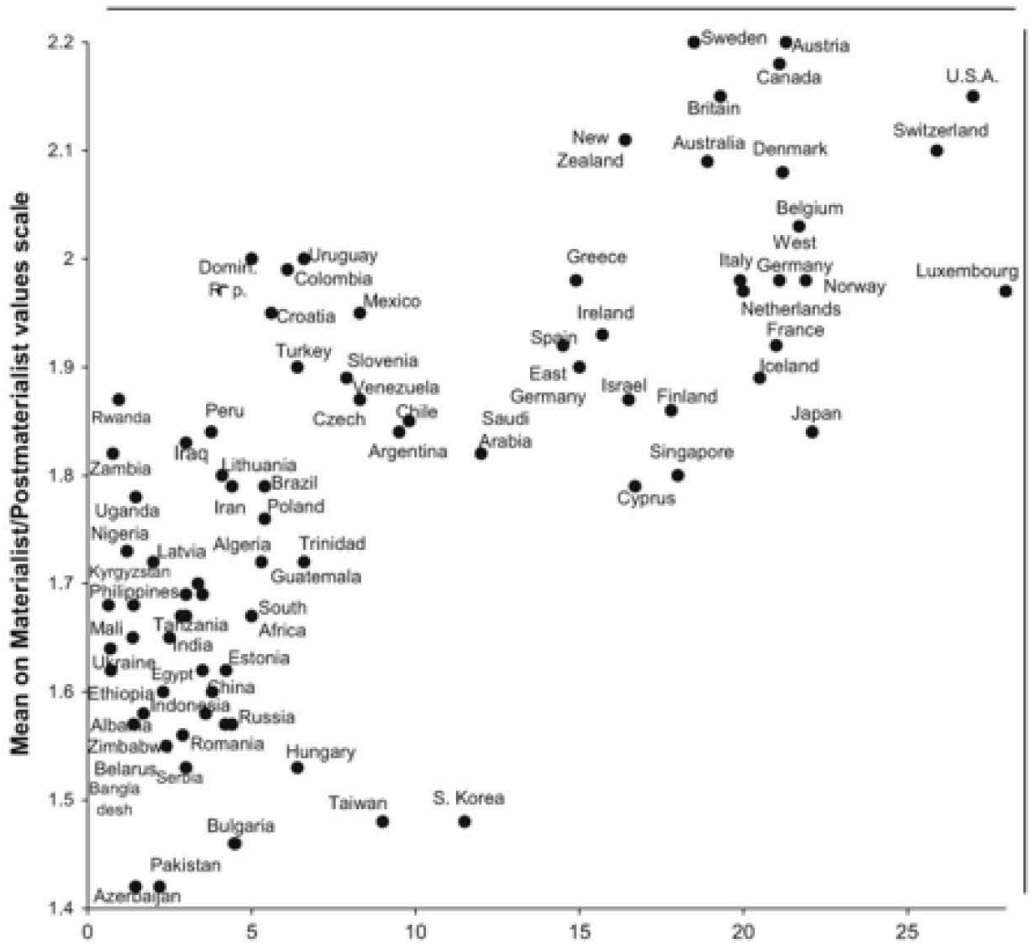
Source: Inglehart and Welzel (2005).

The scale and unique nature of Inglehart's research on values likely accounts for his rank as the second most cited Political Science researcher of his generation (Abramson, 2011). As part of this research, Inglehart and colleagues developed several different indexes to measure changes in post-materialism values over time. Inglehart and Baker's (2000) self-expression vs. survival index offered scholars a concise 4-item index to measure the degree that a society expresses post-materialist values over the materialist values of survival.

Scholars have continued to debate whether the self-expression vs. survival index and other postmaterialist measures demonstrate the central tenets of Inglehart's Theory of Values Shift, particularly in regard to data from Eastern Europe and developing countries (e.g., Kotze & Lombard, 2002; Pavlović, 2015). Scholars no longer view postmaterialism measures (such as the self-expression vs. survival index) as antecedents to democracy, but rather just one indicator of the democratic values that underpin the representative institutions in a country (Hiskey &

Bowler, 2005). Nevertheless, this study's focus on postmaterialist measures serving as an indicator of the degree that normative values drive judgments continues to find support in the literature.

Figure 5: Relative Postmaterialism by GNP/Capita Across Countries



Note: On y-axis (1=100% materialist; 2 = materialist and postmaterialist evenly balanced; 3 = 100% postmaterialist); on x-axis GNP per capita in thousands, 1995 (PPP estimates), r = 0.64.
Source: Inglehart (2008).

Criticism of the postmaterialism indexes most often is from scholars who continue to use the postmodern measures in their own research but disagree with text item development or the theoretical claims made based on the values reported by the indexes (Davis, Dowley & Silver, 1999). Davis and Davenport (1999) criticized postmaterialist scholars for not continuing to test and validate the indexes that have been unchanged decades after the test items were first

developed through factor analyses in the 1970s. Scholars also criticized the degree that Inglehart's indexes are overly sensitive to changes in respondent priorities based on short-term economic fluctuations in unemployment (Clarke, Dutt & Rapkin, 1991) or the inflation rate (Duch & Taylor, 1993).

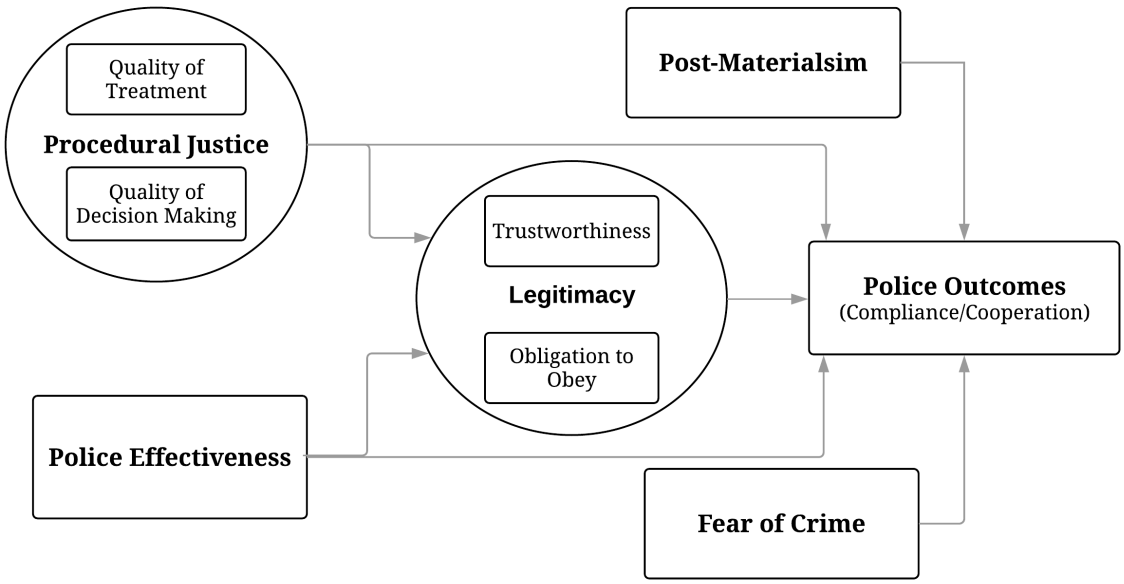
The criticisms of Inglehart's theory of values shift as an explanation of change in societies did not diminish the value of the postmaterialism measures to social science as an instrument that weighs the concern for material security against normative concerns for tolerance, self-expression, and personal rights (Abramson, 2011, Pavlović, 2015). For example, the past use of postmaterialism indexes to predict public perceptions of government performance (e.g., Fernandez and Kuenzi, 2010), suggested that they could serve as antecedents to police legitimacy and police outcome variables.

Citizen expectations did not remain flat over this post-industrial period, but rather Gilley (2009) argued they rose steadily which presented an even greater challenge to maintain legitimacy. The postmaterialist indexes offer a potential measure to capture the shifting values on which public perceptions of institutional (police) legitimacy are formed. This study hypothesizes that a measure that captures the degree that the public prioritizes normative values (rather than survival values) would predict the inner normative values that Tyler argues determines the public's willingness to cooperate with the police. Specifically, this study will test whether a measure of postmaterialism predicts the outcome variable of cooperation in the Tylerian model (see Figure 6).

The postmaterialism measure may shed light on whether normative values shape public judgments on officers, the agency, and the public's willingness to cooperate with the police. In developed countries, the relationship has been repeatedly demonstrated through the strong role

that legitimacy, in comparison to the instrumental concern for police effectiveness, has in mediating just or unjust officer behavior and predicting cooperation with the police (Sunshine & Tyler, 2003a). By contrast, past studies in developing countries suggested that legitimacy will be a weak mediator in the process-based model (e.g., Czapska et al., 2016; Karakus, 2017; Reisig & Lloyd, 2007). Therefore, postmaterialism, which is a predictor of normative over instrumental values, can demonstrate whether normative judgments are associated with police outcomes in a developing country. A positive test would suggest that the weakness of the legitimacy indicator in developing countries may not reflect normative values but another factor that prevents normative attachments to law enforcement agencies and limits the mediating role of the trustworthiness indicator in the model.

Figure 6: Conceptual Model with Post-Materialism and Fear of Crime



Role of Fear of Crime. The Fear of crime measure in this study is intended to represent the degree that instrumental fears for personal security supersede a citizen's normative priorities in evaluating officer behavior and cooperation with the police. A subjective measure shaped by

a broad range of individual and neighborhood characteristics, the fear of crime in past studies appeared to behave independent of the actual victimization rate (e.g., DuBow, McCable & Kaplan, 1978; Hale, 1996; Leiker, 2003). Most notably, scholars have demonstrated that crime is weakly correlated with a neighborhood's level of fear of crime (Lewis & Salem, 2016) and that, while rising crime can lift the level of fear of crime, the fall in crime had less of an impact on public fears (Taylor & Hall, 1986).

More than 350 empirical studies of fear of crime have been conducted across a wide range of countries (Fernandez and Kuenza, 2010; Leiker, 2003). US-based research demonstrated that neighborhood disorder and the lack of informal neighborhood social ties facilitated or inhibited the fear of crime and produced significant differences across and between different communities (Hunter, 1979; LaGrange et al., 1992; McGarrell et al., 1997). In a 23-country study across Europe, Hummelsheim and colleagues (2011) found that, because of factors that included neighborhood social incivilities and civil ties between neighbors, the fear of crime indicator acts as a social insecurity that differed across countries.

The behavior of the fear of crime variable suggested that it can act as a catch-all measure. The fear of crime did not act as a targeted instrument for the public's concern that they could be victimized in the future, but rather the fear of crime had "its roots in something more diffuse than the perceived threat of some specific danger in the immediate environment" (Garfalo & Laub, 1978). Scholars came to accept that the fear of crime represented a wide variety of other community perceptions including fear of strangers, fear of other ethnicities, as well as anxiety over neighborhood incivilities and physical disorder (Garfalo & Laub, 1978; Taylor, 1999). Studies in developing countries also found that fear of crime was an insecurity that acted as a sponge absorbing over time a wide variety of citizens' concerns over social and physical

instability in their daily life (Bennett & Flavin, 1994; Dammert & Malone, 2003). This description suggested that the fear of crime index could represent the impact that extended periods of instability in citizens' physical environment have on the weight they place on instrumental over normative values in their judgments on police behavior and outcomes.

As a result, this study posits that to the degree that fear of crime represents normative judgments it can serve as a predictor of the willingness to cooperate with the police. Fernandez and Kuenza (2010), for example, found across 32 countries in Latin America and Africa that citizens' perception of public safety was as important a factor as any socio-economic variable in predicting support for and satisfaction with the state of democracy in the country. In a Latin American survey, Perez (2003) drew a similar conclusion that increased fear of crime in a country reduces the level of public support for criminal justice institutions. As a result, this study proposes that the level of fear of crime in a society will be associated with the role of inner normative values that Tyler identifies as shaping the decision to cooperate with the police.

Police legitimacy scholars used fear of crime indicators in a few previous studies. Sunshine and Tyler (2003a) developed a latent variable for police effectiveness that combined test items on police performance, neighborhood conditions, and the fear of crime. However, the latent variable for police effectiveness did not significantly impact legitimacy or cooperation with the police. Hence, Sunshine and Tyler (2003a) argued that U.S. tests of the legitimacy theory demonstrate that instrumental concerns are less influential than the procedural justice construct in predicting agency legitimacy and police outcomes.

In developing countries, limited research on the role of physical insecurity in the Tylerian theory of legitimacy left considerable uncertainty on the role for the latent variable as a mediator in the process-based model. Karakus (2017) found that fear of crime, along with other

neighborhood safety measures, did not prove a significant predictor of either police legitimacy or cooperation with police in Turkey. In Ghana, Tankebe (2013b) proposed that anxiety over crime likely was a major reason the Tylerian model failed to significantly predict legitimacy or police outcomes, but he did not include the variable in his regression models. The influence of a physical insecurity measure on citizen judgments in developing countries was supported by Fernandez and Kuenza's (2010) finding in Latin America and Africa that citizens gave greater weight to personal safety than economic growth and development in evaluating their government institutions.

Sunshine and Tyler (2003a) defined the fear of crime as an instrumental construct because citizens make a decision on the desirability of a condition that directly affects them. Hummelsheim and colleagues (2011) argued that fear of crime also served as a reflection of social insecurity in societies. This study posits that this insecurity influences the balance of normative and instrumental values in citizens which allows fear of crime to associate with the internalized normative values that Tyler argues determine the willingness to cooperate with the police. The study will contrast fear of crime and legitimacy in the strength of their association with the model's outcome variable, cooperation with the police.

CHAPTER III

Methodology

The chief objective of this study was to test the Tylerian process-based model of police legitimacy in a developing country and explore whether two new variables, hypothesized to reflect normative values, predicted the public's willingness to cooperate with the police. This quantitative study used a path analysis on an existing community survey to test the key relationships of the classic process-based model of police legitimacy including the influence of the new variables on the police outcome cooperation with the police.

Prior to performing the path analysis, the study reported validity test results in support of the effort to construct more valid indicators that started with Reisig and colleagues (2007) and has expanded across a nascent wave of stringent tests of the process-based model of police legitimacy (Gau, 2011, 2013; Murphy, 2013; Reisig and Lloyd, 2009; Tankebe, 2008, 2009). Finally, this study introduced the use of multi-group confirmatory factor analyses in validating the Tylerian model by testing the procedural justice construct for measurement invariance across groups separated by their experience with police and demographic characteristics.

Survey Data

The study's data were collected through a face-to-face community survey of Ukrainian residents in 2013. The survey was administered by the U.S. Department of Justice's International Criminal Investigative Training Assistance Program (ICITAP) in Ukraine. The ICITAP Project Office in Kyiv financed the administration of the survey to serve as the pre-intervention data for a community policing initiative. While serving as an adviser to the ICITAP office, the study's author developed the questionnaire.

The survey sought to collect pre-intervention neighborhood views on the district officers operating in the experimental and control sections of three Ukrainian cities located in different corners of the country (Kamianets-Podilskyi, Lutsk, and Nova Kakhovka). The U.S. Department of Justice contracted the Ukrainian office of Europe's leading consumer survey firm GfK to collect the data using door-to-door interviews in the participating police districts. The questionnaire included a wide variety of test items and indexes used by researchers to measure perceptions of police legitimacy and performance.

The sample used for the study consisted of 1,964 completed questionnaires. GfK collected more than twice this number of questionnaires but those conducting the interviews were allowed to mark an option 99 for questions that the respondent gave the response "hard to answer." Although researchers generally seek to avoid dropping observations from a sample, this study did not use 2,041 questionnaires in which the choice "hard to answer" was given for one of the 21 test items that compose this test of the Tylerian model of police legitimacy[6].

The 1,964 questionnaires were completed by adult Ukrainian citizens between 18 and 91 years of age with a median age of 44.1, SD=16.7. In line with the general population (State Statistics Service of Ukraine, 2001) the survey respondents were 54.9% female with more than one-third (36.0%) possessing a two-year or more university degree. This truncated list did not differ from the original sample except in the case of higher education. The list deletion increased the portion of respondents with a higher education degree but was closer to the national average in Ukraine of 35% (State Statistics Service of Ukraine, 2001).

[6] The questionnaires that used the "hard to answer" responses were dropped because: the missing data was negatively associated with education-level which ruled out a multiple imputation solution for the missing items; and the path analyses did not find a difference in the core findings of the process-based model whether run on the original data sample or the smaller set of completed questionnaires.

The pared list contributed to the unequal sample distribution between the three surveyed cities as the smaller Kamianets-Podilskyi sample accounted for 20% more of the "hard to answer" responses than the other two cities. Kamianets-Podilskyi residents viewed the performance of the militia more negatively than the other two cities which may have impacted their willingness to answer some of the questions in the survey. A path analysis of the Tylerian model on separate data sets for each city found that, though the results differed in terms of the strength of some parameters, the study's key findings in terms of significant relationships and directions were uniform across each of the cities.

The survey was intended to provide a representative sample of the experimental and control districts in each of the three cities and was not intended to generalize to either national or city-wide populations. The interviews in each city were distributed based on addresses listed for city districts assigned to the experimental or control group for the community policing project. The list of addresses to use within a district were selected at random with the only limit that no more than five completed questionnaires could come from addresses in the same apartment building. If the interviewer discovered more than one eligible adult at an assigned address, they would interview the adult whose birth date was the most recent. The survey teams did not record a door-to-door response rate in the three cities. The surveyors would no longer pursue an address after a refusal to participate or three failures to find someone at that address.

Shortly after the survey was completed, the DOJ community policing program was put on hold because of the start of social turmoil that later became known as the Maidan Revolution. Subsequently, the ICITAP project office refocused on supporting the new Ukrainian government's priorities to liquidate the former militia structure and stand up a new police service. The US Department of Justice ICITAP agreed to permit the use of the orphaned data for

research purposes. The MSU Institutional Review Board ruled that the study protocol and ICITAP survey data met the criteria of exempt status according to Federal regulations.

Independent and Mediating Variable Measurement

Procedural Justice. The procedural justice scale is conceptualized in the classic Tylerian process-based model as formed by two dimensions: the sub-construct quality of treatment and the sub-construct quality of decision-making (Tyler and Huo, 2002). The survey operationalized procedural justice using the eight test items that Reisig and colleagues (2007) evaluated from Sunshine and Tyler's (2003a) indexes for procedural justice. The five test items forming the quality of treatment (APPENDIX B: Questions 9.1 – 9.5) and the three test items for quality of decision-making (APPENDIX B: Questions 9.6 – 9.8) were measured on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree).

Police Effectiveness. The five-item index used in this study to measure service quality or effectiveness of the police was first developed by Rinehart Kochel, Parks and Mastrofski (2013) for a public survey in Trinidad & Tobago. The test items forming this latent variable (APPENDIX B: Questions 8.1 – 8.5) generally asked if the police were prompt or effective in preventing crime. The responses were measured on a Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree).

Postmaterialism. This study is based on Inglehart and Baker's (2000) self-expression versus survival factor that consists of four test items measured on a Likert scale similar to that used for the procedural justice test items (APPENDIX B: Questions 21.1 – 21.4). The variable has been used over several decades in modernization and democratization studies and is usually calculated as an additive scale that represents the degree that a society expresses normative, self-expression values over the materialist values of personal survival.

Fear of Crime. This latent variable was operationalized using four survey items drawn from Ferrero and Grange's (1987) study on alternative measures of the fear of crime (APPENDIX B: Questions 8.6 – 8.9). As with all the indexes, the test item terminology was adjusted for use in Ukraine. For example, there is no direct parallel in either Russian or Ukrainian for the word neighborhood. Instead, the survey's questions on respondent views regarding crime and disorder in their neighborhood were altered to refer to an area one half kilometer around their home.

Police Legitimacy. Since Tyler (1990) first proposed this construct, the process-based model has used a two-dimension measure of police legitimacy that combines an obligation to obey index with an index that operationalizes police trustworthiness. The survey data used the two test items for obligation to obey and the three test items for police trustworthiness that Reisig and colleagues (2007) validated after testing the factor loadings, inter-item correlations, and multicollinearity of the larger set of test items used in Sunshine and Tyler's (2003a) study of the process-based model of police legitimacy. This latent variable is based on five test items (APPENDIX B: Questions 9.13 – 9.17) measured on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree).

Dependent Variable Measurement

This survey initially intended to test the dual outcome variables of compliance with the law and cooperation with the police that were part of Sunshine and Tyler's (2003a) influential test of the process-based model of police legitimacy. The GfK survey team conducted an initial pre-survey with two dozen respondents to test the draft questionnaire in the first half of October, 2013. The pre-survey suggested that a high portion of questionnaires would not be fully completed if the survey included the test items on compliance with the law. Most of the pre-

survey respondents refused to choose a response to the compliance questions. The refusals spanned the full range of test items including queries on littering, speeding, or drunk driving that were included in Tyler's (1990) first police legitimacy study that used compliance as an outcome variable.

As a result, the project team agreed with the survey team to just use the willingness to cooperate with law enforcement as the sole dependent variable on the questionnaire. The decision to limit the outcome variable to only cooperation with the police is in line with previous tests of the police legitimacy theory in developing countries (Czapska et al., 2016; Karakus, 2017; Reisig et al., 2014; Sun et al., Tankebe, 2009). Other researchers may have encountered similar difficulties in collecting responses on legal compliance questions which would explain the lack of published tests of the Tylerian process-based model using compliance with the law as an outcome variable.

Cooperation with the Police. The cooperation with the police index in this study recorded the respondent's willingness to take the initiative over four different scenarios ranging from calling to report a crime to providing information on a potential suspect (APPENDIX B: Questions 11.1 – 11.4). The latent variable of cooperation with the police is based on four test items that Reisig and colleagues (2007) and Gau (2011) supported in their construct validity studies of the process-based model of police legitimacy.

Analytical Plan

This study examined whether material and physical insecurity mediated the relationship between the public's judgments on police use of just procedures and the public's willingness to cooperate with the police. The research required first testing the key indicators and relationships of the process-based model using Ukrainian data and then determining whether the hypothesized

mediators offered an alternative path for explaining the relationship between procedural justice and decision to cooperate with the Ukrainian militia.

As a first step, the study sought to determine if there were validity problems in the operationalization of the Tylerian model in Ukraine. Following the lead of a number of scholars that have raised concerns with the process used to develop the model's measurements (e.g., Gau, 2011, 2013; Maguire & Johnson, 2010; Reisig et al., 2007; Tankebe, 2009), the analytical plan made use of robust validity testing prior to examining the model's key predictions. An Exploratory Factor Analysis (EFA), was used to determine factor loadings. Moreover, the analysis made use of traditional tests of correlation coefficients and Cronbach's alphas.

The structural equation-modeling (SEM) tools of Stata 15 were used to conduct path analyses of the key relationships in the Tylerian model. SEM analysis is ideally suited to examine a well-tested and theorized model, such as the Tylerian theory of police legitimacy. SEM models were used to test the five research questions applying the Tylerian theory of police legitimacy in developing countries and whether the two hypothesized variables reflecting normative values predict the willingness to cooperate with the police in Ukraine.

The last component of the data analysis combines measurement model and structural tests to address the sixth research question on whether possessing recent experience with the police bias the procedural justice scores in the process-based model of police legitimacy. Tests for measurement invariance in the indicators were not previously part of published studies on the Tylerian model. This study used a sequence of multi-group confirmatory factor analyses (MG-CFA) to test the procedural justice construct for measurement invariance across groups. Procedural justice is the construct in the Tylerian theory that is hypothesized to reflect a community's experience with police officers. The MG-CFA tools also determined whether

gender, age, and education level, as well the research question of direct versus indirect experience with the police, bias the model's psychometric measure of procedural justice.

CHAPTER IV

Results and Discussion

Preliminary Tests

Prior to conducting the tests to assess the study's key research questions, Stata 15 was used for an exploratory analysis prior to examining the validity of the model's indicators. This study will make use of a "cumulative evaluation process" for improving a model's construct validity (Campbell and Fiske, 1959). Most notably, the study followed the lead of legitimacy scholars (e.g., Gau, 2011; Reisig et al., 2007) in pursuing a factor analysis of the study's indicators, an analysis of the indicator's Cronbach's alpha coefficients, and the bivariate correlation coefficients.

Exploratory Factor Analysis. The study used SEM Builder in Stata 15 to perform an exploratory factor analysis (EFA) of the model's key measures. An EFA is most often used to uncover the key factors in collected data, but in this case, an EFA was chosen as an initial test of the validity of the measurements used for the theoretically-supported process-based model of police legitimacy. As a first step in preparing for an EFA, the test items were examined for sampling adequacy. Specifically, the Bartlett test of sphericity, $\chi^2(210) = 27{,}943.7$, $p < .001$, supported the lack of an identity matrix and, consequently, the appropriateness of using factor analysis on this data set. A Kaiser-Meyer-Olkin test, KMO = .940, similarly suggested that there is adequate common variance among the 23 test items operationalized as predictor variables in this study.

Next, the distribution of the test items used in the scales for the model were examined for normality. As demonstrated in Table 1, the skewness and kurtosis results across the study's 27 test measures generally were within the range viewed as adequate for univariate normality. Test

Table 1: Descriptive Characteristics of Test Items

Test Item	Mean	Standard Deviation	Skewness	Kurtosis
Procedural Justice				
9.1 Respect	2.99	0.72	-0.61	2.41
9.2 Listen	2.90	0.79	-0.45	2.79
9.3 Treat Fairly	2.86	0.82	-0.41	2.70
9.4 Respect Rights	2.91	0.80	-0.58	2.92
9.5 Courtesy	3.07	0.74	-0.68	2.57
9.6 Fact-based	3.01	0.76	-0.59	2.69
9.7 Explain	3.00	0.75	-0.60	2.98
9.8 Fairly	2.77	0.83	-0.30	2.55
Legitimacy				
9.13 Basic Rights	2.82	0.70	-0.63	2.82
9.14 Trust	2.69	0.80	-0.42	2.72
9.15 Job Well Done	3.09	0.79	-0.74	2.96
9.16 Accept	2.09	0.88	0.35	2.29
9.17 Do as Told	2.07	0.92	0.31	2.04
Police Effectiveness				
8.1 Duties	2.94	0.82	-0.56	2.93
8.2 Order	2.92	0.83	-0.51	2.81
8.3 Try to Help	2.88	0.87	-0.55	2.71
8.4 Prompt	2.87	0.88	-0.50	2.59
8.5 Prevent	2.86	0.86	-0.41	2.55
Cooperation				
11.1 Call	3.43	0.69	-0.93	2.27
11.2 Report	3.30	0.80	-0.98	2.49
11.3 Accident	3.48	0.71	-1.29	4.35
11.4 Info	3.24	0.87	-0.97	2.64
Fear of Crime				
8.6 Fear Alone	2.59	1.10	-0.16	1.83
8.7 Worry Property	2.54	1.01	-0.07	1.92
8.8 Reason to Fear	2.53	0.99	-0.03	1.96
8.9 Love Ones	2.99	0.99	-0.69	2.43
Post Materialism Index	12.01	2.27	0.87	2.94

item 11.3 (Reporting of Accidents) in the cooperation with the police index was an exception because the kurtosis coefficient was outside the range (±3) generally viewed as adequate (Onwuegbuzie & Daniel; 2002). A high and positive kurtosis coefficient can lead to

underestimating the variance of the variables, which increases the chance of a "false positive" or Type I error rate (Tabachnick & Fidel,1996).

After reviewing the theoretical arguments for keeping the accident variable in the cooperation with the police index, the test item was dropped from the data set leaving three test items for the latent measure of cooperation with the police. Although common in past studies using a cooperation index, the test item (Reporting of Accidents) may be problematic. The reporting of accidents in Ukraine is not strictly a question of judgments about the police but may manifest other concerns in a country where only a minority of drivers comply with the law requiring car insurance. Therefore, the removal of the accident test item to improve the normality of the data may refine the dependent variable to better reflect the willingness of the respondent to cooperate with the police in the context of Ukraine.

The next step in the analysis was an examination of the Eigen values and scree plots of the factors in the EFA test. The model extracted five factors from the 23 test items (Table 2). Oblique rotation (Promax) was used because past literature suggests the test items are correlated. The test items for most factors loaded together on separate factors but a single factor incorporated the test items forming the procedural justice and the trustworthiness scales.

Although supportive of the hypothesized factor structure, the EFA reaffirmed the most commonly discussed construct validity concerns for the Tylerian model, the lack of convergence for the obligation to obey and trustworthiness subscales in the EFA (Tyler & Huo, 2002; Gau, 2011, Reisig et al., 2007). The lack of convergence between the two subscales forming the legitimacy measure is in line with previous studies that reported the two sub-scales were not unidimensional and should not be combined in a construct theorized as unidimensional. The factor analysis' results regarding legitimacy's unidimensionality serve as a warning that

researchers applying the process-based model of legitimacy should not rely solely on Cronbach's Alpha to test the validity of the theory's indicators. As Hirschi and Selvin (1967) argued a half century ago, Cronbach's alpha may suggest a reliable and internally consistent indicator for an index whose test items actually load on two or more independent constructs.

Table 2: EFA Factor Loadings for Predictor Variables

Construct (Cronbach's Alphas)	Item	Loadings: Five Factors				
		Comp. 1	Comp. 2	Comp. 3	Comp. 4	Comp. 5
Procedural Justice (α = .93)						
Quality of Treatment	1. The local police treat citizens with respect.	.672				
	2. … take the time to listen to people.	.702				
	3. … treat people fairly.	.720				
	4. … respect citizens rights.	.759				
	5. ….. are courteous to people with whom they come in to contact.	.820				
Quality of Decision-Making	1. The local police make decisions based upon the facts.	.827				
	2. … explain their decisions to those involved.	.823				
	3. … make decisions that lead to the fair resolution of problems.	.704				
Police Legitimacy (α = .74)						
Trustworthiness	1. People's basic rights are protected by the local police.	.690				
	2. The local police can be trusted to make decisions that are right for your community.	.691				
	3. Most local police officers can do their job well.	.673				
Police Legitimacy (α = .74)						
Obligation to Obey	1. You should accept police decisions even if you think they are wrong.					.943
	2. You should do what the police tell you even if you disagree.					.958
Police Effectiveness (α =.91)						
	1. The local police know how to carry out their official duties properly.		.784			
	2. … are able to maintain order on the streets.		.758			
	3. … try to help citizens.		.750			
	4. … respond promptly when needed.		.756			
	5. … prevent crime.		.700			
Cooperation (α = .81)						
	1. I would you call the police to report a crime?					.852
	2. ….. report a suspicious activity near your home to the police.					.893
	3. …. provide information to the police to help catch a suspected criminal.					.814
Fear of Crime (α =.84)						
	1. In the half-kilometer area round your home, do you feel afraid to walk alone at night.			.815		
	2. When I am away from home, I worry about the safety of my property.			.866		
	3. There is a reason to be afraid of becoming a victim of crime in my community.			.843		
	4. I worry about others in my home when they head outside at night.			.747		

The Tylerian model's key indicators also were examined for internal consistency using Cronbach's Alpha (Table 2). This coefficient served to measure the reliability of the predictor scales. A comparison of the coefficients from the Ukrainian sample and the U.S. data samples (Gau, 2011; Reisig et al., 2011) demonstrated considerable similarity between the alpha coefficients of the key indicators in the two countries (see Table 3). As in the U.S. tests, the alpha coefficients suggested internal consistency ($\alpha > 0.70$) across the test items used to form procedural justice and legitimacy scales.

Table 3: Comparison of Cronbach's Alphas in Ukraine versus U.S. Studies

	Ukrainian Sample	Southern California	National U.S.
Procedural Justice	.94	.92	.90
Legitimacy	.74	.81	.72

Sources: Gau, 2011 and Reisig, Bratton & Gertz, 2007

Separating the Two Legitimacy Indexes. No aspect of the Tylerian model's measurement validity has received as much criticism as the lack of a sufficient relationship between the two variables (trustworthiness and obligation to obey) to defend combining them into a single legitimacy construct (Gau, 2011; Reisig et al., 2007; Tankebe, 2008; Tyler and Huo, 2002). The validity tests in Ukraine demonstrated the lack of divergence of the two legitimacy sub-indexes as noted in the weak correlation between trustworthiness and obligation to obey and the lack of a common factor in their EFA. In the first published exploratory analysis on the factors in the Tylerian model, Gau (2011) found in a PCA of U.S. data that her measurement model proved a poor fit to the data and chose to split Tyler's hypothesized indicator for legitimacy to produce a model with an adequate fit.

Gau (2011) in her U.S. study and Reisig and colleagues (2014) in a European study established the precedent to separate trustworthiness and obligation to obey to form independent mediating indicators of legitimacy in the Tylerian model. The use of the trustworthiness indicator as a mediator in a legitimacy model is not unprecedented and can be found in Tyler's organizational behavior research. Specifically, De Cremer and Tyler (2007) reported that trust was a significant mediator between procedural justice and employee cooperation with authority in a business setting. In order to best match Tyler's intended obligation concept, a single-item, observed variable was selected as the indicator for obligation to obey in the model (APPENDIX B: Question 9.17 - You should do what the police tell you even if you disagree). The second option (Question 9.16 - You should accept police decisions even if you think they are wrong) has been criticized in past studies for the suggestion that obligation to obey is the same thing as amorally doing something you believe is wrong (e.g., Jackson, Bradford, Hough, Myhill, Quinton & Tyler, 2012). Test item 9.17 simply requires obeying something that involves a disagreement without necessarily involving a question of right and wrong.

Correlation Coefficients. The bivariate relationships between the key indicators in the model were evaluated using correlation coefficients (Pearson's r). Following the suggestion of the EFA and the lead of others in the legitimacy literature, the tests included the separate indicators for legitimacy in the model (trustworthiness and obligation to obey; Table 4).

Table 4: Correlations Between Key Indicators

	1	2	3	4	5	6	7
1. Procedural Justice	-						
2. Trustworthiness	.76**	-					
3. Effectiveness	.79**	.66**	-				
4. Obligation to Obey	.18**	.25**	.13**	-			
5. Cooperation	.28**	.23**	.24**	.03	-		
6. Postmaterialism	.01	-.01	-.01	.05	.11**	-	
7. Fear of Crime	-.30**	-.30**	-.32**	-.15	-.15**	.01	-

**$p < .001$, *$p < .01$

The correlation coefficients demonstrated the lack of convergence between the two subscales of legitimacy in the Ukrainian path model, $r = 0.25$, $p < .001$. The strongest correlations were between procedural justice and police effectiveness, Pearson's $r = .79$, $p < .001$, and between procedural justice and trustworthiness, Pearson's $r = .76$, $p < .001$.

The lack of divergence between the procedural justice and legitimacy indicators in the model is likely influenced by the respondents' problems in differentiating their views on very similar normative judgments (Gau, 2011; Maguire & Johnson, 2010; Reisig et al., 2007). A review of the survey test items used for the classic process-based model (see Sunshine and Tyler; 2003a) suggests potential problems due to the similarity of the questions in the disparate composite measurement scales. This study used only the test items that were supported by past validity tests (Gau, 2011; Reisig et al., 2007), but questions over the ability of respondents to discriminate between test items measuring separate constructs remain. For example, a test item forming the procedural justice indicator asks the respondent whether "the local police respect citizens' rights;" while a test item in the trustworthiness scale that forms the legitimacy indicator asks whether the "people's basic rights are protected by the local police.

Certainly, Tyler's model is built on a theory that argues that the quality of decision-making of officers in past interactions is a different construct from a judgment on trusting the local police agency to protect citizen rights. Nonetheless, the respondents are most likely to focus on the common mention of police and citizens' rights for test items that then measure two independent constructs in the model. Moreover, test items in the indexes for the procedural justice indicator do not always follow the theoretical case that they are intended to evaluate past experiences with the agency's officers in order to provide contrast to the test items intended to measure judgments on the agency as a whole that form the legitimacy construct. As a result, test

items found in different indicators (notably, procedural justice and trustworthiness) may compromise the constructs' distinctiveness if respondents treat them as too similar.

The high correlation coefficients between procedural justice and trustworthiness is corroborated by the common loadings in the EFA for procedural justice and trustworthiness. This is in line with past studies making use of factor analysis and correlation analysis. Notably, Reisig and colleagues (2007) and Gau (2011; 2013) raised questions on the lack of discriminant validity between the indicators of procedural justice and trustworthiness of the agency in tests with U.S. data.

The Ukrainian results not only replicate past validity problems but suggest that using the model's key indicators in developing countries may also result in an additional problem. The coefficient between the two indexes forming the procedural justice indicator, Pearson's $r = .84$, $p < .001$, is nearly equal to the coefficient between procedural justice and police effectiveness, Pearson's $r = .79$, $p < .001$, or the coefficient found between procedural justice and trustworthiness, Pearson's $r = .76$, $p < .001$. Bollen and Lennox (1991, p.305) argue that "within-construct correlations must be greater than between-construct correlations" to have sufficient discriminant validity. This is the case in the current Ukrainian results, but by a margin small enough to suggest problems with discriminant validity exists across these three indicators in the model.

The only previous factor analysis of a Tylerian model using the police effectiveness indicator in another developing country reported similarly mixed results. Although Karakus (2017) found that the test items for police effectiveness and procedural justice load on separate factors in his PCA of Turkish data; the correlation coefficient, r = .62, between police effectiveness and procedural justice is the single strongest bivariate relationship in his study.

This supported the findings in Ghana, where Tankebe (2009) reported that the bivariate relationship between procedural justice and effectiveness is the largest correlation, Pearson's r = .56, $p < .001$.

Past tests of the Tylerian model suggest that citizens in developing countries may view elements of police effectiveness (e.g., an officer arriving at your door in response to a call for assistance) as a part of their judgments on procedural justice. In North America or Western Europe, police officers performing their required duties would likely be judged in terms of their effectiveness, but in societies policed by corrupt and indifferent law enforcement, citizens may evaluate the experience (e.g., an officer arriving at your door in response to a call for assistance) as combining effectiveness and procedural justice. Of course, the opposite scenarios also explain this relationship if citizens evaluate police behavior as equally unjust and ineffective. This would lead to considerable overlap in developing countries between the judgments of procedural justice and effectiveness and may account for the high correlation between the two indicators.

Latent Variable Analysis

Although the EFA addresses questions on the unidimensionality of indicators, Brown (1986) argues that a CFA is a more stringent test of construct validity. A CFA allows for a "better measure of the latent variable," because the instrument isolates the shared variance between measures from their unique variances (Acock, 2013).

After specifying the model, overall test of fit was tested for the models. Because of their susceptibility to sample size and model complexity, χ^2 tests nearly always reject models with large (n > 400) sample sizes (Hooper et al., 2008). Therefore, large sample-size studies generally must utilize other test statistics to assess model fit. Hu and Bentler (1999) found that the use of the root mean square error of approximation (RMSEA) reduced errors in model fit

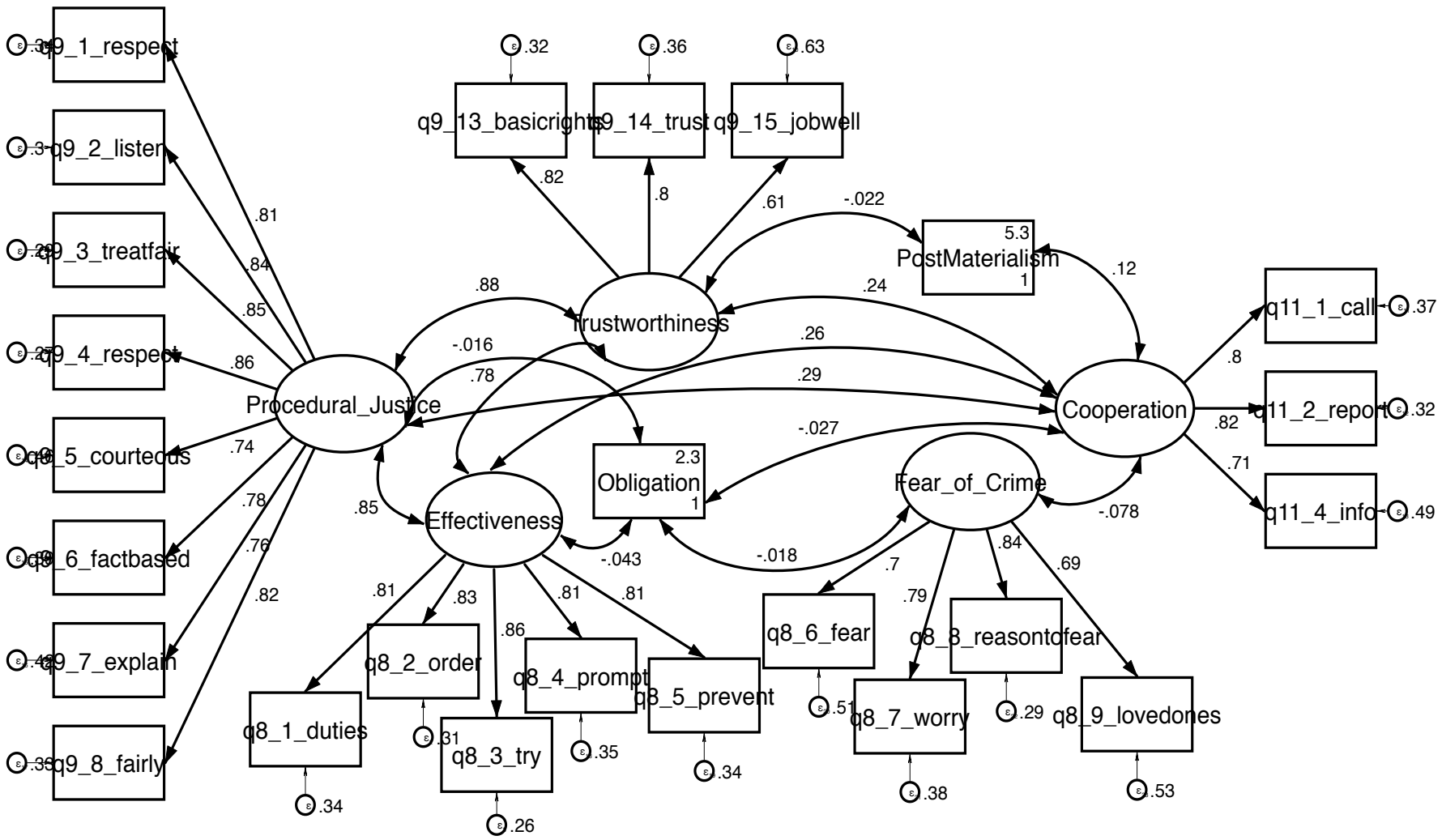
judgments in large-sample studies. Sivo, Xitao, Witta and Willse (2006) reported that RMSEA and standardized root mean square residual (SRMR) were among the only fit tests that did not require different cut off values as sample size increased. The baseline comparison index that will test model fit is the Tucker-Lewis index (TLI) that stands out for penalizing for simply adding parameters to gain model fit. This study's latent variable analyses fit was assessed via the RMSEA, SRMR, and the TLI as a baseline comparison. In assessing model fit, this study used the following cutoff criteria: RMSEA < .08; TLI > .95; SRMR < .08. These criteria generally indicate acceptable model fit (Hooper et al., 2008; Hu & Bentler, 1999; Sivo et al., 2006).

A confirmatory factor analysis examined the relationships between the manifest variables and the hypothesized latent factors that will be part of the study's research questions (see Figure 7). The CFA provided support for the latent variables representing the constructs first identified in the EFA. The CFA had an adequate fit of the data across the goodness of fit tests: $\chi^2(231) = 1{,}648.2$, $p < .001$; TLI = .93; SRMR = .06; RMSEA = .05. The TLI fit test was slightly below the rule of thumb (.95), but is known to penalize a model that includes experimental variables that have low correlations with the other variables in the factor analysis (Kenny, 2015). This was the case in the CFA as the correlation coefficients for the hypothesized normative variables (postmaterialism and fear of crime) were trivial ($R^2 = .01$) in half their bivariate relationships.

Path Analysis

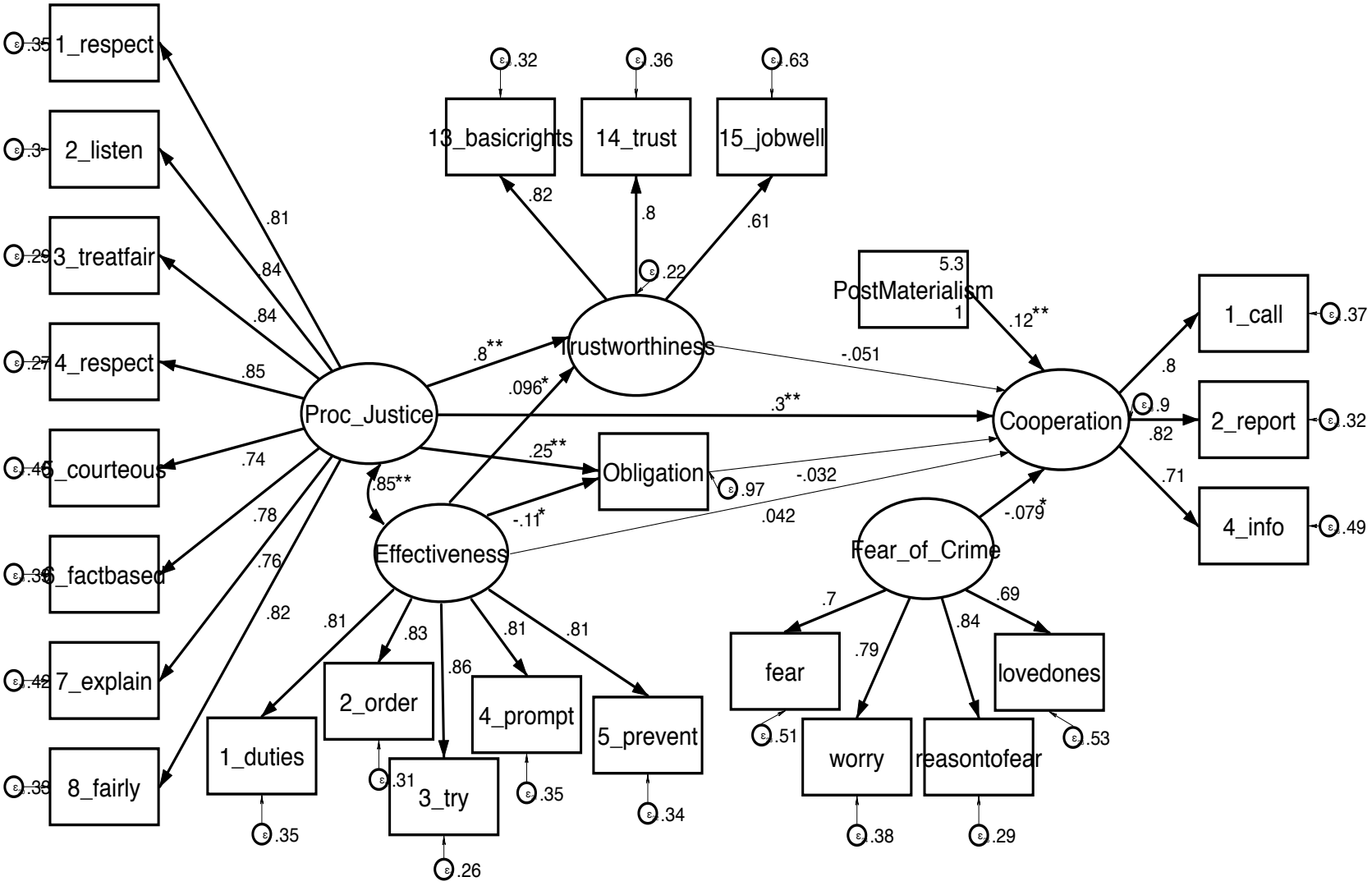
After using the preliminary data tests, EFA, and CFA to establish the test items and latent variables that would model Ukrainian judgments on police behavior and outcomes, SEM was used to test the key relationships in the Tylerian model of police legitimacy (Figure 8). The path

Figure 7: Confirmatory Factor Analysis



All estimates $p < .001$
Goodness of Fit Measures: $\chi^2(263) = 2{,}019.64$, $p < .001$; TLI = .934; SRMR = .061; RMSEA = .05

Figure 8: Path Analysis



** $p < .001$;* $p < .01$; non-significant estimates represented by .25 lines.
Goodness of Fit Measures: χ^2 (267) = 1,988.02, $p < .001$; TLI = .936; SRMR = .050; RMSEA = .057; $R^2 = 0.99$.

analysis estimated the strength of the parameters and relationships among Tyler's antecedents, the legitimacy indicator, and the willingness to cooperate with police as well as the role of the two variables (postmaterialism and fear of crime) hypothesized in the study to predict cooperation with the police. The initial run of the path model had a poor fit of the data across the goodness of fit tests: $\chi^2(267) = 3{,}905.0$, $p < .001$; TLI = .87; SRMR = .08; RMSEA = .08. Given the high correlation between the model's two antecedents, a covariate was placed between procedural justice and effectiveness. After this covariance was included the SEM had an adequate fit to the data: $\chi^2(267) = 1{,}988.02$, $p < .001$; TLI = .94; SRMR = .05; RMSEA = .06.

The high correlations among some of the scales used in the SEM led to testing the indicators for possible multi-collinearity. The presence of multi-collinearity could limit the significance of the relationships between the collinear indicators. Therefore, a variance inflation factor (VIF) test checked whether the four variables regressed on cooperation demonstrated multicollinearity (Table 5). The VIF mean (2.47) was well below the general rule-of-thumb (4.0) for potential multicollinearity. Moreover, the study's large sample size further reduced concerns of multicollinearity. Grewal and colleagues (2004) found large sample size significantly reduced the concern for Type II errors in SEM analyses

Table 5: Variance Inflation Factor

Variable	VIF	1/VIF
Procedural Justice	3.60	.28
Effectiveness	2.68	.37
Trustworthiness	2.52	.40
Obligation to Obey	1.07	.94
Mean VIF	**2.47**	

The strength of the key relationships in the path analysis address the first five of the study's research questions on whether: procedural justice predicts cooperation with the police;

legitimacy mediates the relationship between procedural justice and cooperation; legitimacy mediates the relationship between effectiveness and cooperation; post-materialism values predict cooperation with the police; and the fear of crime predicts cooperation with the police.

Does Procedural Justice Predict Cooperation with the Police? The study used the path model to assess the dependent relationship between the key indicators in Research Question #1 (Do perceptions of procedural justice predict cooperation with the police in Ukraine?). In the path model, the regression coefficient between procedural justice and cooperation was significant, $\beta = 0.30$, $p < .001$, and in the direction hypothesized (the greater the perceptions of procedural justice, the higher the willingness to cooperate with the police). Therefore, the null hypothesis can be rejected for the research question on whether procedural justice has a direct association with the outcome variable cooperation with the police.

Does Legitimacy Mediate the PJ – Cooperation Relationship? The SEM also served to test Research Question #2 (Do perceptions of police legitimacy mediate the relationship between measures of procedural justice and public cooperation with the police in Ukraine?). In this study, legitimacy was split into the two separate components of trustworthiness and obligation to obey. The SEM found that in each case procedural justice was associated with the variables of trustworthiness and obligation to obey. Nevertheless, the path analysis also demonstrated that trustworthiness and obligation to obey did not have a significant relationship with the outcome variable cooperation with the police. As a result, the null hypothesis cannot be rejected because obligation to obey and trustworthiness cannot mediate the relationship if they are not associated with the outcome variable of cooperation.

In the SEM, the two antecedent variables in the model were limited to associations with trustworthiness and obligation to obey. Specifically, procedural justice explained 78% of the

variance in the latent variable of trustworthiness, $R^2 = .78$, while accounting for just 3% of the variance in the obligation to obey variable, $R^2 = .03$. The SEM also provided standardized beta coefficients for the key relationships. In this path analysis, the regression coefficient between procedural justice and trustworthiness was far stronger, $\beta = 0.89$, $p < .001$, than the coefficient representing the strength of the relationship between procedural justice and obligation to obey, $\beta = 0.16$, $p < .001$. These results are in accordance with past U.S. studies that found a weaker relationship between procedural justice and obligation to obey than between procedural justice and the trustworthiness component of legitimacy (Reisig et al., 2007 and Gau, 2011).

In past U.S research, the obligation to obey has frequently not had a relationship with the outcome variable (Reisig et al., 2007). In the tests in two countries near Ukraine, Reisig and colleagues (2014) found in a Slovenian student sample that trustworthiness alone predicted cooperation, while Karakus (2017) found a legitimacy construct that combined trustworthiness and public satisfaction predicted cooperation with the police. Tankebe (2008) in Ghana and Sun and colleagues (2017) in China also found that neither trustworthiness or obligation to obey mediated the model.

In comparing the two indicators of legitimacy in the Ukrainian path model, procedural justice had the weakest relationship with the legitimacy indicator obligation to obey, $\beta = 0.25$, $p < .001$. Obligation to obey did not have a significant association with cooperation, which prevents the indicator from serving as a mediator in the process-based model. As a result, the Ukrainian study supports the decision of some researchers (e.g., Hinds & Murphy, 2007; Karakus, 2017) that have chosen not to include obligation to obey in their legitimacy construct.

The path analysis with the split legitimacy indicators demonstrated that Ukraine stands out among developing countries in the strength of the association between procedural justice and

the trustworthiness indicator of legitimacy, $\beta = 0.80$, $p < .001$. A lack of discriminant validity between procedural justice and trustworthiness may serve to exaggerate the degree of association, but a wealth of studies primarily with U.S. data provide a precedent for a significant relationship between procedural justice and legitimacy.

The strong association between procedural justice and trustworthiness in the Ukrainian path analysis differs from the findings in other developing countries, such as Pakistan, Nigeria, and Ghana, where tests found a weaker association between procedural justice and police legitimacy (see Akinlabi, 2018; Jackson et al., 2014; Tankebe, 2009). Sun and colleagues (2017) found that in China procedural justice predicted legitimacy but not as strongly as police effectiveness predicted legitimacy. This difference across countries may mirror the findings of Hough and colleagues (2013) that European countries differ considerably across Europe from the economically prosperous West Europe to the still developing East Europe in the strength with which procedural justice predicts indicators of police legitimacy. The Ukrainian path analysis supported the case made by past legitimacy researchers (e.g., Gau, 2011; Reisig et al., 2007; 2014; and Tankebe, 2009) who advocate for a process-based model of police legitimacy that uses the trustworthiness measure as an independent mediator between procedural justice and the cooperation with the police.

The lack of a mediating role for the two indicators of legitimacy in the path analysis is in line with the previous tests of the classic Tylerian model in developing countries. In the two tests from Central Europe, Czapska and colleagues (2016) report that neither procedural justice nor police legitimacy predicted cooperation in Poland, while Reisig and colleagues (2014) indicate that legitimacy explained a modest amount of variation in cooperation with the police in Slovenia. The Ukrainian result adds one more study to the growing list of research suggesting

that the Tylerian construct of a legitimacy is not a valid mediator in the process by which procedural justice influences police outcomes in even prosperous developing countries.

Does Legitimacy Mediate the Effectiveness – Cooperation Relationship? The path model failed to support the hypothesis proposed in Research Question #3 (Do perceptions of police legitimacy mediate the relationship between measures of effectiveness and cooperation with the police in Ukraine?). As established in Research Question #2, a mediating role for the two legitimacy indicators was undermined by the lack of an association between the two legitimacy indicators and cooperation with police.

The path analysis found that effectiveness was modestly associated with the two mediating indicators. Specifically, the regression coefficient between effectiveness and trustworthiness was, $\beta = 0.10$, $p < .001$, in the direction hypothesized. The greater the perception of police effectiveness the higher the judgments of legitimacy. The regression coefficient representing the strength of the relationship between effectiveness and obligation to obey also was quite modest, $\beta = -0.11$, $p < .001$, and in a direction different than hypothesized. The greater the perceptions of police effectiveness, the less support for an obligation to obey the police.

OLS Comparison. The weak role of effectiveness compared to procedural justice in predicting the indicators of legitimacy had not been found in previous tests of the Tylerian model in a developing country. Therefore, an Ordinary Least Squares (OLS) regression test was run to determine the standardized regression coefficients of procedural justice and effectiveness in predicting Tyler's classic, two-dimensional indicator of legitimacy and for demonstrative purposes compare them to the large set of past OLS regression tests of the predictors of legitimacy.

As a first step, a first-generation multivariate method, OLS regression, tested the strength of police effectiveness and other predictors of the two-dimensional measure of police legitimacy. The standardized regression coefficients allowed for a comparison with the results of previous research on the antecedents of legitimacy in other countries that primarily used OLS regression for their results. The past OLS tests of the antecedents to legitimacy used the classic construct of trustworthiness and obligation to obey to form the dependent variable. This study's OLS regression used the classic indicator for legitimacy in the case of this one test to allow for a comparison of the relative strength of the predictors in relation to previous research results.

The Tylerian legitimacy scale was regressed on the respondents' judgments of procedural justice, police effectiveness, and the demographic variables for gender, age, and education level (see Table 6). The significance of the police effectiveness indicator, $\beta = 0.16$, $p < .001$, in the Ukrainian data was not a surprise given the strength of effectiveness in past tests of the model in developing countries (Akinlabi, 2018; Jackson et al., 2014; Karakus, 2017; Sun et al., 2017; Tankebe, 2009). The OLS regression reaffirmed the finding from the earlier path analysis on the Ukrainian data that the normative values of procedural justice, $\beta = 0.64$, $p < .001$, dominated the instrumental variable police effectiveness in predicting police legitimacy. The demographic controls did not have a significant role in the police legitimacy model.

Table 6: OLS Regression Model of Police Legitimacy

Independent Variables	Coefficient	SE	t-ratio	β
Procedural justice	0.23	0.009	0.000**	0.62
Police effectiveness	0.08	0.121	0.000**	0.16
Age	-0.01	0.016	0.902	-0.01
Gender	0.09	0.056	0.083	0.03
Education	0.01	0.048	0.014	0.02

*$p < .05$, ** $p < .01$ (two-tailed test).

The dominant role for procedural justice in predicting legitimacy was not the case in previous developing country research. Tankebe (2008) found relative parity between the

influence of procedural justice and effectiveness in predicting legitimacy in Ghana. Among the countries straddling the status of developed and developing country, studies in Poland and Slovenia supported a dominant role for procedural justice in predicting agency legitimacy (Czapska et al., 2016; Reisig et al., 2014), while Karakus (2017) found relative parity between procedural justice and effectiveness as predictors of legitimacy in Turkey.

The SEM analysis supported the research question's null hypothesis in finding that perceptions of police performance (effectiveness) did not mediate the impact of perceptions of officer procedural justice on public cooperation with the police. This contradicts the two previous studies that examined the relationship between effectiveness and cooperation with the police in developing countries. Tankebe (2009) reported that in Ghana procedural justice predicted cooperation only in the model that did not add police effectiveness, while Sun and colleagues (2017) reported that police effectiveness in China was one of several significant predictors of cooperation with the police and equal in strength to legitimacy and neighborhood cohesion. Though Ukraine is a developing country that scores lower than Ghana and China in rankings on institutional corruption and ineffective government institutions (TI, 2013, WGI, 2016), citizen judgments on police effectiveness appear to have a weaker influence on the willingness to cooperate with the police in Ukraine. The direct relationship between procedural justice and cooperation with the police was the sole significant path in the full model.

The mixed results in the tests of the relationship between procedural justice and cooperation in developing countries suggests that the state of effective and democratic governance or prosperity in a country does not solely dictate the degree that just police procedures can influence police outcomes in developing countries. In past tests in three developing countries and two borderline developed countries (Poland and Turkey), procedural

justice was found to be weaker than police effectiveness as a predictor of either police legitimacy or the willingness to cooperate with the police (Akinlabi, 2018; Czapska et al., 2016; Jackson et al., 2014; Karakus, 2017; Tankebe, 2009). At the same time, this study's findings in Ukraine and past research in Slovenia and China suggest that procedural justice can still serve as a predictor of police outcomes in borderline developed or developing countries (Reisig et al., 2014; Sun et al., 2017). The mixed results in these studies leave open the question on whether developing countries themselves differ in a key attribute or set of qualities that predict the influence of procedural justice in their judgments on police outcomes.

Instrumental vs. Normative Concerns. The remarkable growth in research based on the Tylerian theory of legitimacy is arguably a direct result of the early findings in the United States and then other developed countries that normative values (procedural justice) have a larger role predicting police outcomes (e.g., cooperation with the police) than do instrumental values (e.g., police effectiveness). This finding is the key to the theory's most important policy implication that the optimal strategy for building legitimacy and trust in the police is to prioritize the pursuit of fair and respectful procedures and not necessarily effective outcomes. The preeminence of normative over instrumental values has been established across a wide spectrum of communities in developed countries (Hinds & Murphy, 2007; Hough et al., 2013; Murphy, 2009; Tyler, 2002). Nevertheless, the recent wave of research in developing countries suggests far weaker support for the role of normative values in predicting police outcomes in countries challenged in terms of economic prosperity and good governance (Reisig & Lloyd 2007; Sun et al., 2017; Tankebe, 2009).

The SEM analysis in this study found that Ukrainians strongly associate procedural justice ($\beta = 0.82$) and less strongly police effectiveness ($\beta = 0.22$) with the model's indicator of

legitimacy, trustworthiness. To compare this result with the findings from other countries, this study proposes a values ratio (v) consisting of the procedural justice coefficient divided by the police effectiveness coefficient. The Ukrainian values ratio, v = 3.72, reveals a strong role for the normative values in predicting judgments of police legitimacy. The values ratio may offer a rough means to compare the balance of normative and instrumental values across different countries. For descriptive purposes, Table 7 plotted estimates for the values ratios based solely on the coefficients reported between the antecedent variables (procedural justice and police effectiveness) and police legitimacy in past studies.

Table 7: Normative versus Instrumental Predictors of Legitimacy

Country	Proc. Justice	Effectiveness	Ratio
United States	0.74	0.15	4.93
Sweden	0.71	0.16	4.73
Ukraine	062	0.16	3.94
Poland	0.47	0.15	3.13
Slovenia[a]	0.33	0.13	2.54
Japan	0.46	0.27	1.70
Australia[b]	0.46	0.28	1.64
Ghana	0.35	0.34	1.03
Turkey	0.35	0.40	0.88
China[a]	0.28	0.38	0.74
Pakistan	0.34	0.63	0.54

[a]Entries are unstandardized regression coefficients.

[b]Alternative studies in Australia report coefficients suggesting a slightly lower ratio.

Sources of Data: Czapska et al., 2016; Jackson et al., 2014; Karakus, 2017; Murphy & Cherney, 2011; Reisig et al., 2014; Sun et al., 2017; Sunshine & Tyler, 2003a; Tankebe, 2008; Tsushima & Hamai, 2015; Van Damme et al., 2013.

Value ratios compare the relative role of normative versus instrumental predictors of judgments on police legitimacy. The studies supplying the coefficients differ in terms of how they operationalize the model's key measures and two of the studies used non-standardized coefficients. Moreover, the studies sometimes differed in the control variables added to the regression of legitimacy on procedural justice and effectiveness. Nevertheless, a ratio of

coefficients from the same regression equation provides a rough representation of the relative balance between the two values. The quotient of the normative versus instrumental factors in Ukrainian judgments on police legitimacy produces a high values ratio for a developing country, v = 3.94. The ratio is more in line with EU-member countries Poland and Slovenia that also were once part of the former Soviet bloc.

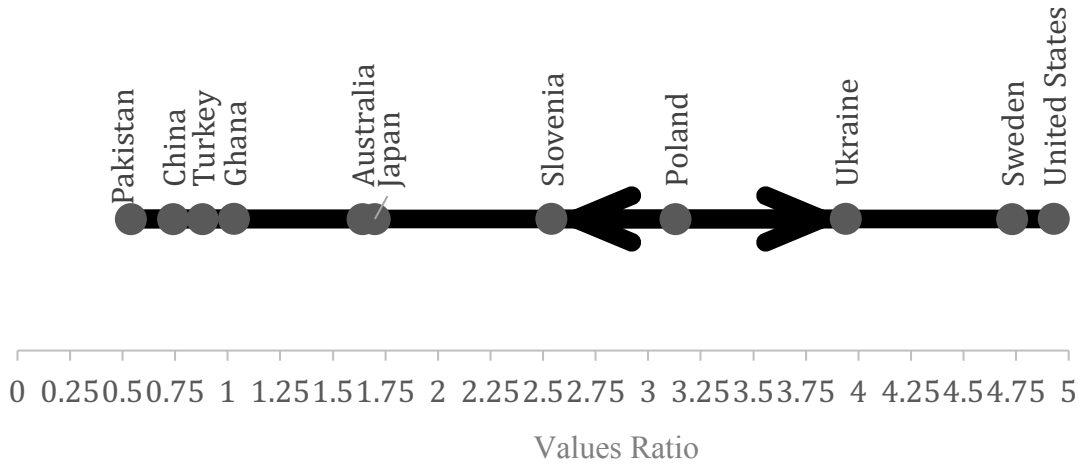
With the possible exception of the developing countries in the former Soviet bloc, the table of values ratios suggests that countries challenged by systemic corruption and poor governance (e.g. Pakistan) have much lower quotients probably because of the strong role that police effectiveness has as a predictor in the country. As a result, those countries with the greatest social and economic challenges appear to produce values ratios that are near or below 1.0 as the instrumental evaluations exceed procedural justice as a predictor of the public's judgments on police legitimacy.

The overall order of the values table is probably partly the result of the public's low expectations in regard to police performance in poorly governed and corrupt countries. Tankebe (2009) theorizes that in an environment where policing is "characterized by abuse, violence, intimidation, and widespread corruption," (p. 1271) the judgment to obey the police may be driven by a fear of the consequences, rather than sentiments of trust in the police or respect for their authority. Specifically, the public in these countries regularly weighs the risk of calling the police to a crime scene which can increase the likelihood of further victimization. In societies where the basic functions of the police (e.g., crime prevention, investigation of a reported crime) are not taken for granted, procedural justice and legitimacy judgments may be driven to a large degree by respondents' views on the effectiveness of the police.

As more tests of police legitimacy theory in developing countries fail to demonstrate the same strong normative role in judgments on agency legitimacy that were found in developed countries, policing scholars must begin to test different explanations for differences in results across countries. This study's values ratios help to depict the diverse weights that individuals in different societies place on the normative and instrumental factors in reaching their judgments about the police. The cross-country comparison of the differences in the values ratio calculations can be further highlighted through the use of a continuum that ranks the ratios from lowest to highest (see Figure 9).

The continuum merely serves a demonstrative purpose because there are significant differences in the models in which the two regression coefficients were taken to form the ratio for each country. The graphic highlights the presence of a cluster of developed and developing countries. Developing countries are primarily located on the lower end, where the instrumental values in the denominator of the ratio are greater. The OECD member countries are spread out above the ratio value of 1.5, which likely represents a significantly greater role for normative over instrumental factors. Therefore, the continuum suggests that the relative status of a country's economic and political development predicts the degree that normative values influence society's judgments on the legitimacy of the police. In other words, the values ratio continuum supports the key conclusion of Inglehart's Theory of Value Shift. Specifically, Inglehart (1990) argued that a society's relative concern for normative values, such as human rights, over more immediate instrumental concerns is based on the degree that a generation raised in the country could take survival for granted and increasingly prioritize normative concerns beyond subsistence.

Figure 9: Normative/Instrumental Values Ratio Continuum



Ukraine appears an exception on the continuum because the country is ranked with the less developed countries in many developmental criteria, such as institutional corruption and ineffective governance, (TI, 2013, WGI, 2016), but is located higher on the values scale continuum than developing country peers. Nevertheless, the Ukrainians share many of the same experiences as Central European neighbors in Poland and Slovenia which are generally classified as rapidly developing countries and also demonstrated a stronger influence of normative over instrumental values in the scores on their values ratios. Japan's position near the border between developing and developed countries is in line with Inglehart and Welzel's (2005) findings for Japan's comparative position on the self-expression versus survival index. Inglehart and Welzel (2005) surveys found that the normative versus instrumental concern in Australia were similar to those in the United States, which suggests that Australia's low position in the continuum is rather

unexpected considering the expectation that procedural justice concerns would be a strong predictor of legitimacy in a society that consistently prioritizes self-expression over survival values.

Ukraine's apparent inflated position for a developing country in the values ratio continuum could also be a result of the difficulty Ukrainian respondents have in discriminating between normative and instrumental concerns. The study already noted the unusually high correlation between procedural justice and effectiveness in the Ukrainian data. Moreover, procedural justice accounted for nearly three-quarters of the variance in the latent variable of effectiveness (R^2 = .74). The strong association suggests that Ukrainian respondents may view a fair procedure as one that also is effective to the degree that the officer is simply doing his or her job rather than taking part in the systemic system of organized criminal activity generally associated with the post-Soviet militia.

The phenomenon of expectancy disconfirmation developed in consumer research may have a role in the Ukraine respondents' surprising prioritization of normative concerns. The extant literature suggests that communities marked by low expectations on a service are more likely to give higher marks for the same behavior (e.g., Cardoza, 1965; Hero & Durand, 1985). The phenomenon has often been likened to a person's evaluation of the temperature outside differing based on whether they have spent the last few months in artic or tropical conditions which will condition them differently in making their judgments (Van Ryzin, 2013). Reisig and Chandek (2001) argued that expectancy disconfirmation explained positive judgments in a U.S. survey on interactions with the police. Certainly, the Ukrainian public have consistently experienced poor law enforcement for several decades which suggests that expectancy

disconfirmation could help explain the strength of the regression coefficient between values of procedural justice and legitimacy.

The research question on the impact of police effectiveness also asks whether the instrumental values of police performance influence perceptions of public cooperation with the police. In Ukraine, the effectiveness variable in the path analysis was not significantly associated with cooperation with the police. This runs counter to the tests in developing countries that examined the relationship between effectiveness and cooperation. Most notably, Tankebe (2009) in Ghana and Czapska and colleagues (2016) in Poland found that police effectiveness was the sole Tylerian construct that predicted cooperation with the police. The Ukrainian finding that effectiveness did not predict the police outcome indicator appears more in line with U.S. tests that found modest or no influence of police effectiveness on residents' willingness to cooperate with the police (Davis & Henderson, 2003; Fagan & Tyler, 2004; Sunshine & Tyler, 2003; Warner, 2007).

Do Postmaterialism Values Predict Cooperation with the Police? The path analysis also served to test Research Question #4 (Do post-materialism values predict cooperation with the police in Ukraine?). The postmaterialism indicator formed as an additive variable from the test items of Inglehart and Baker's self-expression vs. survival index (labeled PMaterialism in the path analyses). Postmaterialism was added as a predictor of the outcome variable in the Tylerian model. The variable is hypothesized as reflecting whether the sampled population prioritizes normative versus instrumental values in their judgments on social issues. The path analysis tested whether postmaterialism is associated with the willingness to cooperate with police. In figure 8, the postmaterialism indicator significantly predicted cooperation, $\beta = 0.12$, $p < .001$.

Although a modest association, the Postmaterialism indicator predicted cooperation in the direction hypothesized. Those citizens that gave greater weight to normative values in their survey judgments were more likely to cooperate with the police. The Postmaterialism index is the second strongest predictor of cooperation with the police in the Ukrainian model and the third largest regression coefficient in the previous tests of independent variables predicting cooperation with police in the only tests of the full Tylerian model in developing countries (Reisig & Lloyd, 2009; Sun, 2017; Tankebe, 2009). The addition of the self-expression vs. survival index to the model raised (22%) the model's explanation of variance for the dependent variable cooperation with the police (R^2 = .11).[7]

The goal of the test of Postmaterialism predictor of Cooperation of the Police was to place in the model a second variable reflecting normative values. Procedural justice differs from the Postmaterialism index by representing normative judgements on past interactions with police, but they support Tyler's (2009) argument that his model is based on normative values. Tyler (2009) viewed the shared normative values forming legitimacy judgments would also associate strongly with the internal motivation (normative values) for choosing to cooperate with the police. The Postmaterialism test supports Tyler's proposition that normative values drive the associations between the key variables. The significant role of Postmaterialism also serves to further isolate the indicator of trustworthiness in Tyler's models that fails to support Tyler's proposition in developing country tests of the model. While Ukrainian citizens reach favorable normative judgements in their evaluation of procedural justice and in the postmaterialism survey, their judgments on trust in the police institution fail to associate with the normative values favorable to cooperating with the police. As a result, the heart of the Tylerian process-based

[7] Across all the tests of the full Tylerian model in developing countries, the model's explanation of variance for the dependent variable rarely exceeds R^2 = .11.

model (legitimacy) fails to predict the willingness to cooperate with the police in the fourth of four tests of the full, classic Tylerian model of police legitimacy in a developing country.

Does Fear of Crime Predict Cooperation with the Police? The path analysis also served to evaluate Research Question #5 (Does fear of crime predict cooperation with the police in Ukraine?). The path analysis found a significant though modest path in the hypothesized direction between fear of crime and cooperation with the police, $\beta = -.08$, $p < .001$, and in the direction hypothesized. Specifically, lower levels of fear of crime were associated with greater cooperation with the police.

The weak and uncertain role of the fear of crime in predicting cooperation with the police is not surprising. The role of the fear of crime indicator was hypothesized in the study as a sponge reflecting citizens' concerns over social and physical instability. The role of the indicator was dependent on whether Ukrainian judgments on the fears of crime and disorder in their community reflected the relative strength of normative goals over values of personal survival. If this were the case, the impact on the internal normative values that Tyler proposes shape the decision to cooperate with the police was negligible.

Does Interaction with the Police Bias Perceptions of Procedural Justice?

This study's last set of factor analyses tested Research Question #6 (Does measurement invariance hold for the procedural justice construct regardless of whether the respondent had recent experience with the police?). In the legitimacy theory literature, the procedural justice construct is explained as judgments on the fairness of interactions with the police. This antecedent variable in the model is theorized in the legitimacy literature as reflecting judgments on past experience with the police. Contemporary studies using the Tylerian model are based on the expectation that survey participants that lack direct experience with the police will not bias

the model's findings. This validity property is usually referred to as measurement invariance which indicates that a common construct (e.g., procedural justice) is being measured across different groups. For this reason, the study adopted a series of CFAs to test the procedural justice index in Ukraine on whether measurement invariance holds across respondents whether they had an interaction with the police or lacked experience with the police.

Police Interaction. Following the lead of the psychometric studies profiled in Vandenberg and Lance (2000), this study uses a sequence of multi-group confirmatory factor analyses (MG-CFA) to test the procedural justice construct for measurement invariance. The MG-CFA of ordered categorical data is a test based on a series of increasingly restrictive models. First, a free parameter CFA across the two groups was performed to determine whether configural invariance existed. The factor-indicator relationships for procedural justice were identical in the direction hypothesized (the results on the sequence of four CFAs are presented in Table 8).

Table 8: Metric Fit Indices for Invariance Tests Across Interaction with Police

	χ^2	df	χ^2/df	$\Delta\chi2$	Δdf	p value	CFI	ΔCFI	RMSEA
Configural Invariance	7.85	4	1.96				0.99		0.03
Metric Invariance	8.92	8	1.12	1.07	4	0.34	1.00	0.00	0.01
Scalar Invariance	11.57	12	0.96	2.65	4	0.48	1.00	0.00	0.00
Variance Invariance	243.28	14	17.37	231.71	2	0.00	0.92	0.04	0.13

Note: N = 1,964 (No police interaction/n = 1,495, Police interaction/n = 469)

After establishing configural invariance, a second CFA that constrained the measurement coefficients to be equal (mean = 0; variance = 1) was used to measure the metric invariance that is arguably the most important test for determining whether a data set is measurement invariant across different groups. The goodness of fit test for metric invariance was not significant between the two groups, $\chi^2(8) = 8.92$, $p = .39$, and the null hypothesis of measurement invariance could not be rejected. The third CFA tested scalar invariance between the two groups by constraining not only the coefficients to be equal but doing the same to the intercepts. The scalar

invariance CFA also was not significant, $\chi^2(12) = 11.57$, $p = .48$, and the null hypothesis of measurement invariance could not be rejected.

The last MF-CFA test for determining pure measurement invariance (variance invariance) imposes constraints on the coefficients, intercepts, and error variances while allowing the mean and variance of procedural justice to differ across the two police interaction groups. In this case, the lack of experience with the police grouping was constrained while those with recent police interaction could be estimated freely. As reported in Table 7, this variance invariance test had a significant result, $\chi^2(14) = 243.3$, $p < .001$, therefore, the null hypothesis of measurement invariance was rejected by the most stringent test of invariance.

Though the χ^2-test was significant, the last confirmatory factor analysis resulted in an insignificant latent mean difference (-0.06, $p = .22$). In an MG-CFA analysis, a latent mean is not reported but rather the difference in means across the two groups. Therefore, the CFA estimated that the difference in latent means between the group with direct experience with the police and the group with no recent experience with the police was not significantly different from 0. Measurement invariance has to be rejected because of the instrument bias found in the variance invariance test, but the insignificant coefficient that results suggests that experience with the police did not meaningfully alter the mean of the resulting latent variable (procedural justice). In other words, across two groups that differed in having experience with police, there was no meaningful difference in their common interpretation of the items forming procedural justice.

In a perfect world, measurement invariance would indicate that the respondents across the two separate groups (direct experience with the police; no recent police interaction) interpret the test items in the exact same manner. In practice, studies based on large sample sizes rarely

support the null hypothesis across all four MG-CFA tests. Instead of demonstrating full measurement invariance, psychometric researchers seek measurement indicators that demonstrate strong though partial levels of invariance (Steenkamp & Baumgartner, 1998; Milfont & Fischer, 2010).

In making use of MG-CFA tests, a researcher should consider the type of instrument that is being tested. Few question the necessity of demonstrating full measurement invariance for a scholastic aptitude test or other standardized instrument in which a small measurement invariance would mean a bias favors some respondents over others. On the other hand, partial levels of invariance are common for questionnaires used to assess aggregate judgments on institutions. Most social science studies can accept some bias across groups that does not significantly impact the estimates for the indicators used in the model.

A key question in examining the results of MG-CFA tests is whether this lack of pure measurement invariance is caused by instrument bias or a true difference between the two groups. This question is difficult to answer in part because of the lack of past studies establishing measurement invariance for the process-based model of police legitimacy. To help address that question, the same MG-CFA tests were performed on the sample's three demographic characteristics (gender, age, and education level) to provide a baseline of instrument invariance across other groups.

Gender. The four sets of MG-CFAs across gender (see Table 9) were not significant in the first three invariance tests under different degrees of constraint. As with police interaction, the last CFA rejected the null hypothesis of measurement invariance after constraining error variance. Nevertheless, the coefficient of procedural justice, $\beta = -0.06$; $p = .14$, that represents the difference in means across gender groups, was not significantly different from 0. This

suggests that the limited bias that exists across the two genders that did not significantly impact judgments on procedural justice.

Table 9: Metric Fit Indices for Invariance Tests Across Gender

	χ^2	df	χ^2/df	$\Delta\chi^2$	Δdf	p value	CFI	ΔCFI	RMSEA
Configural Invariance	9.89	4	2.47				0.99		0.04
Metric Invariance	10.69	8	1.34	0.80	4	0.22	1.00	0.00	0.02
Scalar Invariance	15.66	12	1.30	4.97	4	0.21	0.99	0.00	0.02
Variance Invariance	206.51	14	14.75	190.85	2	0.00	0.97	0.03	0.12

Note: N = 1,964 (Female/n = 1,078, Male/n = 886)

Table 10: Metric Fit Indices for Invariance Tests Across Age

	χ^2	df	χ^2/df	$\Delta\chi^2$	Δdf	p value	CFI	ΔCFI	RMSEA
Configural Invariance	7.85	4	1.96				0.99		0.03
Metric Invariance	8.92	8	1.12	0.84	4	0.35	1.00	0.00	0.01
Scalar Invariance	11.57	12	0.96	2.65	4	0.48	1.00	0.00	0.00
Variance Invariance	243.28	14	14.75	231.71	2	0.00	0.96	0.04	0.13

Note: N = 1,964 (< 43 years/n = 983, = or > 43 years/n = 981)

Age. To perform a test for the impact of age on measurement invariance, a binomial variable was created by splitting respondents into a younger group (below 43 years of age) and an older group (43 years and older). The split was formed based on the median age of just over 43 years for the data sample. The four sets of CFAs (see Table 10) were not significant across the first three invariance tests under different degrees of constraint. As with previous two sets of invariance testing, the last test (variance invariance) produced a significant result, $\chi^2(14) = 243.3$, $p < .001$. Therefore, the null hypothesis of measurement invariance again was rejected. The variance invariance CFA estimated an insignificant coefficient of Procedural Justice, $\beta = 0.01$, $p = .28$, that suggests that the difference in means across the two categories of age was not significantly different from 0. This infers that the limited bias that exists across the younger half and older half of the data set did not significantly impact judgments on procedural justice.

Higher Education. The MG-CFA tests compared the procedural justice model fit across a binomial variable measuring the respondents' educational level. The first CFA across the two groups (college degree or no degree) determined that configural invariance existed because the

factor-indicator relationships for procedural justice were identical in the direction hypothesized (see Table 11). The second CFA that constrained the measurement coefficients to be equal (mean = 0; variance = 1) found that metric invariance was significant between the two groups, $\chi^2(8) = 15.77$, $p = .047$, and the null hypothesis of measurement invariance was rejected. The third CFA test of scalar invariance between the two groups that added constraints to the intercepts also led to a significant result, $\chi 2(12) = 22.3$, $p = .03$.

Table 11: Metric Fit Indices for Invariance Tests Across Education Level

	χ^2	df	χ^2/df	$\Delta\chi^2$	Δdf	p value	CFI	ΔCFI	RMSEA
Configural Invariance	7.61	4	1.90				0.99		0.03
Metric Invariance	15.77	8	1.97	8.16	4	0.05	0.99	0.0	0.03
Scalar Invariance	22.34	12	1.86	11.43	4	0.03	0.99	0.0	0.03
Variance Invariance	185.20	14	13.23	162.86	2	0.00	0.97	0.026	0.11

Note: $N = 1{,}957$ No Higher Education/$n = 1{,}438$, Higher Education/$n = 519$)

Though the failure to support metric and scalar invariance across the higher education groups already ruled out measurement invariance, the fourth CFA also was estimated to determine that model fit was significant, $\chi^2(14) = 185.2$, $p < .001$. Moreover, this CFA estimated a small but significant coefficient for procedural justice, $\beta = 0.01$, $p = .04$. This suggests the process-based model's latent values for procedural justice would be slightly altered by the higher education level of the respondent.

This study found that differences in characteristics of the participants in the Ukrainian sample did not significantly bias the perceptions of procedural justice with the lone exception of higher education status. Nevertheless, the MG-CFA findings suggest that possession of a college degree introduces only a small bias in the mean judgments of procedural justice. Therefore, this study's MG-CFA tests across demographic groupings suggest that partial invariance exists across the Tylerian instrument in Ukraine. This general finding strengthens the support for the earlier MG-CFA estimate of strong, though partial, invariance between groups based on experience with the police and the common practice of using data samples that include those that

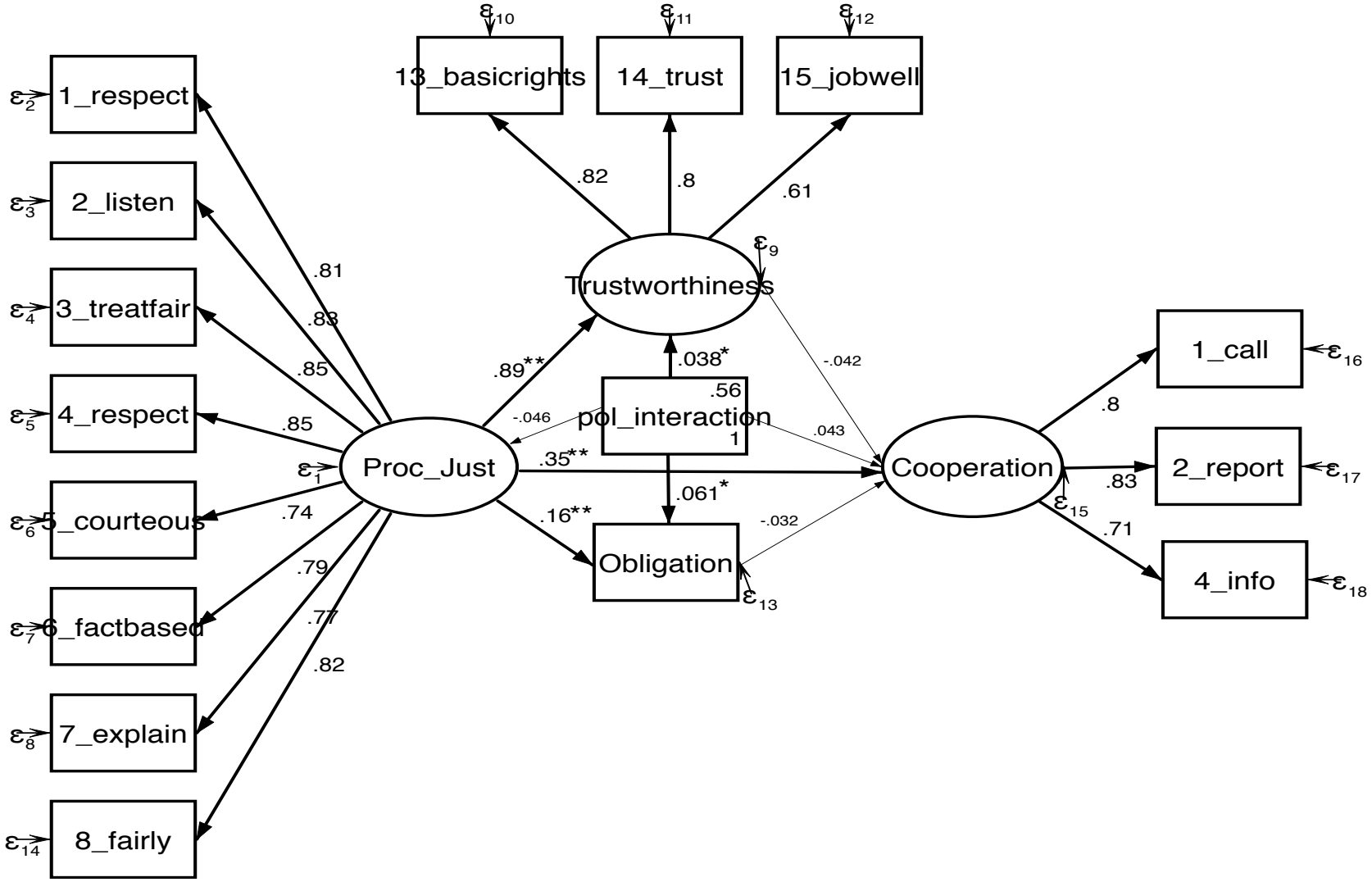
report no recent contact with the police in samples intended for tests of citizens' judgments on procedural justice.

Control Variables' Normative-Path Analyses

This study's findings of partial measurement invariance and weak or not significant coefficients for the procedural justice indicator across the different sub-groups in the Ukrainian data sample leaves open the question whether the lack of pure invariance in the MG-CFAs was caused by instrument bias or a true difference between the groups. Therefore, the bivariate variables representing experience with the police and different demographic groups were added to the Normative-path of the Tylerian process-based model to assess their influence on the key indicators that Karakus (2017) describes as the normative pathway to legitimacy and cooperation with the police.

Police Interaction. A path analysis of the key indicators supported the MG-CFA finding that separating the sample based on experience with the police did not have a significant impact on procedural justice (see Figure 10). The regression coefficient between the police interaction dummy variable and procedural justice was not significant. The path analysis also tested whether a bivariate variable representing experience with the police in the process-based model would have a strong association with the independent indicators for police legitimacy or cooperation with the police. The path model demonstrated that police interaction was a modest but significant predictor of the two components of legitimacy (trustworthiness in police, $\beta = 0.036$, $p < .01$; obligation to obey, $\beta = 0.06$, $p < .01$). In the two cases, experience with the police modestly increased positive judgments of trustworthiness and obligation to obey. The introduction of the police interaction indicator to the model did negligibly influence the only predictor of the outcome variable, as the regression coefficient increased (3%) on the path

Figure 10: Police Interaction as a Control in the Normative-Path Model



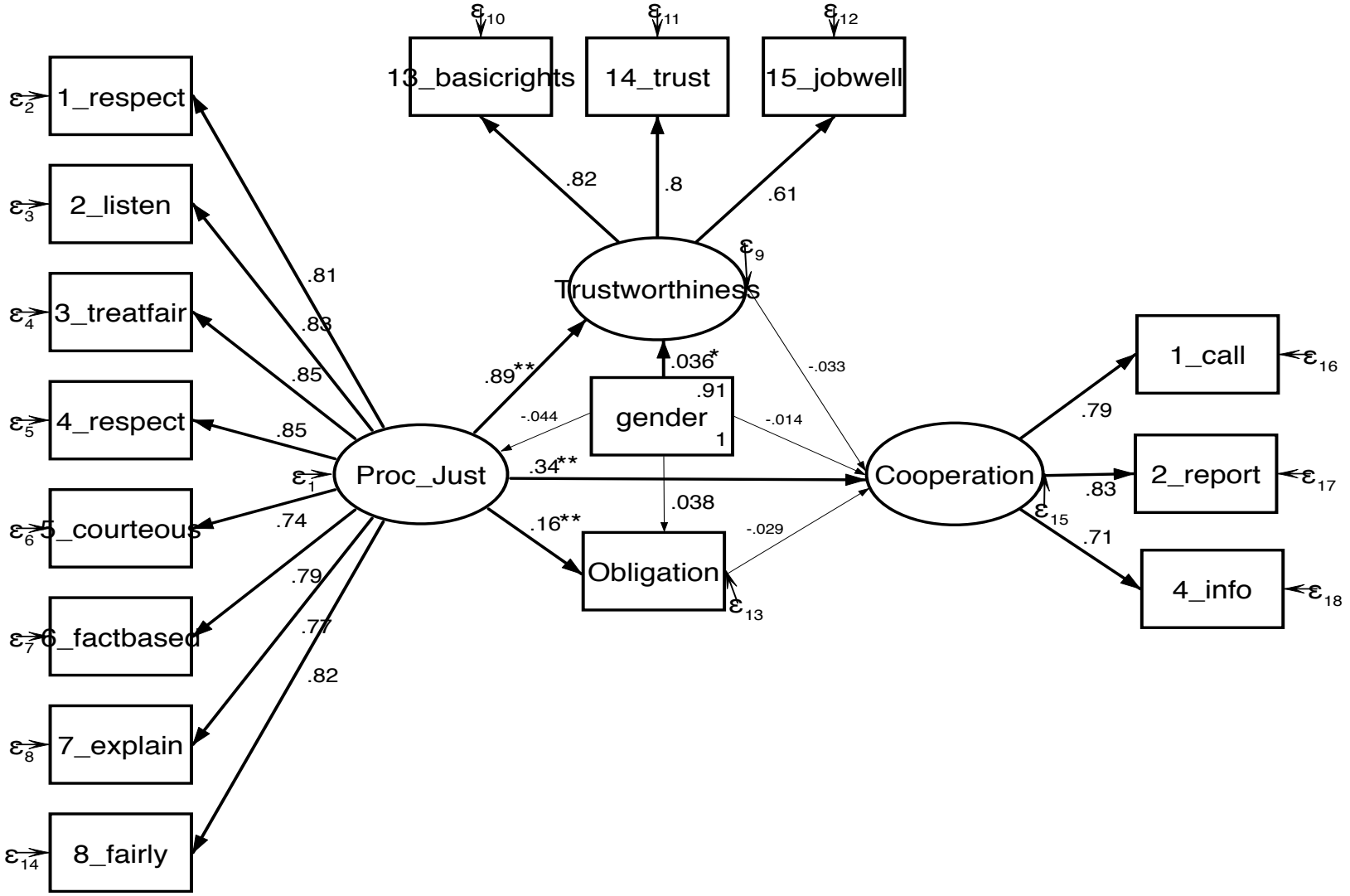
** $p < .001$; * $p < .01$; non-signficant estimates represented by .25 lines.
Goodness of Fit Measures: Satorra-Bentler Scaled $\chi^2(97) = 915.7$, $p < .001$; TLI = .94; SRMR = .03; RMSEA = .06, $R^2 = .94$.

procedural justice and cooperation with the police ($\beta = 0.35$, $p < .001$). The police interaction indicator did not change the overall correlation coefficient for the Tylerian model, $R^2 = 0.94$.

The finding that the police interaction variable did not significantly predict cooperation with the police in Ukraine was supported by Tankebe's (2009) finding that police contact did not predict cooperation with the police in Ghana. Nevertheless, the positive impact that experience with the police had on the judgments of agency legitimacy is a new finding in a developing country. Tankebe (2008) and Akinlabi (2015) found that contact with the police had a negative impact on the judgments of legitimacy in Ghana and Nigeria. The other test of the role of experience with the police was in a developed country. Murphy (2013) found that personal contact with the police had no impact on the predictors of legitimacy in Australia. Therefore, the limited set of tests of police contacts in the Tylerian model suggest that recent experience with the police does not impact judgments of procedural justice or the police outcome variable of cooperation with police but has a less predictable relationship with the police legitimacy construct.

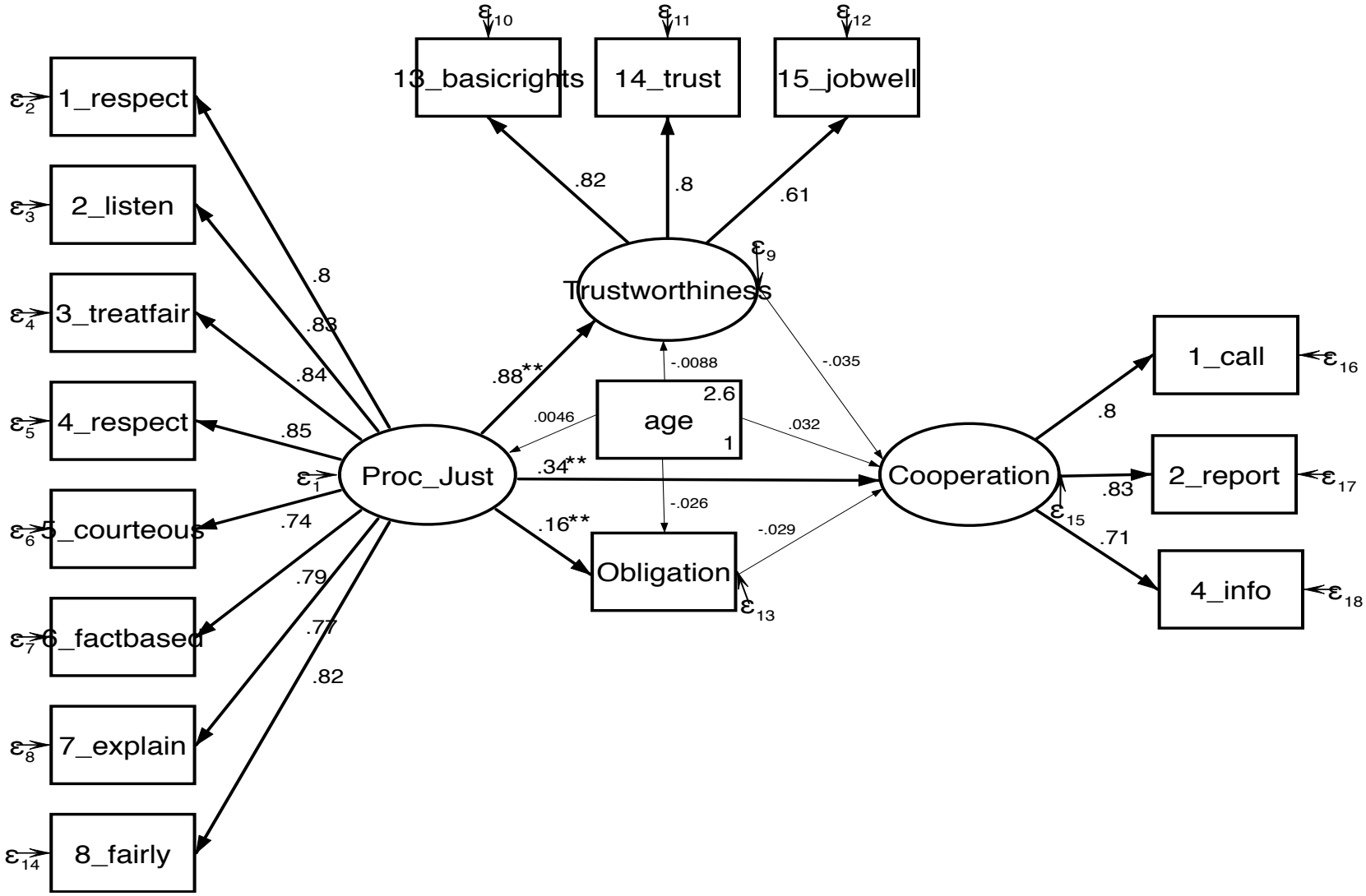
Gender. Given the modest bias detected in the MG-CFA test, a bivariate gender variable was added to a path analysis of the Tylerian model. As demonstrated in Figure 11, the gender indicator in the path model was a small but significant predictor for trustworthiness, $\beta = 0.03$, $p < .01$. The gender variables had insignificant associations with procedural justice, obligation to obey, and cooperation. The introduction of the gender indicator to the model did not change the strength of the only predictor of the outcome variable, the procedural justice association with cooperation with police, $\beta = 0.34$, $p < .001$; nor did the introduction of the new indicator have an impact on the overall correlation coefficient for the Tylerian model, $R^2 = 0.95$.

Figure 11: Gender as a Control in the Normative-Path Model



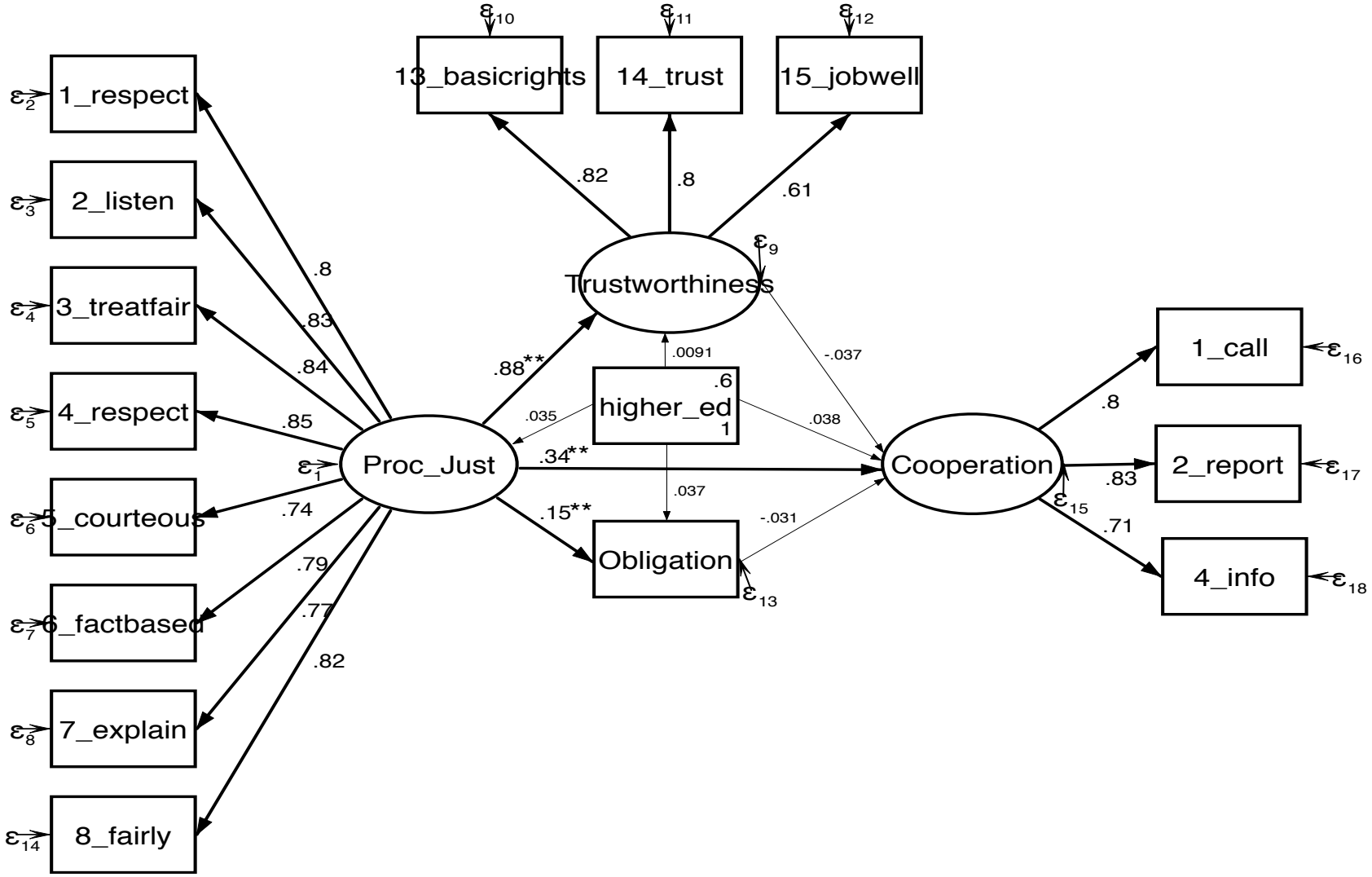
** $p < .001$; * $p < .01$, non-signficant estimates represented by .25 lines.
Goodness of Fit Measures: Satorra-Bentler Scaled $\chi^2(97) = 896.5$, $p < .001$; TLI = .95; SRMR = .03; RMSEA = .06, $R^2 = .95$

Figure 12: Age as a Control in the Normative-Path Model



** $p < .001$; * $p < .01$, non-signficant estimates represented by .25 lines.
Goodness of Fit Measures: Satorra-Bentler Scaled $\chi^2(97) = 884.1$, $p < .001$; TLI = .95; SRMR = .03; RMSEA = .06, $R^2 = .95$

Figure 13: Higher Education as a Control in the Normative-Path Model



** $p < .001$; * $p < .01$, non-signficant estimates represented by .25 lines.
Goodness of Fit Measures: Satorra-Bentler Scaled $\chi^2(97) = 890.9$, $p < .001$; TLI = .95; SRMR = .03; RMSEA = .06, $R^2 = .95$

Age. The continues variable for the respondent's age also was added to the path analysis of the Tylerian model (See Figure 12). The MG-CFA test had used a dummy variable dividing the respondents in two by age. This test used the actual age of the respondents. The path model found that respondent's age did not share a significant association with procedural justice or the legitimacy measures of trustworthiness or obligation to obey. In addition, age was not a significant predictor of cooperation with police.

Higher Education. Given the MG-CFA tests finding that procedural justice was significantly altered by the respondent's higher education status, a path model also was run to determine if the higher education variable served as a predictor variable in the larger process-based legitimacy model. In this case, the path analysis did not find a significant regression coefficient between levels of higher education and the model's latent variables (see Figure 13). This suggests that the model's indicators are not altered based on the respondents' level of higher education. The lack of a significant role for higher education in the model differs from prior research. Murphy (2013) reported higher education status as a modest predictor of police legitimacy in Australia.

The SEM analyses appear to largely support the findings of the MG-CFAs that infer that experience with the police and the study's three demographic variables did not introduce a significant bias in the Tylerian model's key indicators on his theorized normative pathway. The MG-CFAs established that higher education status was the lone demographic variable affecting judgments of procedural justice, but the path models suggest that gender may have a weak association with the trustworthiness component of police legitimacy. Otherwise, the demographic variables had no impact on the indicators of legitimacy or the police outcome measure of cooperation with the police. As a result, this study's analyses provided general

support for the process-based model of police legitimacy, notably the normative values pathway, as an unbiased instrument for measuring society's judgments on the behavior and outcomes of police in a developing country.

CHAPTER V

Conclusion

The world has changed dramatically since Weber's pioneering work on legitimacy was published posthumously in 1922. Scholars continue to debate the indicators of legitimacy, but increasingly seek to model how the interaction between the institution's officers and the public shape an institution's legitimacy and the public's willingness to cooperate with that agency and comply with the law. The explosion of empirical research on the classic process-based model of police legitimacy attests to the potential for a theoretical paradigm that relates police officer behavior to desired police outcomes (Worden & McLean, 2017a). Given the even greater challenges to gaining public trust and cooperation in developing countries, scholars working outside OECD countries must continue to develop and test new indicators that can model the antecedents to legitimacy and police outcomes in developing countries.

Postmaterialism and A Lack of Normative Commitment to Police

Postmaterialism joined procedural justice as the only significant predictors of cooperation with the police in the Ukrainian model. The two variables reflecting normative values support Tyler's argument that the paths in his model are based on values. Tyler (2009) argued that the shared normative values forming legitimacy judgments would also associate strongly with the internal motivation (normative values) for choosing to cooperate with the police. A wave of past studies in North America and Western Europe supported this expectation. The significant role of postmaterialism in the model suggests that the normative preferences of the Ukrainian public this variable represents is associated with the willingness to cooperate with the police. Therefore, this study supports Tankebe's proposition that in developing countries the public's judgments on the trustworthiness and legitimacy of police does not reflect normative commitments.

The SEM analysis certainly demonstrated that the Ukrainian public's judgments on trust in the police failed to associate with the normative values favorable to cooperating with the police. As a result, the heart of the Tylerian process-based model (legitimacy) failed to predict the model's outcome variable. This supports the growing body of research in developing countries that through the end of 2017 lacks a test of the full Tylerian model in which Tyler's construct of legitimacy has mediated the relationship between procedural justice and cooperation or even had a significant association with the outcome variable (Reisig & Lloyd, 2009; Sun et al., 2017; Tankebe, 2009).

In examining the failure of the classic legitimacy construct in Ghana, Tankebe (2009) argues that developing countries do not yet fully identify with the normative goals of supporting the civic or public good, but are focused instead on attachments to family, tribe or ethnic group. These informal relationships are likely part of the explanation for the weak role of the normative legitimacy construct not only in Ghana but in other developing countries as well (Stack, 1986). Tankebe (2009) emphasizes the constant challenge to maintain professional policing standards when the norms of informal bonds can lead a society to view corrupt acts of civil institutions as legitimate if they are in the interests of the oligarchic or tribal hierarchies.

In Ukraine's case, informal networks are often seen as more powerful than the formal government structures. Karklins (2005) provided a typology of the rise of the patronage networks and oligarchs in former communist countries that have become far more powerful than government officials or their civil administrations. This is certainly the case in Ukraine where clans oversee an economy that is still largely patronage-based with weak government regulation (Johnston, 2005; Leitner, et al., 2015; Shelley, 1998). The victim of a crime in Ukraine and other developing countries may not necessarily view the police as their best option for seeking

assistance. Instead, the victims may be just as likely to turn to informal or clan-based ties to seek justice. As a result, the conflict between democratic governance and informal ties may explain the failure of the path analyses in Ukraine to find an association between the key legitimacy measure of trust in the police and the indicator of the will to cooperate with the police.

The conflict between civic and what Tankebe calls primeval values also may explain how tests of the legitimacy model in developing countries indicate a strong role for procedural justice in predicting a legitimacy measure that then fails to mediate the relationship with the police outcome variables. In Ukraine, the normative value of procedural justice was a much stronger predictor of legitimacy than the instrumental value of effectiveness, but a robust association between procedural justice and trustworthiness did not lead to an association between trustworthiness and the internalized values that Tyler views as driving the willingness to cooperate with the police. If citizens view a hidden patronage system as no less legitimate than state institutions, they may not prioritize police outcomes--complying with the law or assisting the police--regardless of their observing just and respectful procedures on the street. Across the four tests of the classic Tylerian model in developing countries, a common failure is the link between judgments of trustworthiness and willingness to cooperate with the police.

Supporting the Consensus on Validity Problems

The factor and correlation analyses of the Ukrainian data supported past studies demonstrating a lack of discriminant validity between key test items (notably, the indexes forming procedural justice, effectiveness, and legitimacy) that are intended to measure entirely different constructs in the Tylerian theory of legitimacy. The results suggest further validity testing and test item development is needed to ensure that survey respondents can discern between constructs so as to produce separate measures for unrelated constructs. The similarity in

questions across different indicators could lead to difficulty for respondents to form responses that are restricted to the two separate constructs whose relationship is a cornerstone of the theoretical model. Moreover, this lack of discriminant validity likely inflates the statistical relationship between the predictor and dependent variables in the model.

The analyses of the Ukrainian data also suggest that the discriminant validity problem with the Tylerian model may be even greater in developing countries. Ukraine became the third study in developing countries that reported the highest correlation in the model was between effectiveness and procedural justice. Future research that applies the process-based model of police legitimacy in a developing country should not only make use of stringent tests for discriminant validity between procedural justice and trustworthiness, but also between those variables and police effectiveness.

The study's test results infer that a fundamental threat to the continued development of the legitimacy theory remains the poorly specified indicators. Without continued diverse and methodical development of the indicators, the model will continue to suffer convergent and discriminant validity problems. The stringent tests of the model started by Reisig and colleagues in 2007 and continuing through this and other studies are necessary to further refine the choice of test items and operationalization of the model's key variables.

Blurred Distinction Between Effective and Just Procedures

The path models of the legitimacy theory in Ukraine provide an opportunity to examine the role police effectiveness has in the process-based model in a developing country characterized by systemic corruption. The SEM demonstrated that effectiveness was strongly associated with procedural justice and trustworthiness, which was not the case in the previous tests of the model in developed countries (e.g., Tyler & Huo, 2002; Sunshine & Tyler, 2003a).

In Ukraine, the procedural justice indicator accounts for nearly the same amount of variance in the latent variable of police effectiveness ($R^2 = .74$), as it explained in the trustworthiness indicator ($R^2 = .79$).

Other tests of legitimacy theory in developing countries did not isolate the trustworthiness index in their report on the bivariate correlations. Nevertheless, studies in Poland, Pakistan, China, Turkey, and Nigeria reported that police effectiveness, not procedural justice, was the strongest predictor of legitimacy which suggests that in those countries a relatively large correlation also exists between effectiveness and legitimacy (Czapska et al., 2016; Jackson et al., 2014; Karakus, 2017; Sun et al., 2017; Akinlabi, 2018). In a similar study, Nalla, Hamm, and Paek (2017) report that a latent measure for police professionalism in India also strongly predicted the indicator for procedural fairness, $\beta = 0.82$, $p < .001$.

Compared to the respondents in the Chicago courthouse waiting room where Tyler first tested his process-based model of legitimacy, the public in developing countries appear to have far more difficulty differentiating between just versus effective procedures. The close association between the indicators of procedural justice and police effectiveness in developing countries suggests that when the public cannot take for granted that police will either arrive or perform their duties when called, then a "just procedure" may simply be the police arriving after a call for assistance. In other words, survey respondents in developing countries may perceive test items measuring effective policing as also representing procedural justice in a country where a common injustice is ignoring citizens' requests for assistance or action. As a result, this issue may partly be a measurement problem and future studies should consider experimenting with new test items that may reduce the overlap in interpretation of a just versus effective procedure.

Tests of the legitimacy theory in developing countries may require variables in the procedural justice index that measure perceived injustices while providing greater discriminant validity in relation to the test items that measure ineffectiveness. For example, the Ukrainian model included an effectiveness index that asks if the local police know how to carry out their official duties properly (APPENDIX B: Question 8.1). This certainly fits the definition of police effectiveness, but does it provide the appropriate degree of discriminant validity from the test items in procedural justice or trustworthiness that asks if the local police make decisions based upon the facts or do their job well (APPENDIX B: Question 9.6; Question 9.15). In past developing country tests of the model, the public appear to view these and other test items in the indexes to be asking very similar questions.

Future research in developing and developed countries should seek to further polarize the test items used for different measures in the model. A good start would be replacing the vague description of carrying out duties properly in the effectiveness measure with a test item that asks if officers are effective at more concrete functions in the view of the public (e.g., preventing crime, solving property crimes, resolving disputes in the neighborhood). This could help to further differentiate the measures of effectiveness and procedural justice. Testing and retesting new indicators could help address the convergent and discriminant validity problems across the model's key antecedents to police legitimacy.

Adding Effectiveness to the Legitimacy Construct in Developing Countries

The lack of discriminant validity in the model may also suggest a poorly theorized role for police effectiveness in the Tylerian model. The SEM path models of the Ukrainian data support the core expectation of the theory of police legitimacy that just behavior on the part of police officers on the street predicts the public's willingness to cooperate with the police.

Nevertheless, the failure of legitimacy to mediate the relationship provides further evidence that the Tylerian model of police legitimacy fails to model the process through which procedural justice influences police outcomes in developing countries. Tyler's legitimacy construct also failed as a mediator in China and Poland, while weakly mediating the relationship between procedural justice and the police outcome variable in Slovenia (Czapska et al., 2016; Reisig et al., 2014; Sun et al., 2017).

Bottoms and Tankebe (2012) propose adding the trustworthiness and effectiveness indicators to a new police legitimacy construct. The merger of these indexes in a single construct would eliminate the concern that effectiveness and trustworthiness lack discriminant validity. In a subsequent study, Tankebe, Reisig and Wang (2016) added police effectiveness to a definition of legitimacy and found that, unlike Tankebe's (2009) previous test of a Tylerian construct of legitimacy, the new construct modestly predicted cooperation with the police among students in Ghana.

The Ukrainian findings support the possibility of combining police effectiveness and trustworthiness in a common indicator because the two measures are highly correlated and the path analysis shows a significant path between the two indicators. Given the repeated failure of the Tylerian legitimacy construct in developing countries (e.g., Reisig & Lloyd, 2007; Tankebe, 2009), scholars are likely to continue to experiment with new indicators for the police legitimacy construct in search of a valid and reliable mediator for a model of police legitimacy. Future research also should seek to clarify what characteristics of a society lead to a stronger role for different hypothesized indicators of legitimacy to better understand how the construct operates across societies that differ in terms of economic prosperity or levels of corruption and good governance.

The Future Role of Obligation to Obey

No construct operationalized in the Tylerian process-based model has received greater scrutiny than the question of whether obligation to obey should continue as part of the legitimacy construct. In the case of Ukraine, the model fit the data only splitting the construct and treating obligation to obey as an independent mediator in the model. This decision certainly eliminated the most important source of the Tylerian model's convergent validity issues by separating the two indexes that across every published validity test of the model has yet to form a univariate indicator. The more important issue for legitimacy researchers is whether obligation to obey should continue to serve as a component of the legitimacy construct.

Scholars choosing to build their model solely around the trustworthiness indicator would effectively move away from the original, Weberian perspective on legitimacy. Beetham (1974) and other legitimacy scholars in the Gamson-era criticized the Weberian concept for treating legitimacy gained by an institution through the threat of violence as equal to the legitimacy that is a product of voluntary submission to a governing authority viewed as sharing similar morals or beliefs with its citizens.

Today, Tankebe (2009) has been out front among police scholars in arguing that obligation to obey should be removed as an indicator of legitimacy in a democracy because institutional legitimacy requires citizen consent that is not measured as part of the existing obligation to obey measure. Tankebe specifically cites Evans (2007:80) in stating that "consent can only be measured in situations in which individuals can choose between real alternatives." Instead, the sub-construct of obligation to obey seeks to measure the degree citizens blindly follow the orders of authorities using test items asking whether "they should obey the law even when they think it goes against what they think is right" (Tyler, 1990).

In developing his two-part construct of legitimacy, Tyler (1990) credits Gamson (1968) who argued that political legitimacy requires an obligation to obey which limits the need for coercive measures and used the example of the selective service system that regulates U.S. military conscription. The example of the US selective service system suggests that an otherwise coercive action (forced conscription) may still have popular consent demonstrated through the election of the authorities. As research on modeling police legitimacy expands to more and more countries, some scholars (e.g., Harkin, 2015; Kochel, 2012) argue that legitimacy models should include involuntary precursors to compliance or cooperation with law enforcement. Kochel (2012) reasons that if fear can compel citizens to obey then fear should be a precursor in the model predicting police legitimacy. Certainly, one of criminology's oldest theoretical models, deterrence theory, has long argued that the fear of punishment or retribution can explain a considerable portion of human behavior.

The debate on the legitimacy construct is likely to continue because there does not appear to be a ready compromise that pleases the scholars advocating for legitimacy defined by voluntary consent and those arguing that coercive governments can still gain legitimacy through fear. Nevertheless, the theoretical debate on the appropriate role for the construct eventually must establish empirically that obligation to obey is part of a unidimensional or multidimensional measure of police legitimacy that mediates the process-based model. This Ukrainian study adds to the growing literature that finds obligation to obey is weakly associated with procedural justice and not a predictor of the public's willingness to cooperate with the police. Future studies should consider treating the obligation to obey indicator as a separate potential mediator in the model. Moreover, scholars should consider new measures that do not reflect an obligation to obey, but rather measures the public's fear in not complying or

cooperating with law enforcement that may be more closely associated with the trustworthiness scale in the legitimacy indicator.

Invariance Supports General Survey Sample

This study experimented with using multi-group confirmatory factor analysis to test the level of group bias in evaluating the procedural justice indicator because of uncertainty over whether procedural justice reflects direct or indirect judgments on the publics interactions with the police. The procedural justice indicator was selected for the test because the theoretical description of the model refers only to procedural justice as an evaluation of past experiences interacting with officers. The tests on the procedural justice indicator concluded that the Ukrainian data produced little bias across groups whether based on demographics or experience with the police. The wide-scale adoption of MG-CFA tests for measurement invariance has largely been limited to the world of aptitude tests and other psychometric instruments applied to evaluate individual performance, but this study demonstrates the potential for this analysis in institutional legitimacy research.

The MG-CFA tests in Ukraine support the current practice among most legitimacy scholars to combine respondents with no recent interaction with the police and those reporting recent experience with the police into a single sample for modeling police legitimacy. Recent experience with the police in Ukraine did not impact citizens' judgments on procedural justice or willingness to cooperate with the police while having a trivial influence on the public's evaluation of police legitimacy. The findings are in line with Worden and McLean's (2017b) mixed methods study (survey and observation of the same police-citizen interactions) that found officer interaction with the public is only a modest predictor of judgments on procedural justice.

Future scholarship on police legitimacy must begin to treat prior attitudes as an important exogenous factor in a model measuring procedural justice and police legitimacy.

Current Study's Limitations

This test of the Tylerian model is based on existing cross-sectional data from three cities in Ukraine. Future tests of the process-based model would benefit from the addition of a few variables that were not part of the 2013 survey, such as a measure of perceived corruption. Finally, the survey-based approach to examining the public's judgments on the police limits the researcher's ability to assess for biases across survey responses. A mixed methods approach is needed to seriously address potential predispositions in the surveyed judgments on the police.

Absent Variables. After the 2013 pre-test survey, the U.S. Department of Justice project team approved a final questionnaire that removed two indexes, distributive fairness and compliance with the law, that were viewed as non-essential to the Tylerian model and whose removal was expected to improve the rate of completed interview questionnaires. The distributive fairness test items on treatment of immigrant or minority populations led to confusion in the pre-test interviews in the three largely homogenous cities, and just a couple of the pre-survey respondents were willing to provide answers to even misdemeanor violations of the law for the compliance index.

The distributive fairness indicator has had mixed results as an antecedent of legitimacy in tests of the Tylerian theory. Sunshine and Tyler (2003a) found distributional justice was less important as a predictor of legitimacy but the construct is often a significant antecedent to legitimacy in tests in developed countries (e.g., Reisig, 2007; Murphy et al., 2008). The two tests in developing countries provide weak results as distributive fairness was not a significant predictor of cooperation in Ghana and Jamaica (Reisig & Lloyd, 2009; Tankebe, 2009), while

Sun and colleagues (2016) reported that distributive justice was a significant antecedent of legitimacy but not the willingness to cooperate with police in China (Sun et al., 2016). For the most part, scholars in developing countries have chosen not to include distributive justice in their tests of the Tylerian construct of legitimacy or the full process-based model (Bradford et al., 2013; Czapska, et al., 2016; Jackson et al., 2014; Karakus, 2017; Reisig et al., 2014).

As with distributive justice, the compliance with the law index is not considered an essential element the Tylerian model and is largely absent from tests of the process-based model in developing countries (e.g., Czapska, et al., 2016; Jackson et al., 2014; Karakus, 2017; Reisig et al., 2014; Sun et al., 2016, Tankebe, 2009). The compliance indicator's test items asking if respondents had smoked marijuana or committed petty crimes produced few completed responses in the Ukrainian pre-test. The difficulty in getting respondents to answer compliance questions in developing countries likely limits tests of the Tylerian model using compliance as a second police outcome variable.

Corruption as a Control. Beyond the variables commonly associated with tests of Tylerian legitimacy theory, the study would have benefited from the addition of a perceptions of police corruption measure in the 2013 survey. Ukraine is a country plagued by systemic corruption but there is uncertainty whether the public's experience with corruption influences their judgments on procedural justice and police outcomes. Past studies that tested a corruption indicator with the antecedents to police legitimacy provide mixed results. In a survey of Nigerian students, Akinlabi (2015) reported that corruption negatively predicted police legitimacy, and was nearly equal in strength as the procedural justice measure. On the other hand, Jackson and colleagues (2014) found in a test of an adult sample in Nigeria that police corruption was not a significant predictor of the Tylerian components of legitimacy

(trustworthiness and obligation to obey). The mixed findings suggest that future research is needed on the role of police corruption in the legitimacy theory in developing countries.

Need for Mixed Methods. This study relied on existing quantitative data to examine the process-based model of police legitimacy in a developing country. As with all tests of a theory, it is important not only to test the quantitative validity of the theoretical model but also to enhance the findings by integrating other methods in the research. The development of a legitimacy model that would be valid across a range of countries requires adding a qualitative dimension by using focus groups to gather community perspectives on what respondents consider when weighing the normative and instrumental norms in reaching judgments on officer procedures, institutional legitimacy, and police outcomes.

A qualitative component to the Ukrainian study would have helped in addressing the continued uncertainties over the respondents' potential confusion in separating the meaning of key test items used to measure different constructs in the model. Moreover, qualitative studies also will be critical to determining the degree that pre-existing biases influence public judgments on police behavior and police outcomes.

In a pioneering mixed-methods approach to the Tylerian model, Worden and McLean's (2017) *Mirage of Police Reform* suggests legitimacy researchers cannot rely solely on survey information to evaluate public judgments on officer behavior and agency legitimacy. In a study of two cities in upstate New York, Worden and McLean (2017) reported that a plurality of respondents that experienced unfair treatment in the view of an outside observer gave consistently favorable evaluations of procedural justice, while a smaller group consistently gave poor evaluations regardless of the objective state of procedural justice in the officer-citizen interaction. The adoption of further mixed methods approaches to the study of the process-based

model will be critical to determine the degree and direction of the potential bias that Worden and McLean found in respondent evaluations to the key Tylerian constructs in the model.

Vicarious or Process-based Model? Worden and McLean's (2017) findings on the disconnect between the objective evaluations of police-citizen interactions and those citizens' evaluations of their experiences provides additional support for the argument that vicarious experiences greatly outweigh direct experience on the judgments of the police. The MG-CFA tests and an OLS regression used in this study to isolate the effect of experience with the police, revealed that recent experience with the police produces little influence on the respondent's judgments on the procedural justice test items. This finding supports the decade or more trend for police legitimacy researchers not to remove those without recent police interaction from their survey sample (e.g., Sunshine & Tyler, 2003a; Tyler & Wakslak, 2004; Reisig et al., 2007; Gau, 2011)

The expectation that experience with the police has a limited influence on the Tylerian model raises a new question. Does a theoretical model, that is often referred to as the process-based model because of the antecedent role of citizens interacting with the police, actually represent a model of a vicarious and not direct experience with the police? This study's literature review highlighted the mixed results found in the policing studies that sought to compare the influence of vicarious and direct experiences on public perceptions of the police (e.g., Brandl et al., 1994; Skogan, 2006).

In a longitudinal study of juveniles going through the justice system, Kaiser (2016) reported that there were significant and distinct pathways for the vicarious and direct experiences of procedural justice on legitimacy over time. Nevertheless, by using a sample of youth highly involved in the criminal justice system, Kaiser's (2016) support for a balance in the influence of

direct and vicarious experience may not generalize to the broader population. More research is needed to provide greater understanding of the relative roles of these two sets of perceptions on judgments over procedural justice and police outcomes. Nevertheless, this study's findings support the current de-facto treatment of procedural justice as a global judgment and not just a result of direct experience with the police. Researchers that survey the entire population for their studies are making a conscious decision that the model measures vicarious as well as specific experiences of police behavior.

The Tylerian model of police legitimacy has become arguably the most influential contemporary theory of criminal justice among scholars and practitioners alike. This is no less true in police studies in developing countries that increasingly have been turning to the Tylerian theory to model police legitimacy. Yet the surge of studies making use of the classic police legitimacy model may be missing an opportunity to further refine the model's key measures and our understanding of its core relationships.

This study is part of the latest wave in Tylerian studies that over the last decade has sought to adopt the process-based model to developing countries. These tests generally have found that in developing countries "normative commitments and identification between citizens and police are weak or nonexistent" (Tankebe, 2009, p.1283). This study's data analysis offers the first of hopefully many more tests of variables that could shed light on the how the process-based model may differ across societies.

APPENDICES

APPENDIX A: Test Items from Sunshine and Tyler

Construct	Question Item
Procedural Justice*	
Quality of Decision-Making	1) Make decisions about how to handle problems in fair ways. *Asked if the police…* 3) Treat everyone in your neighborhood with dignity and respect. 4) Treat everyone in your community equally. 5) Accurately understand and apply the law. 6) Make their decisions based on the facts, not their personal biases or opinions. *Asked how fairly the police decide…* 7) Who to stop and question on the street. 8) Who to stop for traffic violations. 9) Who to arrest and take to jail. 10) How much they will help people with problems.
Procedural Justice	
Quality of Treatment	2) Do the police treat people fairly? *Do the police…* 11) Clearly explain the reasons for their actions. 12) Give honest explanations for their actions. 13) Give people a chance to express their views before making decisions. 14) Consider people's opinions when deciding what to do. 15) Take account of people's needs and concerns. 16) Treat people with dignity and respect. 17) Respect people's rights. 18) Sincerely try to help people with their problems. 19) Try to find the best solutions for people's problems. 20) The NYPD treats citizens with courtesy and respect.
Legitimacy	
Obligation to Obey	1) You should accept the decisions made by the police, even if you think they are wrong. 2) You should do what the police tell you to do even when you do not understand the reasons for their decision. 3) You should do what the police tell you to do, even when you disagree with their decisions. 4) You should do what the police tell you to do even when you do not like the way they treat you. 5) There are times when it is ok for you to ignore what the police tell you (reversed).

	6) Sometimes you have to bend the law for things to come out right (reversed). 7) The law represents the values of the people in power, rather than the values of people like you (reversed). 8) People in power use the law to try to control people like you (reversed). 9) The law does not protect your interests (reversed).
Legitimacy Trustworthiness	10) Overall, the NYPD is a legitimate authority and people should obey the decisions that NYPD officers make. 11) I have confidence that the NYPD can do its job well. 12) I trust the leaders of the NYPD to make decisions that NYPD officers make. 13) People's basic rights are well protected by the police. 14) The police care about the well-being of everyone they deal with. 15) I am proud of the work of the NYPD. 16) I agree with many of the values that define what the NYPD stands for. 17) The police are often dishonest (reversed). 18) Some of the things the police do embarrass our city (reversed). 19) There are many things about the NYPD and its policies that need to be changed (reversed).

*Sunshine and Tyler (2003a) refer to this scale as "Procedural Fairness," but over preceding and subsequent studies Tyler and colleagues refer to the same set of indicators as procedural justice.

APPENDIX B: Ukrainian Survey Instrument
(English-Language Version[8])

Please provide yes or no answers to the following questions?

A1. Are you a resident at this address?

Yes…….. 1
No ……...…….. 2 (End of Interview)

A2. What is your gender?
Yes…….……..….. 1
No ……...…….. 2

A3. How old are you in years? _____

Less than 18 ➔ (End of Interview)
18 – 25 years old
26 – 40 years old
41 – 60 years old
Older than 61 years

[8] The questionnaire versions used by the survey team were in the Russian and Ukrainian languages with the respondent selecting the language for their questionnaire.

Questions on District Offices of Police

Q1. Have you heard of the Ministry of Interior Initiative to Improve Public Relations?
Yes……..…….. 1
No ……...…….. 2

Q2. Have you or someone you know recently participated in a public event planned by the police at an area school or cultural center?
Yes…….……..….. 1
No ……...…….. 2

Q3. In the last 12 months, have you visited your local police district office?
Yes ……...…….……..….. 1
No ……...…….. 2

Q4. Do you know where your local district office is located?
Yes…….……..….. 1
No ……...…….. 2

Q5. In the last 12 months, have you had any contact specifically with your district officer?
Yes ……...…….…..….. 1
No ……...…….. 2

Q6. Do you know the name or recognize the face of your district officer?
Yes ……..….. 1
No ……...…….. 2

Questions on the Police and Your Neighborhood

7. Please rate your building and surrounding neighborhood as a place to live compared to others in your city?

Much Worse ……………………..…..……..…… 1
Somewhat Worse …….………………..…..…..….. 2
Not worse or better ………………..……..……….. 3
Somewhat Better ……………….……….….……. 4
Much Better ……………………….……….……….. 5

Q8. Please state the degree to which you disagree or agree with the following statements on your neighborhood. Please choose an answer between 1 "strongly disagree" to 4 "strongly agree." *Pass the respondent card 1 to select one response from the following for each question.*

Strongly Disagree …….………….……….…… 1
Tend to Agree ………..……………….…….…… 2
Tend to disagree …………..……...……..…… 3
Strongly Agree ………..…………………..……4
Difficult to Answer ………………………….. 99

Police Effectiveness Index
8.1 The local police know how to carry out their official duties properly.

8.2 The local police are able to maintain order on the streets.

8.3 The local police try to help citizens.

8.4 The local police respond promptly when needed.

8.5 The local police prevent crime.

Fear of Crime Index
8.6 In the area a half kilometer around my home, there is a place where I am afraid to walk alone at night.

8.7 When I am away from home, I worry about the safety of my property.

8.8 There is a reason to be afraid of becoming a victim of crime in my community.

8.9 I worry about others in my home when they head outside at night.

Q9. Please state the degree to which you disagree or agree with the following statements on the relationship between the public and the police. Please choose an answer between 1 "strongly disagree" to 4 "strongly agree." *Pass the respondent the following card 1 to select one response from the following for each question.*

Strongly Disagree ……..……..…… 1
Tend to Agree ……...…….…….…… 2
Tend to Disagree ……...……...……..……3
Strongly Agree ……...…….……4
Difficult to Answer …….. 99

Quality of Treatment Index
9.1 The local police treat citizens with respect.

9.2. The local police take the time to listen to people.

9.3 The local police treat people fairly.

9.4 The local police respect citizens' rights.

9.5 The local police are courteous to people with whom they come into contact.

Quality of Decision-Making Index
9.6 The local police make decisions based upon the facts.

9.7 The local police explain their decisions to those involved.

9.8 The local police make decisions that lead to the fair resolution of problems.

Distributive Fairness Index (dropped after pre-test problems)
9.9 The local police provide the same quality of service to everyone in the neighborhood.

9.10 The local police enforce the law consistently when dealing with all people.

9.11 The local police give immigrants less help.

9.12 The local police provide better service to wealthier citizens in my neighborhood.

Trust in the Police Index
9.13 People's basic rights are protected by the local police.

9.14 The local police can be trusted to make decisions that are right for your community.

9.15 Most local police officers can do their job well.

Obligation to Obey Index
9.16 You should accept police decisions even if you think they are wrong.

9.17 You should do what the police tell you even if you disagree

Q10. Please state how often the following has occurred. Please choose an answer between 1 "never" to 4 "very often." *Pass the respondent card 2 to select one response from the following for each question.*

Never	1
Not Often	2
Often	3
Very Often	4
Difficult to Answer	99

Officer Mistreatment Index
10.1 The police in my neighborhood address citizens in a respectful manner and appropriate tone? [*Reverse code*]

10.2 Officers in my district often use offensive language in talking to the public.

10.3 Officers use more physical force than necessary for an incident in my district.

11. Please indicate how likely you would undertake the following actions. Please choose an answer between 1 "very unlikely" to 4 "very likely." *Pass the respondent card 3 to select one response from the following for each question.*

Very Unlikely	1
Unlikely	2
Likely	3
Very Likely	4
Difficult to Answer	99

Cooperation with the Police Index
11.1 …call the police to report a crime?

11.2. …report suspicious activity near your home to the police.

11.3. …call the police to report an accident.

11.4. …provide information to the police to help catch a suspected criminal?

Q12. Please state the degree to which you disagree or agree with the following statements on the work of the police with the public. Please choose an answer between 1 "strongly disagree" to 4 "strongly agree." *Pass the respondent card 1 to select one response from the following for each question.*

Strongly Disagree ……..……..…… 1
Tend to Agree ……...…….…….…… 2
Tend to Disagree ……...……...……..……3
Strongly Agree ……...…….……4
Difficult to Answer …….. 99

Satisfaction with the Police Index
12.1. I am generally satisfied with my local police

12.2 I am generally satisfied with the national police.

Informal Social Control Index
12.3 My neighbors could be counted on to intervene if they found children skipping school and hanging out in our courtyard.

12.4 My neighbors could be counted on to intervene if they found children were spray-painting graffiti on a local building.

12.5 My neighbors could be counted on to intervene if the children were showing disrespect to an adult on a local street.

12.6 My neighbors could be counted on to intervene if a fight broke out in front of their building.

Social Cohesion Component
12.7 The people around here are willing to help their neighbors.

12.8 The people in this neighborhood have close ties.

12.9 People in this neighborhood can be trusted.

12.10 People in this neighborhood generally don't get along with each other.
[*Reverse code*]

12.11 People in this neighborhood do not share the same values.
[*Reverse code*]

Crime and Disorder Index
12.12 Near your home drunks on the street is a problem

12.13 Near your home narcotic users is a problem

12.14 People loitering near your home late at night is a problem.

12.15 Near your home juveniles vandalizing property is a problem.

Physical Disorder Index
12.16 Near your home excessively loud neighbors is a problem.

12.17 People dumping trash outside is a problem near your home.

12.18 Abandoned buildings attracting juveniles or strangers is a problem near your home.

12.19 Juveniles painting graffiti on buildings is a problem near your home.

Questions Regarding the Police Over Last 12 Months

Victimization Test Items
Q13. Have you reported a crime to militia in the last 12 months—by crime we are specifically referring to an action that violates Ukraine's criminal code?

Yes ……..…….…..….. 1
No …….…..…….. 2

Q14. Have you reported a non-criminal issue to police in last 12 months (noisy neighbor/dangerous dogs/etc.)?

Yes ……..…….…..….. 1
No ……..…….. 2

Q15. Have you had any interaction with the local police (not the GAI/traffic enforcement) in last 12 months?

Yes ……..…….…..….. 1
No ……..…….. 2

Q16. Have you or someone in your household been a victim of crime in the last 12 months?

Yes ……..…….…..….. 1
No ……..…….. 2

Q17. Have you or someone in your household been a victim of crime that you did not report to the police in the last 12 months?

Yes ……..…….…..….. 1
No ……..…….. 2

Q18. Have you or someone in your household had an interaction with the GAI (traffic enforcement) in the last 12 months?

Yes ……..……..…….. 1
No ……..…….. 2

Questions on the Work of the Government and the Situation in Ukraine

Q19. Please state the degree to which you disagree or agree with the following statements about other government agencies besides the police. Please choose an answer between 1 "strongly disagree" to 4 "strongly agree." *Pass the respondent card 1 to select one response from the following for each question.*

Strongly Disagree …….…….…… 1
Tend to Agree ……...…….…….…… 2
Tend to Disagree ……...……...……..……3
Strongly Agree ……...……..……4
Difficult to Answer …….. 99

19.1 Other government agencies do their job well.

19.2 Other government agencies look out for the interests of the local community.

19.3 Other government institutions protect your basic rights.

Postmaterialism Index

20. Please choose what you personally would consider the top priority from the following list of national priorities. *Mark just one choice.*

Maintaining order in the nation …….. 1
Giving the people more say in important political decisions …. 2
Fighting rising prices ……. 3
Protecting freedom of speech …… 4

21. Please state the degree of your disagreement or agreement with the following statements Please choose an answer between 1 "strongly disagree" to 4 "strongly agree." *Pass the respondent card 1 to select one response from the following for each question.*

Strongly Disagree …….…….…… 1
Tend to Agree ……...…….…….…… 2
Tend to Disagree ……...……...……..……3
Strongly Agree ……...……..……4
Difficult to Answer …….. 99

Self-Expression vs. Survival Index

21.1 I am very happy.

21.2 I would sign a non-governmental petition.

21.3 Homosexuality is sometimes justifiable.

21.4 One has to be careful trusting people.
[*Reverse code*]

Social-Demographic Questions

A4. What is the highest level of school or post-secondary studies you completed?

Incomplete secondary education …….. 1
(did not graduate from high school)
Basic secondary ……..... 2
(Graduated from basic secondary school (8-9 grade) did not complete vocational school)
Completed secondary ……..……..... 3
(Completed full secondary school (grades 10-11) or graduated from vocational school)
Completed Associates Degree ……...……...4
Started but not yet completed Higher Education ……..……..5
Full or basic higher education ……..……...……6
(Finished University, received the degree of Bachelor or Master)
Hard to say / refuse to answer ……. 99

A5. What is your main occupation that you spend most of your time?

Employee (private company, institution, or military) ……..……..…. 1
Self-Employed (contractor, entrepreneur) ……..……..... 2
Temporarily Employed (unemployed, maternity leave) ……..... 3
Retired ……...…….... 4
Does not work / housekeeping ……..… 5
Student ……..….6
Hard to say / refusal to answer ……..…….. 99

A6. What can you say about the financial state of your family?

Forced to economize on food ……..…….…….. 1
Enough for food. To purchase clothes, shoes, need to save or borrow ……..…… 2
Enough for food, clothing, footwear. Need to borrow for good suit, mobile phone, vacuum cleaner you need to save or borrow ……..……...….. 3
Enough for basics but the acquisition of expensive items such as washing machine, fridge), you must save or borrow …….. 4
Enough for food, clothing, shoes, expensive purchase. For such purchases, like a car or apartment, need to save or borrow …….. 5
Any necessary purchases can be done in any time ……... 6
It is hard to say (not on card) …….. 99

A7. Do you have children under 18 living with you?

Read through, there are several options.
Yes, children less than 6 years ……. ……..…..…… 1
Yes, children from 6 to 18 years ……..…….…… 2
No children under 18 years / not living with you ……..……... 3

A8. Do you own or rent your accommodation? *Just one answer.*

Own ……..…. 1
Rent ……..… 2

A9. Have You lived in your house less than 2 years? *Just one answer.*

Yes ……..….. 1
No ……..

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