

RECORDED JUSTICE: A RANDOMIZED CONTROLLED TRIAL OF THE EFFECT  
OF BODY-WORN CAMERAS (BWCs) ON POLICE AND CITIZENS

By

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## ABSTRACT OF THE DISSERTATION

Recorded Justice: A Randomized Controlled Trial of the Effect of Body-Worn Cameras  
(BWCs) on Police and Citizens

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The perceived benefits of body-worn cameras (BWCs) are grounded in self-awareness theory, which argues that when people are aware that they are being watched, they modify their behavior, exhibit more socially-acceptable behavior, and cooperate more fully with the rules (Duval & Wicklund, 1972). BWCs also increase certainty (Ariel, 2013). Thus, BWCs have deterrent effect on those being watched since everything is recorded and can be used as evidence against them.

It is argued that the use of BWCs is an excellent tool to help improve police and citizen behavior (Ramirez, 2014). However, so far, a rigorous study has not been conducted to investigate the effect of BWCs on police legitimacy, procedurally just policing, citizen behavior (compliance and cooperation) (White, 2014), trust and confidence in police, and satisfaction (Roy, 2014).

This study, believed to be the first study of its kind in the literature, investigated the effect of using BWCs on police and citizens during traffic stops. More specifically,

this study experimentally tested the impact of BWCs on police legitimacy, traffic police legitimacy, procedural justice, general compliance, specific compliance, cooperation, satisfaction, and citizen perceptions of police.

A randomized controlled trial (RCT) was conducted. Drivers assigned randomly to the experimental group encountered traffic police officers wearing BWCs, whereas those assigned to the control group encountered traffic police officers not wearing a BWC. After the initial encounter, drivers were asked to participate in a survey. The sample size was 299 for the experimental group and 325 for the control group, with 624 participants in total. In addition, the data on complaints about traffic tickets were collected as external data.

Both bivariate and multivariate analyses indicated that BWCs had a statistically significant positive impact on all outcomes. In addition, no complaints about traffic tickets were received from the drivers in the experimental group, whereas six complaints about traffic tickets were received from drivers in the control group during the study period. To conclude, BWCs have positive impact on the behavior of both police and drivers. Thus, a new policing strategy, “Recorded Just Policing,” should be implemented by police departments.

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## Dedication

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## CHAPTER 1: INTRODUCTION

The primary goal of police organizations is to provide safety to citizens. Since the 1970s, police departments in the United States (U.S.) have attempted to accomplish this significant goal by adopting new innovative police practices, including community policing, problem oriented policing, hot spots policing, and focused deterrence policing, among others (Weisburd & Braga, 2006). Compared to their predecessors, the police in the 21<sup>st</sup> century are more professional, better educated, and more successful at providing quality safety service for citizens (Braga & Weisburd, 2010; Skogan & Frydl, 2004; Weisburd & Braga, 2006).

To enhance the quality of safety service, technological innovations such as License Plate Readers (LPR), DNA testing, and Automated Fingerprint Identification Systems (AFIS) have been introduced to police agencies (IACP, 2004; Koper, Sluder, & Alpert, 2014; PERF, 2012). Among the technological innovations, video surveillance technology has been popular and includes the use of cameras such as in-car cameras and body-worn cameras (IACP, 2014). The available empirical research suggests that in-car cameras and BWCs have similar effects. More specifically, the use of cameras increases transparency, police legitimacy, accountability, and professionalism. Camera use has also demonstrated benefits with respect to the collection of evidence for arrest and prosecution, the volume of citizen complaints about police misconduct, police use of force, and assaults on police officers (Howland, 2011; IACP, 2004; Schultz, 2008; White, 2014).

The purpose of this research is to test the impact of body-worn cameras (hereafter BWCs) on police behavior and driver behavior during traffic stops in Turkey. More

specifically, the research focuses on whether the use of BWCs has a measurable impact on driver perceptions of police legitimacy, procedurally just policing, and satisfaction with police. The research also investigates whether BWCs alter driver behavior toward police officers. More specifically, the research tests whether BWCs increase driver compliance with police commands during traffic stops as well as cooperation with police and compliance with traffic laws in the long run.

### 1.1 Background of the Study

The literature contends that BWCs enhance legitimacy and procedurally just policing (White, 2014). Legitimacy refers to a belief that the person enforcing the law has the right to dictate behavior; thus, s/he is willing to comply with directives of the authority figure and the law in general (Tyler, 1990). Legitimacy is grounded in procedural justice, which focuses on the fairness of procedures and the fairness of outcomes (Tyler, 1990). Namely, when police treat citizens with dignity and respect, and do so politely and fairly, allowing citizens to explain their side of the story and explaining the reason and importance of police activity, citizens are more likely to follow the rules and cooperate with directives (Tyler, 2007; Tyler & Fagan, 2008; Sunshine & Tyler, 2003). If police are viewed as legitimate, the public is more likely to comply with the directives of police officers and the law (Tyler, 1990). If people do not view police as legitimate, they are less likely to abide by the law and directives of police officers (Tyler, 1990). Empirical studies show that procedural justice shapes views of police legitimacy, and in turn, police legitimacy promotes citizen cooperation with police and compliance with police directives (Tyler, 1990, 2007; Tyler & Fagan, 2008; Sunshine & Tyler, 2003).

Police legitimacy is important for police–citizen encounters because successful

and effective policing relies on the ability of police to obtain compliance and cooperation from the public (Sunshine & Tyler, 2003; Tyler, 1990). For police to successfully maintain order, they expect citizens to comply with both their directives and the law in general (Sargeant, Murphy, Davis, & Mazerolle, 2012). BWCs lead police officers to behave in a procedurally just way and lead citizens to comply and cooperate with police (White, 2014). As a result, compliance and cooperation with police increase.

The perceived benefits of BWCs are grounded in self-awareness theory, which argues that when human beings are under observation, they modify their behavior, exhibit more socially-acceptable behavior, and cooperate more fully with the rules (Duval & Wicklund, 1972). Thus, BWCs increase self-awareness and certainty, and they also make people conscious that they are being watched and that their actions are recorded (Farrar & Ariel, 2013). Hence, people are more likely to follow social norms and rules (Farrar & Ariel, 2013).

It is argued that BWCs are an excellent tool to help improve police and citizen behavior (Ramirez, 2014). However, so far, rigorous studies have not been conducted to investigate the effect of BWCs on police legitimacy, procedural justice, and citizen compliance and cooperation (White, 2014). To fill the gap in the literature, randomized controlled trial was conducted in this study to test whether using BWCs ensures that police officers behave in a procedurally-just way, increases police legitimacy, traffic police legitimacy and satisfaction with police, and alters citizen behavior (compliance and cooperation) and citizen perceptions of police during traffic stops.

## 1.2 Statement of Problem

Traffic safety is a very serious problem in Turkey. In the recent past, more than one million traffic accidents have occurred on an annual basis (Trafik Hizmetleri Baskanligi, 2014). Moreover, on average, each year 4,000 people are killed and 200,000 people are injured in traffic accidents (Trafik Hizmetleri Baskanligi, 2014). Research suggests that 90% of traffic accidents result from human error (Peden et al., 2004). Thus, to reduce traffic accidents, law enforcement initiatives are the most common means used to modify driver behavior and promote traffic safety (Bates, Soole, & Watson, 2012; OECD, 1997; Zaal, 1994). As in other countries, the Turkish National Police rely heavily on effective traffic enforcement methods to prevent and reduce traffic accidents, injuries, and fatalities. One such method, introduced in 2012, is the enforcement of traffic law through BWCs. Yet doing so successfully requires that the public perceive police authority to be legitimate and that it be willing to comply with police directives.

This is made difficult by the fact that police officers generally possess a bad image in the eyes of the public in Turkey, and this is particularly the case for traffic police officers (Dönmezer, 2011). Citizens are less likely to perceive that traffic police officers treat people politely and follow the rules. However, traffic police officers are expected to follow the law and departmental procedures and treat all citizens fairly, politely, and respectfully (Dönmezer, 2011). Furthermore, studies on citizen attitudes towards police in Turkey revealed that police were not respected by citizens and police–community relations were unsatisfactory (Dönmezer, 2011).

Another fact that makes it difficult to modify driver behavior is that corruption is viewed as widespread, particularly in traffic services (Cerrah, Çevik, Göksu, &



Balcioğlu, 2009; Prenzler, 2006). Police corruption is defined as the misuse of authority to obtain a personal gain (Goldstein, 1977), taking bribes to provide a service to someone (Kappeler, Sluder, & Alpert, 1998), or abusing authority physically or psychologically (Carter, 1985). Traffic police officers are more exposed to temptations to be involved in street corruption because they are the ones who are most frequently in contact with citizens (Cerrah et al., 2009). Street or routine corruption refers to corruption that takes place between police officers and citizens during daily and routine contact (Cerrah et al., 2009). Public perceptions of police corruption undermine the integrity of police departments (Cerrah et al., 2009) and the willingness of citizens to comply with the law (Levi, Sacks, & Tyler, 2009). The reason for this is that citizens do not trust corrupt police and do not view their authority as legitimate.

Police officers work virtually without direct supervision at the street level (Frydl & Skogan, 2004). In the field, for instance, police officers in the U.S., particularly state police and highway patrol officers, generally perform their work without supervision by their superiors (IACP, 2004). This is generally the same for traffic police officers in Turkey. In some instances, they return to traffic unit facilities. Insufficient or lack of supervision may lead some police officers to abuse their power and authority. Video evidence allows supervisors to monitor their personnel, especially police officers working in remote areas (IACP, 2004).

Police are viewed as the gatekeepers to criminal justice (Gottfredson & Gottfredson, 1988) and have wide discretion to exercise at the street level because of the nature of police work (Brown & Frank, 2005; Frydl & Skogan, 2004). Police have authority and power to issue citations, use force, and make arrests in encounters with

citizens (Frydl & Skogan, 2004). The abuse of discretion leads to police misconduct, which refers to “when police do not adhere to the legal rules and thus violate the established boundaries of acceptable behavior” (Ivkovic, 2005, p.547),<sup>1</sup> and such behavior includes police corruption, police deviance, and excessive force (Lofca, 2002). The perception of misconduct has been a major issue in policing (Porter & Prenzler, 2012; Walker, Archbold, & Herbst, 2002). However, it is difficult to supervise how police officers exercise their discretion and to ensure whether they are lawful or fair in dealing with citizens every day (Frydl & Skogan, 2004). Although most encounters between police and citizens do not result in trouble, there are still a significant number of people dissatisfied with the way police treat citizens (Frydl & Skogan, 2004). The more lawful police are, the more citizens are likely to accept and embrace police actions, support police work, and cooperate with police, all of which result in enhanced community safety (Frydl & Skogan, 2004).

Particularly, traffic police officers are accused of abusing their broad discretion in traffic enforcement (Lichtenberg, 2002). They have the authority to issue citations, summons, arrest the motorist, give a written or verbal warning, or do nothing at all (Lichtenberg, 2002). Even if a motorist violates a traffic rule, police may overlook or may not enforce the law (Lichtenberg, 2002). According to studies in the U.S., 43% of all stops resulted in a ticket (Bayley, 1994), and 54.2% of stops resulted in a summon (Lichtenberg, 2002). Another study found that of the drivers stopped in 2008, 55% were ticketed, 17% were issued a written warning, 15% were allowed to proceed with no enforcement action, and 9.7% were given a verbal warning (Eith & Durose, 2011).

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<sup>1</sup> Champion (2001, p. 3) defined police misconduct as “committing a crime and/or not following police department policy guidelines and regulations in the course of one’s officer duties.”

Similarly, in Eskisehir, Turkey, between 2009 and 2013, one-third of all traffic stops resulted in tickets. Citizen demeanor has an important influence on a traffic police officer's decision about whether to write a ticket or not (Lichtenberg, 2002). If a driver is aggressive or disrespectful (Martinelli, 2006), impolite, abusive, or uncooperative, s/he is more likely to receive a ticket (Lichtenberg, 2002). This suggests that traffic police officers may abuse their power and authority according to citizen behavior. The public may perceive the police as not treating people fairly and equally, and this lack of fairness and uniformity in traffic enforcement might lead citizens to distrust the police. Part of the problem stems from the inadequate of control mechanisms to help traffic police officers understand whether they follow the rules or treat people fairly.

Police are regarded as the most visible face of government, and they are the ones who encounter citizens most frequently (Frydl & Skogan, 2004; Mastrofski, Snipes, & Supina, 1996). Particularly, traffic police officers encounter citizens daily, stop them, and issue citations for violation of traffic law. Thus, a vehicle stop is the most frequent contact that occurs between police and citizen (Hoover, Dowling, & Fenske, 1998). It is estimated that there are over one hundred million traffic stops each year in the United States (Lichtenberg, 2002). The data from a national survey suggested that of the 21% of residents who had contact with police, about half were due to traffic stops (Greenfeld, Smith, Durose, & Levin, 2001). Another study indicated that vehicle stops accounted for 59% of all public contact with police in 2008 (Eith & Durose, 2011).

Being a driver is also the most common reason for contact with police in Turkey. In Turkey, about 32% of people over the age of 18 years have a driver license, which means that one-third of the public has an opportunity to make contact with traffic police

officers (Trafik Hizmetleri Baskanligi, 2014; TUIK, 2014). In total, more than 85 million traffic tickets were issued between 2004 and 2013 in Turkey (Trafik Hizmetleri Baskanligi, 2014). Over the past five years, the number of tickets has increased by about 64% (Trafik Hizmetleri Baskanligi, 2014). However, studies show that there are more traffic-related stops than recorded traffic tickets (Lichtenberg, 2002; Lichtenberg & Smith, 2001). In other words, the number of motorists who make contact with traffic police officers is between two (Bayley, 1994) or three times (Brown, 1981) as many as the number of recorded tickets. The obvious challenge is that traffic police officers perform many of their duties independently and not under direct supervision.

Traffic stops have a significant impact on how the public views police (Roberg, Novak, Cordner, & Smith, 2015). In light of their volume, these police–citizen encounters may promote or damage public perceptions of police legitimacy (Frydl & Skogan, 2004), depending on how individual traffic officers carry out their duties during encounters (Tyler & Darley, 1999). Thus, public views of police legitimacy are mostly shaped by the behavior and actions of individual police officers during specific encounters with citizens rather than the public’s general perception of police legitimacy (Tyler & Darley, 1999). In addition, traffic police officers are expected to behave based on procedural justice policing principles (Johnson, 2004). However, there is no control mechanism to make sure they follow the principles of procedural justice.

The public’s perception of police use of force continues to be a concern (IACP, 2004). As pointed out by Mastrofski, Snipes, and Supina (1996), “Police are among the most visible officials seeking compliance” (p. 270). There are two types of compliance: specific compliance and general compliance (Mastrofski et al., 1996). Specific

compliance refers to following police requests during face-to-face encounters, whereas general compliance refers citizens obeying laws such as traffic laws and tax laws (Mastrofski et al., 1996). When police fail to secure compliance, they use force to compel a person to comply with a request (IACP, 2004; Mastrofski et al., 1996). Using force may escalate confrontational situations between police and citizens. Thus, police departments seek alternative enforcement practices that can produce compliance rather than deterring people by using force (Mastrofski et al., 1996). BWCs can make police–citizen interactions conducive to compliance strategies.

A large number of complaints against police officers is another issue that needs to be addressed (IACP, 2004). Police officers have wide discretion that may lead them to bend or break the rules if they want (Wagner & Decker, 1997). Police officers expect people to follow their directives and they use force to secure compliance when needed. When force is used, citizens become dissatisfied with the interaction and are more likely to file complaints. Thus, citizen complaints against police officers are inevitable because of the result of the often confrontational nature of police–citizen interactions (Walker et al., 2002). In the U.S., the majority of complaints include rudeness, lack of courtesy, or failure to provide adequate service (Walker et al., 2002), as well as excessive force, improper procedures, and prejudicial conduct (Proctor, Rosenthal, Monitor, & Clemmons, 2009), and there is a widespread perception among racial and ethnic minorities that police departments do not effectively address citizen complaints (Walker et al., 2002). Lack of corroborating and concrete evidence, such as video evidence, may lead most complaints to be sustained, which results in dissatisfaction among both the complainant and police officers (Walker et al., 2002). The complainant is not satisfied

because the complaints have not been taken seriously and addressed thoroughly or fairly (Walker et al., 2002). For instance, in England and Wales, the percentage of the complainants who were not satisfied with the way their complaint was handled was between 70% and 90% (Porter & Prenzler, 2012). Dissatisfaction with the process of handling complaints undermines public trust and confidence in police (Porter & Prenzler, 2012). The police officer also feels that s/he has been under investigation for groundless allegations (Walker et al., 2002), which demotivates police officers from performing their job passionately.

Traffic police officers are frequently assaulted and involved in traffic accidents while on duty (IACP, 2004; NLECTC & United States of America, 2012). Traffic stops are assumed to be a danger to police officers by the United States Supreme Court, although the relative risk of traffic police officer homicides and assaults were found to be very low compared to those involving other types of police officers (Lichtenberg & Smith, 2001). However, between 2004 and 2013, 122 police officers were killed during traffic stops, whereas 520 law enforcement officers were killed by guns (ODMP, 2014). This suggests that traffic stops are dangerous for traffic police officers, which needs to be addressed.

### 1.3 Significance of the Study

The study is important for several reasons. BWC technology received significant media attention in 2013 in the United States (Fangman, 2013). For example, in August 2013, the Federal District Court in Manhattan ruled that the New York Police Department's (NYPD) stop, question, and frisk (SQF) program was unconstitutional, and as part of the ruling, the judge ordered police officers in the highest volume SQF

precincts to wear cameras to prevent racial profiling (Floyd v. City of New York, 2013). Additionally, in the wake of tragic police shooting of Michael Brown in 2014 in Ferguson, Missouri, many citizens have taken to protesting what they regard as unjust police practices (Justin & Jacob, 2014). What actually transpired during the lethal encounter remains unknown.

In response to public opinion, a federal bill has been proposed that would require all state and local police departments to use BWCs (Waters, 2014). And President Barack Obama, in December 2014, launched a “Community Policing Initiative” to build, fortify, and maintain trust between communities and law enforcement agencies (The White House, 2014). As a part of this initiative, a new “Body Worn Camera Partnership Program” has been initiated. Over three years, the program will provide \$75 million to law enforcement agencies to purchase 50,000 body-worn cameras (The White House, 2014). It is therefore crucial to investigate the effect of BWCs on police and citizen behavior as the results of the study can lead decision makers to develop new policies about the use of BWCs.

In Turkey, BWCs have been used in traffic enforcement units since 2012. The use of BWCs was initiated as a pilot study and later spread with the introduction of a project called “The Transparency and Safety in Traffic Project” by the Turkish National Police (Adana Emniyet Mudurlugu, 2014). One of the purposes of the project is to reduce and impede the problems, complaints, and allegations that transpire between police and citizens during traffic enforcement (Adana Emniyet Mudurlugu, 2014). Another purpose of the project is to create a transparent and effective traffic enforcement environment (Adana Emniyet Mudurlugu, 2014). The records of the encounters may be able to be used

as evidence for internal and judicial investigations when requested (Adana Emniyet Mudurlugu, 2014). However, the impact or effectiveness of the project for traffic police has not been tested so far in any way, despite the expense of deploying and maintaining BWCs. Therefore, it is worthwhile to investigate its impact on police and driver behavior.

Finally, the investment and interest in using BWCs has dramatically increased in more recent years. Thus, the need for BWCs should be evaluated quantitatively so that evidence-based policy decisions can be made (Ramirez, 2014). By using randomized experiments, the effectiveness of the intervention can be established and compared (Ramirez, 2014).

Thus, the findings of the present are expected to have great impact on policy implications. First of all, as previously mentioned, traffic police officers are the ones who make contact with citizens most frequently compared to other type of police officers. Police officers have power and authority to use force when dealing with citizens, and they may abuse their authority and behave improperly in a way that increases the number of complaints against police officers. However, citizens expect police to be impartial, fair, effective, and restrained in their use of authority (Frydl & Skogan, 2004). A study conducted in Virginia suggested that police officers who showed disrespect were less likely to obtain compliance (Mastrofski et al., 1996). Thus, police behavior towards drivers and driver behavior towards traffic police officers play crucial roles for escalating or deescalating encounters that transpire every day. BWCs can possibly change police and driver behavior when they are aware that their actions are being recorded. The camera system can also help prevent the abuse of police discretion (IACP, 2004).

Second, the use of BWCs assists police departments in being more accountable



and transparent (Ramirez, 2014). Transparency protects the public image of police departments (Martinelli, 2006) by increasing confidence, which is crucial for the police to function effectively (Cao & Burton, 2006). The camera system also helps increase the integrity of police departments (IACP, 2004).

Third, the use of BWCs requires investment. Thus, cost/benefit analysis of BWCs should be conducted to determine the technology in which money should be invested (Koper et al., 2014). In other words, whether BWCs produce the desired effects should be investigated compared to its costs.

Fourth, citizens expect traffic police officers to behave in a procedurally just way (Engel, 2005). Procedural justice promotes legitimacy, in turn, increasing compliance and cooperation (Sunshine & Tyler, 2003; Tyler, 1990). BWCs are assumed to increase procedurally just policing, police legitimacy, and compliance and cooperation with police. When traffic police officers are aware that their behavior is recorded, they are more likely to treat drivers politely, fairly, respectfully, and follow the rules. Daily police–citizen encounters may be an opportunity to improve the perception of procedural justice (Engel, 2005; Sargeant et al., 2012). If citizens view police as legitimate during police–citizen encounters, they are more likely to comply with police directives and, in the long run, they are more likely to follow the law and cooperate with police (Sargeant et al., 2012). The use of BWCs increases procedurally just policing, legitimacy, cooperation between police and citizens, and compliance. As a result, effective and successful policing can be achieved.

Fifth, BWCs may be effective for combatting police corruption (Sahin, 2010). A study on police corruption in Turkey showed that, to prevent corruption among traffic

police officers, 57.9% of the respondents reported that technological devices should be used and 74.4% reported that traffic police officers should issue citations to everyone involved in a traffic violation (Cerrah et al., 2009). BWCs lead traffic police officers to treat people fairly and equally and abide by the rules and laws.

Sixth, the use of BWCs may promote police officer safety because they can deter potential offenders from attacking police officers and provide video evidence that may help convict offenders (Draisin, 2011; NLECTC & United States of America, 2012).

Finally, studies have shown that most citizens form their opinion of police based on police behavior during a 10-minute traffic stop (Calahan & Kersten, 2005; Woodhull, 1994). A traffic stop may be the only form of interaction that some citizens have with police (Woodhull, 1994). These short-lived encounters are an opportunity for police to build trust and confidence (Goodman-Delahunty, 2010). It was found that the initial presentation during an encounter between police and citizen(s) is a key determinant of what will transpire (Bayley, 1986; Fyfe, 1986), and policing style determines the quality of interactions between police and citizens (Birgden & Julio, 2011). Thus, the use of BWCs is a good tool to improve police and citizen behavior (Ramirez, 2014).

#### 1.4 Contribution to Existing Literature

This research makes a distinct contribution to existing literature. First of all, this study is the first of its kind to be conducted in Turkey, as well as the first study in the literature (to author's knowledge) that experimentally tests the impact of BWCs on police legitimacy, procedural justice, satisfaction with police, driver compliance and cooperation, and citizen perceptions of police. To date, empirical studies of BWCs have investigated their impact on the use of force, citizen complaints, the speed of resolutions

to complaints, concrete evidence for arrest and prosecution, and police officer safety (Farrar & Ariel, 2013; Goodall, 2007; MPD, 2013; ODS Consulting, 2011; Roy, 2014; White, 2013). Although almost all of these studies claim that BWCs enhance transparency, citizen views of police legitimacy, and procedural justice, none has actually tested the effect of BWCs on these outcomes (White, 2014). In addition, as White (2014) points out, “there have been virtually no studies of citizens’ views of the technology” (p. 6). Thus, in his assessment of BWCs in policing, White (2014) suggested that research on the impact of BWCs should include citizen surveys that measure perceptions of the technology, particularly with regard to satisfaction, trust, transparency, and legitimacy.

Second, this study also will be the first to investigate the impact of BWCs on citizen behavior in order to understand the dynamics of police–citizen interactions. Prior studies found that BWCs reduce use of force and citizen complaints, suggesting that BWCs improve police behavior (Farrar & Ariel, 2013; Goodall, 2007; MPD, 2013; ODS Consulting, 2011; White, 2013). However, BWCs are also theorized to improve citizen behavior (Farrar & Ariel, 2013; White, 2014). Thus, the behavior dynamics that explain the decline in the number of complaints and the use of force remain unknown (Farrar & Ariel, 2013; White, 2014). The drop in use of force and complaints may be the result of improved police behavior (e.g., officers tend to use less force or treat people politely and respectfully), improved citizen behavior (e.g., citizens are less aggressive), or both (Farrar & Ariel, 2013; White, 2014). This is an important avenue for investigation. The drop in the number of complaints may also be due to the video evidence provided by BWCs because evidence suggests that BWCs reduce frivolous complaints by citizens against police officers wearing BWCs (Ariel, Farrar, & Sutherland, 2014; Coppola, 2010;

Farrar & Ariel, 2013; Goodall 2007; White, 2014). Citizens are more likely to cooperate with police when they are aware that their actions are recorded (Farrar & Ariel, 2013). Thus, Farrar and Ariel (2013) proposed that the impact of BWCs on citizen behavior should also be tested empirically. However, available research does not sufficiently explain the decline in the number of complaints and the number incidences in which force was used (Farrar & Ariel, 2013). Thus, this study will unravel these effects, identify the underlying dynamics of behavior, and fill this gap in the research.

Third, there is a lack of research that investigates whether BWCs have an impact on routine police–citizen interactions and whether BWCs increase trust and confidence in police and satisfaction (Roy, 2014). This study experimentally tests the impact of BWCs on these very outcomes in the context of traffic stops.

Finally, unlike previous studies of BWCs, this study is designed to conduct a randomized controlled trial, which is the most rigorous design and is frequently considered to be the “gold standard” in evaluation (Lanier & Briggs, 2014; Shadish, Cook, & Campbell, 2002; Trochim & Donnelly, 2006). Without a controlled experiment, alternative explanations will always be present. Most of the previous studies possess significant methodological limitations. Either some of them do not have a comparison group (Goodall, 2007; ODS Consulting, 2011) or some of them are not independent studies (Farrar & Ariel, 2013; MPD, 2013). The lack of rigorous, independent studies that employ experimental methods has limited overall understanding of the real impacts of BWCs (White, 2014).

## CHAPTER 2: LITERATURE REVIEW

In order to situate this study in the existing scholarship, this chapter provides a detailed review of the literature pertaining to the use of BWCs on police and citizen behavior and citizen perceptions, the subject of this dissertation. In particular, it first explores the existing scholarship on traffic police and traffic stops in Turkey. It then turns to the scholarship on the historical development of the use of cameras in policing, theoretical explanation of the effects of the use of camera, and the effects of being watched including eye images, CCTV and speed cameras, and BWCs on people. It closes with a brief discussion of the research questions and hypotheses tested in the study.

### 2.1 Traffic Police in Turkey

The Turkish National Police has specific, designated traffic police units whose primary responsibility is the enforcing of traffic laws. There are two different traffic enforcement units in Turkey: the Regional Traffic Enforcement Unit and the Traffic Enforcement Unit. The Regional Traffic Enforcement Unit is responsible for the highways/motorways, while the Traffic Enforcement Unit is in charge of residential roads. Both units are responsible for preventing and investigating traffic accidents; enforcing traffic laws; regulating traffic; checking documents such as registration, insurance, driver license, and vehicle ownership; and issuing tickets to the drivers who violate traffic rules (Eskisehir Emniyet Mudurlugu, 2014).

In Turkey, in business-as-usual traffic stops, traffic police officers use cones along the highway to mark checkpoints and direct drivers where to stop. One police officer pulls over, stops vehicles, and asks for the documents including registration, insurance, title, and driver's license. This officer gives the documents to a second police

officer waiting in the police vehicle, who then calls the dispatch center and provides the necessary information about the driver and the vehicle. The police officer in the dispatch center informs the on-site officers about all the documents in the system, including traffic stops. If a ticket is to be issued, this fact is transmitted to the dispatch center so that it can be recorded in the database. The driver signs the ticket and the documents are returned to the driver, after which the driver is free to leave.

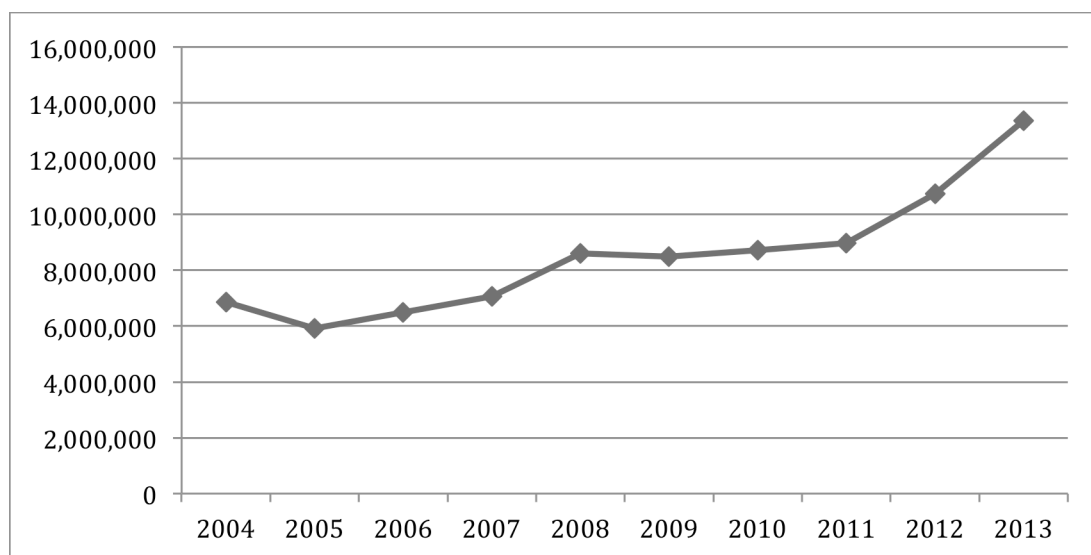
In the eyes of the public, corruption is viewed as widespread among traffic police officers in Turkey. According to a study conducted in Turkey's three largest cities (Istanbul, Ankara, and Izmir), street/routine corruption is perceived to be prevalent among traffic police officers (Cerrah et al., 2009). The researchers found that it was very difficult to detect minor corruption among traffic police officers, and either citizens or police prepared the grounds for corruption to occur. They also found that out of 481 citizen survey respondents, 3% of them reported that they offered bribes to traffic police officers, 7% reported that traffic police officers asked for bribes, and, of the latter, 81% reported that they consented to the bribery. In addition, 27% of the respondents reported that illegal or unethical demands were made of them by the traffic police officers. The study also revealed that 11% of respondents would offer money or goods if they violated a traffic rule in order not to pay for traffic tickets.

A study of citizen attitudes towards police in Turkey involving 500 respondents revealed that the public perception of police was negative (Dönmezer, 2011). More specifically, the respondents reported that they did not respect police (24%), did not trust police (58%), and their attitudes towards police changed negatively over the last decade (91%). Furthermore, the respondents believed that police were ineffective (58%) and

police community relations were unsatisfactory (66%). The same study also suggested that public perceptions of traffic police legitimacy were very low (Dönmezer, 2011).

A vehicle stop is the most frequent form of contact between police and citizens (Hoover et al., 1998), and this is true in Turkey as well. As shown in Exhibit 1, more than 85 million traffic tickets were issued by traffic police officers between 2004 and 2013 in Turkey (Trafik Hizmetleri Baskanligi, 2014). The number of tickets issued has also dramatically increased by about 64% over the past five years (Trafik Hizmetleri Baskanligi, 2014). When the number of traffic-related stops that did not result in ticket is considered, the number of vehicle stops is even higher in Turkey.

Exhibit 1. Number of Traffic Tickets Issued by Traffic Police Officers in Turkey



*Data source:* Adapted from *Denetleme Faaliyetleri*, by Trafik Hizmetleri Baskanligi, 2014, available online  
<http://www.trafik.gov.tr/Sayfalar/Istatistikler/denetim1.aspx>.

The number of licensed drivers in Turkey has soared to almost 25 million in 2013, representing about 32% of the Turkish population (Trafik Hizmetleri Baskanligi, 2014; TUIK, 2014). That suggests that about one of every three citizens has an opportunity to

interact with a traffic police officer as a licensed driver. If passengers that witness the interaction between driver and police are included in the number, it is estimated that about half of the Turkish population has some likelihood of experiencing police interaction directly or vicariously.

Traffic stops have a significant impact on citizen perceptions of police (Roberg et al., 2015). In light of their volume, these police–citizen encounters may promote or damage public perceptions of police legitimacy (Frydl & Skogan, 2004), depending on how individual traffic officers carry out their duties during encounters (Tyler & Darley, 1999). The interaction between citizens and police should be satisfactory and traffic stops may be an opportunity to enhance the relationship between police and citizens. The obvious challenge is that traffic police officers perform many of their duties independently and not under direct supervision.

## 2.2 The History of Camera Use in Policing

Technological advancements have shaped policing in many important ways over the years. In the 13<sup>th</sup> century, the “hue and cry” was used to summon all males to assist the constable when a serious disturbance took place (Uchida, 2004). In the 17<sup>th</sup> and 18<sup>th</sup> centuries, the hue and cry was also used by the night watch in larger cities such as New York, Boston, and Philadelphia (Uchida, 2004). In the 1850s, telegraph lines were used to link district stations to headquarters and call boxes on the beat were introduced in the late 19<sup>th</sup> century (Lane, 1980). In the 1900s, two-way radio communications and computer aided dispatch system were introduced (Douthit, 1975; Koper et al., 2014; Lane, 1980).

In recent decades, many new technological innovations have been introduced in policing. Information technology (IT) and analytic systems have been used to predict and



prevent crime (PERF, 2012). License plate readers (LPR) have been used to scan and tag cars that have been stolen or have parking violations (Koper et al., 2014; PERF, 2012; Roman et al., 2008). DNA testing (Koper et al., 2014; Roman et al., 2008; Wilson, Weisburd, & McClure, 2011) and Automated Fingerprint Identification Systems (AFIS) (IACP, 2004) have been used to identify the perpetrator of a crime. Wireless Video Streaming to transmit the video from the scene of an incident and Global Positioning System (GPS) to track suspects and police vehicles have been used (PERF, 2012). Report Management Systems (RMS) have been initiated for taking reports, retrieving information, and crime mapping (IACP, 2004). Mobile Data Terminals (MDTs) enable police officers to access the National Crime Information Center, state, and local data from their vehicles (IACP, 2004). TASER has been adopted as a device in use of force (Sousa, Ready, & Ault, 2010). Police departments use social media, including Facebook, Twitter, Nixle, Youtube, and MySpace, to share information with the public or receive crime tips or other information from the public for investigations (PERF, 2014). Other technological innovations, such as mechanisms for improving their efficiency and effectiveness, hot spot analysis, and COMPSTAT, have also been used by police agencies (Braga, Papchristos, & Hureau 2012; Braga & Weisburd, 2010; Weisburd et al., 2003).

Advances in technology have also enabled police departments to use video surveillance system for several decades. In Britain, CCTVs were introduced to regulate behavior at traffic lights in 1956, and pan-tilt cameras were used to monitor crowds during visits to Parliament in Trafalgar Square in 1960 (Norris, McCahill, & Wood, 2004). During the 1970s and 1980s, the use of CCTV in Britain was used just to monitor

marginal groups such as football hooligans and political demonstrators. In 1985, the first large-scale public space surveillance system was established (Norris et al., 2004).

In the U.S., videotape-recording systems first appeared in the early 1960s (IACP, 2004). However, at this time, video technology was not conducive to mount cameras in police vehicles because of its large size (IACP, 2004). In the late 1960s, the Connecticut State Police was the first police department to attempt to use a video camera and recorder in a patrol car (IACP, 2004). Technology in the field of audio/visual recordings advanced rapidly (Newburn & Hayman, 2012; Nichols, International Association of Chiefs of Police, & United States of America, 2001). By the early 1980s, a self-contained Beta audio/visual recording system was developed, which was regarded as a revolution in the recording industry (IACP, 2004). The introduction of the VHS recorder and tape was the next evolution of the mobile video recorder system, followed by the introduction of 8 mm camcorders (IACP, 2004).

Cameras have been increasingly used as a video surveillance mechanism and observation both by citizens and police (Nichols et al., 2001; White, 2014). They are an important tool used in policing for crime prevention, investigation, and monitoring interactions between police and citizens (PERF, 2012). In-car cameras are the most frequently used video surveillance and observation tools within police agencies. There are several motivations for using in-car cameras, but racial bias and racial profiling are the most important ones (IACP, 2004). State police agencies became the hub of complaints of racial profiling due to the allegations of racial profiling in traffic stops. The verdicts of the courts proved that racial profiling did occur in some cases and this increased public perceptions of racial profiling by police (IACP, 2004). Another

important motivation concerned assaults on police officers. The Department of Justice, Office of Community Oriented Policing Services (COPS), recognized that in-car cameras would be effective for officer safety and in addressing allegations of racial profiling while enhancing the public trust (IACP, 2004; Westphal, 2004).

In response to successful use of in-car cameras in the prosecution of drunk driving and drug possession, state and federal legislative bodies required all police agencies to capture encounters between police and citizens during all traffic stops to prevent racial profiling and to protect police officers from being assaulted (IACP, 2004). The COPS Office initiated the “In-Car Camera Initiative Program” to state police and highway patrol agencies throughout the U.S. and provided funds for them as of 2000 (IACP, 2004). As of 2004, 72% of state patrol vehicles mostly working in traffic-related incidents were equipped with in-car cameras (IACP, 2004), and by 2007, 61% of police departments had followed suit (Reaves, 2010).

BWCs are the latest technological development in the area of surveillance for police agencies (Roy, 2014). BWCs are mobile audio and video capture devices, which can be attached to various areas of the body and uniform, such as the head, helmet, glasses, pockets, badge, etc. (Draisin, 2011). Cheap BWCs with long-running batteries became available on the market around 2010 (Sherman, 2013). BWCs received significant media attention in 2013 upon the decision of Judge Shira Scheindlin of the Federal District Court in Manhattan in New York City, which required police officers to wear cameras in the precincts where SQFs were highest to prevent racial profiling (Goldstein, 2013).

Recently, in 2014 in Ferguson, Missouri, police shot to death an unarmed

teenager named Michael Brown, and civil unrest took place to protest the police for days (Ready & Young, 2014). What actually happened has remained unknown because of a lack of video evidence. Upon public pressure to maintain accountability and transparency, the Ferguson Police Department has begun to use BWCs (Ready & Young, 2014). The incident in Ferguson also has prompted lawmakers to require all state and local police departments to use BWCs (Waters, 2014).

There are several reasons for adopting BWCs. The limitation of in-car cameras is that police officers are unable to record the interactions when they leave the vehicle (Roy, 2014). Unlike in-car cameras, BWCs are not placed inside a vehicle; thus, BWCs have the ability to record encounters between police and citizens outside of the patrol vehicle (NLECTC & United States of America, 2012). In addition, BWCs allow police officers to record what they see and hear (Coppola, 2010; Draisin, 2011). Furthermore, the widespread use of smartphones has increased the ability of third parties to record police–citizen interactions (Harris, 2010). This has increased the need for police departments to record encounters from the police point of view and use as evidence when necessary.

Like many police agencies around the world, the Turkish National Police has started using BWCs in traffic enforcement units since 2012. The use of BWCs was initiated as a pilot study and later spread with the introduction of the project called “The Project of Transparency and Safety in Traffic” (Adana Emniyet Mudurlugu, 2014).

### 2.3 Theoretical Background

There are two theories that are capable of explaining the theoretical background of this research: Self-awareness theory and deterrence theory.

### 2.3.1 Self-Awareness Theory

Self-awareness theory, also called Objective Self Awareness theory, was developed by Shelley Duval and Robert Wicklund (Duval & Wicklund, 1972). Objective self-awareness occurs when attention is directed inward or focused on the self, meaning that an individual becomes the object of his/her own consciousness (Duval & Wicklund, 1972). Subjective self-awareness occurs when attention is directed away from the self and the person “experiences himself as the source of perception and action” (Duval & Wicklund, 1972, p. 2-3).

Self-awareness theory focuses on three concepts: self, awareness, and objective standards. When people focus their attention on the self, they become self-aware and evaluate the self (Duval & Wicklund, 1972; Wicklund & Duval, 1971). They compare the self to standards of correctness that specify how they should think, feel, and behave, or how they personally would like to be (Silvia & Duval, 2001). The process of comparing the self with standards allows people to change their behavior and to experience pride and dissatisfaction with the self (Duval & Wicklund, 1972). If there is discrepancy between the self and standards, people try to reduce discrepancies by changing the self to achieve standards (Duval & Lalwani, 1999; Duval & Wicklund, 1972). Thus, they try to alter their behavior and behave according to the standards of correctness or they could avoid the self-focusing stimuli and circumstances (Duval & Wicklund, 1972).

According to the theory, anything that makes people focus attention on the self increases self-awareness (Duval & Wicklund, 1972). Thus, to increase self-awareness, researchers have used various stimuli such as mirrors, tape recordings of the person's voice, videotaping, and writing passages (Buss, 1980; Carver & Scheier, 1978), as well as

the use of relative group size to manipulate self-focus (Duval, 1976). When people are aware that they are being watched, they often change their conduct and adhere to social norms, rules, or directions (Duval & Wicklund, 1972; Scheier & Carver, 1983). Thus, people who are aware of being watched or observed exhibit more socially-acceptable and desirable behaviors and obey rules.

BWCs also increase the awareness of the person who is watched. The person focuses on the self and compares his/her behavior with the objective standards, which are socially-desirable behaviors. If the person notices that there is a discrepancy between his/her behavior and the socially-desirable behaviors, s/he alters the behavior and tries to behave in a socially-desirable way. Procedurally just behavior requires people to behave in a socially-desirable manner. More specifically, a typical person treats people with respect and politely allows the other person to voice his/her opinions and concerns during a conversation. In addition, a typical person assumes that what police do is for their own safety. As a result, BWCs increase the self-awareness of police officers and lead them to behave in a procedurally just way.

### 2.3.2 Deterrence Theory

The second theory that explains the background of the research is deterrence theory, which is based on the idea that people are rational and thus try to avoid pain and seek pleasure. Individuals make a choice between pain and pleasure or between costs and benefits before committing crime and are more likely to commit crime if the benefits or pleasures of offending outweigh the pains or costs of committing crime (Nagin, 2012). Conversely, if the pains or costs of committing crime outweigh the benefits or pleasures of committing the crime, people tend to avoid committing the crime. This same

theoretical logic applies to the use of BWCs.

Deterrence theory relies on three components: severity, certainty, and celerity. As Nagin (2013) explains, “Certainty refers to the probability of punishment given commission of crime, severity refers to the onerousness of legal consequences given a sanction is impose, and celerity refers to the lapse in time between commission of crime and its punishment” (p. 85). Certainty and celerity of punishment appear to have the largest deterrent effect in comparison to the severity of punishment, as people are less concerned about the severity of punishment if they believe that the probability of arrest and sanction is low (Nagin, 2012). However, if people are certain that they will be apprehended for their wrongdoing, they will be less likely to commit a crime or be involved in socially and morally undesirable and unacceptable acts.

An extensive body of recent rigorous research across several categories of human behavior has shown that when certainty of apprehension for wrongdoing is high, socially and morally-unacceptable acts are dramatically less likely to occur (Von Hirsch, Bottoms, Burney, & Wikstrom, 1999). Braga, Papachristos and Hureau (2011) have shown that police presence in high-crime areas specifically, which increases the perceived certainty of apprehension, can significantly reduce crime incidents at these hot spots compared to control conditions. In addition, a focused deterrence strategy also stresses the severity, certainty, and swiftness of the sanction, which is important for effective deterrence (Papachristos, Meares, & Fagan, 2007). A comprehensive systematic review of 10 quasi-experimental and 1 randomized controlled trial evaluations of focused deterrence strategies conducted by Campbell Collaboration revealed that of the 11 studies, 10 were associated with an overall statistically significant, medium-sized crime

reduction effect (Braga, 2013; Braga & Weisburd, 2012). Thus, physical presence of other people, especially rule-enforcers, either produces cooperative behavior or deters away non-cooperative or noncompliant behavior (Dawes, McTavish, & Shaklee, 1977; Hoffman, McCabe, Shachat, & Smith, 1994).

Self-awareness theory and deterrence theory share commonality in that deterrence theory relies heavily on the notion that self-awareness and being watched leads to socially desirable behaviors (Farrar & Ariel, 2013). Because BWCs capture the actions of those who are “watched,” using them increases the likelihood of punishment of those who do not follow rules since everything is recorded and can be used as evidence against those who are being watched. Thus, BWCs deter people from non-cooperative or noncompliant behavior and make them comply with police commands. BWCs also increase self-awareness and make people conscious that they are watched and their actions are recorded.

#### 2.4 Eye Images: The Effect of Being Watched

Theoretically, it is contended that being watched has a positive impact on human behavior (Burnham, 2003). This has been the focus of many investigations. Human decision-making can be influenced by the appearance of the environment (Dolan et al., 2012; Thaler & Sunstein, 2008). According to Burnham (2003), changes in situations lead to changes in behavior, and putting “watching eyes” in an environment is a good example. Eye images are more likely to induce the feeling of being watched and thus have a greater impact on prosocial and cooperative behavior (Burnham, 2003). The effect of being watched has been investigated in laboratory setting and real-world settings.



### 2.4.1 Studies in Laboratory Settings

Empirically, the impact of being watched on prosocial behavior was first tested in laboratory settings. Eye images were displayed to the participants in laboratory contexts and it was then observed whether their behavior changed prosocially. Generally, these studies focused on whether the eye images had an impact on generosity. The results of one experimental study suggested that photographs reduced anonymity and in turn significantly increased generosity compared to control conditions with no photo (Burnham, 2003). Another study also showed that participants who were watched by the images of a robot with human eyes presented on their computer screen contributed 29% more to the public good than those participants who were not watched by the image of the robot in the same settings (Burnham & Hare, 2007). Another similar experiment indicated that the presence of eye-like shapes on the computer screen substantially increased generosity; more specifically, a large majority (79%) of the participants in the eyespots conditions allocated money, while only about half (53%) of the participants in the control group without eyespots allocated money (Haley & Fessler, 2005).

Being watched also has a positive impact on cooperative behaviors. An experimental study conducted in France suggested that participants in the conditions where eyes were displayed were more in favor of cooperative behavior compared to the participants in the conditions where flower images were displayed (Bourrat, Baumard, & McKay, 2011).

### 2.4.2 Studies in Real-World Settings

The effect of watching eyes has also been demonstrated in real-world settings. It is argued that when observed, people tailor their acts to be more socially desirable

(Nettle, Nott, & Bateson, 2012). For instance, eyelike images and non-eye like images displayed on charity collection buckets have different effects on people's generosity (Powell, Roberts, Nettle, & Fusani, 2012). The results of an experiment conducted in a supermarket in England suggested that the display of eye images in experimental buckets increased donations by 48% compared to control buckets without eye images (Powell, Roberts, Nettle, & Fusani, 2012). Another experiment conducted at Newcastle University concluded that eye images (versus flowers) placed above an honesty box for contributions to the coffee fund yielded mean contributions that were almost three times as high (Bateson, Nettle, & Roberts, 2006).

In real-world settings, eye images also have a significant impact on changing the behavior of individuals. In a month-long field experiment in a large cafeteria on the campus of Newcastle University, Ernest-Jones et al. (2011) displayed posters featuring either eyes or flowers in a university cafeteria, finding that people were more likely to clear up their litter on days when eyes were displayed. In addition, the result of an experiment conducted at 14 randomly selected bus stops in Switzerland showed that displaying eye images in bus shelters made people invest more time removing garbage compared to controls with flower images (Francey & Bergmuller, 2012). In a field experiment conducted at six bicycle racks on the campus of Newcastle University, Bateson, Callow, Holmes, Redmond, and Nettle (2013) showed that images of eyes reduced littering and induced more prosocial behavior, independent of local norms. Finally, Gervais and Norenzayan (2012) argued that even thoughts of God increase feelings of being under surveillance, in turn increasing self-awareness and socially desirable responding among believers. They found that thinking of other peoples' social

evaluations and thinking about God similarly increased self-awareness for believers, whereas thinking of God reduced public self-awareness for non-believers relative to both to the control prime and the people prime.

In addition to the studies on the impact of watching eye images on prosocial behavior and compliance with social norms in laboratory and natural settings, the impact of images of watching eyes on crimes was also investigated. For instance, a randomized controlled trial was conducted to examine the effect of displaying images of “watching eyes” and a verbal message on bicycle thefts on a university campus in Northern England (Nettle et al., 2012). The eye images were installed at three locations where a high level of bicycle thefts occurred, and the rest of the university campus was used as a control location. The study suggested that the “watchful eyes” had an impact on preventing crimes, but displaced thefts to the locations without the images. More specifically, bicycle thefts decreased by 62% at the experimental locations, but increased by 65% in the control locations.

## 2.5 Cameras: The Effect of Being Watched

### 2.5.1 Closed Circuit Television (CCTV) and Speed Cameras

Unlike the images of eyes, closed circuit television (CCTV) and speed cameras can observe and record incidents. CCTV, a “formal surveillance” technique (Cornish & Clarke, 2003), is used in private and public settings to prevent violent and property crimes because potential offenders are deterred due to the increased probability of being detected and apprehended (Welsh & Farrington, 2009). Forty-four evaluations of the effectiveness of CCTV suggested that it caused a significant but modest decrease (16%) in crime in experimental areas compared with control areas (Welsh & Farrington, 2009).

Its impact may vary depending on the place. The largest decreases in crime were in car parks (51%); however, there was no significant decrease in crime rates in city and town centers (7%) and public transport schemes (23%) (Welsh & Farrington, 2009). The impact of CCTV is apparently low in these areas because the level of certainty of being apprehended necessary for self-awareness is not high (Welsh & Farrington, 2009).

Studies have investigated the effect of speed cameras on speeding, road traffic crashes, injuries, and deaths by comparing traffic-related incidents before and after the introduction of speed cameras and also by comparing road areas where speed cameras were available with road areas where no speed cameras were introduced (Wilson, Willis, Hendrikz, Le Brocque, & Bellamy, 2010). The results of 35 studies showed that in the vicinity of camera sites, after the introduction of speed cameras, a decrease in speeding was observed ranging from 1% to 15%, the proportion of drivers speeding between 14% and 65%, all crashes ranging from 8% to 49%, fatal and serious injury crashes ranging from 11% to 44%, and crashes resulting in injury ranging from 8% to 50% (Wilson et al., 2010).

#### 2.5.2 In-car Cameras

In-car cameras are also used as effective surveillance tools and influence police and citizen behavior. To investigate the effects of in-car cameras, in 2002, the Community Oriented Policing Services (COPS) Office along with the International Association of Chiefs of Police (IACP) conducted an 18-month evaluation on the use of in-car video cameras by state agencies (IACP, 2004). The researchers conducted surveys, worked with research groups, and completed interviews of 21 state agencies. According to the report, in-car cameras provided many benefits for police agencies, one being that

in-car cameras improved police behavior. More specifically, in most instances, police officers followed law and departmental guidelines, and they treated people more politely and professionally (IACP, 2004).

The use of in-car cameras reduced the number of complaints against police officers (IACP, 2004). In instances where in-car cameras were used, half of the complaints were withdrawn, and 8% of the responding police officers reported a reduction in the number of complaints filed against them. Almost half (48%) of surveyed citizens reported that the presence of the in-car camera would make them less likely to file a complaint, whereas 34% reported that the use of the cameras made them more likely to file a complaint. The use of in-car cameras had no impact on decisions of police officers about use of force and performing their duties (IACP, 2004). The COPS study also revealed that the presence of an in-car camera had no effect on police discretion in handling situations (86%) and no effect on their decision to use force in a situation (89%) (IACP, 2004).

In-car cameras not only impact police behavior, but they also modify the behavior of the citizens being stopped (IACP, 2004). Half (51%) of the respondent citizens reported that their behavior would change if they were aware that they were being watched. The use of in-car cameras also deescalated confrontational situations with citizens, a finding supported by both citizens and police officers. One-quarter (26%) of respondent police officers reported that citizens became more courteous during their contact. This is important because a systematic observational study found that in nearly 50% of the observed excessive force incidents, police used excessive forces when the victims verbally resisted police authority (Reiss, 1968).

The use of in-car cameras provides concrete evidence for trial (IACP, 2004). The study found that out of the prosecutors who were surveyed, 91% stated that they used video recordings in court, adding that the presence of video evidence enhanced their ability to obtain convictions. The types of cases in which video evidence is most successful include driving under the influence, traffic violations, vehicular pursuits, assaults on officers, narcotics enforcement, domestic violence, and complaints against police departments.

### 2.5.3 Body-Worn Cameras (BWCs)

One of the latest technological innovations in policing is the use of BWCs, which may be used by police on a daily basis for such activities as traffic stops, service calls, interactions with the public during patrol in foot and vehicle, searches, or other police activities (NLECTC & United States of America, 2012). BWCs are more feasible than CCTV's or in-car cameras because they can be deployed at any position within the incident (Goodall, 2007). Used properly, BWCs can record anything police officers see.

The effects of BWCs have been investigated in the U.S. and in the U.K. British police agencies were among the first to experiment and test the effect of BWCs (White, 2014). BWCs were first used in Plymouth, England, against domestic violence in 2005 and 2006 (Goodall, 2007). Due to the positive results from the early pilot studies, the "Plymouth Head Camera Project" was initiated to fully test the effect of BWCs for the Police Service nationally in 2006, with the pilot ending in 2007 (Goodall, 2007). The study was evaluated independently; however, it did not use a comparative research design. Several police agencies in Scotland also evaluated BWC technology in 2011 (ODS Consulting, 2011). Police deployed 38 BWCs for 8 months in Renfrewshire and 18

BWCs for 3 months in Aberdeen. Both studies did not have a control group. The evaluations focused on the impact of BWCs on citizen attitudes, criminal justice processing (guilty pleas), citizen complaints, and assaults on police officers (ODS Consulting, 2011).

There have been three studies on BWCs in the United States as of 2013 (White, 2014). The first study was conducted in Rialto, California, involving a randomized controlled trial in which 54 patrol officers were randomly assigned to wear BWCs and 54 patrol officers were assigned not to wear BWCs (Farrar & Ariel, 2013). The study tested the impact of BWCs on citizen complaints and police use of force incidents. The second evaluation study in the U.S. was conducted by the Mesa (Arizona) Police Department between October 2012 and September 2013 (MPD, 2013). The 50 BWC-wearing police officers were compared to a group of demographically similar officers who were not wearing BWCs. The evaluation focused on the impact of BWCs on civil liability, complaints against department, and criminal prosecution (MPD, 2013). The third and last evaluation in the U.S. was conducted by the Phoenix (Arizona) Police Department and Arizona State University (White, 2014). The study had a comparative research design and involved 56 police officers wearing BWCs and 50 comparison police officers. The Phoenix study tested the impact of BWCs on unprofessional police behavior, citizen complaints, citizen resistance, and response to domestic violence cases, as well as police officers' perceptions of BWCs (White, 2014).

## 2.6 The Effects of Body Worn Cameras (BWCs)

### 2.6.1 Compliance and Cooperation

The literature on BWCs suggests that they promote citizen compliance with law

and police commands (Vorndran, Burke, Chavez, Fraser, & Moore, 2014), which is a goal of all policing strategies (Gau, 2011; Tyler, 2006). There are two types of compliance: specific compliance and general compliance. Specific compliance refers to citizen conformance to police requests during face-to-face encounters, whereas general compliance refers to obedience of citizens to laws such as traffic and other laws (Mastrofski et al., 1996).

Disobedience is a frequent occurrence in police–citizen encounters. For example, Mastrofski et al. (1996) examined 364 police-citizen encounters in Virginia and found that 22% of police-citizen encounters resulted in noncompliance. The use of BWCs may be one of the most effective alternative strategies to the use of force to obtain compliance with police directives (Vorndran et al., 2014). For example, citizens are more respectful, compliant, less abusive, and less troublesome in front of police officers wearing BWCs. The Plymouth Camera Project study suggested that a quarter of surveyed police officers stated that people, particularly youth, showed more respect when using the BWCs and calmed the situation down (Goodall, 2007). It was also found that large groups were less confrontational when the officer was wearing a head camera (Goodall, 2007). In the Mesa study, 45% of surveyed police officers stated that the cameras would lead citizens to be more respectful to police officers wearing them (MPD 2013). Finally, the Phoenix evaluation suggested the BWCs appeared to improve citizen behavior once citizens were aware that their behavior was recorded (White, 2013).

Improved citizen behavior is important because the demeanor of citizens is one of the most important factors that determine how police behave toward and treat citizens. Police officers are more likely to disrespectfully treat those who are disrespectful,



physically resist, or refuse to follow police directives (Mastrofski, Reisig, & McCluskey, 2002). The results of the Plymouth Camera Project suggested that at anti-social hotspots, citizens behave less aggressively against police officers with BWCs compared to police officers without them (Goodall, 2007). The Renfrewshire/Aberdeen studies indicated that in both sites, only 4 out of 5,000 recorded encounters resulted in assaults on police officers wearing BWCs (ODS Consulting, 2011). The results of the Aberdeen study revealed that a single assault took place against police officers wearing BWCs, while 61 assaults took place against police officers not wearing BWCs (ODS Consulting, 2011).

BWCs also increase cooperation between citizens and police (Farrar & Ariel, 2013; Vorndran et al., 2014). Effective and successful policing requires the ongoing support and voluntary cooperation of the public (Tyler, 1990). As police are not omnipresent, their ability to detect and deal with social disorder and crime is dependent on the willingness of citizens to assist and cooperate with the police by reporting crimes and passing on information (Sargeant et al., 2012; Tyler, 2006). Due to the deterrent and self-awareness effect of BWCs, people are more likely to act cooperatively (Farrar & Ariel, 2013).

#### 2.6.2 Procedural Justice and Legitimacy

It is argued that BWCs promote police legitimacy and a sense of procedurally just policing among citizens (Howland, 2010; Koper et al., 2014; Mazerolle, Bennett, Davis, Sargeant, & Manning, 2013; Miller, Toliver, & PERF, 2014; Ramirez, 2014; Roy, 2014; White, 2014). Legitimacy refers to a situation in which one feels that an authority has the right to enforce the law and thus the person should be deferred and obeyed (Levi, Sacks, & Tyler, 2009; Sunshine & Tyler, 2003; Tyler, 2004, 2006). Legitimacy is based on

one's own internal values rather than rewards or sanctions; in other words, people obey the law because they believe that they should follow the law (Hinds & Murphy, 2007, p. 30; Tyler, 2001, 2006; Weber, 1968). If people view police as legitimate, they are more likely to comply with the law and cooperate with police voluntarily (Sunshine & Tyler, 2003; Tyler, 2006).

Police can build legitimacy through both instrumental and normative factors (Hinds & Murphy, 2007, p.28; Sunshine & Tyler, 2003; Tyler, 2006). According to the instrumental perspective, police can develop their legitimacy by effectively controlling, preventing, and responding to crime and disorder; that is, increasing the probability of apprehension and punishment (Hinds & Murphy, 2007; Sunshine & Tyler, 2003; Tyler, 2006). By contrast, the normative perspective suggests that citizen conceptions of justice are based on perceptions of fairness and equity (Tyler, 2006). According to the normative perspective, citizens are concerned with two types of justice: distributive justice and procedural justice (Tyler, 2006). Distributive justice implies that citizens care about the fairness of outcomes, whereas procedural justice proposes that people are concerned about the fairness of procedures used to achieve outcomes independent from whether or not the outcomes are favorable (Tyler, 2006).

Police legitimacy results from the principles of procedural justice rather than instrumental factors (Sunshine & Tyler, 2003). Procedural justice is composed of 4 principles: neutrality, respect, trust, and voice (Goodman-Delahunty, 2010; Levi et al., 2009; Tyler, 2004, 2006; Tyler, 2007, p. 30; Tyler & Huo, 2002; Tyler & Murphy, 2011). Neutrality refers to the belief that decision-making should be impartial, neutral, and consistent across cases, as well as be based on facts, legal rules, and principles rather than

personal opinions or biases. Respectful treatment involves treating people with dignity, respectfully, politely, and courteously during police–citizen encounters and showing respect for citizen rights. Trustworthiness involves sincerity and care on the part of police for citizens; that is, police should be honest and transparent and demonstrate that they consider the benefits of the citizens and work for them. Finally, voice involves providing citizens with the opportunity to explain their side of the story in a conflict, or in other interactions with police, before making decisions. In short, police should treat people fairly, respectfully, politely, and make their decisions based on the rules; allow citizens to explain their side of story before making decisions; and communicate trustworthiness to citizens (Sargeant et al., 2012; Sunshine & Tyler, 2003; Tyler, 2007).

Empirical support for the benefits of procedurally just policing for police legitimacy is widespread (Engel, 2005; Levi et al., 2009; Mastrofski et al., 1996; Mazerolle et al., 2013; McCluskey, Mastrofski, & Parks, 1999; Murphy, Hinds, & Fleming, 2008; Paternoster, Brame, Bachman, & Sherman, 1997; Sherman, 1997; Sunshine & Tyler, 2003; Tyler, 1990, 2006, 2007; Tyler & Degoe, 1996; Tyler & Huo, 2002; Tyler & Fagan, 2008, 2012; Vorndran et al., 2014). The results of experimental studies also show similar effects. The first experimental study of legitimacy, which was conducted in Queensland, Australia, suggested that even during a short traffic encounter with citizens, traffic encounters considered to be procedurally just increased perceptions that police are fair and respectful, improved satisfaction with police, and had a positive impact on police legitimacy and cooperation when compared to a “business as usual” traffic stop (Mazerolle, Antrobus, Bennett, & Tyler, 2013). The second experimental study of legitimacy conducted in Adana, Turkey, indicated that relative to control group,

procedurally justice encounters positively shaped citizen views of police and increased citizen satisfaction (Sahin, 2014).

BWCs can have a civilizing effect, resulting in improved police behavior (Farrar & Ariel, 2013; Harris, 2010; Koper et al., 2014; Miller et al., 2014; Rieken, 2013; White, 2014), and altering how police officers verbally communicate with citizens (Tyler, 2001; Tyler, Boeckmann, Smith, & Huo, 1997). In other words, BWCs can directly impact the principles of procedural justice. Neutrality can be achieved when police are transparent or open in the decision-making process (Goodman-Delahunty, 2010; Tyler, 2007), and BWCs make police officers more likely to comply with proper legal and constitutional standards as well as internal departmental regulations (Harris, 2010; Rieken, 2013). Furthermore, BWCs can increase professional police behavior (White, 2014). For instance, the study of the Mesa Police Department suggested that 77% of police officers surveyed believed that BWCs would lead officers to behave more professionally (MPD, 2013). BWCs can also hold police departments accountable to citizens (Koper et al., 2014; Miller et al., 2014; Ramirez, 2014; Wain & Ariel, 2014) since a police officer's actions can be monitored during an interaction (Roy, 2014). Thus, transparency and accountability can actually increase public trust in police (Clark, 2013; Miller et al., 2014).

### 2.6.3 Satisfaction

BWCs also increase satisfaction with police in two ways. First, citizens have expectations concerning the behavior of police during encounters. Citizens expect police officers to behave in a procedurally just way during traffic stops (Johnson, 2004; Woodhull, 1998). Prior studies support this argument. For instance, Johnson (2004)

conducted a survey involving 245 college students to determine what kinds of expectations citizens had of police officers during traffic stops. He found that 69% of respondents agreed that how a police officer behaves during a traffic stop is more important than whether or not they receive a ticket.

Another way that BWCs increase satisfaction with police is that technology may enhance transparency in police departments by providing video evidence (Howland, 2011; Koper et al., 2014; Mazerolle et al., 2013; Ramirez, 2014; Roy, 2014; White, 2014). BWCs enable police agencies to demonstrate transparency and openness in their interactions with citizens (Miller et al., 2014). Transparency can lead citizens to become satisfied with interactions because they are aware that everything is recorded.

BWCs can also promote feelings of safety among citizens, and through that, citizen satisfaction can improve. The results of citizen surveys of 97 respondents in Renfrewshire and 701 respondents in Aberdeen, and an additional 36 crime victim respondents in Plymouth, suggested that of the survey respondents, 49% in Renfrewshire, 37% in Aberdeen (ODS Consulting, 2011), and 81% in Plymouth (Goodall, 2007) reported that they felt safer as a result of the deployment of BWCs. In addition, BWCs make residents feel that their community is safer. More specifically, of the respondents, 64% in Renfrewshire and 57% in Aberdeen reported that they believed BWCs would make their community safer (ODS Consulting, 2011).

#### 2.6.4 Citizen Complaints

Citizen-initiated complaints refer to being dissatisfied and displeased with an encounter with a police officer (Lersch & Mieczkowski, 2000). Given the nature of police work, citizen complaints against police officers are inevitable (Haberfeld, 2004;

Wagner & Decker, 1997). Police officers are responsible for enforcing the laws and arresting those who violate the rules (Lersch & Mieczkowski, 2000). The nature of their work puts them in situations in which they are likely to be in conflict with citizens (Lersch & Mieczkowski, 2000). As a result, citizens file complaints against police officers in order to express their displeasure about the police officers with whom they were in contact (Lersch & Mieczkowski, 2000).

There are five categories of complaints against police officers: use of demeanor or tone that is insulting, demeaning, or humiliating; issuing a bad ticket; using threats; using profanity; and unlawfully stopping a vehicle (Vorndran et al., 2014). Other allegations involve using excessive or unnecessary force; unlawful stop, searches, and frisks; and unlawful arrests (Vorndran et al., 2014). It is estimated that just one-third of all incidents of alleged police misconduct are reported as a complaint (Walker & Bumphus, 1992).

According to the study on complaints against police officers involving 854 misconduct that were examined between 1995 and 1997 in the Southeast, police officers were more likely to receive performance-related complaints (32%), followed by complaints about demeanor (30%) and the use of unnecessary force (22%) (Lersch & Mieczkowski, 2000). Other research demonstrated similar findings (Lersch, 2002). Another study on complaints in a large police department in the Northeastern U.S. suggested that police departments were more likely to receive complaints related to service (46%), followed by administrative matters (30%) and the use of force (18%) (Harris, 2014).

Problematic police behavior is the source of many citizen complaints (Porter & Prenzler, 2012). The perceived unfair, disrespectful, and impolite treatment process can

result in a formal citizen complaint against police officers (Johnson, 2004). In other words, if citizens perceive that they are treated disrespectfully and unfairly, they are more likely to file a complaint, and in turn, the number of citizen complaints increases (Johnson, 2004). Prior studies suggest that citizen perceptions of verbal disrespect of police officers account for the majority of the complaints against police officers. Reiss (1971) found that more than 60% of the complaints in Boston, Chicago, and the District of Colombia resulted from inappropriate verbal conduct by an officer. The complaints often included disrespectful, impolite talks with citizens and rude behavior (Reiss, 1971). Most of the complaints were filed because of the manner in which police officers spoke rather than the specific words used (Reiss, 1971). Other studies in Philadelphia (Hudson, 1970), Washington State (Dugan & Breda, 1991), St Louis (Wagner & Decker, 1993), and Florida (Lersch, 1998) consistently found that the most common type of citizen complaint against police officers was the allegation of disrespectful communication with citizens on the part of the officers.

It is important for police agencies to avoid complaints and promote relationships with the public (Johnson, 2004). Police misconduct undermines citizen trust and respect with police; in turn, citizens are less willing to cooperate with police and compliance decreases (Lersch & Mieczkowski, 2000). When police officers engage in procedurally just behavior, this promotes high-quality interactions between police and citizen and leads to fewer complaints against police officers (Vorndran et al., 2014). If citizens feel that they are treated politely, respectfully, and fairly by a police officer, they are less likely to file a complaint against police officer, and, in turn, the number of citizen complaints against police officers declines (Johnson, 2004).

Like videotapes, audiotapes, and CCTVs (Porter & Prenzler, 2012), BWCs may also reduce socially undesirable behavior, such as use of offensive language or the excessive use of force (*Floyd v. City of New York*, 2013). Both citizens and police officers are more likely to conform to code of conduct and exhibit socially desirable behavior, ultimately acting cooperatively when they are under BWC surveillance (Farrar & Ariel, 2013). Thus, using BWCs can reduce the chances of conflict in citizen encounters and prevent negative interactions by influencing officer and citizen behavior (Farrar & Ariel, 2013; Koper et al., 2014; Ramirez, 2014).

BWCs reduce citizen complaints against police officers (Draisin, 2011; Koper et al., 2014; Miller et al., 2014; Ramirez, 2014; Roy, 2014). More specifically, the reported percentage of reduction in citizen complaints was 87% in the Rialto study (Farrar & Ariel, 2013); 40% of total complaints and 75% of excessive use of force complaints in the Mesa study (Miller et al., 2014; MPD, 2013; Roy, 2014); 14% (specifically for incivility and excessive use of force) in the Plymouth Head Camera Project; and only 5 out of more than 5,000 police–citizen encounters resulted in complaints against police officers wearing BWCs in the Renfrewshire/Aberdeen studies after the introduction of BWCs (Goodall, 2007). The results of interviews with police executives conducted by PERF also revealed that police executives contended that BWCs reduced the number of complaints against police officers (Miller et al., 2014). Furthermore, there is evidence that citizens are less likely to file frivolous complaints against officers wearing BWCs because they are aware that video evidence can instantly refute their claims (Coppola, 2010; Goodall, 2007; Harris, 2010; Vorndran et al., 2014).



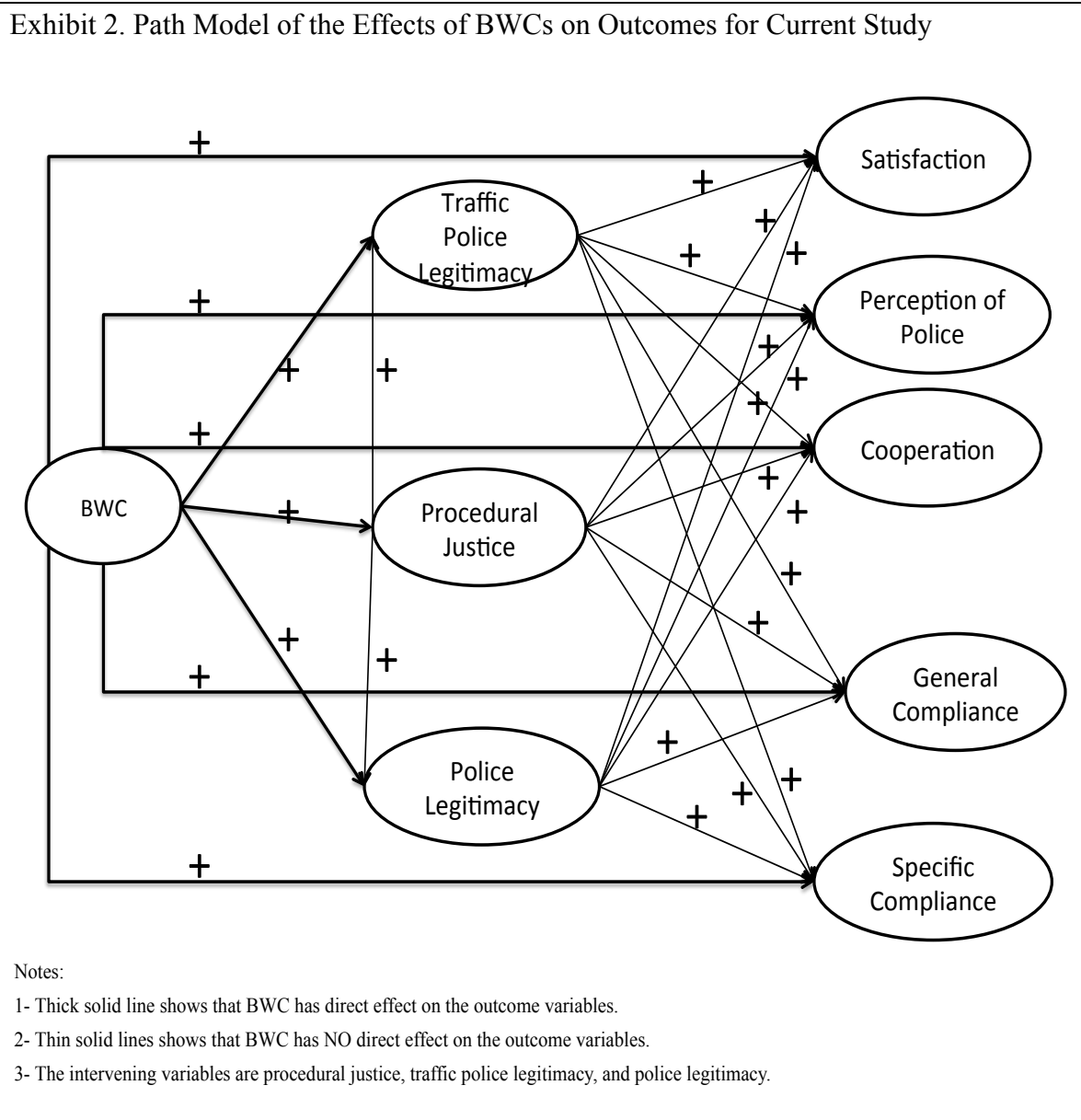
### 2.6.5 Use of Force

BWCs also reduce use of force. It is evident that the use of BWCs has an impact by altering the behavior of citizens as well as police officers (White, 2014). Positive behaviors of both police officers and citizens affect each other in a positive way. Both behave well, and as a result, police officers do not use force. The Rialto study documented a 59% drop in the total number of use of force incidents in the experimental group compared to the control group (Farrar & Ariel, 2013). In addition, content analysis of the footage of use of force incidents indicated that police officers wearing BWCs were less likely to use force unless they were physically threatened or assaulted, and they used less severe force (Farrar & Ariel, 2013). Lastly, citizens first initiated physical contact with the police officers wearing BWCs, while police officers without BWCs first initiated the physical contact (Farrar & Ariel, 2013).

### 2.7 Summary, Research Questions, and Hypotheses

Exhibit 2 illustrates the path model for the effects of BWCs on outcomes in the current study. It shows the relationships between BWCs and the outcomes, with all hypothesized direct and indirect pathways possessing positive coefficients. Taken altogether, BWCs are hypothesized to have both direct and indirect effects on the outcomes. Directly, BWCs may have an impact on procedural justice, cooperation, specific compliance, general compliance, satisfaction, police legitimacy, traffic police legitimacy, and perception of police. Indirectly, BWCs also affect satisfaction, cooperation, specific compliance, general compliance, police legitimacy, traffic police legitimacy, and perception of police through procedural justice. Finally, both traffic and police legitimacy mediates the effect of BWCs on cooperation, general compliance,

specific compliance, satisfaction, and perception of police.



Both drivers and traffic police officers exhibit socially desirable behavior when they are watched through a BWC. They are more likely to comply with rules while under observation. More specifically, traffic police officers are more likely to behave in a procedurally just way. Drivers are more likely to follow traffic police officers' directives,

comply with laws in general, and cooperate with police. BWCs have a deterrent effect; thus, police officers are more likely to behave in a procedurally just way because they think that their supervisors will watch the recordings, and if they violate the rules, they are more likely to be exposed to disciplinary procedures. In addition, BWCs provide video evidence if citizen complaints are filed against them. Drivers are also more likely to comply with police directives and to obey the rules because everything is recorded through a BWC, and video footage can be used as evidence against drivers. Furthermore, BWCs have an indirect positive impact on cooperation, satisfaction, and compliance (general and specific); perceptions of police; and legitimacy (traffic police and police) through procedural justice. Research suggests that procedural justice has an impact on legitimacy and satisfaction, and legitimacy has impact on cooperation and compliance. Thus, overall, BWCs alter behaviors of traffic police officers and drivers.

Based on the literature, this research study is guided by the following two research questions concerning the use of BWCs:

1. What is the impact of BWCs on police behavior toward drivers during traffic stops, as perceived by drivers?
2. What is the impact of BWCs on drivers' self-reported behavior toward traffic police officers during traffic stops?

The following nine specific hypotheses will be tested:

- H 1: BWCs will lead police officers to behave in a procedurally just way.
- H 2: BWCs will increase traffic police legitimacy.
- H 3: BWCs will increase police legitimacy.
- H 4: BWCs will increase cooperation between police and citizens.

H 5: BWCs will increase driver compliance with traffic laws in general.

H 6: BWCs will increase driver compliance with police commands.

H 7: BWCs will promote driver satisfaction with the police.

H 8: BWCs will have a positive impact on driver perceptions of police in general.

H 9: The effects of BWC on distal outcomes (satisfaction, perception of police, cooperation, and general and specific compliance) will be mediated by procedural justice and legitimacy.

## CHAPTER 3: METHOD

This chapter provides details about the method used to conduct the study. It begins by describing the research setting, apparatus, and research design. It continues by providing more information about how the experiment was conducted, including how study participants were assigned to the experimental group and the control group, procedures followed, and the sample. Finally, the chapter closes with a discussion of the sources of collected data used in the study and specific measures of the variables.

### 3.1 Research Setting

This study was conducted in 2014 in the province of Eskisehir in Turkey. The Eskisehir Police Department has 3,000 police officers and serves a population of almost 800,000, 86% of whom live in the city center of the province (TURKSAT, 2014). The study site was the area of responsibility of the Regional Traffic Enforcement Unit (RTEU), which is responsible for enforcing traffic law on the highways/motorways. The RTEU is responsible for about 139 miles (223 km) of highway patrolled by 16 vehicles (Eskisehir Emniyet Mudurlugu, 2014).

Traffic police officers work in shifts called 8/24 – that is, 8 hours on and 24 hours off. They work in one of three shifts: 7:00 a.m. to 3:00 p.m., 3:00 p.m. to 11:00 p.m., or 11:00 p.m. to 7:00 a.m. For each shift there are three teams responsible for carrying out traffic enforcement, with each team consisting of two traffic police officers. One officer pulls over and stops vehicle, asks for documents, and inspects the car while the other officer stays in the patrol car to record traffic stops in the system and issue a ticket, if necessary.

At the time of this study, there were eight traffic checkpoints where the traffic police officers stopped vehicles. Each team was responsible for different checkpoints. In terms of the selected checkpoints for the study, Team 4543 was responsible for the checkpoint called Bursa 3 km (B-3), and Team 4545 was responsible for the checkpoint called Ankara 8 km (A-8). The dispatch codes were fixed. However, the officers working on the teams changed depending on their shifts. That is, traffic police officers using the same dispatch code were changed according to the shift they worked.

In addition, there were another three teams responsible for identifying drivers who violated speed limits. These teams consisted of two or three traffic police officers. These teams detected the speed limit violators and informed the other traffic teams to stop the violators. Those police officers were not involved in making contact with drivers; thus, they were not included in the study.

### 3.2 Apparatus

BWCs were used in the study. BWCs are small audio/video cameras attached to an officer's clothing. From an officer's point of view, BWCs have the ability to capture police activities and record them audio-visually. The type of BWC used in the study is called "AEE" whose model is "PD77G HD DV." BWCs are designed to work in any weather conditions and to make a non-stop audio-video recording for eight hours, featuring a 12-mega-pixel camera (Adana Emniyet Mudurlugu, 2014). Four BWCs were used in the study. Two cameras were provided for each police officer in the experimental group. The second camera was made available as a backup to avoid and overcome a battery problem or any defect in the camera.

### 3.3. Research Design

In this study, a Randomized Controlled Trial (RCT) was conducted. An RCT is an experimental design, which is the most rigorous, strongest research design with respect to internal validity, and thus it is regarded as the gold standard compared to other research designs (Lanier & Briggs, 2014; Shadish et al., 2002; Trochim & Donnelly, 2006).

Drivers were randomly assigned to either encounter traffic police officers wearing a BWC (experimental condition) or traffic police officers not wearing a BWC (control condition). The intervention was the use of a BWC during traffic stops, which was briefly pointed out to the driver. BWCs were activated before the start of traffic stops and kept on until traffic stops ended. Police officers in the experimental group wore a BWC. The police officer who pulled over and stopped vehicles showed the BWC and notified drivers by saying “the encounter today will be recorded using a BWC by my colleague and me” once the interaction started. In addition, there was another BWC in the police vehicle that recorded the interaction between the driver(s) and police officer in the police car. By contrast, police officers in the control team did not wear any BWCs and carried out business-as-usual traffic stops. After the initial encounter, drivers were asked to participate in a survey, which involved the measures of procedural justice, legitimacy, compliance, cooperation, and satisfaction, as well as several socio-demographic variables.

### 3.4 Random Assignment

Exhibit 3 illustrates how drivers were assigned to the experimental group and the control group. Following the random start, assignment of drivers to the experimental group was carried out according to the day and time of traffic stops. More specifically,

drivers stopped on the morning of Day 1 were assigned to the experimental group and those stopped in the afternoon of Day 1 were assigned to the control group. This arrangement was then switched every day throughout the remainder of the study.

Exhibit 3. Sample of Random Assignment of Drivers and the Traffic Team

	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
Group	Study Hours	Location & Team	Study Hours	Location & Team	Study Hours	Location & Team	Study Hours	Location & Team	Study Hours	Location & Team	Study Hours	Location & Team	Study Hours	Location & Team
Experimental	9:00-11:30	A-8 & 4545	12:30-14:30	B-3 & 4543	9:00-11:30	B-3 & 4543	12:30-14:30	A-8 & 4545	9:00-11:30	B-3 & 4543	12:30-14:30	A-8 & 4545	9:00-11:30	A-8 & 4545
Control	12:30-14:30	B-3 & 4543	9:00-11:30	A-8 & 4545	12:30-14:30	A-8 & 4545	9:00-11:30	B-3 & 4543	12:30-14:30	A-8 & 4545	9:00-11:30	B-3 & 4543	12:30-14:30	B-3 & 4543

Note: A-8: Ankara 8 km; B-3: Bursa 3 km

Each traffic team has its own dispatch code and is responsible for different traffic checkpoints and a certain length of highway. For the study, two teams out of three were randomly selected. The dispatch codes of traffic teams were written on a piece of paper and put on a table. Afterwards, these papers were shuffled and two of them were picked randomly. The dispatch codes of the two selected teams were 4545 and 4543. These two selected teams worked the day shift (between 7:00 a.m. and 3:00 p.m.) and were randomly assigned by the toss of a coin to deliver either the experimental or control condition. The team that took the heads side of the coin was assigned to deliver the experimental condition, and the other team was assigned to deliver the control condition. More specifically, the team whose dispatch code was 4543 was randomly assigned for the



experimental condition and the team whose dispatch code was 4545 was assigned to the control condition. Following this random start, the two teams assigned to the experimental and control conditions were switched every other day based on working hours. That is, as already shown in Exhibit 3, a “random start” was employed to ascertain the assignment of the first traffic team and stop location, after which the teams and locations were systematically rotated in order to achieve balance of stop times, stop locations, and traffic police officer teams over the treatment conditions.

The advantage of randomization is that it ensures equivalence (in expectation) between the experimental group and the control group. In the study, shifts were assigned by rotation with a random start. All drivers encountered by the traffic police officers during a given shift received the same treatment. Randomization eliminates many threats to the internal validity of study estimates, including history, maturation, regression to the mean, and selection bias. With designs of this kind, even with randomization, internal validity may also be threatened when respondents in the two groups have an opportunity to interact with each other. However, this was controlled by assigning the experimental and control conditions at different times and at different checkpoints. Therefore, the drivers in the two groups were isolated from each other and unaware of each other. Furthermore, the time and location of traffic stops might affect the drivers, and in turn their responses to survey questions. For instance, drivers might be more stressed in the afternoon or in the morning and this might affect their behavior. Thus, time and location of traffic stops were switched between the experimental group and the control group.

The study design also built in a control for potential confounding influences of the traffic police officers themselves with the treatment. The officers who delivered the

experimental and control conditions did not have an opportunity to interact with each other because they delivered the treatment at different checkpoints and during different time periods. Also, the officers who delivered the experimental condition and the control condition were switched every other day, depending on their working hours. Therefore, they performed traffic stops under the same conditions, neutralizing potential differences such as personality, experience, and age, which might possibly confound the treatment conditions. Finally, the officers were not aware of the content of the driver survey.

### 3.5 Procedures

Accompanied by the deputy chief of the traffic unit, the researcher went to see the traffic checkpoints where the study could be conducted. In the beginning, out of eight traffic checkpoints, three of them were selected because they were convenient and appropriate for the study in terms of their length. More specifically, the selected checkpoints were called Inonu 8 km (I-8), Ankara Yolu 8 km (A-8), and Bursa 3 km (B-3). The checkpoint at Inonu 8 km (I-8) was later excluded because it was a bit far away from the residential area and there was a transportation problem. The two selected checkpoints were long enough to be able to conduct the study appropriately. The length between the location of traffic stops and possible location of the surveyors was about 200 feet.

At the researcher's request, the chief of the traffic unit and his deputy agreed to remind the traffic police officers in the experimental group that they should inform stopped drivers that the encounter would be recorded. The supervisors also agreed to watch the recordings of the encounters in front of the police officers in order to send a message to the officers that supervisors were prioritizing the recordings and following

what was going on during traffic stops. This increased the certainty of the traffic police officers in the study that they were being watched.

Four cameras were made available to the police officers in the experimental condition – two cameras for each police officer, with the second available as a backup in case of a battery problem or any defect. The researcher also asked the deputy chief of the traffic unit to record every kind of complaint, not just official records but a record of any other kind of complaint made, for example, in person or by phone.

Two surveyors were hired to assist the researcher in conducting the survey. The surveyors were two undergraduate students. They were contacted by a friend of the researcher and were asked whether they were interested in participating as a surveyor in the study. Both accepted the offer to participate in the study. They were paid for conducting the surveys. The researcher provided training for the surveyors. The training included the purpose of the study, time schedule, expected sample size, information about the questions in the survey, how to conduct the survey, how to approach the car, what to say, and possible problems that they might face during the study. The researcher provided the survey to the surveyors, and made sure that they understood the questions and answers correctly. They were warned about not arguing with the respondents. The surveyors/researcher wore picture IDs with a photo, displaying the name of the surveyors/researcher, and the title of “interviewer.” They wore the picture ID before the start of traffic stops and carried it with them until traffic stops ended. This allowed the drivers who were stopped to identify who they were.

A pilot study was conducted to troubleshoot potential implementation problems prior to carrying out the full study. This was very useful for quantifying response rates by

assigned group, timing the length of the interviews in the field, discussing operational challenges experienced by the surveyors and the researcher, and performing an initial comparison of key variables. During the pilot study, the researcher collected 86 completed surveys. The response rate for the experimental group and the control group in the pilot study was 60% and 65%, respectively. This sufficed to devise solutions to potential problems and modify the research plan accordingly.

The response time to the driver survey was between 7 and 10 minutes. The surveyors did not have any problem with the respondents concerning the length of the survey. The only complication was the weather. On some days, the weather was very cold or rainy, and the researcher was forced to cancel the study since traffic stops were not carried out under these conditions.

The researcher was always in the field to administer the survey along with the hired and trained surveyors, supervising the administration of the surveys and ensuring that the study was conducted as it was designed, and with as much fidelity as possible. If needed, the researcher intervened and addressed any challenges.

After the traffic police officers performed their duties during the traffic stops and drivers left the location of the traffic stop, drivers were approached by the surveyors/researcher to conduct the survey. The surveyors/researcher made sure that the survey was administered with drivers at least 50 feet away from the traffic checkpoint. This distance was sufficient to ensure that drivers could not be seen or heard by the traffic police officers. Drivers who volunteered to participate in the survey were not asked to answer questions in front of traffic police officers and the surveys were not conducted at the exact location of traffic checkpoint.

If the respondent asked how long the survey would take, the surveyors said, “It will take between 5 and 10 minutes depending on your responses.” Then, they administered the survey provided in Appendix A. There was nothing that would inhibit voluntary participation or force drivers to feel obliged to participate, and consent was obtained before conducting the survey. Since survey responses were anonymous, there was no way to detect the connection between the responses and the respondents. Each day after the study ended, the researcher collected the questionnaires and entered the data in a spreadsheet. Then, the researcher destroyed the questionnaires.

### 3.6 Sample

The unit of analysis was the interaction between the traffic police officers and drivers during a traffic stop. An interaction is defined as face-to-face communication between police officers and citizens rather than a just greeting (Paoline & Terrill, 2005). The study population was comprised of drivers using highways in the research site, the vicinity of Eskisehir. Convenience and purposive sampling methods were used. The drivers who were available or stopped for violating the speed limit were asked to participate in the survey after the initial encounter with the traffic police officers.

Table 1 shows the sample size, the response rate, and the reason for refusing to participate in the survey. The number of drivers who were asked to participate in the survey was 437 for the control group, 423 for the experimental group, with 860 in total. Of the 860 drivers, 27% did not want to respond to the survey. Thus, the analytical sample size was 299 for the experimental group, 325 for the control group, with 624 in total. These represented response rates of about 74% and 71% for the control and experimental groups, respectively, or an overall response rate of 73%. Generally, the

most common reasons for unwillingness to participate in the survey included having an appointment (25.0%), being late for work (19.9%), or not having time (18.2%).

< Insert Table 1 >

Out of 84 traffic police officers, 58 of them were working on patrols. Thirty-one of 58 traffic police officers participated in the delivery of either the experimental condition or control condition.

### 3.7 Data

There were four different sources of data used in this study. The first source provided information about the traffic police officers working in the Regional Traffic Enforcement Unit, obtained from the Regional Traffic Police Unit. This involved gender, marital status, years of service in the Turkish National Police, years of service in Eskisehir Police Department, years of service in Traffic Enforcement Unit, rank, highest level of education, place of birth, and age. These data were used to provide a comparison of traffic police officers who took part in the study with those who did not take part in the study. The second source of data was from the survey questionnaire (see Appendix A) administered to a total of 624 drivers. These data were the primary source of information used to test the hypotheses outlined in the previous chapter concerning the impact of BWCs on the behavior of police and citizens. Third, data concerning the frequency and nature of complaints about traffic tickets were obtained from the Regional Traffic Police Unit. Because the traffic surveys were subjective (and from the perspective of drivers), complaint data were included to supplement the study with “objective” information about dissatisfaction in encounters with traffic police officers. The fourth and final source of data was from the open-ended question in the survey. The responses to the open-ended

question were coded by identifying themes and classified accordingly. Quotes were selected based on the themes. Five hundred responses out of 624 were analyzed since they included sufficient responses. The rest of them did not involve sufficient information for the analyses.

### 3.8 Measures

The key independent variable for the study was the group assignment, which is a dummy variable for assignment to the experimental condition versus the control condition. There were also eight different dependent variables: procedural justice, police legitimacy, traffic police legitimacy, specific compliance, general compliance, cooperation, perception of police, and satisfaction. There were thirteen control variables. Each will be described in more detail below.

Procedural justice involves four key elements: respect, neutrality/fairness, voice, and trustworthiness (Tyler, 2006, 2007). Accordingly, driver perceptions of procedural justice was measured using seven items. Namely, respondents were asked how much they agree or disagree with the following statements:

1. "Overall, the police officer was polite and treated me with respect during the interaction" (Sahin, 2014).
2. "The police officer was fair when making the decision to stop me" (Mazerolle et al., 2013).
3. "Overall, what police did was based on the rules" (Tyler, 2004; Reisig Tankebe, & Meško, 2012).
4. "I felt the police officer would do the same to anyone in my situation irrespective of his/her status" (Sahin, 2014).

5. “The police officer gave me opportunity to express my views during the interaction” (Mazerolle et al., 2013).
6. “The police officer listened to me during interaction” (Mazerolle et al., 2013).
7. “I believe that what the police did is for my own safety” (see Tyler, 2007).

Perceptions of police were measured as the level of agreement with the following statement: “The specific encounter with police today does have positive impact on my perception of police in general.”

Satisfaction was measured as the level of agreement with the following statement: “Overall, I was satisfied with police behavior and how I was treated during this encounter” (Sahin, 2014).

Police legitimacy and traffic police legitimacy were both measured as the level of agreement with the following three statements, modified as shown parenthetically to also refer to traffic police:

1. “I have respect for (traffic) police officers” (Tyler, 2006).
2. “I have confidence in (traffic) police officers” (Tyler, 2006; Mazerolle et al., 2013).
3. “I trust (traffic) police officers” (Mazerolle et al., 2013; Sahin, 2014).

Specific compliance was measured as the level of agreement with the following statement: “I did as I was told by the police officer” (Mazerolle et al., 2013). General compliance was measured by modifying a measure of compliance identified by Tyler (2006). General compliance was operationalized as the level of agreement with the following two statements:

1. “I would obey the traffic rules.”



2. “This interaction would have positive impact on my future compliance with the traffic rules.”

Finally, cooperation was measured as the level of agreement with the following two statements:

1. “I am willing to assist police if asked” (Tyler, 2006).
2. “I am willing to work with police to try to solve problems in my community” (Paoline & Terrill, 2005).

Note that all responses to the above-mentioned statements were measured by using a 5-point Likert scale with responses ranging from “strongly agree” to “strongly disagree.” For purposes of analysis, these response categories were reverse coded, so that a higher value indicates stronger agreement with each of the statements. The five dependent variables composed of multiple items (procedural justice, police legitimacy, traffic police legitimacy, general compliance, and cooperation) were also factor analyzed to obtain single measures, the results of which are described in the next chapter.

The control variables included the following items:

- Gender (1=male; 0=female).
- Marital status (1=never married; 2=married; 3=separated; 4=divorced; 5=widowed).
- Employment status (1=employed; 2=unemployed; 3=other).
- Income (actual amount).
- Education level (1=literate; 2=elementary school [grades 1-5]; 3=middle school [grades 6-8]; 4=primary school [grades 1-8]; 5=high school [grades 9-12]; 6=higher school [2 years after high school]; 7=college degree [BA, BS];

8=graduate degree [MA, MS]; 9=professional degree [PhD., J.D., M.D.];  
10=other).

- Age (date of birth).
- Place of birth (actual province).
- Place of residence (1=city center of province; 2= district; 3=town; 4=village).
- Relational ties with police (0=none; 1=spouse, son, daughter, father, mother; 2=close relative [uncle, aunt, their children]; 3=close friend).
- Prior contact with police (1=yes; 0=no).
- Years of driving (actual number).
- Stopped by traffic police (1=yes; 0=no).
- Ticketed during the encounter (1=yes; 0=no).

With the exception of income, age, and years of driving, all other control variables were multinomial and were therefore dummy coded for the analysis. For ease of analysis and interpretation, the response categories of many of them were collapsed (e.g., marital status, employment status, place of birth, place of residence, and relational ties with police).

## CHAPTER 4: ANALYSIS AND RESULTS

This chapter is focused on data analysis. It first presents the strategy used to analyze the collected data. It is then followed by a discussion of the results of data analysis.

### 4.1 Analytical Strategy

The strategy employed for data analysis proceeding according to the following series of steps:

1. Analysis was conducted to make sure the experimental condition was delivered with fidelity.
2. The demographic characteristics of the traffic police officers who participated in the study and the traffic police officers who did not participate in the study were compared.
3. Analysis was carried out to assess whether the experimental group and the control group were balanced.
4. Principal components analysis was used to obtain composite measures from multiple items. Procedural justice, traffic police legitimacy, police legitimacy, cooperation, and general compliance were conceptualized as latent variables underlying more than one survey item. Each item was an ordinal variable measured by a 5-point Likert scale. The factor scores resulting from this analysis were measured in equal-interval metric and could therefore be treated as continuous dependent variables suitable for least squares regression (Remler & Van Ryzin, 2014; Scott Long, 1997).
5. Descriptive statistics was performed.

6. Independent-samples t-test was performed for bivariate analysis. The t-test was appropriate for bivariate analysis since the key independent variable was binary (experimental versus control group) and the dependent variables were continuous.
7. The OLS regression model was used for multivariate analysis, which allowed for the inclusion of the control variables. Numerical and graphical methods were performed to detect potential violations of the standard regression assumptions, which involve linearity, normality, homoscedasticity, collinearity, outlier and influential data (Fox, 1991; Tabachnick & Fidell, 2013), as well as independence, measurement error, and model specification (Tabachnick & Fidell, 2013; IDRE, 2015). Then, a number of sensitivity analyses were performed to ensure that the key results were robust to deviations from the standard regression assumptions. For example, robust standard errors are used to address non-normality, heteroscedasticity, or some observations with large residuals, leverage or influence (IDRE, 2015). Robust regression, which is an iterative procedure that reweights downward potentially influential observations (IDRE, 2015), was employed. Quantile regression, which is a model of the conditional median as opposed to the conditional mean (IDRE, 2015), was also estimated. Regression with measurement error was performed to take into account the measurement errors in the regressors when estimating the coefficients for the model (IDRE, 2015). With respect to the key regressor (BWC treatment assignment), the findings from these sensitivity analyses confirmed the conclusions from standard OLS regression, and in fact, the coefficients are always larger than OLS. Consequently, the sensitivity analysis results will be tabulated without further comment.

8. Mediation analysis was conducted as a supplementary analysis.
9. Data on complaints about traffic tickets were compared between the experimental group and the control group.

#### 4.2 Analysis of Delivering the Experimental Condition with Fidelity

In a randomized controlled trial, it is also important to control the experimental condition. In other words, whether the experimental condition was delivered with fidelity should be tested empirically. Two questions on the survey checked whether the police officers in the experimental group stated that the encounter between them and citizens would be recorded and whether the drivers were aware that the encounter was recorded through BWC: The first question was, “Were you notified that the encounter would be recorded through BWC?” and the second question was, “Were you aware that the encounter was recorded through BWC?”.

The results indicated that only 3 out of 299 participants in the experimental group reported that they were not notified that the encounter would be recorded through BWC. Those three participants also reported that they were not aware that the encounter was recorded through BWC. In addition, the participants in the control group were asked the same questions. The results indicated that the participants in the control group reported that they were not notified that the encounter would be recorded through BWC and were not aware that the encounter was recorded through BWC. The results showed that the treatment condition was delivered with high fidelity. This allowed the researcher to make sure that BWCs were activated during the study and police officers delivered both condition as intended.

### 4.3 Comparison of Demographic Characteristics Between Traffic Police Officers in the Study and Traffic Police Officers Not in the Study

There were 84 traffic police officers working in the Regional Traffic Enforcement Unit, of whom 58 were working on patrols and the rest either working in the administrative offices or on the speed radar team. Out of these 58 traffic police officers, just 31 officers were involved in the study. Independent samples t-test and chi-square tests were computed to test whether there were any significant differences between the 31 traffic police officers in the study and the 27 traffic police officers not in the study. Table 2 shows a comparison of demographic characteristics between traffic police officers who participated in the study and traffic police officers who did not participate in the study. The results showed that there was no statistically significant difference between them. All of the police officers were male and married, with the vast majority having more than a high school degree (92.6% vs. 87.1%), born in provinces other than Eskisehir (85.2% vs. 93.6%), and had the rank of police officer (88.9% vs. 83.9%). On average, the police officers were older than 40 years (42.3 vs. 44.1), had more than 18 years of service (18.3 vs. 20.7), had been working in Eskisehir for more than 5 years (4.9 vs. 6.0), and had more than 14 years of experience in the traffic unit (14.3 vs. 14.3).

< Insert Table 2 >

The results suggest that the differences between the experimental group and the control group can be attributed to the intervention with confidence because the demographic characteristics between the traffic police officers in the study and traffic police officers not in the study are very similar. That is, the differences in the results are not due to the differences between the officers in the study and the officers not in the study.

#### 4.4 Equivalence between the Experimental Group and the Control Group

In theory, randomization makes the experimental group and the control group equivalent or similar. Randomization rules out or eliminates known differences and unknown differences between the two groups. With regard to this study, the only difference between the experimental and the control group should be the experience of an encounter with a BWC. In order to ensure that drivers in the experimental and control groups were successfully “balanced,” a number of comparisons between the two groups were carried out.

First, a chi-square test was performed to test whether there was a statistically significant difference between the two groups in terms of response rate. The results shown in Table 1 indicated that the difference between the groups was not statistically significant ( $X^2(6) = 1.47$ ;  $p = 0.226$ ).

< Insert Table 1 >

Second, a chi-square test was carried out to test whether there was a statistically significant difference between the two groups in terms of the reasons for rejection to participate in the survey provided by drivers. As shown in Table 1, importantly, the experimental group did not statistically differ from the control group in the reasons for rejection to participate in the survey ( $X^2(6) = 0.83$ ;  $p = 0.991$ ).

< Insert Table 1 >

Third, a number of sample characteristics measured from the driver survey were statistically compared using t-tests and chi-square tests. These comparisons are shown in Table 3.

< Insert Table 3 >

The comparisons indicated that there was no statistically significant difference between the experimental and control groups. More specifically, the vast majority of the participants in both groups were male (95.7% control [C] vs. 96.7% experimental [E]), married (78.2% C vs. 78.9% E), employed (83.1% C vs. 83.3% E), not born in Eskisehir (69.5% C vs. 74.9% E), living in the city center (64.9% C vs. 68.9% E), were stopped by traffic police (82.8% C vs. 77.3% E), were not ticketed during the encounter (92.9% C vs. 91.6% E), had less than high school degree or equivalent (65.8% C vs. 62.5% E), relational ties with police (58.2% C vs. 59.9% E), and prior contact with police (66.5% C vs. 61.2% E). In addition, the participants in both groups were older than 40 years of age (40.3 C vs. 41.3 E), had more than 17 years driving experience (17.2 C vs. 17.7 E), and earned more than 2,000 TL income (2,478 C vs. 2,619 E). Across the 13 variables shown in Table 3, then, any differences were trivial and attributable to chance.

Finally, a chi-square test was performed to test whether there was a statistically significant difference between the two groups in terms of time of traffic stops and location of traffic stops. The results shown in Table 3 indicated that there was no statistically significant difference between the experimental and control groups. More specifically, the participants in the control group and in the experimental group were stopped mostly in the morning (56.9% C vs. 56.5% E) and at the checkpoint called Bursa 3 km (52.0% C vs. 51.2% E).

< Insert Table 3 >

Overall, the results of the comparison analyses between the two groups showed that any differences between the two groups were trivial and attributable to chance. Therefore, the two groups can be considered statistically equivalent.



#### 4.5 Principal Components Analysis and Scale Reliability

Variables, including procedural justice, traffic police legitimacy, police legitimacy, general compliance, and cooperation with police, are latent variables composed of multiple measured items. Principal Components Analysis (hereafter PCA) was performed for data reduction and to confirm that the items reliably measure the hypothesized latent variables. PCA produces components (also called factors), which are simply aggregates of highly correlated variables (Tabachnick & Fidell, 2013). The principal components are ordered, in such a way that “the first component extracts the most variance whereas the last component extracts the least variance” (Tabachnick & Fidell, 2013, p. 640). The analysis is performed from polychoric correlation matrices rather than Pearson correlation matrices because polychoric correlations better accommodate ordinal response coding like that used here (Holgado-Tello, Chacon-Moscoso, Barbero-Garcia, & Vila-Abad, 2010; Maguire & Mastrofski, 2000).

The results from the PCA are shown in Tables 4 and 5. The correlations among variables grouped together were all greater than .50 (except for the two general compliance items) and most of them were at least 0.60, which suggests that there was good factor structure to the items. Each PCA yielded just one factor with an eigenvalue greater than 1.0, which exceeds the Kaiser criterion, and all factor loadings were well in excess of 0.70. Moreover, the Cronbach’s alpha for each grouping was large (except for the two general compliance items), indicating that the scales are highly reliable. The Cronbach’s alpha level for general compliance (.64) indicated that the scale reliability was acceptable. The use of PCA for data reduction thus yielded five dependent variables,

each having very desirable statistical properties, namely, large factor loadings and high internal consistency.

< Insert Tables 4 and 5 >

#### 4.6 Univariate Analysis

The results of the sample descriptive statistics are shown in Table 6. Roughly, half of the participants were in the control group (52.1%), while around 48% of the participants were in the experimental group. The majority of the participants in the study were male (96.2%), married (78.5%), employed (83.2), born in provinces (72.1%) other than Eskisehir, living in the city center (66.8%), had less than high school degree or equivalent (64.3%), and had relational ties with police (59.0%). In addition, on average, the participants were about 41 years old ( $SD=11.73$ ), spanning from 19 to 75 years old, and had 17 years ( $SD=10.81$ ) driving experience, ranging from 1 to 51 years. The average individual monthly income of the participants was 2,545 Turkish Lira (\$1,130) ( $SD=2248.54$ ).<sup>2</sup> In addition, the vast majority of the participants were stopped by traffic police in the past 12 months (80.1%); one-third of the participants had prior contact with police (36.1%); and just about 8% of the participants were ticketed during the encounter.

< Insert Table 6 >

The table also provides descriptive statistics about the dependent variables. The means were 5.27 for procedural justice ( $SD= .78$ ), 4.46 for traffic police legitimacy ( $SD= 1.00$ ), 4.31 for police legitimacy ( $SD= 1.05$ ), 4.80 for general compliance ( $SD= .84$ ), and 4.74 for cooperation with police ( $SD= .81$ ). Three additional dependent variables were

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<sup>2</sup> Note that US\$1 was worth 2.25 Turkish Lira at the time of the study.

measured with single items, with means of 4.54 for specific compliance ( $SD = .64$ ), 4.38 for satisfaction ( $SD = .72$ ), and 4.21 for perception of police ( $SD = .87$ ).

#### 4.7 Bivariate Analysis

For the bivariate analyses, independent samples t-test were performed to investigate whether there was a statistically significant difference between the means of the experimental group and control group. These were supplemented with estimates of the effect size, which provided a diagnostic for the substantive significance of the mean difference, rather than its statistical significance. The effect size shown is Cohen's  $d$ , for which 0.19 or smaller is generally regarded as not worth mentioning (even if the difference is statistically significant), 0.20-0.49 is "small," 0.50-0.79 is medium," and 0.80 or higher is "large" (Cohen, 1988). The t-tests and effect sizes are provided in Table 7.

< Insert Table 7 >

The results indicate that the means of all of the dependent variables differ significantly between the experimental group and the control group. Close inspection shows that the experimental group mean was always higher than the control group mean, indicating that the mean level of agreement concerning opinions about the police was higher when the traffic officer was wearing a BWC than when s/he was not. The effect size coefficients indicate that, of the eight dependent variables, three differences were "small," one difference was "medium," and three differences were "large." Only one effect size was not large enough to be considered noteworthy (police legitimacy), despite the fact it was statistically significant.

The three effect sizes within the “small” range include traffic police legitimacy ( $d = 0.26$ ), general compliance ( $d = 0.35$ ), and cooperation ( $d = 0.33$ ). In other words, the participants in the experimental group reported that they perceived the traffic police as more legitimate, would comply more with traffic rules in the future, and that they would be more willing to cooperate with police. The single effect size within the “medium” range concerns perceptions of police ( $d = 0.56$ ), suggesting that the participants in the experimental group reported more positive perceptions of the police in general.

The three effect sizes within the “large” range include procedural justice ( $d = 1.03$ ), specific compliance ( $d = 0.94$ ), and satisfaction ( $d = 1.12$ ). In other words, the participants in the experimental group reported that the traffic police officers treated them in a more procedurally just way, that they would comply more with traffic police officers’ commands, and that they were more satisfied with the encounter.

In sum, the bivariate results indicate that the experimental intervention was highly effective in improving driver perceptions of the behavior of the traffic police during the encounter and their perceptions of the legitimacy of the traffic police (although not necessarily the police generally, at least as judged by the effect size), as well as their willingness to comply with police directives and with traffic laws.

#### 4.8 Multivariate Analysis

To ensure that the bivariate results reported in the previous section were not artifacts of excluded variables, multiple regression models were estimated to control for a number of other driver characteristics. These include sociodemographic variables (gender, age, and marital status), socioeconomic variables (employment status, education level, and income), residential variables (province of birth and place of residence), past

interactions with police (relational ties, prior contact, and prior traffic stops), the number of years driving, and the outcome of the traffic encounter (ticketed). Note that because of a large skew in the distribution of income, which is characteristic of this kind of variable, the natural logarithm of income is included in place of the measure in its original metric. For the multivariate analysis, eight different OLS regression models were estimated – one for each dependent variable. The regressors were the same in all models.

#### 4.8.1 Assumption Tests for OLS Regression

Before running the OLS regression, numerical and/or graphical methods were employed for each model to test whether the data met the assumptions of OLS regression. The results showed that all models failed to meet the OLS assumptions, including normality, non-collinearity, and homoscedasticity (except for perception of police), whereas the assumptions, including linearity and model specification, were met.

< Insert Figures 1-5 and Table 8-10 >

A correlation matrix including the regressors is provided in Table 8. Note that, because of a high correlation between age and the number of years driving ( $r = 0.82$ ), and variance inflation factors in excess of 3.0, age was excluded from the regression models (see Table 8).

The leverage versus squared residuals are shown in Figure 1. As illustrated in this figure, there might be potential unusual and influential observations in all models. Robust regression is designed to adjust for these types of influential cases and does so by systematically down-weighting those potentially problematic observations. It is noteworthy that the robust regression models shown for all of the dependent variables

yielded results that were virtually identical. This increases confidence that the influential observations flagged in Figure 1 do not distort the findings.

The distributions of the eight dependent variables are shown in Figure 2. No distribution resembled a perfectly symmetrical or even roughly normal distribution. Indeed, Shapiro-Wilk tests for the normality of each distribution were easily rejected (see Table 9), indicating that the distributions departed significantly and substantially from normality. That being said, non-normality does not introduce bias in OLS regression coefficients and will only distort standard errors and p-values.

The errors around the regression lines are shown in Figure 3. Plotting the residuals against the fitted values illustrated that the error variances were not constant around the regression line (except for Model 8: Perception of Police). In addition, Breusch-Pagan tests for heteroskedasticity were easily rejected (see Table 9), indicating that the error variances were heteroskedastic (except for Model 8: Perception of Police). Note that the use of robust standard errors was a convenient solution for heteroskedasticity.

Linearity between income and outcome variables and years of driving and outcome variables are provided in Figure 4 and Figure 5, respectively. The scatter plots illustrate that the relationship between log income and the outcome variables and the relationship between years of driving and the outcome variables are sufficiently linear. Note that linearity was just examined between continuous regressors (income and years of driving) and the outcome variables because “the dichotomous dummy variables can only have a linear relationship with other variables” (Tabachnick & Fidell, 2013, p. 83).

Finally, the results of regression specification error tests (RESET) indicated that all models were specified correctly (see Table 9). Sensitivity analyses will consider the robustness of the empirical results to violations of the regression assumptions. However, it should be mentioned that such violations will only bias the standard errors and p-values of the usual statistical tests. The coefficients themselves are unbiased. The results of OLS regression, robust standard error, robust regression, quantile regression, and regression with measurement error are shown in the tables. However, just the results of robust standard errors will be reported in the text.

#### 4.8.2 Model 1: Procedural Justice

Table 11 displays the regression results for Model 1, which explains 23.1% of the variation in procedural justice perceptions. The coefficient for the experimental group indicates that the BWC intervention significantly improved procedural justice perceptions ( $b=0.69$ ;  $t=12.72$ ;  $p < .001$ ). None of the other regressors was statistically significant.

< Insert Table 11 >

#### 4.8.3 Model 2: Traffic Police Legitimacy

Table 12 displays the regression results for Model 2, which explains about 5.5% of the variation in traffic police legitimacy perceptions. The coefficient for the experimental group indicates that the BWC intervention significantly improved police legitimacy perceptions ( $b=0.24$ ;  $t=3.06$ ;  $p < .001$ ). The results also indicate that drivers who have been stopped before reported significantly lower traffic police legitimacy ( $b=-.021$ ;  $t=-2.29$ ;  $p < .05$ ).

< Insert Table 12 >

#### 4.8.4 Model 3: Police Legitimacy

Table 13 displays the regression results for Model 3, which explains 6% of the variation in police legitimacy perceptions. The coefficient for the experimental group indicates that the BWC intervention significantly improved police legitimacy perceptions ( $b=0.21$ ;  $t=2.49$ ;  $p<.01$ ). The results also indicate that married drivers reported significantly more police legitimacy ( $b=0.29$ ;  $t=2.31$ ;  $p<.05$ ), whereas drivers who have had prior contact with the police reported significantly lower traffic police legitimacy ( $b=-.026$ ;  $t=-2.81$ ;  $p<.01$ ).

< Insert Table 13 >

#### 4.8.5 Model 4: Cooperation

Table 14 displays the regression results for Model 4, which explains 5.1% of the variation in cooperation perceptions. The coefficient for the experimental group indicates that the BWC intervention significantly improved cooperation perceptions ( $b=0.24$ ;  $t=3.73$ ;  $p<.001$ ). The results also indicate that married drivers reported significantly higher cooperation perceptions ( $b=0.25$ ;  $t=2.54$ ;  $p<.01$ ).

< Insert Table 14 >

#### 4.8.6 Model 5: General Compliance

Table 15 displays the regression results for Model 5, which explains 8% of the variation in general compliance perceptions. The coefficient for the experimental group indicates that the BWC intervention significantly improved general compliance perceptions ( $b=0.28$ ;  $t=4.37$ ;  $p<.001$ ). The results also indicate that married drivers reported significantly higher compliance perceptions ( $b=0.23$ ;  $t=2.35$ ;  $p<.05$ ), whereas drivers who have been stopped before ( $b=-0.18$ ;  $t=-2.38$ ;  $p<.05$ ) and employed drivers



( $b=-0.19$ ;  $t=-2.31$ ;  $p<.05$ ) reported significantly lower compliance perceptions.

< Insert Table 15 >

#### 4.8.7 Model 6: Specific Compliance

Table 16 displays the regression results for Model 6, which explains 20% of the variation in specific compliance perceptions. The coefficient for the experimental group indicates that the BWC intervention significantly improved specific compliance perceptions ( $b=0.51$ ;  $t=11.20$ ;  $p<.001$ ). The results also indicate that drivers who are better educated reported significantly higher compliance perceptions ( $b=0.12$ ;  $t= 2.45$ ;  $p<.01$ ).

< Insert Table 16 >

#### 4.8.8 Model 7: Satisfaction

Table 17 displays the regression results for Model 7, which explains 26% of the variation in satisfaction perceptions. The coefficient for the experimental group indicates that the BWC intervention significantly improved satisfaction perceptions ( $b=0.68$ ;  $t=14.05$ ;  $p<.001$ ). None of other repressors was statistically significant.

< Insert Table 17 >

#### 4.8.9 Model 8: Perception of Police

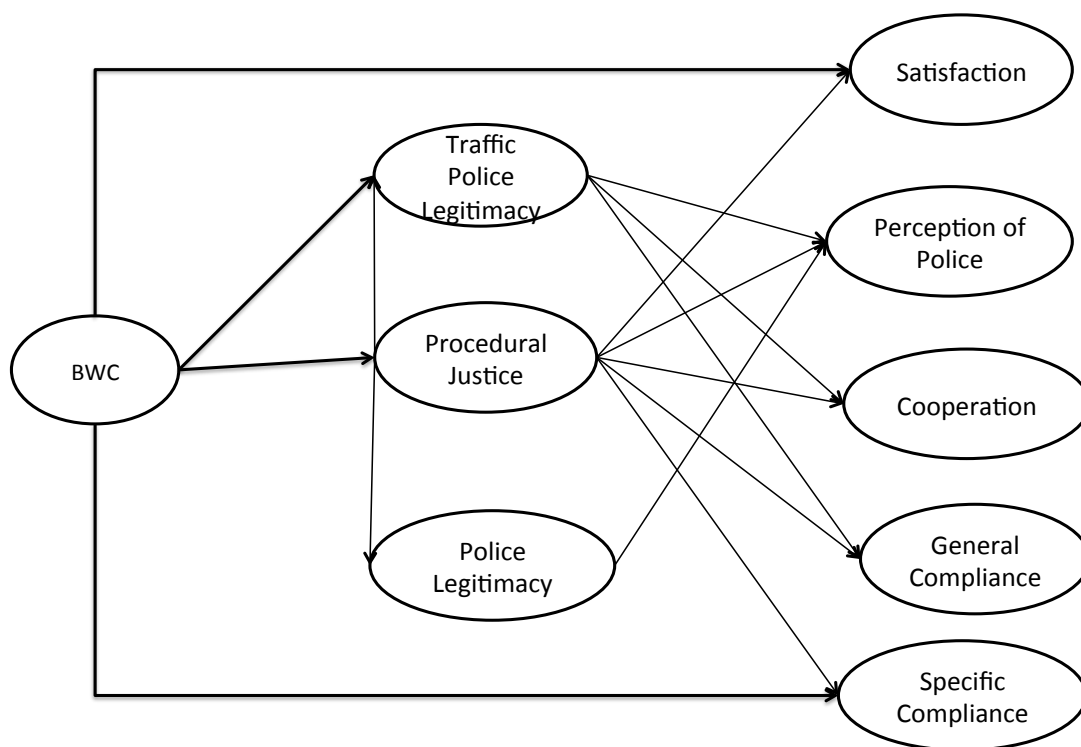
Table 18 displays the regression results for Model 8, which explains 9% of the variation in perceptions about the police. The coefficient for the experimental group indicates that the BWC intervention significantly improved police perceptions ( $b=0.47$ ;  $t=6.99$ ;  $p<.001$ ). None of the other regressors was statistically significant.

< Insert Table 18>

#### 4.9 Mediation Analysis

Mediation analysis was conducted as a supplementary analysis. Recall that a path model was hypothesized and shown in Exhibit 2 above. Three of the dependent variables examined in the previous section, procedural justice, traffic police legitimacy, and police legitimacy, are actually intervening variables. Therefore, the direct effect of BWCs on the remaining five distal outcome variables, including satisfaction, perception of police, cooperation, general compliance, and specific compliance, was examined in separate regression models supplemented with the control variables, net of the intervening variables. The results of mediation analysis are shown in Exhibit 4.

Exhibit 4. Results of Mediation Analyses



Notes:

- 1- Thick solid line shows that BWC has direct effect on the outcome variables.
- 2- Thin solid lines shows that BWC has NO direct effect on the outcome variables.
- 3- All pathes are hypothesized to be positive.
- 4- The intervening variables are procedural justice, traffic police legitimacy, and police legitimacy.

The results of the effects of BWCs on the intervening variables are provided in Table 19. The results show that using BWCs has a statistically significant positive effect on the intervening variables, including procedural justice ( $b=0.69$ ;  $t=12.72$ ;  $p<.001$ ), traffic police legitimacy ( $b=0.24$ ;  $t=3.06$ ;  $p<.001$ ), and police legitimacy ( $b=0.21$ ;  $t=2.49$ ;  $p<.01$ ).

< Insert Table 19>

The VIF values are provided in Table 20. Table 21 shows the results of the direct effect of BWC on the distal outcomes controlling for the control variables including the intervening variables. Note that all pathways are hypothesized to be positive. Table 22 displays the results of the direct effect of BWC on legitimacy when controlling for procedurally just policing.

< Insert Table 20-21-22>

Table 20 for VIF values indicates that there is no collinearity problem. Then OLS regression was performed to investigate whether BWC has direct effect on the distal outcomes net of the intervening variables and the other control variables.

The results shown in Table 21 indicate that procedural justice and traffic police legitimacy fully mediate the effect of BWCs on general compliance and cooperation, whereas the effect of BWCs on perceptions of police is fully mediated by procedural justice, traffic police legitimacy, and police legitimacy. However, procedural justice partially mediated the effect of BWCs on specific compliance and satisfaction. In other words, BWCs have a direct and statistically significant positive impact on specific compliance and satisfaction.

Furthermore, the results shown in Table 22 indicate that BWCs have a direct, statistically significant negative impact on traffic police legitimacy when controlling for procedural justice. Note that the indirect effect of BWCs on traffic police legitimacy was found to be about twice that of its direct effect and positive. However, the effect of BWCs on police legitimacy was fully mediated by procedural justice.

#### 4.10 Citizen Complaints about Traffic Tickets

Police agency data on the number of complaints filed about traffic tickets were collected. These were the only complaints received from the citizens in the control group and the experimental group during the course of the study. The data about the complaints were gathered from two different sources. One source was complaints made in person to the Regional Traffic Police Unit. In Turkey, if a person has complaint about traffic ticket, s/he can directly apply in person to the relevant traffic unit. Such requests/complaints are recorded. A second source was complaints about traffic tickets received from the court. The court sends complaints made by citizens about traffic tickets to the Regional Traffic Police Unit if traffic tickets were issued in its area of responsibility. These complaints are also recorded by the unit.

After the complaints were obtained, the data were linked to the time, date, and location in which the study was being conducted. In that way, the complaints could be linked to the experimental group and the control group. Then, the data were used to compare the number of citizen complaints between the control group and experimental group based on the date, location of traffic tickets, and approximate time specified in the complaint. This provided an objective basis for comparison between the experimental and the control group.

The results indicated that during the course of the study, only six complaints about traffic tickets were received from the control group, whereas no complaints were received from the experimental group. That is, there was a 100% reduction in complaints about traffic tickets in the experimental group compared to the control group. These external data confirm the effectiveness of BWCs on complaints about traffic tickets, since the only complaints received were from the control group. It is noteworthy that seven complaints were received from drivers who interacted with police officers at the other two checkpoints where the study was not conducted during the study hours throughout the course of the study. This shows the normal number of complaints received during the course of the study.

## CHAPTER 5: DISCUSSION AND CONCLUSION

This final chapter first reiterates the key findings of this study and incorporates the responses to open-ended questions obtained from the surveys completed by study participants to provide additional support for the results. The discussion then turns to the implications of this study for policy on BWCs. The chapter closes with a discussion of the limitations of the study and suggestions for future research.

### 5.1 Summary of Findings

This study investigated the effect of BWCs on the self-reported behavior of citizens toward traffic police officers and police behavior toward drivers during traffic stops. More specifically, the research focused on whether the use of BWCs had a measurable impact on driver perceptions of police legitimacy and traffic police legitimacy, perceptions of procedurally just policing, and satisfaction with police. The research also investigated whether BWCs altered driver behavior toward police officers. More specifically, the research tested whether BWCs increase driver compliance with police commands during traffic stops as well as cooperation with police and compliance with traffic laws in the long run.

The findings from independent sample t tests indicated that BWCs elicited significantly improved perceptions concerning all eight dependent variables. With respect to substantive significance, BWCs had a large-sized effect on procedural justice, satisfaction, and specific compliance; a medium-sized effect on perception of police; and a small-sized effect on traffic police legitimacy, general compliance, and cooperation. By comparison, while it was statistically significant, the impact of BWCs on police legitimacy was too substantively small to be noteworthy.

The findings from all of the multivariate analysis, including OLS regression, regression with robust standard errors, robust regression for unusually influential observations, quantile regression, and regression with measurement error also indicated that BWCs had a positive and significant effect on all dependent variables. Table 23 displays a summary of the results of regression with robust standard error test for all models. More specifically, controlling for other variables, BWCs had the largest standardized effect on satisfaction ( $B = .49$ ), followed by procedural justice ( $B = .46$ ), specific compliance ( $B = .41$ ), perception of police ( $B = .27$ ), general compliance ( $B = .17$ ), cooperation ( $B = .15$ ), and traffic police legitimacy ( $B = .12$ ), with the smallest standardized effect on police legitimacy ( $B = .10$ ).

<Insert table 23>

The findings confirmed all of the hypotheses tested. The first hypothesis was that BWCs would compel traffic police officers to behave in a procedurally just way. This finding is consistent with the literature. The literature contends that BWCs increase procedurally just policing (Farrar & Ariel, 2013; Harris, 2010; Rieken, 2013; White, 2014). In addition, the descriptive studies about the effect of in-car cameras found that they also improve police behavior by encouraging compliance with departmental guidelines and more polite and professional treatment of people (IACP, 2004). Furthermore, the study of the Mesa Police Department suggested that the majority of police officers that participated in the study believed that BWCs would lead officers to behave more professionally (MPD, 2013).

In the present study, the participants' responses to open-ended questions also support the hypothesis about procedural justice. The participants reported that BWCs

increase quality of treatment (32%), prevent corruption (14%), and increase compliance (8.5%). In other words, more than 50% of the participants overall reported that BWCs lead police officers to behave in a procedurally just way. One of the participants stated, “Police behave well when they use BWCs because everything is recorded.” Another respondent reported, “BWCs make police obey the rules, be polite, and treat people fairly, politely, neutrally, and objectively.”

The second hypothesis was that BWCs would increase traffic police legitimacy, and the third was that BWCs would increase police legitimacy. The findings are consistent with the literature. BWCs promote police legitimacy among citizens (Howland, 2010; Koper et al., 2014; Mazerolle et al., 2013; Miller et al., 2014; Ramirez, 2014; Roy, 2014; White, 2014). Prior research also suggests that BWCs increase the public’s trust in police (Clark, 2013; Miller et al., 2014) as well as accountability (Koper et al., 2014; Miller et al., 2014; Ramirez, 2014; Roy, 2014; Wain & Ariel, 2014). This is attributable, in part, to the enhancement of police legitimacy and the sense of procedural justice policing among citizens (Howland, 2010; Koper et al., 2014; Mazerolle et al., 2013; Miller et al., 2014; Ramirez, 2014; Roy, 2014; White, 2014). Because of BWCs, police officers should be more likely to comply with proper legal and constitutional standards as well as internal departmental regulations (Harris, 2010; Rieken, 2013), as well as act more professionally (White, 2014), for example, by treating people fairly, respectfully, and politely (Harris, 2010; Koper et al., 2014; Rieken, 2013).

Examination of open-ended responses from this study also indicates that respondents think BWCs increase legitimacy by increasing trust and transparency. The participants reported that BWCs provide evidence (55.4%), enhance transparency (51%),



and reduce complaints (4.4%). One of the respondents said, “BWCs prevent false allegations against police.” Another respondent reported, “BWCs increase trust with police because everything is recorded.” A further respondent said, “BWCs reveal the facts for both parties, and people can see who is right and who is wrong in the case of a complaint.” Another respondent said, “BWCs enhance transparency.”

The fourth hypothesis was that BWCs would increase cooperation between police and citizens. Several past studies also found that being watched had a positive impact on cooperative behaviors (Bourrat et al., 2011). BWCs also appear to increase cooperation between citizens and police (Farrar & Ariel, 2013; Vorndran et al., 2014). Furthermore, the respondents also emphasized that BWCs increase cooperation. For instance, one of the respondents said, “I would do anything whatever police ask me to do if they treat me as well as they treated me today.” This results from procedurally just behavior.

The fifth hypothesis was that BWCs would increase driver compliance with traffic laws/rules. Some past studies and the respondents’ answers to the open-ended questions support the finding. One study of in-car cameras indicated that citizens reported the presence of a camera would make them less likely to drive aggressively (IACP, 2004). Finally, many respondents in the current study believe BWCs increase compliance with traffic laws/rules in the future. This is supported by the responses of the participants. Procedurally just behavior increases compliance. One of the respondents who experienced the experimental condition said, “If police treat me well, like in the encounter today, I would always obey the rules.” Another respondent said, “BWCs lead drivers to obey the rules.”

The sixth hypothesis was that BWCs would increase driver compliance with police commands. The literature and several past studies support the finding. The literature argues that the use of BWCs alters the behavior of citizens (White, 2014), with citizens treating officers wearing BWCs more respectfully and acting more compliant and cooperative (Farrar & Ariel, 2013). The descriptive study about in-car cameras found that when citizens were watched, they would change their behavior, become less aggressive, and be more courteous (IACP, 2004). In addition, the Plymouth Camera Project study and the Mesa study suggested that BWCs would lead citizens to be more respectful toward police officers (Goodall, 2007; MPD, 2013).

The respondents in this study also emphasized the impact of BWCs on compliance in their open-ended responses. Specific compliance is a result of procedurally just behavior and the availability of evidence obtained through BWC. More than 50% of the respondents reported that BWCs increase procedurally just behavior and provide evidence. One of the respondents said, “When the police officer said that the encounter would be recorded, I could not do anything, I could not even move. I could do nothing more but to comply with police commands.” Another respondent said, “BWCs make a disrespectful person more respectful.”

The seventh hypothesis was that BWCs would promote driver satisfaction with the police. The respondents expressed their satisfaction with the use of BWCs. The respondents agree that BWCs ensure that the encounter is transparent (51%). One of the participants said, “Everything is transparent with BWCs.” Another participant reported, “Since everything is recorded, BWCs reveal the facts that transpire during the encounter. They provide evidence.” A further respondent said, “I am very satisfied. This is the first

time a police officer shook my hands (shaking hand indicates the sincerity and friendship in Turkey) and the officer was surprisingly polite and respectful.” The quotes showed how satisfied respondents were with the use of BWCs.

The eighth hypothesis was that BWCs would have a positive impact on driver perceptions of police in general. Prior literature suggested that BWCs increase transparency and thus enhance the public’s trust in police (Clark, 2013; Miller et al., 2014) as well as accountability (Koper et al., 2014; Miller et al., 2014; Ramirez, 2014; Roy, 2014; Wain & Ariel, 2014). In addition, many respondents in this study believed that BWCs make police officers more transparent, provide evidence, and prevent corruption (51%, 55.4%, and 14%, respectively). One of them said, “BWCs provide evidence and prevent frivolous allegations about police.” Another respondent said, “BWCs prevent corruption and provide external oversight of police.”

The ninth and final hypothesis was that the effect of BWCs on distal outcomes (perceptions of police, general and specific compliance, satisfaction, and cooperation) would be mediated by procedural justice, traffic police legitimacy, and police legitimacy. The finding is consistent with the literature. BWCs can increase procedurally just policing and legitimacy (Farrar & Ariel, 2013; Harris, 2010; Koper et al., 2014; Miller et al., 2014; Rieken, 2013; White, 2014), and procedural justice and legitimacy increase compliance, cooperation, satisfaction, and perception of police (Engel, 2005; Levi et al., 2009; Mastrofski et al., 1996; Mazerolle et al., 2013; McCluskey et al., 1999; Murphy et al., 2008; Paternoster et al., 1997; Sahin, 2014; Sherman, 1997; Sunshine & Tyler, 2003; Tyler, 1990, 2006; Tyler & Degoe, 1996; Tyler & Huo, 2002; Tyler & Fagan, 2008, 2012; Tyler et al., 2007; Vorndran et al., 2014). It is noteworthy that independent of

procedurally just policing and legitimacy, BWCs still increase specific compliance and satisfaction, whereas BWCs have no direct effect on cooperation, general compliance, and perception of police. Furthermore, when controlling for procedurally just policing, BWCs have a negative effect on traffic police legitimacy, but the indirect effect of BWCs on traffic police legitimacy is about twice that of its direct effect and positive. However, BWCs have no statistically significant impact on police legitimacy when procedurally just policing is held constant.

The external data also support the effectiveness of BWCs. The external data on complaints about traffic tickets indicated that drivers in the experimental group did not file a single complaint, whereas drivers in the control group filed six complaints.

## 5.2 Policy Implications

The research findings are important because the results shed light on the implications of the use of BWCs as a matter of law enforcement policy. A new contemporary policing strategy, which might be called “Recorded Just Policing,” should be implemented department wide. “Recorded Just Policing” is predicated on two theories: self-awareness theory and deterrence theory. As discussed in previous chapters, self-awareness theory argues that when human beings are under observation, they modify their behavior, exhibit more socially acceptable behavior, and cooperate more fully with the rules (Duval & Wicklund, 1972). Deterrence theory argues that people calculate the benefits and the costs of wrongdoing, and they are less likely to do wrong when its costs outweigh its benefits (Nagin, 2012). By magnifying the certainty of punishment for inappropriate behavior (Nagin, 2013), BWCs have the potential for the largest deterrent effects on police–citizen encounters. Simply put, BWCs capture the actions of those who

are being watched – both police officers and citizens. This increases the likelihood of punishing those who do not follow rules, thereby deterring people from non-cooperative or noncompliant behavior. BWCs also increase self-awareness and make people conscious that they are being watched and their actions are being recorded (Farrar & Ariel, 2013). Hence, people are more likely to follow social norms and rules (Farrar & Ariel, 2013). Overall, the use of BWCs increases both self-awareness and certainty, and thus impacts those who are under observation.

The present findings have a number of practical policy implications. First, all traffic police officers working on patrol would be well advised to employ the use of BWCs in their interactions with civilians and to make that fact known during their encounters. However, other police units, such as patrols and investigation units that have frequent contact with citizen may also benefit from the use of BWCs. The use of a camera leads police officers and citizens to behave well and increases transparency since everything is recorded. BWCs also expedite solutions to problems because they are capable of providing tangible evidence. Particularly in instances in which police officers interact with suspects, the use of BWCs might help prevent police misconduct.

Second, supervisors of police officers should routinely view the recorded interactions and provide necessary warnings for officers when needed. As a practical matter, it should be possible to select recordings at random and watch them along with police officers. This would send a clear message to police officers that the recordings are checked by their supervisors. Otherwise, if police officers are aware that the recordings are not checked by their supervisors, they may disregard the use of BWCs, and as a result, the effect of BWCs on their behavior may diminish.

Third, BWCs should be activated before the start of an encounter and be kept turned on until the encounter ends. Finally, the recorded data, which may involve encounters that did not result in a ticket, arrest, or problem, should be stored in the database for 30 days. However, other recordings, which involve encounters that resulted in any issue should be stored in the database for at least six months to be used as evidence in case of any complaint. Only then should the recorded data be deleted from the database.

The routine use of BWCs has the potential for many benefits. The use of BWCs has the potential to meet citizen expectations of police (procedurally just policing, legitimacy, and satisfaction) and police expectations of citizen (specific and general compliance, cooperation, and citizen perception of police). First and foremost, the current study in Turkey suggests that BWCs increase the likelihood of procedural justice during traffic stops and are an effective tool to promote legitimacy as well as compliant and cooperative behavior. Specifically, drivers perceive that traffic police officers wearing BWCs treat people more politely and follow the rules. This is very important because surveys conducted in Turkey find that traffic police are less respected by citizens and police–community relations are unsatisfactory (Dönmezer, 2011). Thus, daily police–citizen encounters can be used an opportunity to improve perceptions of police legitimacy by changing the nature of the interaction between citizens and police (Engel, 2005; Sargeant et al., 2012), as well as to build trust and confidence (Goodman-Delahunty, 2010). Everyday encounters are important because public views of police legitimacy are mostly shaped by police officer behavior and actions in specific encounters with citizens rather than the public’s general perception of police legitimacy (Tyler & Darley, 1999).

The current study shows that BWCs alter police officer and citizen behavior positively, which harmonizes with research findings that the initial presentation during police–citizen encounters is a key determinant of what will transpire (Bayley, 1986; Fyfe, 1986) and that police officers who show disrespect are less likely to obtain compliance (Mastrofski, Snipes, & Supina, 1996). Thus, police behavior towards citizens and citizen behavior towards police officers play crucial roles in escalating or deescalating encounters that transpire every day. Simply, BWCs can achieve compliance without the use of force.

Second, BWCs may also be useful to change citizens' overall perceptions of the police and traffic laws. The current study showed that BWCs have a significant positive impact on perceptions even during a very brief encounter like that of a vehicle stop. Vehicle stops are the most frequent contact that citizens have with police and may be the only contact some citizens have with the police (Hoover et al., 1998; Woodhull, 1994). Studies have shown that most citizens form their opinions of police based on their experience during a 10-minute traffic stop (Calahan & Kersten, 2005; Woodhull, 1994). In light of their volume, these police–citizen encounters may promote or damage public perceptions of police legitimacy without changing the frequency and nature of the police encounter with citizens (Frydl & Skogan, 2004), depending on how individual traffic officers carry out their duties during encounters (Tyler & Darley, 1999). Prior research also suggests that people follow the law in the long run if they view police authority as legitimate (Sargeant et al., 2012). In light of the current findings with respect to general compliance, these brief encounters might even decrease the number of traffic accidents in the long run.

Third, BWCs may be effective in combatting police corruption and citizen involvement in corruption (Sahin, 2010). Police corruption is viewed as widespread in policing, particularly in traffic services (Cerrah et al., 2009; Prenzler, 2006). Prior studies suggest that a transparent and accountable system should be established to fight against corruption effectively (Martinelli, 2006), and technological devices should be used (Cerrah et al., 2009). Moreover, by providing external oversight of police officers during traffic stops, officers are likely to be motivated to use their discretion lawfully and fairly (Brown & Frank, 2005; Frydl & Skogan, 2004). Another implication of BWCs is that they can decrease complaints against police officers. For instance, in the U.S., the majority of complaints against police officers include rudeness, lack of courtesy, or a failure to provide adequate service (Walker et al., 2002), as well as excessive force, use of improper procedures, and prejudicial conduct (Proctor et al., 2009). And indeed, a prior study suggests that BWCs decrease the number of complaints against police officers (Farrar & Ariel, 2013).

Fourth, BWC recordings may be used as an aid for training and for the early identification of problem officers. In the U.S., a PERF survey found that 94% of the respondents reported that they used BWC video footage when training police officers (Miller et al., 2014). BWCs capture real-life examples of interactions with citizens and they are thus more objective and useful compared to simulations (Vorndran et al., 2014). BWCs might also enable police departments to identify police officers who abuse their authority and correct them (Miller et al., 2014). For instance, in Phoenix, video footage revealed that one police officer repeatedly abused citizens verbally, used profane language, and threatened members of the public (Miller et al., 2014). As a result, the



officer was fired.

Fifth, BWCs have potential benefits because of their evidentiary value. For example, BWCs can improve evidence for arrest and prosecution because they capture the details of incidents (Goodall, 2007; Miller et al., 2014) and encounters between police and citizens (Ramirez, 2014). The probability of arrest for a crime is nearly five times higher in the incidents where BWCs are used and video evidence obtained from BWCs encourage reluctant witnesses of domestic violence (Goodall, 2007). Similarly, BWCs expedite the resolution of citizen complaints by providing objective and accurate evidence, and the video evidence enables cases to be resolved at an early stage (Miller et al., 2014; Vorndran et al., 2014). At the same time, they can be used to protect police officers from false accusations (Draisin, 2011; Porter & Prenzler, 2012; Roy, 2014) and to exonerate police officers who are targets of citizen complaints (Miller et al., 2014; Ramirez, 2014). They can also be helpful in resolving cases quickly through guilty pleas rather than criminal trials (Goodall 2007), thereby reducing court-related costs (Howland, 2011).

Sixth, BWCs can reduce the amount of time spent by police officers on paperwork and file preparation (Goodall, 2007; Miller et al., 2014) and in court (Howland, 2011). This was supported by the findings of both quantitative and qualitative studies (Goodall, 2007). More specifically, the results from the U.K. studies suggest that the use of BWCs resulted in a 22% reduction in the time officers devoted to paperwork and file preparation in incidents compared to the incidents where BWCs were not used (Goodall, 2007). As a result, the amount of time spent on mobile and foot patrol increased by 9% (Goodall, 2007).

Finally, the use of BWCs may promote police officer safety. Their use can deter potential offenders from attacking police officers and provide video evidence that may help convict offenders (Draisin, 2011; NLECTC & United States of America, 2012).

The benefits of “recorded justice” described in the preceding paragraphs do not come without costs. For one, the implementation of BWCs requires financial investment, which will typically require some kind of government support. Yet existing evidence suggests that citizens support the use of BWCs. For example, 64% of surveyed citizens in Renfrewshire, 76% in Aberdeen (ODS Consulting, 2011), and 72 % in Plymouth (Goodall, 2007) supported the use of BWCs. The current study also showed that almost all of the respondents (99.5%) reported that they support the use of BWCs during traffic stops – just 3 out of 624 respondents opposed them. One of them said, “I do not believe that BWCs will have impact on police or citizens.” Another stated, “There is no need to use BWCs. Police should always treat people well. Police should not treat people well due to the presence of BWCs.” The third respondent said, “BWCs should not be used because they provide evidence. Sometimes we curse, sometimes police curse. If BWCs are used, we can’t do that. Because of this, there is no need to use BWCs.” Aside from these three instances, the findings overwhelmingly suggest that citizens support the use of BWCs.

The use of BWCs also raises privacy concerns because some people may react to the recording of the encounter. They may think that BWCs intrude upon their privacy, thereby violating their privacy rights. Thus, citizens should be notified that the encounter will be recorded in advance.

The study findings are more likely to be applicable in other countries. There are a couple of reasons for this. First, although theories, including self-awareness and deterrence theory, were not developed in Turkey, their tenets are applicable in Turkey. In turn, the results obtained from the study in Turkey may also be applicable in other countries as well.

Second, the study focused on outcomes that may be considered universal, including enhanced procedural justice, legitimacy (traffic police and police), compliance (specific and general), satisfaction, and citizen perception of police. Treating people politely and respectfully, following the rules, and allowing citizens to express themselves are generally universally accepted behaviors. Respect, trust, and being confident with police are the components of legitimacy. If citizens in any country have relationships with police characterized by respect, trust, and confidence, they are more likely to view police as legitimate. People in any country are more likely to be satisfied if they are treated well and, furthermore, they are more likely to comply with police commands when the encounter is recorded using BWCs, since BWC footage can be used as evidence against those under observation and BWC increases self-awareness of those who are watched. Thus, BWCs are more likely to have similar effects across different countries.

Third, police functions and police–citizen encounters are very similar in every country. They may be considered as universal issues in terms of policing. As a result, police and citizen behavior in encounters are more or less the same. The only difference may be some cultural issues and ethnicity and race. The study outcomes are not related to cultural issues, which may lead to the questioning of the applicability of the results in other countries.

Fourth, empirical studies on the effect of BWCs in the U.K. (Goodall, 2007; ODS Consulting, 2011) and in the U.S. (Farrar & Ariel, 2013; MPD, 2013; White, 2014) found that, although the studies were conducted in different countries, BWCs have an impact on police and citizens. Thus, the results obtained from the study in Turkey are more likely to be relevant in the U.S. or other countries.

Finally, experimental studies on procedural justice conducted in Australia (Mazerolle et al., 2013) and in Turkey (Sahin, 2014) found similar results even though the studies were conducted in totally two different countries and procedurally just policing was developed in the U.S. (Tyler, 1990). This suggests that although theory was developed in a different country, its effects are more likely to be similar in other countries. This also indicates that the results of BWC experimental study in Turkey are more likely to be relevant in other countries.

### 5.3 Limitations of the Study and Suggestions for Future Research

The study has limitations. First, this study was conducted during routine traffic stops, meaning that the results and conclusions may not be generalized to other types of police–citizen encounters, such as pedestrian stops, crime investigations, and arrests. However, it is worth emphasizing that traffic encounters are the most frequent and, for many citizens, only interactions they may have with police.

Second, self-reported data were used. The presence of BWCs may have affected the responses of the participants in the experimental group because the encounter was recorded. Thus, the participants might have been overly optimistic in their stated perceptions about the police. In other words, they may not have responded to the questions honestly. Unfortunately, the complaint data were too infrequent to validate the

survey responses with independent behavioral measures. It is therefore not possible to completely rule out this limitation.

Third, with respect to the mediation analysis, although the path model was created based on the empirical findings of the previous studies, the survey in the study does not allow resolution of temporal order, which is one of the causality criteria. In other words, there may be other forms of directionality among the variables except for the intervention.

Fourth, since the collected data is based on the self-report, the perceived effects of BWCs on police and citizen behavior were measured. Thus, it is difficult to claim that police and citizen behavior were measured objectively.

Finally, most of the responses to open-ended questions were short, involving one or two sentences. This did not allow the researcher to conduct more in-depth analysis.

In the future, more empirical research should be conducted to investigate the effects of BWCs on police and citizens. First, similar studies should be conducted for different types of police–citizen encounters, including arrests, riots, protests, and encounters between patrol officers and citizens since patrol officers also have more frequent contact with citizens. Such studies would provide information about the generalizability of the findings of the current study. Thus, the evaluation of the use of BWCs in other types of police–citizen encounters, and as a tool used by other police units, should be a high priority. Second, the literature claims that BWCs enhance transparency and police accountability. These should be tested empirically. Third, the effects of BWCs on crime, such as domestic violence and assaults on police (which involves a police–citizen encounter) should be investigated empirically. Fourth, more

diverse data sources should be built into the evaluation of BWCs. This study implemented a driver survey and attempted to collect complaint data. Other objective measures such as complaints about police misdemeanor and citizen resistance should be used to claim the effect of BWCs on police and citizen behavior. Furthermore, content analysis of recordings can be conducted to examine the impact of BWCs on police and citizen behavior. Finally, it would be beneficial to have data capable of directly measuring the impact of BWCs on citizen cooperation in police–citizen encounters. The current study measured cooperation indirectly, with general statements such as “I am willing to assist police if asked,” and “I am willing to work with police to try to solve problems in my community.”

#### 5.4 Conclusion

Prior studies suggest that being watched has an impact on the behavior of those who are watched, and this is true for largely trivial behaviors such as financial donations but also more serious behaviors such as crime. Evidence concerning a different form of being watched is accumulating and now suggests that they reduce citizen complaints against police officers, as well as increase transparency and the level of the public trust toward police. This is attributable, in part, to the enhancement of police legitimacy and sense of procedural justice policing among citizens.

This study is the first of its kind in the literature, experimentally testing the effect of BWCs on police and citizen behavior during traffic encounters. The current study confirmed that BWCs have a positive impact on procedural justice, legitimacy (police and traffic police), compliance (general and specific), citizen perceptions of police,

satisfaction, and cooperation. It is clear that the use of BWCs has the potential to positively impact the behavior of citizens as well as police.

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## APPENDIX A: Survey on the Effect of Body Worn Camera (BWC) on Police and Citizen

Dear respondent,

The following survey has been designed to measure the effectiveness of body worn camera (BWC) on behaviors of traffic police officers. Therefore, your answers to the questions will help us to understand how effective BWC is during the traffic stops. (This phrase will be stated in just experimental group). Thus, I cordially encourage you to participate in the survey. I want you to make sure that the survey is anonymous, confidential, and voluntary based. The results of the survey will be used for just academic work. Thanks for your participation in advance.

### SOCIO-DEMOGRAPHICS

1. What is your gender?
  - a) Male
  - b) Female
2. What is your current marital status?
  - a) Never married
  - b) Married
  - c) Separated
  - d) Divorced
  - e) Widowed
3. What is your current employment status?
  - a) Employed
  - b) Unemployed
  - c) Other (Specify) .....

IF YES, PROCEED TO THE FOLLOWING QUESTION. IF NO, SKIP THE FOLLOWING QUESTION

4. What is your occupation?
  - a) Teacher
  - b) Private security officer
  - c) Medical doctor
  - d) Nurse
  - e) Engineer

- f) Worker
- g) Faculty member
- h) Public servant
- i) Police
- j) Soldier
- k) Merchant
- l) Vendor
- m) Student
- n) Driver
- o) Other (Specify).....

5. How much is your monthly individual income (Turkish currency)?

- a) 0-750
- b) 751-1500
- c) 1551-2250
- d) 2251-3000
- e) 3001-3750
- f) 3751-4500
- g) 4551-5250
- h) 5251-6000
- i) 6001-6750
- j) 6751-7500
- k) 7551 and above

6. What is your highest level of education completed?

- a) Literate
- b) Elementary school (1<sup>st</sup> -5<sup>th</sup> grade)
- c) Middle School (6<sup>th</sup> -8<sup>th</sup> grade)
- d) Primary School (1<sup>st</sup> -8<sup>th</sup> grade)
- e) High School (9<sup>th</sup> -12<sup>th</sup> grade)
- f) Higher school (2 years after high school)
- g) College degree (BA, BS) (4 years after high school)
- h) Graduate degree (MA, MS)
- i) Professional Degree (Ph.D., J.D., M.D)
- j) Other (specify) .....

7. What is your DOB? \_\_\_\_\_

8. In which province were you born?

.....

9. Where do you reside?

- a) City center of province
- b) District
- c) Town
- d) Village

## INTERACTION WITH POLICE

**10.** Do you have any member of your relatives or close friends work/worked in the police service?

- a) No
- b) Spouse, son, daughter, father, mother
- c) Close relative (uncle, aunt)
- d) Close friend

**11.** Other than traffic police officer, did you have any contact with police before?

- a) Yes
- b) No

IF YES, PROCEED TO THE FOLLOWING QUESTION. IF NO, SKIP THE FOLLOWING QUESTIONS 12 AND 13.

**12.** Other than traffic police officer, how many times did you make contact with police in the last 12 months?

.....

**13.** What were the most common three reasons for your contact with police in the last 12 months?

- a) Witness
- b) Victim
- c) Suspect
- d) Administrative issues (passport, gun certificate, driver's license etc)
- e) Other (specify).....

## BACKGROUND AS A DRIVER

**14.** How long have you been driving a vehicle?

.....months

.....years

**15.** Have you ever been stopped by any traffic police officer in the last 12 months?

- a) Yes
- b) No

IF YES, PROCEED TO THE FOLLOWING QUESTION. IF NO, SKIP THE FOLLOWING QUESTION

**16.** How many times have you been stopped by traffic police officer in the past 12 months?

.....

**17.** Have you ever been ticketed by traffic police officer in the past 12 months?

- a) Yes
- b) No

IF YES, PROCEED TO THE FOLLOWING QUESTION. IF NO, SKIP THE FOLLOWING QUESTION

**18.** How many times have you been ticketed by traffic police officer in the last 12 months?

.....

**19.** What were the reasons for being ticketed by traffic police officer in the last 12 months?

- a) Speed limit violation
- b) Safety belt
- c) Documents
- d) Lights
- e) Problems or defect with the car
- f) Other.....

#### PROCEDURAL JUSTICE PRINCIPLES

Please indicate how much you agree or disagree with the following statements.

Respect

**20.** Overall, the police officer was polite and treated me with respect during the interaction.

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree

Neutrality/fairness

**21.** The police officer was fair when making the decision to stop me.

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree

**22.** Overall, what police did was based on the rules.

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree



- 23.** I felt the police officer would do the same to anyone in my situation irrespective of his/her status.
- a) Strongly agree
  - b) Agree
  - c) Neutral
  - d) Disagree
  - e) Strongly disagree

#### Voice

- 24.** The police officer gave me opportunity to express my views during the interaction.
- a) Strongly agree
  - b) Agree
  - c) Neutral
  - d) Disagree
  - e) Strongly disagree

- 25.** The police officer listened to me during interaction.
- a) Strongly agree
  - b) Agree
  - c) Neutral
  - d) Disagree
  - e) Strongly disagree

#### Trustworthiness

- 26.** Police explained the importance of the traffic stop for my and others' safety
- a) Strongly agree
  - b) Agree
  - c) Neutral
  - d) Disagree
  - e) Strongly disagree

- 27.** I believe that what the police did is for my own safety.
- a) Strongly agree
  - b) Agree
  - c) Neutral
  - d) Disagree
  - e) Strongly disagree

## THE IMPACT OF BWC ON DRIVERS' GENERAL PERCEPTION ABOUT POLICE

- 28.** The specific encounter with police today does have positive impact on my perception of police in general.
- a) Strongly agree
  - b) Agree
  - c) Neutral
  - d) Disagree
  - e) Strongly disagree

## SATISFACTION

- 29.** Overall, I was satisfied with police behavior and how I was treated during this encounter.
- a) Strongly Agree
  - b) Agree
  - c) Neutral
  - d) Disagree
  - e) Strongly Disagree

## LEGITIMACY OF TRAFFIC POLICE OFFICERS

- 30.** I respect for traffic police officers.
- a) Strongly agree
  - b) Agree
  - c) Neutral
  - d) Disagree
  - e) Strongly disagree
- 31.** I have confidence in traffic police officers.
- a. Strongly agree
  - a) Strongly agree
  - b) Agree
  - c) Neutral
  - d) Disagree
  - e) Strongly disagree
- 32.** I trust traffic police officers.
- a) Strongly agree
  - b) Agree
  - c) Neutral
  - d) Disagree
  - e) Strongly disagree

## LEGITIMACY OF POLICE IN GENERAL

**33.** I respect for police.

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree

**34.** I have confidence in police.

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree

**35.** I trust police.

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree

## COMPLIANCE

### Specific Compliance

**36.** I did as I was told by the police officer.

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree

### General Compliance

**37.** I would obey the traffic rules.

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree

**38.** This interaction would have positive impact on my future compliance with traffic rules.

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree

#### Cooperation

**39.** I am willing to assist police if asked

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree

**40.** I am willing to work with police to try to solve problems in my community.

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree

#### NOTIFICATION

**41.** Were you notified by the police that the encounter was going to be recorded through BWC?

- a) Yes
- b) No

**42.** Were you aware that your encounter with police was being recorded through body worn camera?

- a) Yes
- b) No

#### GENERAL PERCEPTION ABOUT THE SEPECIFIC ENCOUNTER

**43.** Would like to share any other comments or ideas about your encounter today?

.....

#### GENERAL PERCEPTION ABOUT BWC

**44.** What do you think about the use of BWCs during traffic stops?

.....

## LIST OF FIGURES

Figure 1: Unusual Data

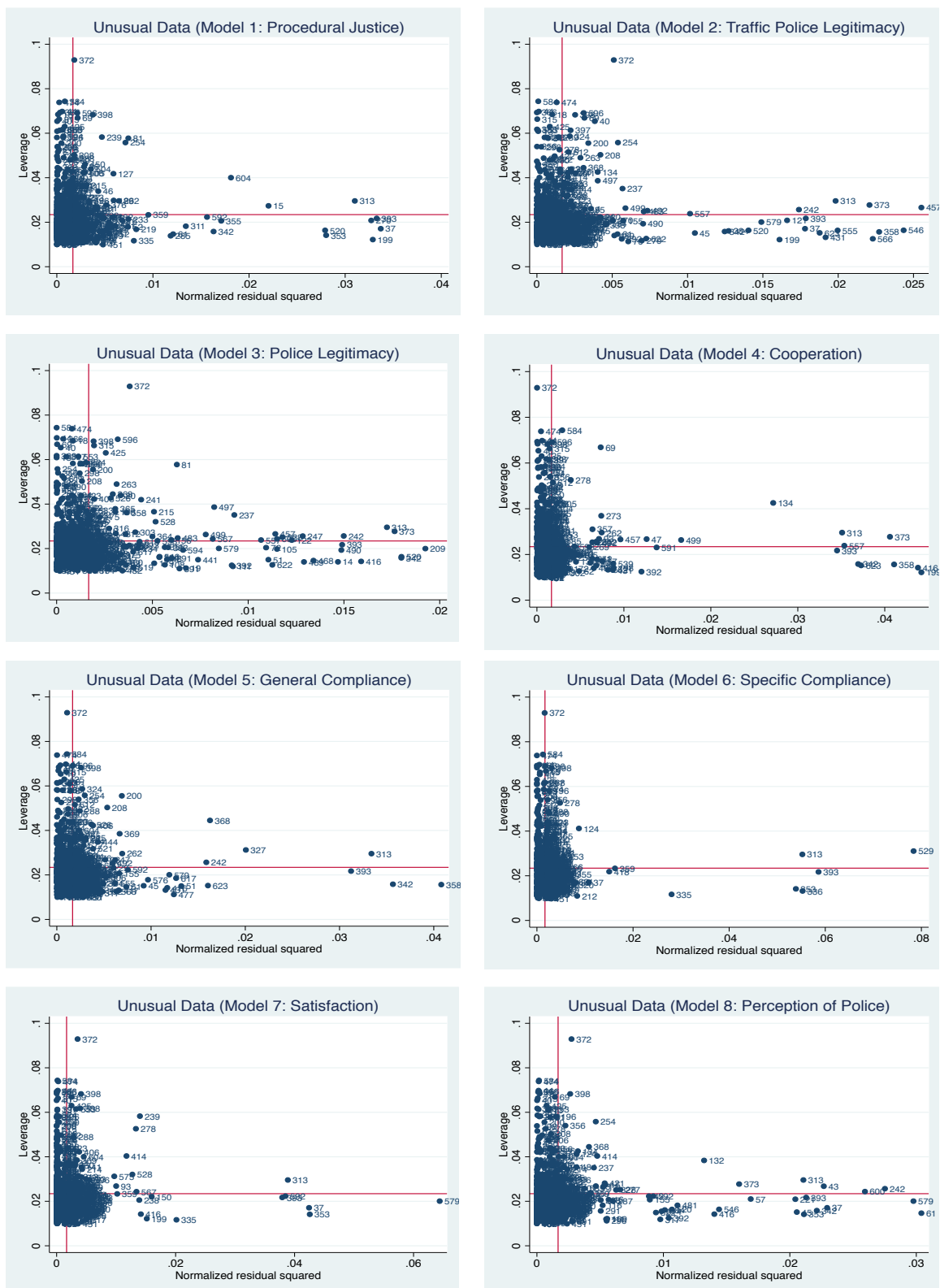


Figure 2: Histograms of Residuals

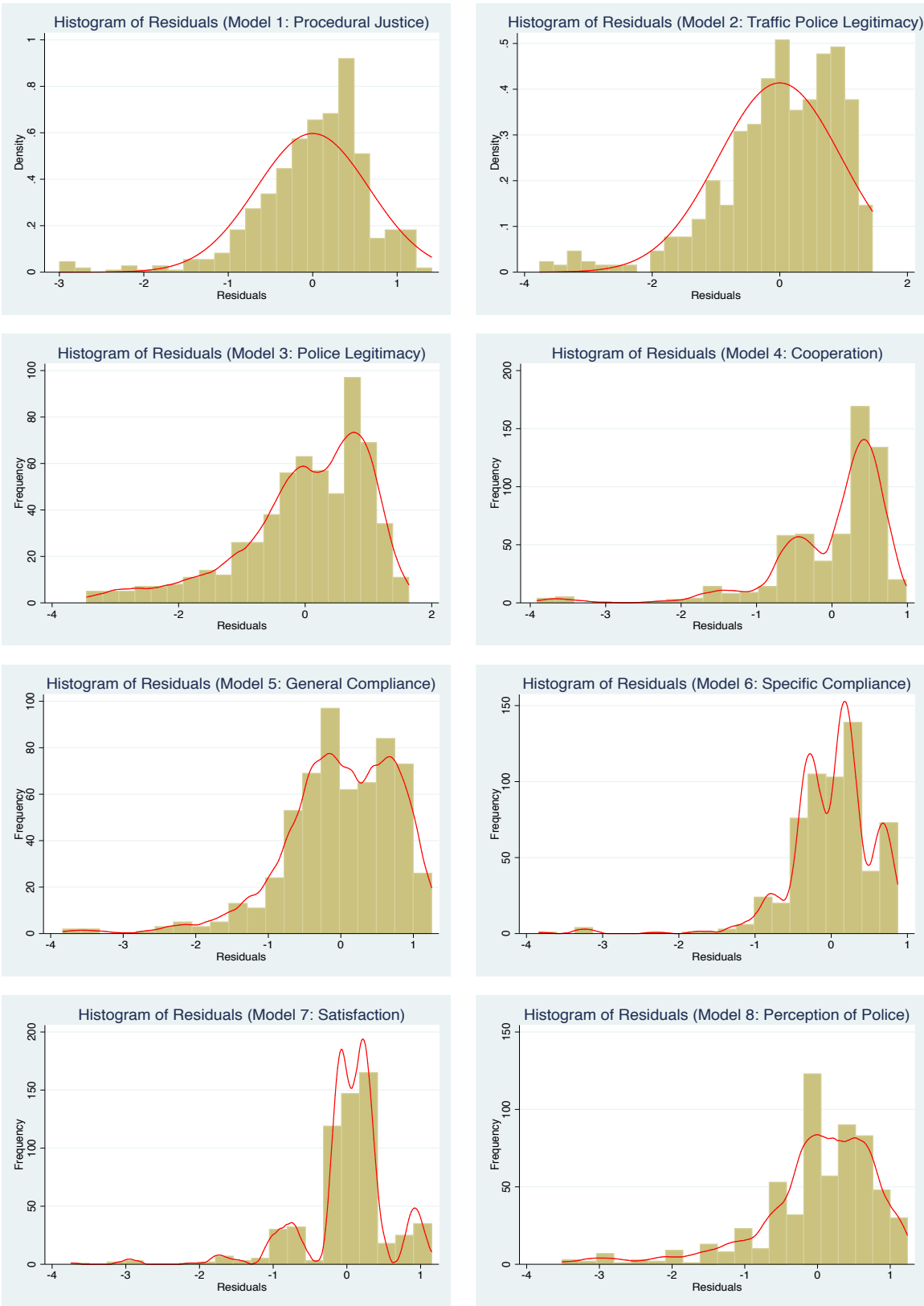


Figure 3: Heteroskedasticity

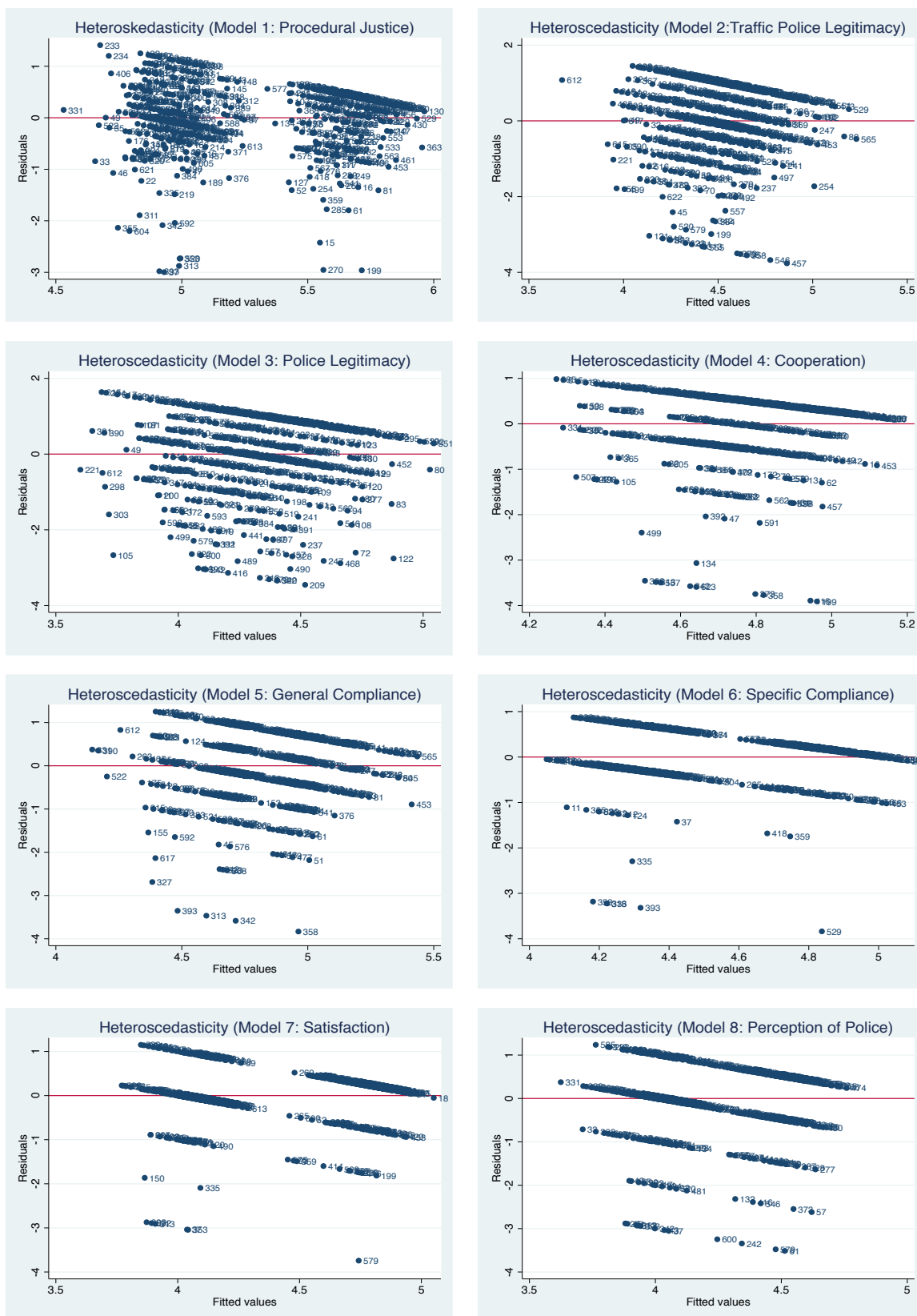


Figure 4: Linearity between Income and Dependent Variables

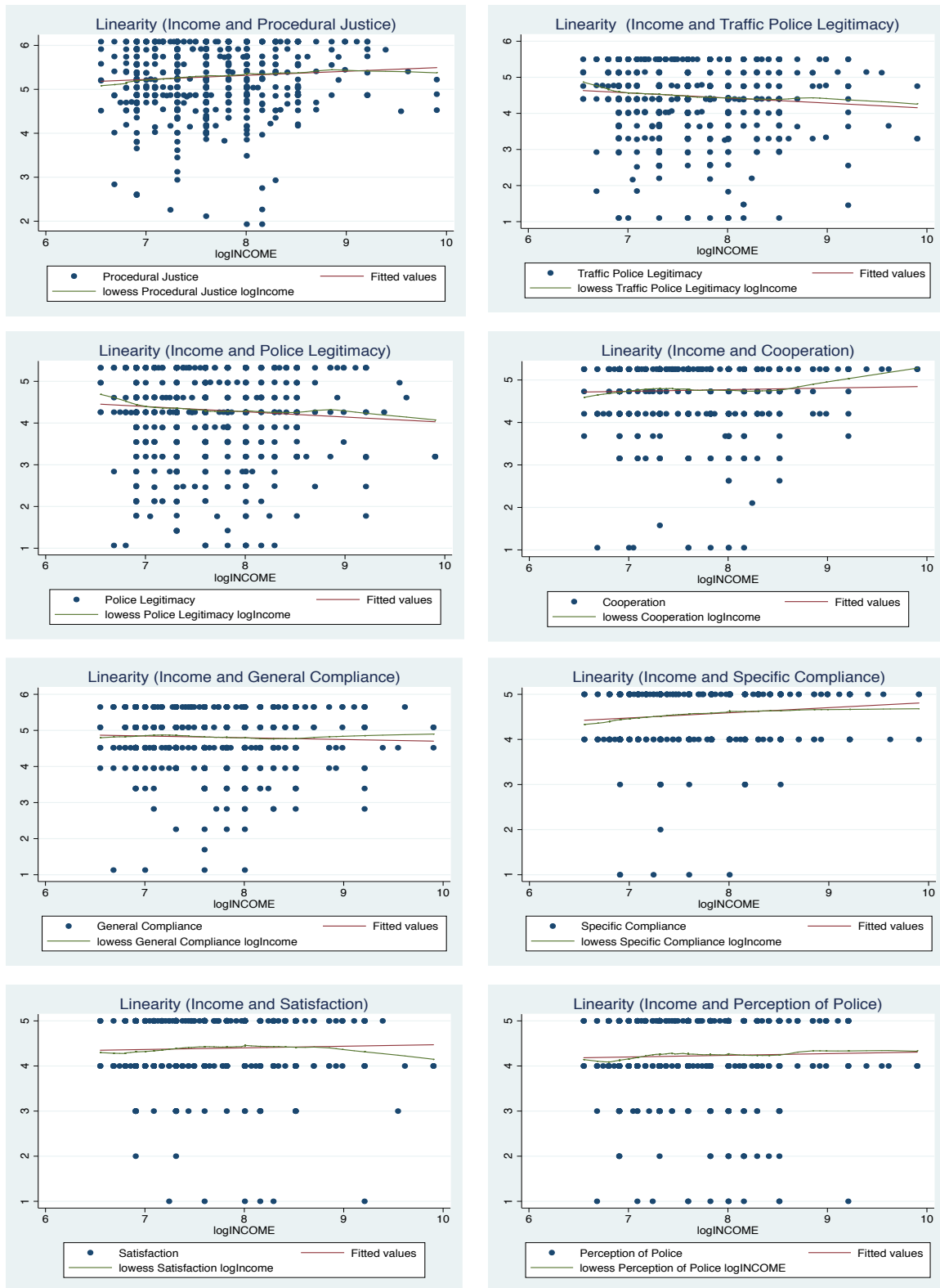
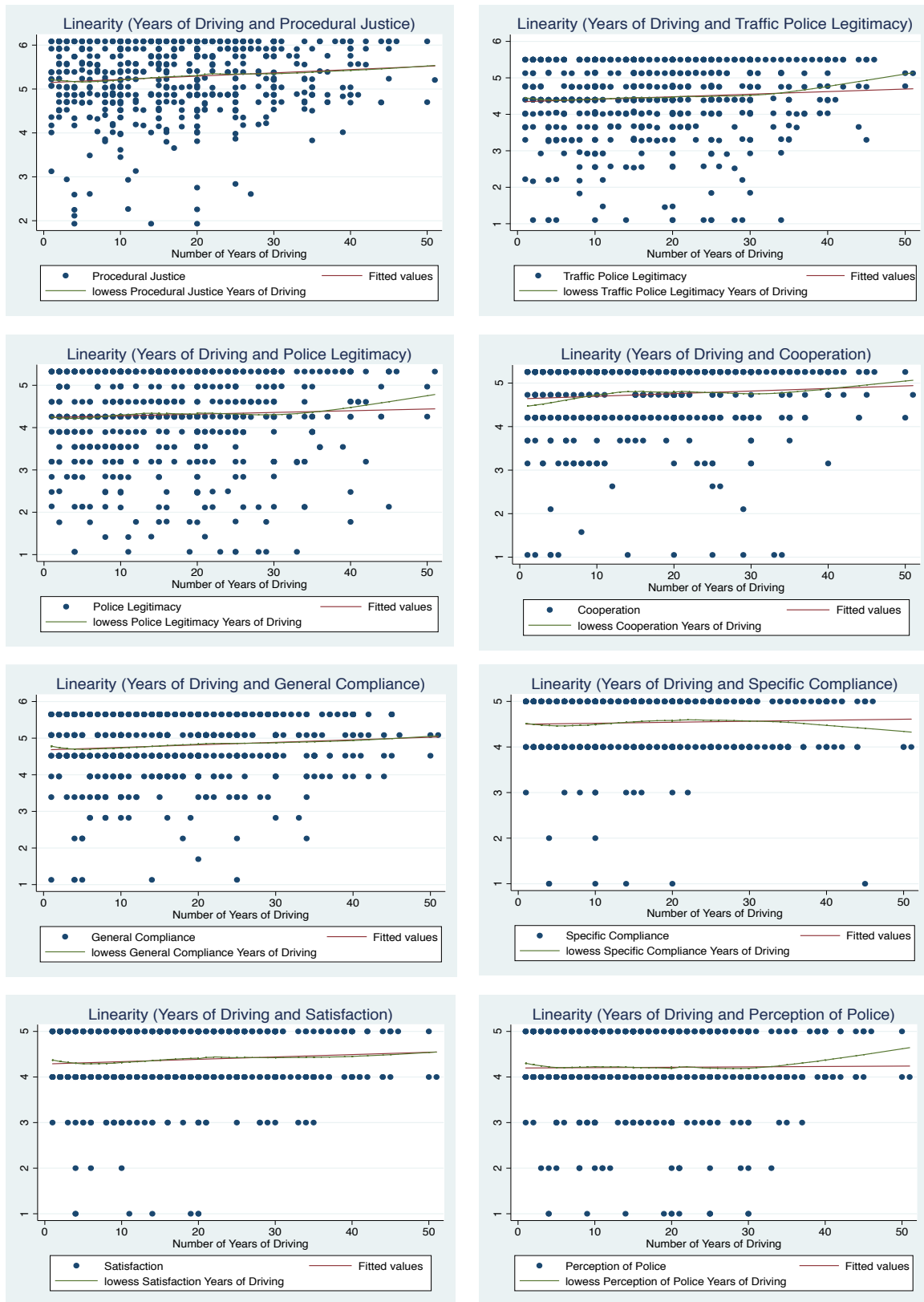




Figure 5: Linearity between Years of Driving and Dependent Variables



## LIST OF TABLES

Table 1: Response Rate and Reasons for Rejection to Participate in the Survey

Response Rate	Control group	Experimental group	Total
Respondents rejecting to participate in the survey	112 (25.6%)	124 (29.3%)	236 (27.4%)
Respondents participated in the survey	325 (74.4%)	299 (70.7%)	624 (72.6%)
Total number of respondents asked to participate in the survey	437	423	860
X <sup>2</sup> (6) = 1.47   p = 0.226			

Reasons for Rejection	Control group	Experimental group	Total
Having appointment with someone or doctor	28 (25.0%)	31 (25.0%)	59 (25.0%)
Being late for work	23 (20.5%)	24 (19.4%)	47 (19.9%)
No time to participate in the survey	20 (17.9%)	23 (18.6%)	43 (18.2%)
Rejected politely	17 (15.2%)	21 (16.9%)	38 (16.1%)
Rejected without reason	13 (11.6%)	15 (12.1%)	28 (11.9%)
Rejected in an aggressive manner	5 (4.5%)	6 (4.8%)	11 (4.7%)
Rejected because of the traffic ticket	6 (5.4%)	4 (3.2%)	10 (4.2%)
X <sup>2</sup> (6) = 0.83   p = 0.991			

Table 2: Comparison of Demographic Characteristics of Traffic Police Officers

		Traffic Police Officers NOT in the Study (N=27)	Traffic Police Officers in the Study (N=31)		
Variable	Attributes	% or Mean (S.D.)	% or Mean (S.D.)	X2 or t	p
Gender					
	Male	100	100		
Marital Status					
	Married	100	100		
Education Level				0.47	0.493
	High School or less	7.41	12.9		
	More than high school	92.59	87.1		
Birth of Province				1.09	0.297
	Born in Eskisehir	14.81	6.45		
	Other	85.19	93.55		
Rank				0.31	0.580
	Police Officer	88.89	83.87		
	Sergeant	11.11	16.13		
Age*		42.30 (6.24)	44.13 (5.13)	1.23	0.113
Years of Service*		18.26 (6.17)	20.68 (5.22)	1.62	0.056
Years of Service in Eskisehir*		4.93 (4.93)	5.97 (6.15)	0.70	0.242
Years of Service in Traffic*		14.26 (7.64)	14.29 (7.15)	0.02	0.494

\*The values of Mean (S.D.) and t were reported.

Table 3: Comparison of Experimental Group with Control Group

		Control Group (N=325)	Experimental Group (N=299)	X <sup>2</sup> or t	p
Independent Variables		% or Mean (S.D.)	% or Mean (S.D.)		
Gender				0.391	0.532
	Female	4.3	3.3		
	Male	95.7	96.7		
Marital Status				0.056	0.814
	Married	78.2	78.9		
	Not Married	21.8	21.1		
Employment status				0.005	0.947
	Employed	83.1	83.3		
	Not employed	16.9	16.7		
Education Level				0.740	0.39
	More than high school	34.2	37.5		
	Less than High school or equivalent	65.8	62.5		
Birth of Province				2.240	0.134
	Born in Eskisehir	30.46	25.08		
	Other	69.54	74.92		
Place of residence				1.109	0.292
	City center	64.92	68.9		
	Other	35.08	31.1		
Relational ties with police				0.189	0.664
	Yes	58.15	59.87		
	No	41.85	40.13		
Prior contact with police				1.867	0.172
	Yes	33.54	38.8		
	No	66.46	61.2		
Stopped by traffic police				2.971	0.085
	Yes	82.77	77.26		
	No	17.23	22.74		
Ticketed during the encounter				0.362	0.548
	Yes	7.08	8.36		
	No	92.92	91.64		
Income*		2477.65 (2293.82)	2618.64(2200.08)	-0.77	0.444
Years of driving*		17.22(10.76)	17.69(10.87)	-0.55	0.582
Age*		40.31 (11.37 )	41.25 (12.11)	-0.99	0.321
Time of traffic stop				0.010	0.919
	9:00-11:30	56.92	56.52		
	12:30-14:30	43.08	43.48		
Location of traffic stop				0.043	0.836
	Bursa 3 km	52	51.17		
	Ankara 8 km	48	48.83		

\*The values of Mean (S.D.) and t were reported.

Table 4: Principal Component Analysis: Correlation Matrices

**Correlation Matrices (N=624)**

Variable (Procedural Justice)	1	2	3	4	5	6	7
1. Respectful treatment	1						
2. Fair treatment	0.78	1					
3. Rule based treatment	0.70	0.82	1				
4. Equal treatment	0.53	0.61	0.69	1			
5. Voicing views	0.55	0.59	0.58	0.60	1		
6. Listening to driver	0.52	0.58	0.60	0.60	0.84	1	
7. Trustworthiness	0.54	0.60	0.57	0.53	0.56	0.58	1

Variable (Traffic Police Legitimacy)	1	2	3
1. Respect for traffic police	1		
2. Confidence in traffic police	0.70	1	
3. Trust with traffic police	0.71	0.81	1

Variable (Police Legitimacy)	1	2	3
1. Respect for police	1		
2. Confidence in police	0.80	1	
3. Trust with police	0.80	0.86	1

Variable (Cooperation)	1	2
1. Willingness to assist police	1	
2. Willingness to work with police	0.68	1

Variable (General Compliance)	1	2
1. Obeying traffic rules	1	
2. Impact of the encounter on compliance with traffic rules	0.47	1

Table 5: Principal Component Analysis: Factor Loading, Cronbach's Alpha, and Eigenvalue for Latent Variables (N=624)

Latent Variables	Items	Factor loading	Cronbach's alpha	Eigenvalue
Procedural Justice		-----	0.87	4.72
	1. Overall, the police officer was polite and treated me with respect during the interaction.	0.81	-----	-----
	2. The police officer was fair when making the decision to stop me.	0.87	-----	-----
	3. Overall, what police did was based on the rules.	0.87	-----	-----
	4. I felt the police officer would do the same to anyone in my situation irrespective of his/her status.	0.79	-----	-----
	5. The police officer gave me opportunity to express my views during the interaction.	0.82	-----	-----
	6. The police officer listened to me during interaction.	0.82	-----	-----
	7. I believe that what the police did is for my own safety.	0.75	-----	-----
Traffic Police Legitimacy		-----	0.86	2.48
	1. I respect for traffic police officers.	0.88	-----	-----
	2. I have confidence in traffic police officers.	0.92	-----	-----
	3. I trust traffic police officers.	0.93	-----	-----
Police Legitimacy		-----	0.89	2.64
	1. I respect for police.	0.92	-----	-----
	2. I have confidence in police.	0.95	-----	-----
	3. I trust police.	0.95	-----	-----
Cooperation		-----	0.80	1.81
	1. I am willingly to assist police if asked	0.95	-----	-----
	2. I am willing to work with police to try to solve problems in my community.	0.95	-----	-----
General Compliance		-----	0.64	1.57
	1. I would obey the traffic rules.	0.89	-----	-----
	2. This interaction would have positive impact on my future compliance with traffic rules.	0.89	-----	-----

Table 6: Descriptive Statistics (N=624)

Variable	Attributes	%	Mean (SD)	Min	Max
Group				0	1
	Experimental Group	47.9	-----		
	Control Group	52.1	-----		
Gender				0	1
	Male	96.2	-----		
	Female	3.8	-----		
Marital Status				0	1
	Married	78.5	-----		
	Not Married	21.5	-----		
Employment Status				0	1
	Employed	83.2	-----		
	Unemployed	16.8	-----		
Education Level				0	1
	More than High School	35.7	-----		
	High School or less	64.3	-----		
Birth of Province				0	1
	Born in Eskisehir	27.9	-----		
	Other	72.1	-----		
Place of Residence				0	1
	City Center	66.8	-----		
	Other	33.2	-----		
Relational Ties with Police				0	1
	Yes	59.0	-----		
	No	41.0	-----		
Prior Contact with Police				0	1
	Yes	36.1	-----		
	No	63.9	-----		
Stopped by Traffic Police				0	1
	Yes	80.1	-----		
	No	19.9	-----		
Ticketed During the Encounter				0	1
	Yes	7.7	-----		
	No	92.3	-----		
Income*		-----	2545.3 (2248.54)	700	20,000
Age		-----	40.8 (11.73)	19	75
Years of Driving		-----	17.4 (10.81)	1	51
Procedural Justice		-----	5.27 (0.78)	1.93	6.08
Traffic Police Legitimacy		-----	4.46 (1.00)	1.1	5.5
Police Legitimacy		-----	4.31 (1.05)	1.06	5.32
Cooperation		-----	4.74 (0.81)	1.05	5.26
General Compliance		-----	4.80 (0.84)	1.13	5.65
Specific Compliance		-----	4.54 (0.64)	1	5
Satisfaction		-----	4.38 (0.72)	1	5
Perception of Police		-----	4.21 (0.87)	1	5

\*N=598

Table 7: Results of the Independent Samples t-Tests (N=624)

Dependent Variable	Control Group (n=325)			Experimental Group (n=299)			Mean Diff.	t	p	Cohen's d
	Mean	S.D.	S.E.	Mean	S.D.	S.E.				
Procedural Justice	4.93	0.77	0.04	5.65	0.60	0.04	-0.72	-12.90	0.000	1.03
Traffic Police Legitimacy	4.34	0.96	0.05	4.60	1.04	0.60	-0.25	-3.19	0.002	0.26
Police Legitimacy	4.22	1.04	0.06	4.41	1.05	0.06	-0.19	-2.30	0.022	0.18
General Compliance	4.66	0.86	0.05	4.95	0.80	0.05	-0.29	-4.42	0.000	0.35
Specific Compliance	4.27	0.69	0.04	4.82	0.45	0.03	-0.55	-11.73	0.000	0.94
Cooperation	4.62	0.79	0.04	4.88	0.80	0.05	-0.26	-4.08	0.000	0.33
Satisfaction	4.04	0.68	0.04	4.74	0.56	0.03	-0.71	-14.04	0.000	1.12
Perception of Police	3.98	0.86	0.05	4.46	0.82	0.05	-0.47	-7.02	0.000	0.56

Note: 1- df (degree of freedom)=622

2- A Cohen's d of 0.20 to 0.49 is a small effect, 0.50 to 0.79 is a medium effect, and over 0.80 is a large effect.



Table 8: Bivariate Correlations among the 14 independent variables (N=624)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Group	1													
2. Gender	0.02	1												
3. Marital status	0.01	0.20	1											
4. Employment status	0.01	0.08	-0.08	1										
5. logIncome	0.06	-0.05	0.001	0.19	1									
6. Education level	0.03	-0.17	-0.13	0.10	0.32	1								
<b>7. Age</b>	0.04	0.06	0.39	-0.49	0.01	-0.15	1							
8. Birth of province	-0.06	-0.03	-0.04	-0.09	-0.09	0.01	0.004	1						
9. Place of residence	0.05	-0.07	-0.05	0.07	0.19	0.23	0.01	0.002	1					
10. Relational ties with police	0.01	0.04	0.01	0.01	0.00	-0.05	0.02	-0.05	0.01	1				
11. Prior contact with police	0.05	0.01	-0.07	0.09	0.13	0.11	-0.11	-0.09	0.07	0.20	1			
<b>12. Years of Driving</b>	0.02	0.12	0.33	-0.36	0.05	-0.14	<b>0.82</b>	-0.02	0.04	0.04	-0.04	1		
13. Stopped by traffic police	-0.06	0.01	0.02	0.21	0.08	0.06	-0.18	-0.03	0.02	0.05	0.09	-0.11	1	
14. Ticketed during the encounter	0.03	0.02	0.03	0.05	0.04	-0.04	-0.03	-0.06	0.05	-0.004	0.004	-0.03	-0.12	1

Table 9: VIF Table for Multicollinearity (N=624)

Variables	VIF	1/VIF (Tolerance)
<b>Age</b>	<b>3.84</b>	<b>0.26</b>
<b>Years of Driving</b>	<b>3.16</b>	<b>0.32</b>
Employment status	1.44	0.69
logIncome	1.36	0.73
Education level	1.35	0.74
Marital status	1.26	0.79
Prior contact with police	1.10	0.91
Place of residence	1.10	0.91
Stopped by traffic police	1.10	0.91
Gender	1.10	0.91
Relational ties with police	1.05	0.95
Ticketed during the encounter	1.04	0.97
Birth of province	1.03	0.97
Group	1.02	0.98

Mean VIF: 1.50

Table 10: Numerical tests for Normality, Heteroskedasticity, and Model Specification

Dependent Variable	Shapiro-Wilk W test for Normal Data				Breusch-Pagan / Cook-Weisberg test for Heteroskedasticity		Ramsey RESET test for Model Specification	
	W	V	z	p	Chi2	p	F	p
Procedural Justice	0.92	32.77	8.46	0.000	19.31	0.000	0.03	0.994
Traffic Police Legitimacy	0.91	33.78	8.53	0.000	10.14	0.001	0.29	0.834
Police Legitimacy	0.92	33.07	8.48	0.000	5.11	0.024	0.41	0.745
Cooperation	0.79	83.92	10.73	0.000	22.33	0.000	1.05	0.369
General Compliance	0.93	27.18	8.00	0.000	21.99	0.000	0.24	0.866
Specific Compliance	0.86	57.33	9.81	0.000	42.11	0.000	2.00	0.114
Satisfaction	0.84	61.35	9.98	0.000	24.27	0.000	0.48	0.697
Perception of Police	0.88	47.77	9.37	0.000	<b>3.36</b>	<b>0.067</b>	0.40	0.750
N=598	Ho: Normally distributed				Ho: Constant variance		Ho: <b>No</b> omitted variables	

Table 11: Results of Regression Tests for Model 1: Procedural Justice

Variable	OLS Regression			Regression with Robust Standard Error			Robust Regression			Quantile Regression			Regression with Measurement Error		
	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t
Experimental Group	0.69	<b>0.06***</b>	12.46	0.69	<b>0.05***</b>	12.72	0.72	<b>0.05***</b>	15.23	0.98	<b>0.05***</b>	20.50	0.77	<b>0.06***</b>	12.65
Male	-0.14	0.15	-0.96	-0.14	0.13	-1.10	0.00	0.13	0.00	0.13	0.13	1.02	-0.17	0.17	-1.02
Married	0.05	0.07	0.70	0.05	0.08	0.67	0.02	0.06	0.32	0.01	0.06	0.14	0.05	0.08	0.62
Employed	-0.04	0.08	-0.52	-0.04	0.08	-0.57	-0.04	0.07	-0.62	-0.05	0.07	-0.68	-0.04	0.10	-0.42
LogIncome	0.09	0.05	1.81	0.09	0.05	1.86	0.07	0.04	1.59	0.04	0.04	0.97	0.11	0.06	1.76
More than high school	-0.02	0.07	-0.36	-0.02	0.07	-0.34	0.02	0.06	0.42	0.04	0.06	0.68	-0.04	0.08	-0.45
Born in Eskisehir	0.06	0.06	0.94	0.06	0.06	0.93	0.06	0.05	1.10	0.01	0.05	0.25	0.07	0.07	1.03
City center resident	-0.02	0.06	-0.31	-0.02	0.06	-0.31	0.01	0.05	0.14	0.05	0.05	0.96	-0.03	0.07	-0.41
Relational ties with police	0.00	0.06	0.02	0.00	0.06	0.02	-0.02	0.05	-0.32	-0.03	0.05	-0.61	0.00	0.06	0.06
Prior contact with police	-0.09	0.06	-1.44	-0.09	0.06	-1.39	-0.10	<b>0.05*</b>	-2.05	-0.03	0.05	-0.60	-0.10	0.07	-1.50
Years of Driving	0.00	0.00	1.64	0.00	0.00	1.76	0.00	0.00	0.73	0.00	0.00	-0.07	0.01	0.00	1.51
Stopped by traffic police	-0.09	0.07	-1.28	-0.09	0.07	-1.28	-0.09	0.06	-1.53	-0.11	0.06	-1.77	-0.10	0.08	-1.20
Ticketed during the encounter	-0.16	0.11	-1.47	-0.16	0.11	-1.49	-0.20	<b>0.09*</b>	-2.14	-0.16	0.09	-1.70	-0.18	0.12	-1.52
Constant	4.40			4.40			4.58			4.58			4.28		
*p<.05, **p<.01, ***p<.001															
Dependent variable: Procedural Justice	F( 13, 584)= 13.52			F( 13, 584)= 15.40			F( 13, 584)= 19.55			Pseudo R2 = 0.2395			F( 13, 584)= 13.99		
N=598	Prob > F = 0.000			Prob > F = 0.000			Prob > F = 0.000						Prob > F = 0.000		
	R-squared = 0.2313			R-squared = 0.2313									R-squared = 0.257		

Table 12: Results of Regression Tests for Model 2: Traffic Police Legitimacy

Variable	OLS Regression			Regression with Robust Standard Error			Robust Regression			Quantile Regression			Regression with Measurement Error		
	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t
Experimental Group	0.24	<b>0.08***</b>	3.04	0.24	<b>0.08***</b>	<b>3.06</b>	0.32	<b>0.07***</b>	4.48	0.38	<b>0.09***</b>	4.12	0.27	<b>0.09***</b>	3.06
Male	-0.002	0.22	-0.01	-0.002	0.20	-0.01	0.04	0.19	0.19	0.03	0.25	0.11	-0.005	0.25	-0.02
Married	0.21	<b>0.11*</b>	1.99	0.21	0.12	1.86	0.17	0.10	1.76	0.09	0.12	0.70	0.25	<b>0.12*</b>	1.97
Employed	-0.13	0.12	-1.07	-0.13	0.11	-1.15	-0.13	0.11	-1.20	-0.10	0.14	-0.70	-0.13	0.15	-0.93
LogIncome	-0.13	0.08	-1.69	-0.13	0.08	-1.63	-0.07	0.07	-1.02	-0.02	0.09	-0.19	-0.15	0.09	-1.65
More than high school	0.09	0.10	0.96	0.09	0.10	0.95	-0.04	0.09	-0.47	-0.06	0.11	-0.54	0.12	0.12	1.05
Born in Eskisehir	0.15	0.09	1.69	0.15	0.08	1.81	0.13	0.08	1.66	0.12	0.10	1.13	0.17	0.10	1.66
City center resident	-0.04	0.09	-0.46	-0.04	0.09	-0.45	-0.04	0.08	-0.53	-0.05	0.10	-0.46	-0.04	0.10	-0.43
Relational ties with police	-0.02	0.08	-0.22	-0.02	0.08	-0.22	0.004	0.07	0.05	0.06	0.09	0.62	-0.02	0.09	-0.17
Prior contact with police	-0.11	0.09	-1.26	-0.11	0.09	-1.22	-0.09	0.08	-1.23	-0.04	0.10	-0.42	-0.12	0.10	-1.19
Years of Driving	0.001	0.004	0.31	0.001	0.004	0.33	0.002	0.004	0.39	0.01	0.005	1.13	0.001	0.01	0.22
Stopped by traffic police	-0.21	<b>0.10*</b>	-2.01	-0.21	<b>0.09*</b>	-2.29	-0.17	0.09	-1.84	-0.16	0.12	-1.30	-0.23	0.12	-1.94
Ticketed during the encounter	0.02	0.16	0.10	0.02	0.15	0.11	-0.07	0.14	-0.47	-0.05	0.18	-0.27	0.02	0.18	0.09
Constant	5.43			5.43			5.05			4.59			5.57		
*p<.05, **p<.01, ***p<.001															
Dependent variable: Traffic Police Legitimacy	F( 13, 584)= 2.59			F( 13, 584)= 3.04			F( 13, 584)= 3.34			Pseudo R2 = 0.0456			F( 13, 584)= 2.61		
N=598	Prob>F = 0.002			Prob>F = 0.000			Prob>F = 0.000						Prob>F = 0.002		
	R-squared = 0.0546			R-squared = 0.0546									R-squared = 0.0601		

Table 13: Results of Regression Tests for Model 3: Police Legitimacy

Variable	OLS Regression			Regression with Robust Standard Error			Robust Regression			Quantile Regression			Regression with Measurement Error		
	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t
Experimental Group	0.21	<b>0.08**</b>	2.47	0.21	<b>0.08**</b>	2.49	0.24	<b>0.08**</b>	3.09	0.33	<b>0.11**</b>	3.03	0.24	<b>0.09**</b>	2.49
Male	-0.08	0.23	-0.35	-0.08	0.21	-0.39	0.02	0.21	0.11	0.02	0.30	0.07	-0.11	0.26	-0.41
Married	0.29	<b>0.11**</b>	2.54	0.29	<b>0.12*</b>	2.31	0.23	<b>0.10*</b>	2.23	0.25	0.15	1.72	0.33	<b>0.13**</b>	2.51
Employed	-0.05	0.13	-0.38	-0.05	0.13	-0.38	-0.12	0.12	-0.99	-0.09	0.17	-0.55	-0.05	0.15	-0.33
LogIncome	-0.02	0.08	-0.25	-0.02	0.08	-0.26	-0.01	0.07	-0.12	0.07	0.10	0.66	-0.01	0.10	-0.12
More than high school	-0.07	0.10	-0.71	-0.07	0.10	-0.73	-0.17	0.09	-1.84	-0.29	<b>0.13*</b>	-2.20	-0.08	0.12	-0.64
Born in Eskisehir	0.15	0.10	1.56	0.15	0.09	1.67	0.09	0.09	1.05	0.17	0.12	1.40	0.17	0.11	1.56
City center resident	-0.18	0.09	-1.93	-0.18	0.09	-1.96	-0.19	<b>0.09*</b>	-2.21	-0.21	0.12	-1.74	-0.20	0.11	-1.88
Relational ties with police	0.07	0.09	0.84	0.07	0.09	0.85	0.09	0.08	1.10	0.19	0.11	1.70	0.09	0.10	0.92
Prior contact with police	-0.26	<b>0.09**</b>	-2.84	-0.26	<b>0.09**</b>	-2.81	-0.25	<b>0.08**</b>	-2.93	-0.29	<b>0.12**</b>	-2.46	-0.29	<b>0.10**</b>	-2.80
Years of Driving	-0.002	0.005	-0.48	-0.002	0.004	-0.49	-0.001	0.004	-0.28	-0.003	0.01	-0.50	-0.003	0.01	-0.57
Stopped by traffic police	-0.15	0.11	-1.35	-0.15	0.11	-1.39	-0.15	0.10	-1.47	-0.21	0.14	-1.47	-0.17	0.13	-1.33
Ticketed during the encounter	-0.14	0.17	-0.84	-0.14	0.15	-0.91	-0.23	0.15	-1.54	-0.21	0.21	-0.99	-0.16	0.19	-0.86
Constant	4.58			4.58			4.66			4.13	0.79	5.21	4.54		
*p< .05, **p< .01, ***p< .001															
Dependent variable: Police Legitimacy	F( 13, 584) = 2.83			F( 13, 584) = 3.23			F( 13, 584) = 3.95			Pseudo R2 = 0.0570			F( 13, 584) = 2.85		
N=598	Prob > F = 0.001			Prob > F = 0.000			Prob > F = 0.000						Prob > F = 0.001		
	R-squared = 0.0593			R-squared = 0.0593									R-squared = 0.0655		

Table 14: Results of Regression Tests for Model 4: Cooperation

Variable	OLS Regression			Regression with Robust Standard Error			Robust Regression			Quantile Regression			Regression with Measurement Error		
	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t
Experimental Group	0.24	<b>0.06***</b>	3.73	0.24	<b>0.06***</b>	3.73	0.29	0.04***	6.45	0.53	0.10***	5.38	0.26	<b>0.07***</b>	3.73
Male	-0.13	0.17	-0.78	-0.13	0.15	-0.88	0.003	0.12	0.03	0.00	0.26	0.00	-0.16	0.19	-0.85
Married	0.25	<b>0.08**</b>	2.93	0.25	<b>0.10**</b>	2.54	0.03	0.06	0.46	0.00	0.13	0.00	0.28	<b>0.10**</b>	2.88
Employed	0.04	0.10	0.43	0.04	0.09	0.44	0.02	0.07	0.24	0.00	0.15	0.00	0.06	0.11	0.49
LogIncome	0.01	0.06	0.20	0.01	0.05	0.22	0.05	0.04	1.12	0.00	0.09	0.00	0.01	0.07	0.11
More than high school	0.07	0.08	0.93	0.07	0.08	0.94	0.01	0.05	0.27	0.00	0.12	0.00	0.08	0.09	0.93
Born in Eskisehir	0.00	0.07	-0.03	-0.002	0.07	-0.03	-0.02	0.05	-0.47	0.00	0.11	0.00	0.0002	0.08	0.000
City center resident	-0.02	0.07	-0.22	-0.02	0.07	-0.22	-0.02	0.05	-0.36	0.00	0.11	0.00	-0.02	0.08	-0.25
Relational ties with police	0.11	0.07	1.65	0.11	0.07	1.62	0.08	0.05	1.85	0.00	0.10	0.00	0.12	0.07	1.68
Prior contact with police	-0.05	0.07	-0.66	-0.05	0.07	-0.66	0.002	0.05	0.05	0.00	0.11	0.00	-0.05	0.08	-0.69
Years of Driving	0.002	0.003	0.68	0.002	0.003	0.72	0.002	0.002	0.81	0.00	0.01	0.00	0.002	0.004	0.57
Stopped by traffic police	-0.10	0.08	-1.26	-0.10	0.08	-1.35	-0.06	0.06	-1.08	0.00	0.13	0.00	-0.12	0.09	-1.28
Ticketed during the encounter	-0.09	0.12	-0.74	-0.09	0.10	-0.89	-0.19	<b>0.09*</b>	-2.15	0.00	0.19	0.00	-0.11	0.14	-0.77
Constant	4.44			4.44			4.39			4.73			4.45		
*p< .05, **p< .01, ***p< .001															
Dependent Variable: Cooperation	F( 13, 584)= 2.43			F( 13, 584)= 3.07			F( 13, 584)= 4.35			Pseudo R2 = 0.0370			F( 13, 584)= 2.44		
N=598	Prob>F = 0.003			Prob>F = 0.000			Prob>F = 0.000						Prob>F = 0.003		
	R-squared = 0.0513			R-squared = 0.0513									R-squared = 0.0573		

Table 15: Results of Regression Tests for Model 5: General Compliance

Variable	OLS Regression			Regression with Robust Standard Error			Robust Regression			Quantile Regression			Regression with Measurement Error		
				Robust											
	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t
Experimental Group	0.28	<b>0.06***</b>	4.34	0.28	<b>0.06***</b>	4.37	0.30	<b>0.06***</b>	4.90	0.56	<b>0.10***</b>	5.94	0.31	<b>0.07***</b>	4.35
Male	-0.22	0.17	-1.27	-0.22	0.15	-1.46	-0.13	0.16	-0.83	0.00	0.26	0.00	-0.25	0.20	-1.26
Married	0.23	<b>0.09**</b>	2.66	0.23	<b>0.10*</b>	2.35	0.14	0.08	1.69	0.00	0.13	0.00	0.27	<b>0.10**</b>	2.67
Employed	-0.19	0.10	-1.92	-0.19	<b>0.08*</b>	-2.31	-0.15	0.09	-1.59	-0.56	<b>0.15***</b>	-3.89	-0.21	0.12	-1.76
LogIncome	-0.05	0.06	-0.90	-0.05	0.06	-0.93	-0.05	0.06	-0.84	0.00	0.09	0.00	-0.07	0.07	-0.90
More than high school	0.09	0.08	1.14	0.09	0.08	1.13	0.09	0.07	1.20	0.00	0.11	0.00	0.11	0.09	1.15
Born in Eskisehir	0.01	0.07	0.17	0.01	0.07	0.18	-0.003	0.07	-0.04	0.00	0.11	0.00	0.01	0.08	0.14
City center resident	-0.01	0.07	-0.10	-0.01	0.07	-0.10	0.003	0.07	0.04	0.00	0.11	0.00	-0.01	0.08	-0.08
Relational ties with police	-0.01	0.07	-0.10	-0.01	0.07	-0.10	0.01	0.06	0.10	0.00	0.10	0.00	-0.005	0.07	-0.07
Prior contact with police	-0.04	0.07	-0.51	-0.04	0.07	-0.51	-0.07	0.06	-1.03	0.00	0.10	0.00	-0.04	0.08	-0.47
Years of Driving	0.001	0.003	0.21	0.001	0.003	0.22	0.001	0.003	0.17	0.00	0.01	0.00	0.0001	0.004	0.02
Stopped by traffic police	-0.18	<b>0.08*</b>	-2.13	-0.18	<b>0.08*</b>	-2.38	-0.17	<b>0.08*</b>	-2.22	0.00	0.12	0.00	-0.20	<b>0.10*</b>	-2.10
Ticketed during the encounter	-0.26	<b>0.13*</b>	-2.08	-0.26	0.14	-1.86	-0.21	0.12	-1.74	0.00	0.19	0.00	-0.30	<b>0.14*</b>	-2.11
Constant	5.42			5.42			5.38			5.08			5.53		
*p<.05, **p<.01, ***p<.001															
Dependent variable: General Compliance	F( 13, 584)= 3.69			F( 13, 584)= 4.62			F( 13, 584)= 3.51			Pseudo R2 = 0.0788			F( 13, 584)= 3.72		
N=598	Prob>F = 0.000			Prob>F = 0.000			Prob>F = 0.000						Prob>F = 0.000		
	R-squared = 0.0758			R-squared = 0.0758									R-squared = 0.0841		



Table 16: Results of Regression Tests for Model 6: Specific Compliance

Variable	OLS Regression			Regression with Robust Standard Error			Robust Regression			Regression with Measurement Error		
	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t
Experimental Group	0.51	<b>0.05***</b>	11.00	0.51	<b>0.05***</b>	11.20	0.54	<b>0.04***</b>	13.96	0.57	<b>0.05***</b>	11.12
Male	-0.10	0.13	-0.83	-0.10	0.10	-1.00	-0.03	0.10	-0.32	-0.12	0.14	-0.83
Married	0.08	0.06	1.24	0.08	0.06	1.20	0.03	0.05	0.56	0.09	0.07	1.25
Employed	-0.05	0.07	-0.64	-0.05	0.06	-0.74	-0.03	0.06	-0.57	-0.05	0.08	-0.62
LogIncome	0.06	0.04	1.33	0.06	0.04	1.55	0.06	0.04	1.68	0.06	0.05	1.14
More than high school	0.12	<b>0.06*</b>	2.22	0.12	<b>0.05**</b>	2.45	0.11	<b>0.05*</b>	2.35	0.14	<b>0.07*</b>	2.10
Born in Eskisehir	-0.05	0.05	-0.96	-0.05	0.06	-0.84	0.02	0.04	0.41	-0.05	0.06	-0.93
City center resident	-0.01	0.05	-0.22	-0.01	0.05	-0.22	-0.03	0.04	-0.67	-0.02	0.06	-0.32
Relational ties with police	0.05	0.05	1.00	0.05	0.05	0.94	0.05	0.04	1.16	0.06	0.05	1.05
Prior contact with police	-0.05	0.05	-0.95	-0.05	0.05	-0.99	-0.07	0.04	-1.75	-0.06	0.06	-1.04
Years of Driving	0.0002	0.002	0.07	0.0002	0.003	0.07	-0.0005	0.002	-0.25	-0.00002	0.003	-0.01
Stopped by traffic police	-0.05	0.06	-0.84	-0.05	0.06	-0.80	-0.08	0.05	-1.66	-0.05	0.07	-0.78
Ticketed during the encounter	-0.08	0.09	-0.83	-0.08	0.07	-1.13	-0.11	0.08	-1.45	-0.09	0.10	-0.86
Constant	3.94			3.94			3.97			3.92		
*p< .05, **p< .01, ***p< .001												
Dependent variable: Specific Compliance	F( 13, 584)= 11.07			F( 13, 584)= 13.45			F( 13, 584)= 17.08			F( 13, 584)= 11.37		
N=598	Prob > F = 0.000			Prob > F = 0.000			Prob > F = 0.000			Prob > F = 0.000		
	R-squared = 0.1977			R-squared = 0.1977						R-squared = 0.2190		

Note: Quantile regression did not produce results.

Table 17: Results of Regression Tests for Model 7: Satisfaction

Variable	OLS Regression			Regression with Robust Standard Error			Regression with Measurement Error		
	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t
Experimental Group	0.68	<b>0.05***</b>	13.60	0.68	<b>0.05***</b>	14.05	0.76	<b>0.06***</b>	13.84
Male	-0.15	0.14	-1.08	-0.15	0.14	-1.08	-0.17	0.15	-1.15
Married	0.14	<b>0.07*</b>	2.03	0.14	0.08	1.77	0.15	<b>0.08*</b>	1.99
Employed	-0.06	0.08	-0.72	-0.06	0.07	-0.85	-0.06	0.09	-0.66
LogIncome	0.01	0.05	0.27	0.01	0.05	0.25	0.01	0.06	0.21
More than high school	0.0003	0.06	0.00	0.0003	0.06	0.00	0.0008	0.07	0.01
Born in Eskisehir	-0.08	0.06	-1.46	-0.08	0.06	-1.31	-0.09	0.06	-1.41
City center resident	0.003	0.06	0.06	0.003	0.06	0.06	0.001	0.06	0.01
Relational ties with police	-0.01	0.05	-0.10	-0.01	0.05	-0.10	-0.004	0.06	-0.07
Prior contact with police	-0.09	0.05	-1.66	-0.09	0.05	-1.67	-0.10	0.06	-1.72
Years of Driving	0.002	0.003	0.89	0.002	0.002	1.06	0.002	0.003	0.75
Stopped by traffic police	-0.04	0.07	-0.63	-0.04	0.06	-0.67	-0.04	0.07	-0.51
Ticketed during the encounter	0.005	0.10	0.05	0.005	0.08	0.06	0.001	0.11	0.01
Constant	4.09			4.09			4.08		
*p< .05, **p< .01, ***p< .001									
Dependent variable: Satsisfaction	F( 13, 584) = 15.79			F( 13, 584) = 18.86			F( 13, 584) = 16.42		
N=598	Prob > F = 0.000			Prob > F = 0.000			Prob > F = 0.000		
	R-squared = 0.2600			R-squared = 0.2600			R-squared = 0.2884		

Note: Robust regression and quantile regression did not produce any results.

In robust regression, all weights went to zero.

In quantile regresion, VCE computation failed.

Table 18: Results of Regression Tests for Model 8: Perception of Police

Variable	OLS Regression			Regression with Robust Standard Error			Robust Regression			Quantile Regression			Regression with Measurement Error		
	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t
Experimental Group	0.47	<b>0.07***</b>	6.89	0.47	<b>0.07***</b>	6.99	0.49	<b>0.05***</b>	9.14	1.00	<b>0.01***</b>	77.80	0.53	<b>0.08***</b>	6.92
Male	-0.15	0.19	-0.83	-0.15	0.13	-1.15	0.02	0.15	0.17	0.00	0.03	0.00	-0.17	0.21	-0.82
Married	0.12	0.09	1.34	0.12	0.10	1.20	0.01	0.07	0.09	0.00	0.02	0.00	0.14	0.11	1.36
Employed	-0.13	0.10	-1.19	-0.13	0.10	-1.29	-0.06	0.08	-0.70	0.00	0.02	0.00	-0.15	0.12	-1.18
LogIncome	0.03	0.06	0.53	0.03	0.06	0.53	0.12	<b>0.05*</b>	2.34	0.00	0.01	0.00	0.04	0.08	0.52
More than high school	0.04	0.08	0.52	0.04	0.08	0.52	0.02	0.06	0.29	0.00	0.02	0.00	0.05	0.10	0.47
Born in Eskisehir	-0.04	0.08	-0.53	-0.04	0.08	-0.51	0.04	0.06	0.64	0.00	0.01	0.00	-0.04	0.09	-0.52
City center resident	-0.06	0.08	-0.79	-0.06	0.08	-0.79	-0.10	0.06	-1.71	0.00	0.01	0.00	-0.07	0.09	-0.80
Relational ties with police	0.03	0.07	0.39	0.03	0.07	0.38	0.02	0.06	0.43	0.00	0.01	0.00	0.03	0.08	0.42
Prior contact with police	-0.08	0.07	-1.06	-0.08	0.08	-1.03	-0.05	0.06	-0.79	0.00	0.01	0.00	-0.09	0.08	-1.09
Years of Driving	-0.002	0.004	-0.66	-0.002	0.003	-0.75	0.001	0.003	0.32	0.000	0.001	0.00	-0.003	0.004	-0.75
Stopped by traffic police	-0.04	0.09	-0.47	-0.04	0.08	-0.50	0.01	0.07	0.08	0.00	0.02	0.00	-0.04	0.10	-0.43
Ticketed during the encounter	-0.20	0.13	-1.46	-0.20	0.12	-1.59	-0.25	<b>0.11*</b>	-2.35	0.00	0.03	0.00	-0.22	0.15	-1.48
Constant	4.03			4.03			3.29			4.00			4.00		
*p<.05, **p<.01, ***p<.001															
Dependent variable: Perception of Police	F( 13, 584)= 4.35			F( 13, 584)= 5.10			F( 13, 584)= 7.66			Pseudo R2 = 0.1796			F( 13, 584)= 4.40		
N=598	Prob > F = 0.000			Prob > F = 0.000			Prob > F = 0.000						Prob > F = 0.000		
	R-squared = 0.0882			R-squared = 0.0882									R-squared = 0.0986		

Table 19: The effects of BWCs on the Intervening Variables

Variable	Robust			Robust			Robust		
	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t
Experimental Group	0.69	<b>0.05***</b>	12.72	0.24	<b>0.08***</b>	<b>3.06</b>	0.21	<b>0.08**</b>	2.49
Male	-0.14	0.13	-1.10	-0.002	0.20	-0.01	-0.08	0.21	-0.39
Married	0.05	0.08	0.67	0.21	0.12	1.86	0.29	<b>0.12*</b>	2.31
Employed	-0.04	0.08	-0.57	-0.13	0.11	-1.15	-0.05	0.13	-0.38
LogIncome	0.09	0.05	1.86	-0.13	0.08	-1.63	-0.02	0.08	-0.26
More than high school	-0.02	0.07	-0.34	0.09	0.10	0.95	-0.07	0.10	-0.73
Born in Eskisehir	0.06	0.06	0.93	0.15	0.08	1.81	0.15	0.09	1.67
City center resident	-0.02	0.06	-0.31	-0.04	0.09	-0.45	-0.18	0.09	-1.96
Relational ties with police	0.00	0.06	0.02	-0.02	0.08	-0.22	0.07	0.09	0.85
Prior contact with police	-0.09	0.06	-1.39	-0.11	0.09	-1.22	-0.26	<b>0.09**</b>	-2.81
Years of Driving	0.005	0.003	1.76	0.001	0.004	0.33	-0.002	0.004	-0.49
Stopped by traffic police	-0.09	0.07	-1.28	-0.21	<b>0.09*</b>	-2.29	-0.15	0.11	-1.39
Ticketed during the encounter	-0.16	0.11	-1.49	0.02	0.15	0.11	-0.14	0.15	-0.91
Constant	4.40			5.43			4.58		
*p< .05, **p< .01, ***p< .001	DV: Procedural Justice			DV: Traffic Police Legitimacy			DV: Police Legitimacy		
N= 598	F( 13, 584)=15.40			F( 13, 584)= 3.04			F( 13, 584)= 3.23		
	Prob > F = 0.000			Prob > F = 0.000			Prob > F = 0.000		
	R-squared = 0.2313			R-squared = 0.0546			R-squared = 0.0593		

Note: DV is dependent variable.

Table 20: VIF table for Collinearity for Mediation Analyses

Variables	VIF	1/VIF
Traffic Police Legitimacy	1.84	0.54
Police Legitimacy	1.68	0.59
Procedural Justice	1.60	0.63
LogIncome	1.39	0.72
More than high school	1.35	0.74
Years of Driving	1.35	0.74
Experimental Group	1.28	0.78
Employed	1.28	0.78
Married	1.19	0.84
City center resident	1.11	0.90
Prior contact with police	1.11	0.90
Stopped by traffic police	1.10	0.91
Male	1.10	0.91
Relational ties with police	1.05	0.95
Born in Eskisehir	1.04	0.96
Ticketed during the encounter	1.04	0.96

Mean VIF 1.28

Table 21: The effect of BWCs on the Distal Outcomes

Variable	Robust			Robust			Robust			Robust			Robust		
	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t	b	Std. Err.	t
Experimental Group	0.04	0.06	0.72	0.22	<b>0.05***</b>	4.22	-0.01	0.06	-0.17	0.09	0.07	1.38	0.31	<b>0.05***</b>	6.18
Procedural Justice	0.22	<b>0.06***</b>	3.66	0.43	<b>0.05***</b>	8.17	0.23	<b>0.06***</b>	3.77	0.46	<b>0.06***</b>	8.11	0.52	<b>0.05***</b>	10.97
Traffic Police Legitimacy	0.29	<b>0.06***</b>	4.99	-0.03	0.02	-1.34	0.28	<b>0.07***</b>	4.21	0.12	<b>0.05**</b>	2.55	0.00	0.03	-0.07
Police Legitimacy	0.06	0.05	1.32	0.01	0.02	0.66	0.09	0.05	1.59	0.16	<b>0.04***</b>	3.67	0.04	0.03	1.63
Male	-0.18	0.12	-1.50	-0.04	0.08	-0.45	-0.09	0.13	-0.67	-0.07	0.12	-0.58	-0.06	0.11	-0.55
Married	0.14	0.08	1.77	0.06	0.05	1.04	0.15	0.08	1.95	0.03	0.08	0.32	0.09	0.06	1.55
Employed	-0.14	0.08	-1.72	-0.03	0.06	-0.54	0.09	0.08	1.12	-0.08	0.09	-0.87	-0.03	0.06	-0.53
LogIncome	-0.04	0.05	-0.68	0.02	0.04	0.40	0.03	0.05	0.58	0.01	0.05	0.19	-0.03	0.04	-0.82
More than high school	0.07	0.07	1.10	0.14	<b>0.05**</b>	3.05	0.06	0.06	0.92	0.06	0.07	0.83	0.02	0.05	0.40
Born in Eskisehir	-0.05	0.05	-0.98	-0.07	0.05	-1.41	-0.07	0.06	-1.26	-0.11	0.06	-1.66	-0.12	<b>0.05*</b>	-2.54
City center resident	0.02	0.06	0.34	-0.003	0.04	-0.06	0.02	0.06	0.28	-0.02	0.06	-0.30	0.02	0.04	0.48
Relational ties with police	-0.01	0.06	-0.09	0.05	0.04	1.09	0.11	0.06	1.95	0.02	0.06	0.32	-0.01	0.04	-0.18
Prior contact with police	0.03	0.06	0.49	-0.01	0.04	-0.31	0.03	0.06	0.40	0.01	0.06	0.20	-0.04	0.04	-0.84
Years of Driving	-0.001	0.003	-0.24	-0.002	0.002	-0.83	0.0009	0.003	0.36	-0.005	0.003	-1.66	-0.0002	0.002	-0.08
Stopped by traffic police	-0.09	0.07	-1.34	-0.02	0.05	-0.28	-0.01	0.07	-0.17	0.05	0.07	0.74	0.01	0.05	0.29
Ticketed during the encounter	-0.23	0.12	-1.87	-0.01	0.07	-0.10	-0.05	0.10	-0.50	-0.10	0.11	-0.95	0.09	0.08	1.22
Constant	2.60			2.17			1.52			0.65			1.60		
*p<.05, **p<.01, ***p<.001	DV: General Compliance			DV: Specific Compliance			DV: Cooperation			DV: Perception of Police			DV: Satisfaction		
	F( 17, 580)= 12.00			F( 16, 581)= 18.83			F( 16, 581)= 9.98			F( 16, 581)= 20.33			F(16,581)= 34.02		
	Prob > F = 0.000			Prob > F = 0.000			Prob > F = 0.000			Prob > F = 0.000			Prob > F = 0.000		
	R-squared = 0.3356			R-squared = 0.4071			R-squared = 0.3444			R-squared = 0.3891			R-squared=0.5463		

Notes: 1- DV is dependent variable.

2- The intervening variables are procedural justice, traffic police legitimacy, and police legitimacy.

Table 22: The Effect of BWCs on Police (Traffic) Legitimacy when Controlling for Procedural Justice

Variable	b	Robust Std. Err.	t	b	Robust Std. Err.	t
<b>Experimental Group</b>	-0.18	<b>0.08*</b>	-2.22	-0.14	0.09	-1.49
<b>Procedural Justice</b>	0.62	<b>0.06***</b>	10.04	0.50	<b>0.07***</b>	7.08
Male	0.09	0.21	0.42	-0.01	0.20	-0.05
Married	0.18	0.10	1.79	0.26	<b>0.11*</b>	2.29
Employed	-0.10	0.10	-1.02	-0.03	0.12	-0.22
LogIncome	-0.19	<b>0.07**</b>	-2.54	-0.07	0.07	-0.90
More than high school	0.11	0.09	1.24	-0.06	0.09	-0.64
Born in Eskisehir	0.12	0.07	1.57	0.12	0.08	1.43
City center resident	-0.03	0.08	-0.35	-0.17	0.09	-1.96
Relational ties with police	-0.02	0.07	-0.26	0.07	0.08	0.91
Prior contact with police	-0.06	0.08	-0.69	-0.22	<b>0.09*</b>	-2.44
Years of Driving	-0.002	0.004	-0.45	-0.005	0.004	-1.08
Stopped by traffic police	-0.15	0.08	-1.81	-0.10	0.10	-1.02
Ticketed during the encounter	0.11	0.14	0.81	-0.06	0.16	-0.38
Constant	2.71			2.40		
*p<.05, **p< .01, ***p< .001	DV: Traffic Police Legitimacy			DV: Police Legitimacy		
	F( 14, 583) = 12.06			F( 14, 583) = 7.66		
	Prob > F = 0.000			Prob > F = 0.000		
	R-squared = 0.2278			R-squared = 0.1594		

Notes: 1- DV is dependent variable.

2- The intervening variable is procedural justice.

Table 23: Results of Regression with Robust Standard Error Test for All Models

Variable	Robust			Robust			Robust			Robust			Robust			Robust			Robust			Robust											
	b	Std. Err.	t	B	b	Std. Err.	t	B	b	Std. Err.	t	B	b	Std. Err.	t	B	b	Std. Err.	t	B	b	Std. Err.	t	B									
Experimental Group	0.69	0.05***	12.72	0.46	0.24	0.08***	3.06	0.12	0.21	0.08**	2.49	0.10	0.24	0.06***	3.73	0.15	0.28	0.06***	4.37	0.17	0.51	0.05***	11.20	0.41	0.68	0.05***	14.05	0.49	0.47	0.07***	6.99	0.27	
Male	-0.14	0.13	-1.10	-0.04	-0.002	0.20	-0.01	0.00	-0.08	0.21	-0.39	-0.01	-0.13	0.15	-0.88	-0.03	-0.22	0.15	-1.46	-0.05	-0.10	0.10	-1.00	-0.03	-0.15	0.14	-1.08	-0.04	-0.15	0.13	-1.15	-0.03	
Married	0.05	0.08	0.67	0.03	0.21	0.12	1.86	0.09	0.29	0.12*	2.31	0.11	0.25	0.10**	2.54	0.13	0.23	0.10*	2.35	0.11	0.08	0.06	1.20	0.05	0.14	0.08	1.77	0.08	0.12	0.10	1.20	0.06	
Employed	-0.04	0.08	-0.57	-0.02	-0.13	0.11	-1.15	-0.05	-0.05	0.13	-0.38	-0.02	0.04	0.09	0.44	0.02	-0.19	0.08*	2.31	-0.09	-0.05	0.06	-0.74	-0.03	-0.06	0.07	-0.85	-0.03	-0.13	0.10	-1.29	-0.05	
Logincome	0.09	0.05	1.86	0.08	-0.13	0.08	-1.63	-0.08	-0.02	0.08	-0.26	-0.01	0.01	0.05	0.22	0.01	-0.05	0.06	-0.93	-0.04	0.06	0.04	1.55	0.06	0.01	0.05	0.25	0.01	0.03	0.06	0.53	0.02	
More than high school	-0.02	0.07	-0.34	-0.01	0.09	0.10	0.95	0.04	-0.07	0.10	-0.73	-0.03	0.07	0.08	0.94	0.04	0.09	0.08	1.13	0.05	0.12	0.05**	2.45	0.10	0.0003	0.06	0.00	0.0002	0.04	0.08	0.52	0.02	
Born in Eskisehir	0.06	0.06	0.93	0.03	0.15	0.08	1.81	0.07	0.15	0.09	1.67	0.06	-0.002	0.07	-0.03	0.00	0.01	0.07	0.18	0.01	-0.05	0.06	-0.84	-0.04	-0.08	0.06	-1.31	-0.05	-0.04	0.08	-0.51	-0.02	
City center resident	-0.02	0.06	-0.31	-0.01	-0.04	0.09	-0.45	-0.02	-0.18	0.09	-1.96	-0.08	-0.02	0.07	-0.22	-0.01	-0.01	0.07	-0.10	0.00	-0.01	0.05	-0.22	-0.01	0.003	0.06	0.06	0.002	-0.06	0.08	-0.79	-0.03	
Relational ties with police	0.00	0.06	0.02	0.00	-0.02	0.08	-0.22	-0.01	0.07	0.09	0.85	0.03	0.11	0.07	1.62	0.07	-0.01	0.07	-0.10	0.00	0.05	0.05	0.94	0.04	-0.01	0.05	-0.10	-0.004	0.03	0.07	0.38	0.02	
Prior contact with police	-0.09	0.06	-1.39	-0.05	-0.11	0.09	-1.22	-0.05	-0.26	0.09**	-2.81	-0.12	-0.05	0.07	-0.66	-0.03	-0.04	0.07	-0.51	-0.02	-0.05	0.05	-0.99	-0.04	-0.09	0.05	-1.67	-0.004	-0.08	0.08	-1.03	-0.04	
Years of Driving	0.005	0.003	1.76	0.07	0.001	0.004	0.33	0.01	-0.002	0.004	-0.49	-0.02	0.002	0.003	0.72	0.03	0.001	0.003	0.22	0.01	0.0002	0.003	0.07	0.00	0.002	0.002	1.06	0.04	-0.002	0.003	-0.75	-0.03	
Stopped by traffic police	-0.09	0.07	-1.28	-0.05	-0.21	0.09*	-2.29	-0.08	-0.15	0.11	-1.39	-0.06	-0.10	0.08	-1.35	-0.05	-0.18	0.08*	-2.38	-0.09	-0.05	0.06	-0.80	-0.03	-0.04	0.06	-0.67	-0.02	-0.04	0.08	-0.50	-0.02	
Ticketed during the encounter	-0.16	0.11	-1.49	-0.05	0.02	0.15	0.11	0.00	-0.14	0.15	-0.91	-0.03	-0.09	0.10	-0.89	-0.03	-0.26	0.14	-1.86	-0.08	-0.08	0.07	-1.13	-0.03	0.005	0.08	0.06	0.002	-0.20	0.12	-1.59	-0.06	
Constant	4.40				5.43				4.58				4.44				5.42				3.94				4.09				4.03				
*p<.05, **p<.01, ***p<.001	DV: Procedural Justice			DV: Traffic Police Legitimacy			DV: Police Legitimacy			DV: Cooperation			DV: General Compliance			DV: Specific Compliance			DV: Satisfaction			DV: Perception of Police											
N=598	F(13, 584)=15.40			F(13, 584)=3.04			F(13, 584)=3.23			F(13, 584)=3.07			F(13, 584)=4.62			F(13, 584)=13.45			F(13, 584)=18.86			F(13, 584)=5.10											
	Prob>F=0.000			Prob>F=0.000			Prob>F=0.000			Prob>F=0.000			Prob>F=0.000			Prob>F=0.000			Prob>F=0.000			Prob>F=0.000											
	R-squared=0.2313			R-squared=0.0546			R-squared=0.0593			R-squared=0.0513			R-squared=0.0758			R-squared=0.1977			R-squared=0.2600			R-squared=0.0882											

Note: DV is dependent variable.