Why do People Cooperate with the Police and Criminal Courts? A Test of Procedural Justice Theory in 30 Countries

JONATHAN JACKSON[1] | JOUNI KUHA[2] | BEN BRADFORD[3] | MIKE HOUGH[4]
[1] Department of Methodology, LSE, and University of Sydney Law School
[2] Department of Statistics and Department of Methodology, LSE
[3] Department of Security and Crime Science, UCL
[4] Institute for Crime and Justice Policy Research, Birkbeck, University of London

KEYWORDS
public trust and confidence, procedural justice, legitimacy, cooperation, cross-national research

ABSTRACT
This paper presents a cross-national test of the portability of procedural justice theory. Drawing on nationally representative survey data from 30 diverse social, political and legal contexts across Europe and beyond, we find that the theory travels well across national borders and that its psychological purchase is particularly pronounced in societies where fair policing is seen as the norm. First, in most countries, a normative account of public cooperation with the police—grounded in procedural justice and legitimacy—has greater empirical traction than an instrumental account based on effectiveness and fear of crime. Second, while procedural justice consistently emerges as the strongest predictor of police legitimacy, it is especially important in contexts where the police are widely viewed as fair and inclusive authorities—a proxy for their status as a positive group authority. These findings help lay the groundwork for cross-national extensions of procedural justice theory, pointing to the need for further research into the social and institutional conditions that shape its psychological impact.

CORRESPONDENCE
Jonathan Jackson, Department of Methodology, London School of Economics & Political Science
Houghton Street, London WC2A 2AE, United Kingdom
E-mail j.p.jackson@lse.ac.uk

FUNDING
This study was funded by UK ESRC grant reference: ES/L011611/1, EU FP7 Eurojustis grant reference 217311, and EU FP7 Fiducia grant reference 290563. The US survey was supported by grants from Yale Law School and New York University. The SASAS survey was supported by a grant from the Open Society Foundation for South Africa (OSF-SA).

DATA AVAILABILITY STATEMENT

This study utilizes data from the European Social Survey (ESS), the South African Social Attitudes Survey (SASAS), and US data that is the property of Tom Tyler (Yale Law School). The ESS and SASAS data are publicly available through their respective official repositories. In accordance with the data use agreements and policies of these surveys, the original data must be accessed directly from the authoritative sources maintained by the data owners.

The European Social Survey data can be obtained from the ESS Data Portal (www.europeansocialsurvey.org), and the South African Social Attitudes Survey data is available through the official SASAS/Human Sciences Research Council repository. Both datasets are freely accessible to researchers upon registration with the respective data archives.

The data owners' terms of use stipulate that redistributed versions of their datasets should not be hosted on third-party repositories outside of their control. This policy ensures data integrity, proper versioning, and appropriate attribution to the original data collection efforts. The US data used in this study is proprietary data belonging to Tom Tyler (Yale Law School) and is not in the public domain; researchers interested in accessing this data should contact the data owner directly.

Researchers seeking to replicate this study should obtain the ESS and SASAS data directly from these official sources, where they will have access to the same raw data files used in this analysis, along with comprehensive documentation and metadata. The analysis code and detailed variable construction procedures used in this study are available here https://osf.io/fghzx/, enabling replication of our results for those with access to all three data sources.

Academics, policymakers and justice officials have long recognised the importance of public cooperation with the police and criminal courts (Meares, 2017; Tyler, 2017; Frydl & Skogan, 2004). Law-breaking goes unnoticed if no one reports it; crimes go unsolved when the public do not come forward; trials falter when witnesses stay silent. Cooperation is the cornerstone of effective and fair policing—and debates about how it can be secured and sustained tend to coalesce around two main perspectives (Tyler, 2011a, 2011b). On the one hand, an instrumental account puts crime-fighting and risk-reduction center stage. If people are more willing to support police they see as capable of deterring crime and maintaining order, then police must make that capability visible. On the other hand, a normative account emphasises legitimacy and fairness in everyday encounters. If people are more inclined to help police they perceive as moral, just and appropriate, then police must prioritise respectful treatment and impartial decision-making.

In this paper, we present the most extensive cross-national test of procedural justice theory (PJT) to date (Tyler, 2006a, 2006b; Sunshine & Tyler, 2003). A substantial body of evidence from the US (Tyler & Fagan, 2008; Tyler & Jackson, 2014), UK (Jackson et al., 2013; Huq et al., 2017), Australia (Murphy & Cherney, 2012; Mazerolle et al., 2013) and Israel (Jonathan-Zamir & Weisburd, 2013; Metcalfe et al., 2016) supports two key propositions of PJT: first, that procedural justice is a stronger predictor of legitimacy than distributive justice and effectiveness; and second, that procedural justice and legitimacy are stronger predictors of public cooperation with the police, compared to factors like effectiveness, perceptual deterrence and fear of crime (for reviews of the literature, see: Jackson, 2018; Bolger & Walters, 2019). Together, these findings suggest that legal authorities are more likely to secure public cooperation when they adopt consensual approaches grounded in fair process—rather than strategies that rely on compliance and control (Tyler, 2003).[1]

Yet, despite the growing international appeal of PJT, the empirical base remains limited in at least two key ways.[2] First, most studies focus on a narrow range of countries. Broader geographic coverage is needed to test the theory's relevance across diverse social, political and legal systems. Second, much of the literature lacks methodological consistency across contexts. If we are to assess the portability of PJT across national borders, we need not only cross-national data, but also a shared framework for defining, measuring and modelling key concepts. Only with theoretical clarity and comparative precision can we meaningfully compare how procedural justice and legitimacy function in different societies.

By way of contribution, we present findings from a methodologically equivalent 30-country study. We link nationally representative sample survey data from Round 5 of the European Social Survey[3] (ESS) to two matching representative-sample surveys of the US and South Africa.[4] Our analysis proceeds in three stages. First, we examine the predictors of perceived police legitimacy. On what bases do people judge the legitimacy of the police? Rather than assume which values drive legitimation, we treat this as an empirical question—we identify the normative standards that people apply in give national context when judging authority (Jackson & Bradford, 2019; Trinkner, 2019). Second, we model the predictors of cooperation. Why do people cooperate with the police and the courts? We test whether cooperation is grounded more in shared moral commitments to authority—or in pragmatic judgments about institutional performance.

Third, do these relationships vary by national levels of procedural justice? We build on a central tenet of PJT: namely, that when officers send messages of group inclusion and status to most citizens, they show to those they police that they are a valued part of the group that legal authorities represent—a group that one could conceptualise as *mainstream law-abiding society* (Bradford, 2014; Bradford et al., 2014). In countries with high average levels of perceived procedural justice, the police are likely to be seen as embodying a shared, superordinate vision of the nation—one grounded in norms of fairness, order and law-abiding citizenship. In such contexts, police are likely to represent not just a powerful legal authority, but also legitimate and inclusive group representatives for a community to which citizens feel they belong.

---

[1] While studies have emerged from a wider range of countries (outside of the US, UK, Australia and Israel), but they are typically isolated, single-country investigations that vary in sampling, measurement and modelling—limiting the potential for meaningful cross-national comparison.

[2] We leave aside a third limitation, i.e. the predominance of observational rather than experimental evidence. For discussion see Nagin & Telep (2017a), Tyler (2017) and Nagin & Telep (2017b).

[3] While some preliminary and single country findings from Round 5 of the European Social Survey have been published (Hough et al. 2013a, 2013b; Van Damme et al., 2015; Moravcová, 2016; Bradford & Jackson, 2018; Baćak & Apel, 2020), there has been no formal, comparative cross-national test of the links between potential sources of legitimacy (procedural justice, distributive justice, effectiveness and lawfulness), legitimacy, and willingness to cooperate with the police and criminal courts.

[4] Some key national findings have been published from the US survey, see Tyler & Jackson (2014) and Trinkner et al. (2018). For the South Africa survey, see Bradford et al. (2014).

Starting from the premise that the police represent a stronger and more identity-relevant group authority in countries with high levels of enacted procedural justice towards the general population, we test whether people are more likely to orient themselves towards legal authority in normative (rather than instrumental ways) in countries with high aggregate levels of procedural justice. Our findings largely support this hypothesis. On the one hand, procedural justice is a more consistent predictor of legitimacy than distributive fairness, effectiveness or fear of crime—particularly in countries where the police are generally seen to act in procedurally just ways. On the other hand, procedural justice and legitimacy are stronger predictors of cooperation in those very same contexts. We conclude with the idea that higher national levels of procedural justice fosters stronger identification with the social group the police represent, deepening the normative foundations of police–citizen relations (Tyler, 1997; Trinkner, 2019).

The rest of the paper is structured as follows. We begin with a review of PJT and a presentation of our theoretical model. We then consider why procedural justice and legitimacy may matter more in some countries than others. After describing the fieldwork, measures and modelling strategy, we present our country-specific results and cross-national comparisons. We finish by positioning our findings in the broader literature and suggesting directions for future research.

A CROSS-NATIONAL PERSPECTIVE ON PROCEDURAL JUSTICE THEORY

What legitimates the police?

PJT offers a powerful framework for understanding how legal authorities build legitimacy—and, in turn, encourage public cooperation with the criminal justice system (Sunshine & Tyler, 2003; Tyler & Huo, 2002). Its central claim is that when authorities exercise power in normatively appropriate ways, people are more likely to accept their right to govern, and that procedural justice—rather than effectiveness, distributive justice or outcome fairness—is the most important foundation of police legitimacy, particularly in contexts where individuals identify with the social group the police are seen to represent (Tyler & Lind, 1992; Lind & Tyler, 1988; Tyler, 1997; Trinkner, 2019).

Why should fair treatment and decision-making matter so much? First, citizens hold clear normative expectations about how legal officials should exercise power—they *should* treat people with dignity, allow voice in decision-making, act impartially, and show trustworthy motives when interacting with the public. When authorities are seen to meet these expectations, people are more likely to see them as morally valid and feel a corresponding obligation to comply with their directives (Jackson, 2018; Jackson & Bradford, 2019). Second, Tyler's relational model emphasizes the importance of group identity (Tyler, 1997). Fair treatment signals respect, inclusion, and social standing (Lind & Tyler, 1988; Tyler & Blader, 2003a, 2003b). By affirming people's membership in a shared group—typically law-abiding society or the national community—procedural justice strengthens solidarity and deepens legitimacy (Kyprianides et al., 2021; Trinkner, 2019).[5] Especially in contexts where the police are widely seen as embodying this superordinate group—where the police are seen as meaningful representatives of a shared social identity—procedural justice deepens group bonds and solidarity, reinforcing the legitimacy of legal authority (Tyler, 1997; Trinkner, 2019)

Looking across the available evidence (Jackson, 2018), procedural justice does seem to matter the most when police power is exercised. Studies in the US, UK, Australia and Israel consistently find that acting in procedurally fair ways helps to legitimate the police. Crucially, the effectiveness of the police and whether police allocate outcomes—such as arrests, citations, protection and service—and finite resources fairly across aggregate social groups (i.e. distributive justice) both seem to be less important.[6] Yet, findings diverge in countries such as South Africa, China, Pakistan and Ghana, where perceived effectiveness or freedom from corruption often rivals—or exceeds—procedural fairness as a basis for legitimacy (Bradford et al., 2014;

[5] For discussion of the nature of social identity and identification, see: Tyler (1997); Bradford (2014); Radburn et al. (2018); Trinkner (2019); Kyprianides et al. (2021); and Jackson et al. (2023b).

[6] Emerging evidence from the US and UK suggests an additional basis for police legitimacy: namely, the extent to which officers respect the boundaries of their rightful authority (Huq et al., 2017; Trinkner et al., 2018; Jackson et al., 2023a). Like procedural justice, perceptions of bounded authority are shaped by everyday encounters with police. But while procedural fairness concerns how power is exercised, bounded authority raises deeper questions about whether police have the right to be present and exert control in certain spaces at all. People value autonomy in their daily lives, and though they accept that maintaining social order may require some surrender of that autonomy, they also expect law enforcement to respect their agency. *Other* relational cues may also shape legitimacy, particularly when marginalised identities are salient. Jackson et al. (2023c) found that among those who identified with the Black Lives Matter movement, perceptions of both under-policing and over-policing of Black communities predicted police legitimacy—even after accounting for procedural justice and bounded authority (see also Oliveira, 2025).

Boateng et al., 2022; Sun et al., 2017; Jackson et al., 2014; Tankebe, 2009; see also Wu & Liu, 2023). These are contexts marked by authoritarian policing traditions, weaker institutional safeguards, and/or post-colonial legacies. In such settings, identification with the group the police claim to represent may be weaker or more contested (Trinkner, 2019). This may help explain why legitimacy appears to rest more on instrumental factors like effectiveness than on procedural fairness (Tyler, 1997).[7] We return to this issue later in the paper.

Public cooperation with the police and criminal courts

PJT also helps explain why people cooperate with legal authorities. At the heart of the theory is the idea that procedural justice fosters legitimacy and strengthens identification with the legal system—motivating cooperation not through fear or self-interest, but through shared values and obligations. In the US, UK, Australia and Israel, research consistently shows that when people view the police as just, moral and appropriate authorities, they are more likely to support police actions and goals (Sunshine & Tyler, 2003; Tyler & Fagan, 2008; Jackson et al., 2013; Jonathan-Zamir & Weisburd, 2013; Mazerolle et al., 2013; White et al., 2016; Hohl et al., 2025).[8]

Notably, Bolger & Walter's (2019) meta-analysis of the literature found not only that procedural justice was a common *indirect* predictor of cooperation through legitimacy, it was also a *direct* predictor of cooperation (bypassing legitimacy). Procedural justice—and the identification processes it strengthens—means that people internalise the goals, values and motivations of the group (Trinkner, 2019).[9] Aside from the role that legitimacy plays, procedural justice strengthens the willingness of people to come forward voluntarily to report a crime, give vital information to officers to aid their investigation, and give evidence in court.

Outside of the US, UK, Australia and Israel, the evidence on cooperation is patchier. Kochel et al. (2013) found that procedural justice and legitimacy were positive predictors of the decision of victims to report the crime to the police in Trinidad & Tobago. By contrast, Tankebe (2009) showed that effectiveness was a stronger predictor of people's willingness to cooperate with the police than legitimacy in Ghana. A Japanese study (Tsushima & Hamai, 2015) found that neither duty to obey nor normative alignment predicted willingness to report crimes or provide information—most participants expressed strong willingness to cooperate, suggesting that cooperation functions as a stable social norm in Japan, leaving limited space for legitimacy to explaining variation in behavioural support (cf. Jackson et al., 2021).

THE CURRENT STUDY: A CROSS-NATIONAL TEST OF PROCEDURAL JUSTICE THEORY

Overall, PJT has gained increasing traction across a wide range of national contexts. Researchers have explored the norms that underpin legitimacy and the motivations that drive cooperation, and the findings have generally aligned with the theory's central claims. Yet, international enthusiasm has outpaced methodological rigour. Much of the existing evidence comes from a handful of countries and where studies have expanded geographically, inconsistencies in sampling, measurement and modelling have made systematic comparison difficult.

One unresolved question is whether PJT operates similarly across societies—or whether it functions more strongly in some national contexts than others. A major obstacle to answering this question is the lack of methodologically equivalent, nationally representative data across a broad set of countries. Even the concept of legitimacy is often defined and measured in inconsistent ways. Kochel et al. (2013) used items tapping obligation to obey both police and law; Tankebe (2009) emphasised trust and obligation to obey; Tsushima and Hamai (2015) focused on normative alignment and duty to obey. These conceptual variations, compounded by divergent modelling strategies, make it difficult to assess where and under what conditions PJT holds most strongly.

What the field now needs is truly comparative cross-national research—studies that use harmonised definitions, measures and analytic approaches across diverse settings. That is the contribution of this paper. We

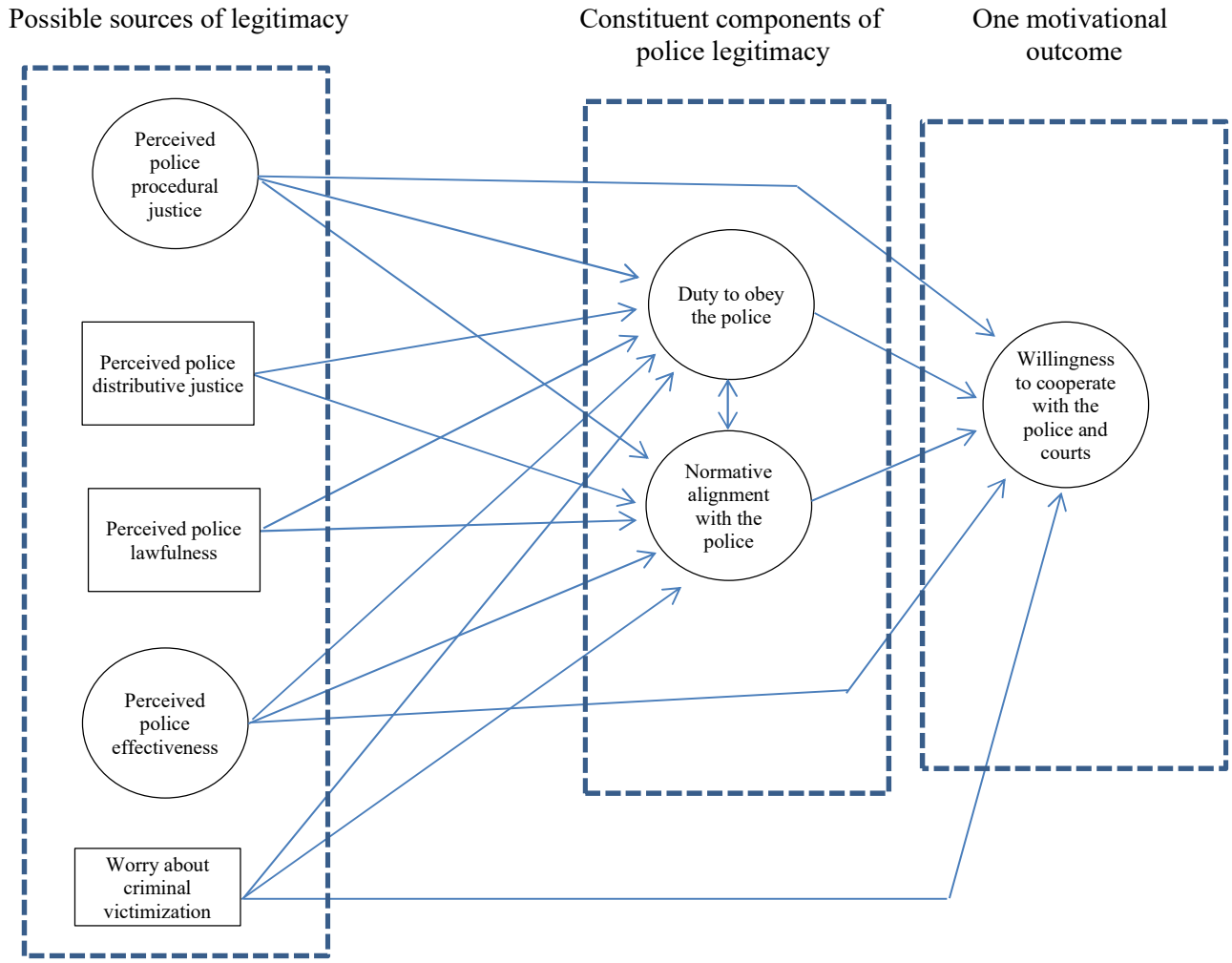
[7] It is worth noting that Chen et al.'s (2023) meta-analysis found that the procedural justice-legitimacy association was stronger in countries that score higher on the Human Development Index.

[8] Tests of PJT generally find that institutional trust and/or normative alignment tend to be a stronger predictor of willingness to cooperate than obligation to obey when both are placed in the statistical models, see Dirikx & van Den Bulck (2013), Jackson et al. (2013) and Reisig et al. (2007).

[9] According to Trinkner (2019: 3): "…legitimacy reflects a normative alignment between an individual's values and the group's values, whereby one accepts the duties and responsibilities attached to group membership (Jackson et al. 2013; Tyler and Trinkner 2018)." Group membership involves not only "…recogniz[ing] the position of power of group authorities and accept[ing] their role as regulators of behavior" (*ibid:* p.3) but also internalizing the motivation to proactively help the police perform their function.

draw on methodologically equivalent data from 30 countries, including the US, Northern Europe (e.g., Denmark, UK, Ireland), Western Europe (e.g., France, Germany, Netherlands), Eastern Europe (e.g., Hungary, Ukraine, Russian Federation), Southern Europe (e.g., Portugal, Spain, Greece), as well as Israel and South Africa. In each case, we test the same theoretical model using consistent constructs, indicators and modelling strategies. Figure 1 summarises the theoretical model estimated in each country. In the next section, we elaborate on its conceptual foundations and operational details.[10]

FIGURE 1. A procedural justice model of public cooperation with the police



NOTE: Circles represent latent variables, boxes represent directly observed variables, directed arrows represent regression paths, and double-headed arrow represents conditional covariance. All variables in the model are also conditional on three covariates: the respondents' self-reported age, gender and education. The model also includes conditional covariances between all pairs of the five possible sources of legitimacy given the covariates; these covariances are omitted from the figure for visual clarity. The model is fitted using structural equation modelling in each country separately, but with the measurement model for each latent variable fixed to be the same in every country.

[10] Our focus is on general perceptions of police activity, rather than individuals' direct experiences of police contact (see Oliveira et al., 2021). While we assume that these perceptions are shaped—at least in part—by both direct and indirect encounters, this remains a background assumption rather than a hypothesis we explicitly test. However in the supplementary materials (S5) we present robustness checks to assess the potential impact of direct police contact. Specifically we (a) control for police-initiated contact to examine whether it alters key PJT relationships and (b) compare respondents with recent police-initiated contact to those without, testing whether model fit differs between the two groups.

Legitimation and legitimacy

We define police legitimacy along two dimensions: normative alignment and duty to obey (Jackson et al., 2012, 2013). Normative alignment refers to the belief that the police act in ways consistent with one's values and expectations about how power should be exercised. We measure normative alignment by asking respondents whether the police generally behave in ways aligned with their personal values. Officers personify the institution—they wield its authority on the ground. When citizens believe this authority is used appropriately, they recognise the institution's moral right to power.

Duty to obey reflects the consent-based dimension of legitimacy. This is the belief that the police have a rightful claim to dictate behaviour. When individuals internalise the idea that they should obey the police—not because of the specific content of commands, but because they view the institution itself as legitimate—they express a principled commitment to authority. This moral obligation signals a willingness to comply with laws and directives flowing from an institution they endorse (Tyler, 2006a, 2006b; Tyler & Jackson, 2013).[11] Duty to obey is captured using content-independent items, designed to avoid confounding legitimacy with evaluations of specific police actions (see the supplementary materials section S2 for discussion).

By modelling the predictors of each dimension, we treat legitimacy as an open empirical question: what expectations—fairness, legality, effectiveness—shape public judgments of rightful authority in each country? If procedural justice emerges as the strongest predictor of legitimacy in a given country, we infer that fair process is a core normative expectation about the rightful use of power in that setting. This approach places citizens, not researchers, in the role of defining the standards of legitimacy: large-scale public opinion data reveal which values people draw upon when assessing police legitimacy across national contexts (Jackson & Bradford, 2019; Trinkner, 2019).[12]

We examine five potential predictors of normative alignment and duty to obey (Figure 1). Procedural justice is the first and most widely studied. A strong link between procedural justice and normative alignment would suggest that citizens evaluate the appropriateness of institutional power based in part on whether officers are seen to act and make decisions in fair, respectful and transparent ways. If procedural justice is the strongest predictor of normative alignment in a given country, we interpret it as the dominant legitimating norm for police behaviour in that context. If procedural justice also predicts duty to obey, this implies that people feel morally bound to comply when the police are seen to uphold principles of fair process.

Distributive justice refers to the perceived fairness of how police allocate the "goods" (e.g. protection, services) and "bads" (e.g. sanctions, surveillance) of policing across social groups. The concept is measured by asking whether officers treat rich and poor victims, and ethnic majority and minority victims, equally (see the supplementary materials S2 for discussion). If distributive fairness predicts normative alignment, it would indicate that impartiality in providing a service to victims across groups is part of the legitimacy calculus. If it predicts duty to obey, it signals that group-level equity is central to perceptions of rightful authority.

Lawfulness reflects expectations that the police themselves follow the rules—both legal statutes and internal regulations. A positive association with normative alignment suggests that legal compliance is part of what people expect from legitimate authorities. If lawfulness predicts duty to obey, it implies a reciprocal logic: citizens feel obliged to follow the rules only when they believe the police do too.

Effectiveness shifts attention from fairness to outcomes. If people believe the police are effective at controlling crime and maintaining order, this may enhance perceptions of legitimacy. they may be more likely to see them as legitimate authorities. A positive link with normative alignment implies that competence is itself a normative expectation. If effectiveness also predicts duty to obey, it suggests that people confer legitimacy on authorities who "get the job done."

Finally, fear of crime introduces a more speculative dynamic. Fear may reduce legitimacy—if people feel unsafe, they may question the police's capacity to protect them. But the reverse may also be true: fear may increase reliance on police, reinforcing perceptions of legitimacy as people look to institutions for protection and reassurance (Van Der Toorn et al., 2011; Kochel, 2018).

Why do people cooperate with the police and criminal courts?

[11] This form of felt obligation is understood to stem from active citizenship and genuine consent—specifically, willing consent to the authority relationship between police and public. It reflects a belief that the police have rightful authority to regulate behavior and issue directives that should be followed, as opposed to compliance rooted in fear, habit or instrumental calculation. For debate, see Bottoms & Tankebe (2012), Tyler & Jackson (2013), Trinkner (2019), Posch et al. (2021) and Hamm et al. (2022).

[12] See also Bottoms & Tankebe (2021) who, adapting Williams' (2005) phrase 'basic legitimation demands', argue that 'basic legitimation expectations' can vary from one political community to another.

On the right-hand side of Figure 1 is our outcome: willingness to cooperate with the police. We examine behaviours of immediate value to the criminal justice system—calling the police to report crimes or anti-social behaviour, providing information to aid investigations, and participating in court proceedings. These acts carry personal risk, require time and effort, and reflect recognition of the police as legitimate authorities over matters of crime and disorder.

We examine five potential predictors of cooperation. Normative alignment and duty to obey reflect normative motivations. If normative alignment predicts cooperation, this reflects moral reciprocity: when people feel the police act in line with their values, they are more likely to act in support of the institution. A link between duty to obey and cooperation would signal deference: people help the police because they believe they ought to, irrespective of outcomes.

Procedural justice is a third potential predictor. Individuals may be more willing to report crimes, share information, and testify in court if they believe they will be treated with fairness and respect. Some studies find that procedural justice predicts cooperation independently of legitimacy. For example, Reisig & Lloyd (2009) found that in Jamaica, obligation to obey was not significantly related to cooperation, but procedural justice was. Kochel et al. (2013) reported similar findings in Trinidad & Tobago. As mentioned earlier, Bolger & Walters' (2019) meta-analysis also found a direct link between procedural justice and cooperation across multiple studies.

Together, these three variables reflect the normative appeal of the institution—people cooperate because they feel a moral or ethical connection and obligation to the police and courts. The remaining two predictors—perceived effectiveness and fear of crime—reflect more instrumental concerns. People may be more inclined to cooperate when they view the police as competent crime-fighters who can deter offending, respond rapidly and make communities safer. Assisting a capable institution may be seen as a way to improve collective security or ensure personal protection. Conversely, perceptions of ineffectiveness may deter cooperation: why invest effort in a system that does not work?[13]

Fear of crime introduces more ambiguity. On the one hand, fear may heighten the perceived need for protection, increasing people's willingness to support and assist the police. On the other hand, fear may reduce cooperation if people worry about retaliation, exposure, or if fear reflects a broader sense of institutional distrust.

Cross-national variation in strengths of the relationships predicting legitimacy and cooperation

Beyond testing the model in each country separately, we ask a broader question: does PJT function more strongly in some national contexts than others? The norms shaping expectations of police behaviour likely vary across societies with different political institutions, legal cultures and histories (Jackson & Bradford, 2019; Trinkner, 2019). As Tyler (1997: 337) observed, "It is important to recognize that the relational model may not provide a good description of authority relations in all settings. In particular, people should care more about relational issues when they identify with the authority and the group that authority represents."

Building on this insight, we test whether procedural justice is a stronger individual-level predictor of legitimacy in countries where, on average, police are perceived to behave in procedurally just ways—and weaker in countries where such perceptions are less widespread. Following Tyler (1997) and Trinkner (2019), we reason that in societies where police routinely convey inclusion, dignity and respect—through consistent procedural fairness—people are more likely to view the police as (a) a positive and representative authority and (b) a symbol of a broader social group with which they identify, such as the law-abiding national community (Murphy et al., 2022). In these contexts, normative motivations to cooperate might carry more psychological weight than instrumental considerations because of heightened identity-relevance.

We test whether the relative role of relational versus instrumental predictors varies systematically across national contexts, depending on the perceived fairness and group-representativeness of police authority.[14] We

[13] Cooperation is regressed on both components of legitimacy, meaning that the effect of duty to obey is estimated while controlling for normative alignment, and vice versa. In addition, both legitimacy components are modelled as outcomes of procedural justice, distributive justice, effectiveness and lawfulness. PJT holds that when police act in ways consistent with societal norms of appropriate conduct, this fosters legitimacy, and legitimacy reinforces the reciprocal belief that citizens—recognising the rightful authority of the police—should also act appropriately, including by cooperating with legal authorities.

[14] While our proxy does not directly capture the strength or salience of police identification with a superordinate group, it offers a first step toward operationalising this concept cross-nationally, providing a foundation for future refinement. We acknowledge that we do not include national-level controls such as crime rates or corruption indices in our analysis. With only 30 countries—each contributing a single observation to the aggregate-level analysis—adding additional national-level variables would present significant methodological challenges. Many such indicators are highly correlated, and estimating partial associations with so few data points risks overfitting and unreliable inference. While broader contextual factors are theoretically important, the constraints of our dataset limit our ability to assess their independent effects in a robust and interpretable way.

treat the country-level average of perceived procedural justice as a proxy for the identity-relevance of police—specifically, whether police are seen as prototypical representatives of a valued, superordinate social group. This approach is grounded in individual-level research showing strong associations between perceived procedural justice and identification with broad social categories such as the state, the nation, or law-abiding society (Chan et al., 2023). We examine whether procedural justice and legitimacy—our relational predictors—are more strongly associated with cooperation in countries where police are widely perceived to act in procedurally just ways. Conversely, in countries with lower aggregate levels of perceived procedural justice, we expect cooperation to be more strongly predicted by instrumental factors such as effectiveness and fear of crime.

THE STUDY

Overall, we make three related contributions. First, we test PJT in a comparative cross-national context using nationally representative data from 30 countries. We use structural equation modelling (SEM) to fit the model represented in Figure 1 for each of these countries. We examine (a) the predictors of legitimacy in different countries and (b) the factors that explain variation in behavioral intentions to cooperate with the police and criminal courts.

Second, because we use data that were collected with an unusual amount of attention to methodological equivalence, and because we fit the same statistical models in each country, we can directly compare the strengths of these associations across the countries. This provides future single-country studies with a methodological benchmark to facilitate the careful accumulation of comparative evidence on both fronts, i.e. the locally specific preconditions of legitimacy and the role that legitimacy may or may not play in motivating cooperation.

Third, we estimate mean country levels of perceived procedural justice, and we examine how the associations from the model vary by these national-level measures of procedural justice. The goal is to kick-start further work on the context-level factors that may help explain why PJT works better in some countries than in other countries.

Data and methodological equivalence

Established in 2001, the European Social Survey (ESS) is an academically driven, face-to-face interview survey that measures a wide range of attitudes and beliefs (Jowell et al., 2007).[15] The ESS runs every two years, charting interactions between Europe's changing institutions and the attitudes, beliefs and behavior patterns of its diverse populations. The survey is directed by a core scientific team and is funded by the European Commission as a European Research Infrastructure Consortium. Each participating country contributes to the central funding and covers the costs of its own fieldwork and national coordination.

The questionnaire comprises an invariant core of questions asked of all respondents in each round and a series of rotating modules which change from round to round. Rotating modules, which focus on a particular issue, are selected through a competitive process, where teams of researchers are invited to submit proposals for the modules in each round. The core data for our analysis come from a 45-question rotating module on *Trust in Justice* that was included in Round 5 of the ESS (see European Social Survey, 2011a; Jackson et al., 2011; Hough et al., 2013a, 2013b). The survey was conducted in 2010/11, with 28 countries taking part: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Lithuania, Netherlands, Norway, Poland, Portugal, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK, and Ukraine.

All the countries used some form of random probability sampling, in most cases multistage stratified sampling. The mode of data collection was computer-assisted personal interviewing in around half of the countries, and paper-assisted personal interviewing in half. While the target response rate was 70%, realised response rates for Round 5 ranged from 30.5% (Germany) to 81.4% (Bulgaria). The average response rate was

[15] The ESS is widely regarded as one of the highest-quality cross-national surveys, particularly in its rigorous approach to sampling and measurement equivalence. In the round used here, all participating countries employed random probability samples of individuals aged 15 and over residing in private households, regardless of nationality, citizenship, language or legal status. All interviews were conducted face-to-face. Comparative cross-national research poses significant measurement challenges. Concepts must not only be theoretically meaningful across contexts—they must also 'travel well', retaining consistent meaning across cultures and languages. Survey items must both capture the intended constructs and function as clear, interpretable questions in each national setting. To meet these demands, the ESS employs a comprehensive methodological program, including extensive pre-testing, validation across settings and rigorous translation procedures. This systematic approach enhances the reliability and comparability of the data and reinforces the ESS's reputation as a gold standard for cross-national social research.

60.2% (standard deviation 11%). The total realised sample size was *n*=58,838, and the sample sizes for individual countries ranged from 1,083 for Cyprus to 3,031 for Germany.

We also use data from two further countries, South Africa and the US. Both of them fielded some version of the ESS module. The South African data come from the 2012 round of South African Social Attitudes Survey (SASAS), an annual national survey conducted by the Human Sciences Research Council, South Africa's statutory research agency. This survey round consisted of a nationally representative sample of South African adults aged 16 years and over living in private households. SASAS employs a multistage probability sampling design, where the first-stage sampling units are 500 Population Census enumeration areas (EAs), stratified by province, geographical sub-type and majority population group. Interviews were conducted face-to-face. The realised sample size is n=2,518.

The US data come from a random sample of individuals drawn from a GFK Knowledge Networks research panel of US adults (see Tyler & Jackson, 2014). Knowledge Networks uses random digit dialling and address-based sampling methods to construct and maintain the panel. Some 2,561 respondents were initially selected from the larger panel and invited to take part in this survey. A total of 1,603 individuals completed the survey online. The survey was fielded in August and September of 2012.

Variables and measures

The analysis involves variables that represent the eight concepts that are shown in Figure 1. These are perceived procedural justice, distributive justice, lawfulness and effectiveness of the police, fear of crime (worry about criminal victimization), normative alignment with the police, duty to obey the police, and willingness to cooperate with the police and courts. In supplementary analysis (section S6) we also bring in two measures of police-citizen contact. The supplementary materials (S1) describe the survey questions ("items") and response options that were used as measures of these concepts. The questions are listed using their wordings in the English-language questionnaires. For the ESS they were translated to the other languages in the survey by the ESS team, using established procedures that aim to achieve stimulus equivalence of the translated questions. The items were also fielded in multiple languages in South Africa, and in English and Spanish in the US. The supplementary materials (S2) describe the ESS methodological development work, using distributive justice and duty to obey as examples, including some critical reflection on how the constructs were measured. Note that the same items were mostly used in the ESS and the surveys in South Africa and the US, apart from small differences in some items as shown in the supplementary materials (S1).

In addition to these measures of the main concepts of interest, three background characteristics of respondents are also used in the analysis as controls: age (in years), gender (as male or female) and highest level of educational qualification (in three categories: less than upper secondary, upper secondary, and more than upper secondary education).

Statistical modelling

The results of the analysis are estimated regression coefficients from linear structural equation models (SEMs) corresponding to the model that is represented in Figure 1. They were obtained in two steps. First, factor analysis measurement models for each of the five latent variables in the model were estimated using pooled data for all the countries together. Second, the model in Figure 1 (the "structural model") was then estimated separately for each country. Mean values of all the variables in each country were also estimated at the same time. The motivation and details of these steps are described in section S3 of the supplementary materials.

By fitting the measurement models on the pooled data, we make the assumption of formal measurement equivalence across the countries, meaning that the parameters of the measurement models do not depend on the country. This means that we impose on each latent variable an operational definition which is the same in each country and which is determined by the measurement models estimated for all the countries together. The estimated coefficients of all the variables then refer to the variables thus defined and are comparable across the countries in this sense.

The estimation was carried out in the R language (R Core Team, 2022), using the *lavaan* package (Rosseel, 2012) and some additional packages as described in supplementary section S3. The R code that was used for the analysis is included in supplementary materials (S8).

RESULTS

Measurement modelling

The measurement models were fitted first, separately for each of the five latent variables (procedural justice, effectiveness, normative alignment, obligation to obey, and willingness to cooperate). This used the sample of respondents from all the countries together, including all respondents who answered at least one measurement item for a given latent variable. The resulting sample sizes were between 56,615 and 58,060 for the five models.

Estimated parameters for these models are shown in the supplementary materials (Table S4a for the loading parameters, supplement S4 for the full results). The estimated loading parameters (λ_{kl} in the notation of supplementary section S3) are all positive. This implies that higher values of each latent variable indicate higher levels of it in the direction of the naming of the variable (e.g. higher willingness to cooperate). The estimated measurement parameters (τ_{kl}, λ_{kl} and θ^2_{kl}) from this step were then taken forward as fixed values to the next step of estimation.

Fitting the structural model in each country

The structural equation models for the latent variables were then estimated in each country. In the rest of this section, we examine and compare the estimated regression coefficients for these models. These coefficients are presented in a graphical form in figures below, and in table form in supplementary Tables S4c-d (full output for the models is also included in supplementary section S4) The sample sizes for each country in this step are shown in Table S4b of the supplementary materials, together with R^2 statistics for each country. Briefly, R^2 was typically higher for normative alignment (ranging from 0.28 to 0.70) than for obligation to obey (ranging from 0.05 to 0.32) and cooperation (ranging from 0.03 to 0.14).

The estimated coefficients of the regression models are displayed in Figures 2-4. In each figure the response variable is the same: normative alignment with the police in Figure 2, duty to obey the police in Figure 3, and cooperation with the police in Figure 4. Each of the plots within a figure shows the estimated coefficients (and their 95% confidence intervals) of one predictor of that response variable. For example, the plot at the top left of Figure 2 shows the coefficients of procedural justice as a predictor of normative alignment, for each of the 30 countries. The order of the countries in Figure 2 is obtained by calculating for each country the averages of the absolute values of the coefficients of the normative predictors of normative alignment (procedural justice, distributive justice and lawfulness) and of the coefficients of its instrumental predictors (effectiveness and worry about crime) and taking the ratio of these two averages. The countries are shown in ascending order (from the bottom) of this ratio, so that the country at the top of the plot (Austria) is the one for which the normative predictors are the strongest, and the country at the bottom (South Africa) the weakest, relative to the instrumental predictors. A similar rule of ordering is used in Figures 3 and 4, using values of the predictors of obligation to obey and cooperation respectively (and including obligation to obey and moral alignment among the normative predictors in Figure 4). All of the variables were defined in such a way that their standard deviations across all the countries are 1. This means that every regression coefficient β in every figure is expressed in a "fully standardised" form where a difference of 1 unit of this cross-national standard deviation in the corresponding explanatory variable is associated with an expected difference of β standard deviation units in the response variable.

Starting with normative alignment in Figure 2, we find that the strongest predictor in nearly all of the countries is procedural justice (the exceptions are South Africa and Slovakia, where effectiveness has larger estimated coefficients than procedural justice). The standardized regression coefficients ranged from 0.24 (in South Africa) to 0.76 (in Spain) and all were statistically significant (p<.001). In all countries, apart from Austria, effectiveness is a positive and significant predictor. The standardized regression coefficients are generally smaller than procedural justice, ranging from 0.05 (in Austria) to 0.40 (in France). Of note is that the ratio between procedural justice and effectiveness is larger than one for all countries but South Africa and Slovakia, ranging from 1.21 (Russian Federation) to 10.00 (Austria), with a fair number of countries hovering somewhere between 1.5 and 4. The other three predictors are smaller in size and much more variable in their statistical significance. For distributive justice (statistically significant at the 5% level in 13 countries), standardized regression coefficients range from -0.03 (in Sweden) to 0.19 (in Austria). For lawfulness (statistically significant in 15 countries), standardized regression coefficients range from -0.16 (in Ukraine) to 0.21 (in Israel). For fear of crime (statistically significant in 9 countries), standardized regression coefficients range from -0.07 (in Bulgaria) to 0.13 (in France).

Figure 3 shows the coefficients of the predictors of duty to obey. The conclusions are pretty much the same as for normative alignment. The coefficients for procedural justice are again positive and significant in all countries, and largest in all but South Africa and Slovakia, where effectiveness is largest. For procedural justice, standardized regression coefficients range from 0.05 (in South Africa) to 0.44 (in Slovenia). For effectiveness,

standardized regression coefficients range from -0.02 (in Israel) to 0.30 (in South Africa). The absolute value for the ratio between procedural justice and effectiveness is larger than one for all countries but South Africa and Slovakia, ranging from 1.09 (Russian Federation) to 22.79 (USA), with a fair number of countries hovering somewhere between 1.25 and 2.75. As with normative alignment, the other three predictors are generally smaller in size and much more variable in their statistical significance. For distributive justice (statistically significant in 8 countries), standardized regression coefficients range from -0.11 (in Cyprus) to 0.14 (in Ukraine). For lawfulness (statistically significant in 9 countries), standardized regression coefficients range from -0.08 (in Ukraine) to 0.19 (in Croatia). For fear of crime (statistically significant in 10 countries), standardized regression coefficients range from -0.11 (in Slovenia) to 0.12 (in Poland).

Figure 4 presents the coefficients for the final part of the model in Figure 1, the model for willingness to cooperate with the police and courts. Overall, normative motivations to cooperate seem to be stronger than instrumental motivations to cooperate, with procedural justice, normative alignment and obligation to obey being stronger positive predictors of cooperation than effectiveness and fear of crime—indeed, the latter two tend not to be statistically significant and/or tend to be negative predictors. However, compared to the predictors of normative alignment and obligation to obey, the size of the regression coefficients is generally smaller. For procedural justice, standardized regression coefficients range from -0.09 (in Lithuania) to 0.30 (in Austria) and are statistically significant in 19 countries. For normative alignment, standardized regression coefficients range from -0.09 (in Cyprus) to 0.21 (in USA) and are statistically significant in 13 countries. For obligation to obey, standardized regression coefficients range from -0.07 (in Slovenia) to 0.16 (in Israel) and are statistically significant in 9 countries. Notably, with the exceptions of Finland and Hungary, if legitimacy is a significant predictor of cooperation, it is either normative alignment or obligation to obey, not both. For effectiveness, standardized regression coefficients range from -0.22 (in Austria) to 0.16 (in Lithuania) and are statistically significant in 10 countries.[16] For fear of crime, standardized regression coefficients range from -0.14 (in Sweden) to 0.10 (in Israel) and are statistically significant in 11 countries.

We should note that, in every country studied, either normative alignment or duty to obey—but not both—predicted public cooperation with the police.[17] As noted earlier in this paper, prior tests of PJT generally find that institutional trust and/or normative alignment tend to be a stronger predictor of willingness to cooperate than obligation to obey. Our findings suggest that, while legitimacy broadly predicts cooperation, the two different dimensions of legitimacy may operate independently, depending on the national context. In some countries, cooperation appears to be driven by normative alignment with police values and actions, indicating that when people believe the police embody shared norms and principles, they are more willing to assist law enforcement. In other contexts, cooperation is more closely linked to a sense of obligation to obey police authority, suggesting that compliance is motivated by deference to institutional power rather than shared moral alignment. The absence of cases where both dimensions simultaneously predict cooperation implies that legitimacy is not a singular, uniform mechanism across countries; rather, its influence on cooperation may be shaped by the broader socio-political environment, historical relationships between police and the public, and prevailing cultural attitudes toward authority and governance. This highlights the need for a more nuanced understanding of how legitimacy operates in different contexts and the factors that shape its role in fostering public cooperation with legal authorities.

---

[16] In supplementary analysis (S6) we explored the somewhat counterintuitive finding that, across most countries, perceived police effectiveness was negatively associated with cooperation—that is, people who believe the police are doing a good job report being *less* cooperative, once other key factors are controlled for. While we caution against overinterpreting this pattern—most of these coefficients are not statistically significant—it is striking enough to warrant closer examination. We estimated alternative models that omitted different control variables. When police effectiveness was considered in isolation (alongside basic demographics), its relationship with cooperation was positive in nearly every country. This positive association largely remained even when controlling for fear of crime and obligation to obey the police. However, once procedural justice was included, the shift occurred—effectiveness coefficients turned negative in most cases. This suggests that, among individuals who already perceive the police as fair, those who also view them as effective may actually feel *less* personal obligation to cooperate. The correlation between procedural justice and effectiveness (ranging from 0.4 to 0.8 across countries) underscores this entanglement. Given that most of these coefficients lack statistical significance, we refrain from excessive speculation. But the takeaway is clear: perceptions of procedural justice are doing much of the explanatory heavy lifting.

[17] One potential concern is collinearity between duty to obey and normative alignment in predicting cooperation. To assess this, we examined the conditional correlations between these two variables within each of the 30 countries using residual correlations from the structural equation models. As shown in Table S4f, these correlations ranged from -0.02 (Switzerland) to 0.33 (United States), indicating low-to-moderate shared variance. This suggests that the observed pattern—where either duty to obey or normative alignment predicts cooperation, but not both—is not a statistical artefact. Rather, the results reflect variation in how legitimacy operates across national contexts.

FIGURE 2. *Regression coefficients predicting normative alignment with the police*

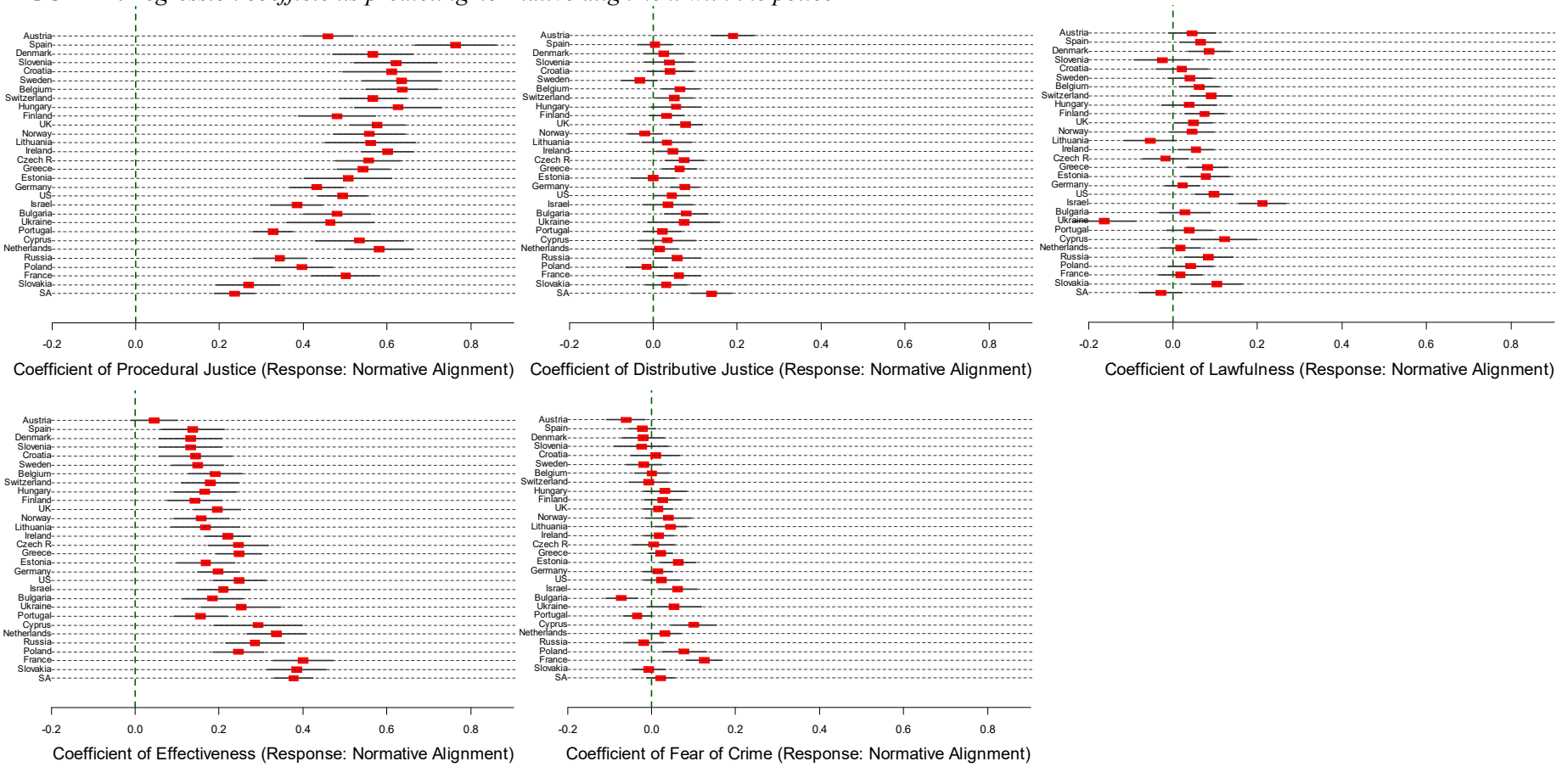


FIGURE 3. *Regression coefficients predicting duty to obey the police*

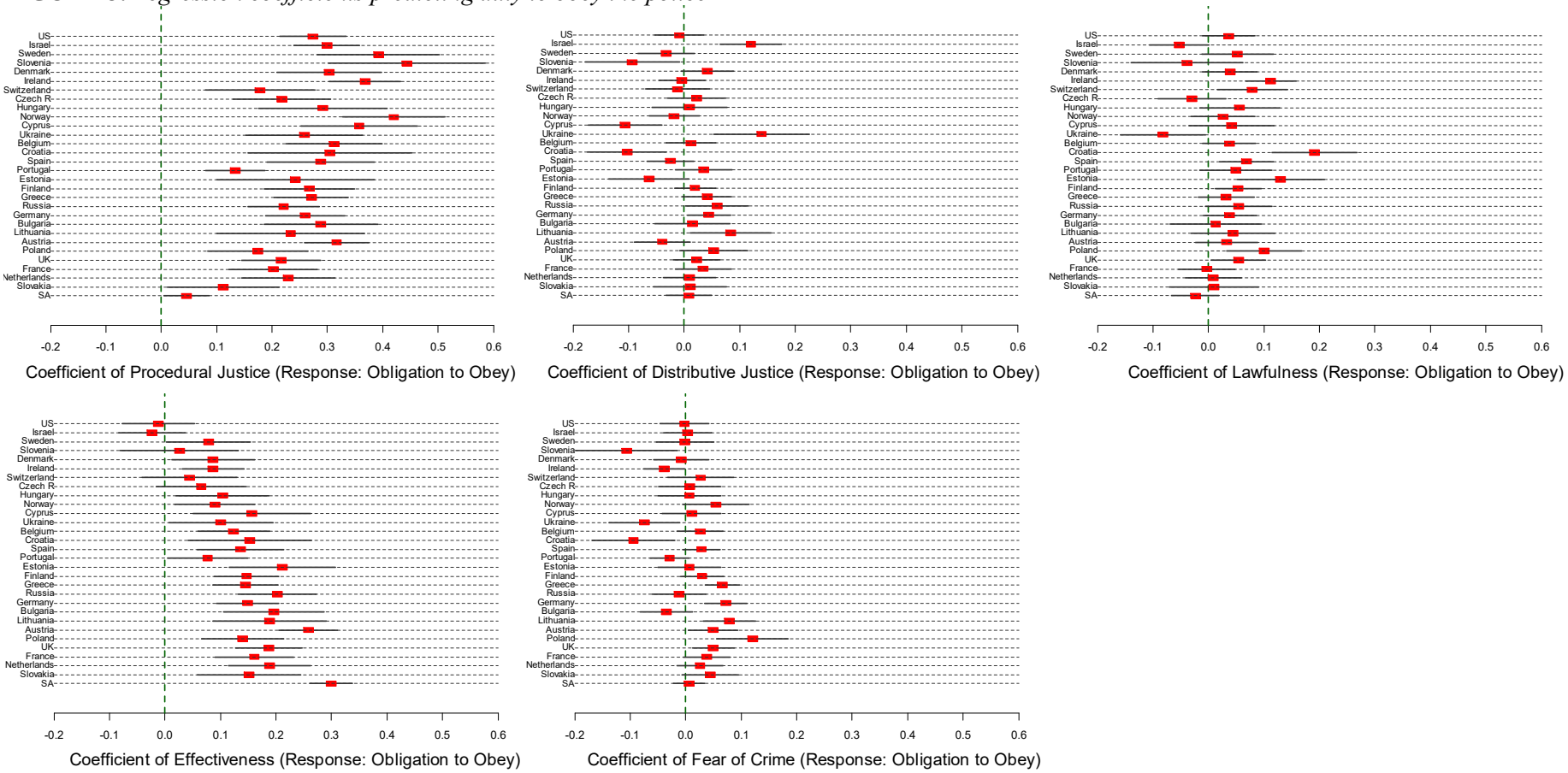
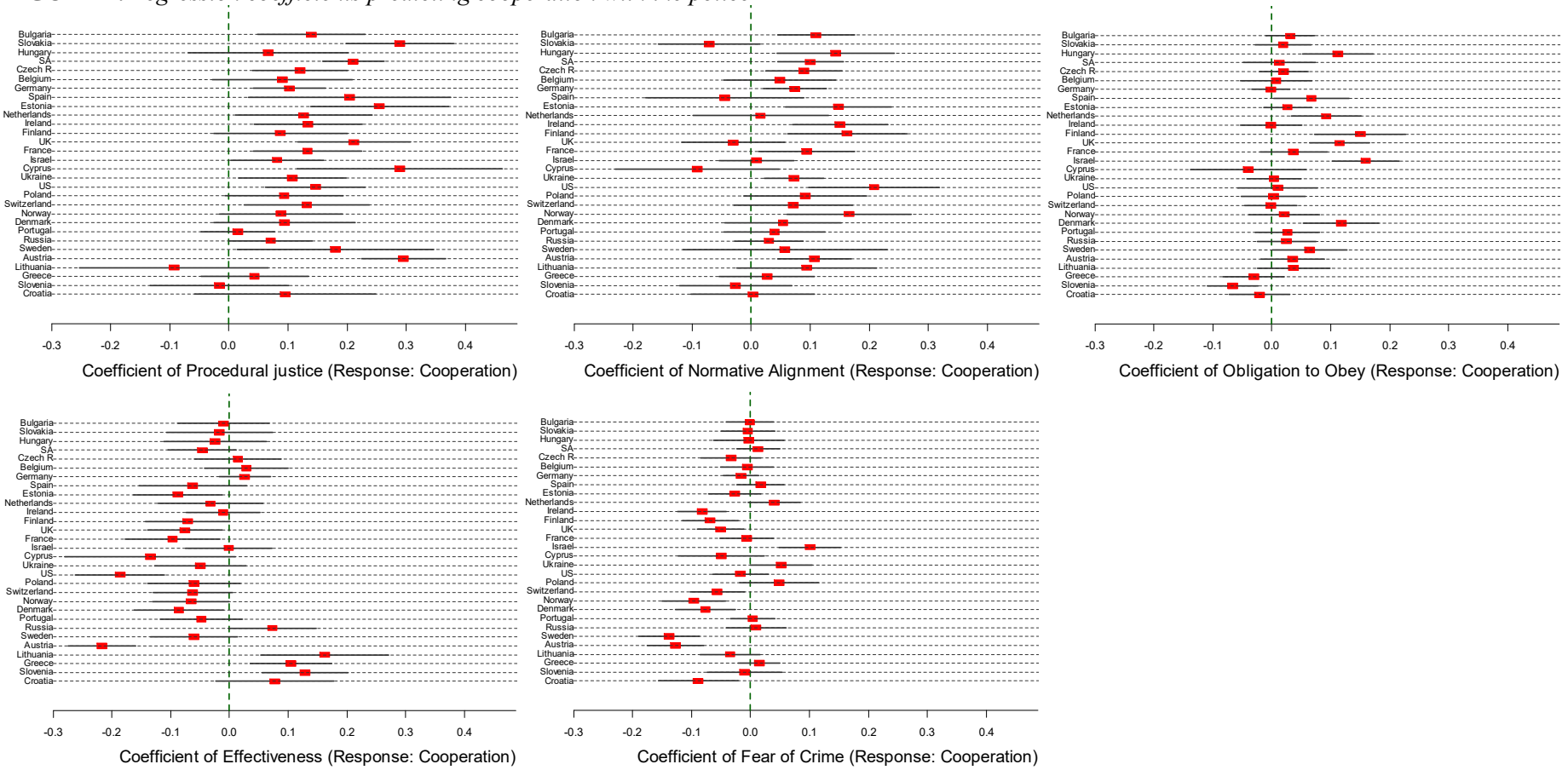


FIGURE 4. *Regression coefficients predicting cooperation with the police*



Incorporating police contact

In supplementary analysis (see S5 of the supplementary materials) we tested whether accounting for police-initiated contact changed key regression coefficients in the SEMs in each of the 30 different countries. We added recent police-initiated contact (and dissatisfaction or satisfaction with the experience) to the statistical model to control for differential experiences of police. The results barely moved—coefficient estimates remained remarkably stable, and standard errors increase by a negligible amount. In other words, whether or not someone has had contact with the police (and their level of dissatisfaction or satisfaction with the officer) does not seem to systematically alter the big-picture findings. To dig a little deeper, we also split the sample in each country into two groups—those who had contact with the police and those who had not—and ran the models separately. Some small variations emerged, but they were not consistent enough to suggest any major difference. About half the coefficients were stronger for one group, half for the other, and the variation across countries appeared random. If anything, this reinforces the idea that perceptions of police procedural justice and legitimacy operate in a fairly stable way, regardless of whether someone has had recent personal experience with law enforcement.

In short, incorporating police contact does not meaningfully change the story. Whether looking at the full sample or breaking it down into subgroups, the models tell the same tale. Procedural justice predicts legitimacy and both predicts cooperation. This remains the same even among people without recent experience with the police.

Does procedural justice theory work better in some countries than other countries?

Thus far we have found that procedural justice is the strongest positive predictor of both legitimacy and cooperation in nearly all of the countries. Moreover, in 19 countries at least one aspect of legitimacy is a significant positive predictor of cooperation. This supports the portability of PJT across many of these national borders.[18] But does PJT work 'better' in some countries than in others? This would be an instance of a `cross-level interaction' where the strength of an association at an individual level (between an individual's perception of the procedural justice of the police and their willingness to cooperate with the police, say) may vary according to a country-level contextual variable (here the country-level average of perceived procedural justice). The final part of our analysis examines this question. To set the scene, Figure 5 shows the estimated averages of the main variables in each country. In these plots, the countries are shown in ascending order of average levels of procedural justice, so that the country at the bottom of the plot (Ukraine) is the one for which national estimated levels of procedural justice are the lowest, and the country at the top (Denmark) the one where national estimated levels of procedural justice are the highest. The countries with higher levels of procedural justice are generally in Northern and Western Europe while the countries with lower levels of procedural justice are generally in Eastern Europe (with the addition of Greece, Israel and South Africa). Notably, the general pattern for procedural justice also plays out for normative alignment and effectiveness, and to some degree distributive justice, but not for fear of crime and obligation to obey.[19]

Figures 6 and 7 summarize the results from the cross-level interactions. Figure 6 shows the estimated country means of perceived procedural justice (on the X-axis of the plots) against regression coefficients in the countries (on the Y-axis) predicting normative alignment and obligation to obey. Figure 7 shows the estimated country means of perceived procedural justice (on the X-axis of the plots) against regression coefficients in the countries (on the Y-axis) predicting cooperation. Normative predictors are stronger and instrumental predictors are weaker in countries with higher national levels of procedural justice. Procedural justice is a stronger predictor of normative alignment and duty to obey, and effectiveness is a weaker predictor of normative alignment, in countries with high levels of procedural justice. Somewhat similar patterns can be

[18] Bradford et al. (2014) analyzed data from the 2010 South African Social Attitudes Survey (SASAS) not only to test procedural justice theory but also to incorporate context-specific factors relevant to post-Apartheid South Africa. Their findings indicate that procedural fairness is strongly associated with perceptions of police legitimacy, but unlike in wealthier democracies, police effectiveness also plays a significant role in shaping legitimacy. Additionally, factors such as perceived group threat, trust in government, and satisfaction with service provision were correlated with police legitimacy, suggesting that legitimacy is influenced by multiple social and political conditions. As a robustness check, we conducted a supplementary analysis (see S7 in the supplementary materials) using South African data, incorporating four additional control variables: perceived group threat; anti-immigrant sentiment; trust in government; and satisfaction with service provision. The results show that including these additional variables does not substantively alter our key conclusions. Specifically, our main findings remain robust, with the estimated coefficients and significance levels for explanatory variables largely unchanged. This supplementary analysis, detailed in S7, reinforces the validity and stability of our conclusions across different model specifications.

[19] Please contact the first author for these results.

seen with cooperation. Procedural justice and legitimacy are slightly stronger predictors of cooperation, and effectiveness and worry about crime are weaker predictors of cooperation, in countries with high levels of procedural justice.

To think through the findings, take the country with the highest national level of procedural justice. People in Denmark who believed that officers were procedurally just were especially likely to see them as legitimate, compared to people in Denmark who believed that officers were procedurally unjust. This country may have had the highest average levels of legitimacy, but individual-level procedural justice was a relatively strong predictor of legitimacy, resulting in within-country differences in legitimacy that were strongly associated with procedural justice, in part (we assume) because procedural justice is strongly identity-relevant in Denmark. By contrast, in the country with the lowest average level of procedural justice (Ukraine) there was less of a difference in legitimacy when comparing people who believed that officers were procedurally just to people who believed that officers were procedurally unjust. Average levels of legitimacy were lower and procedural justice was less of a factor explaining variation around the mean, in part because procedural justice is not (we assume) so identity-relevant in Ukraine.

FIGURE 5. *Estimates of the population averages of the main variables considered in the analysis, separately for each country. The countries are in the same order in each plot, by ascending order of the average of perceived procedural justice of the police*

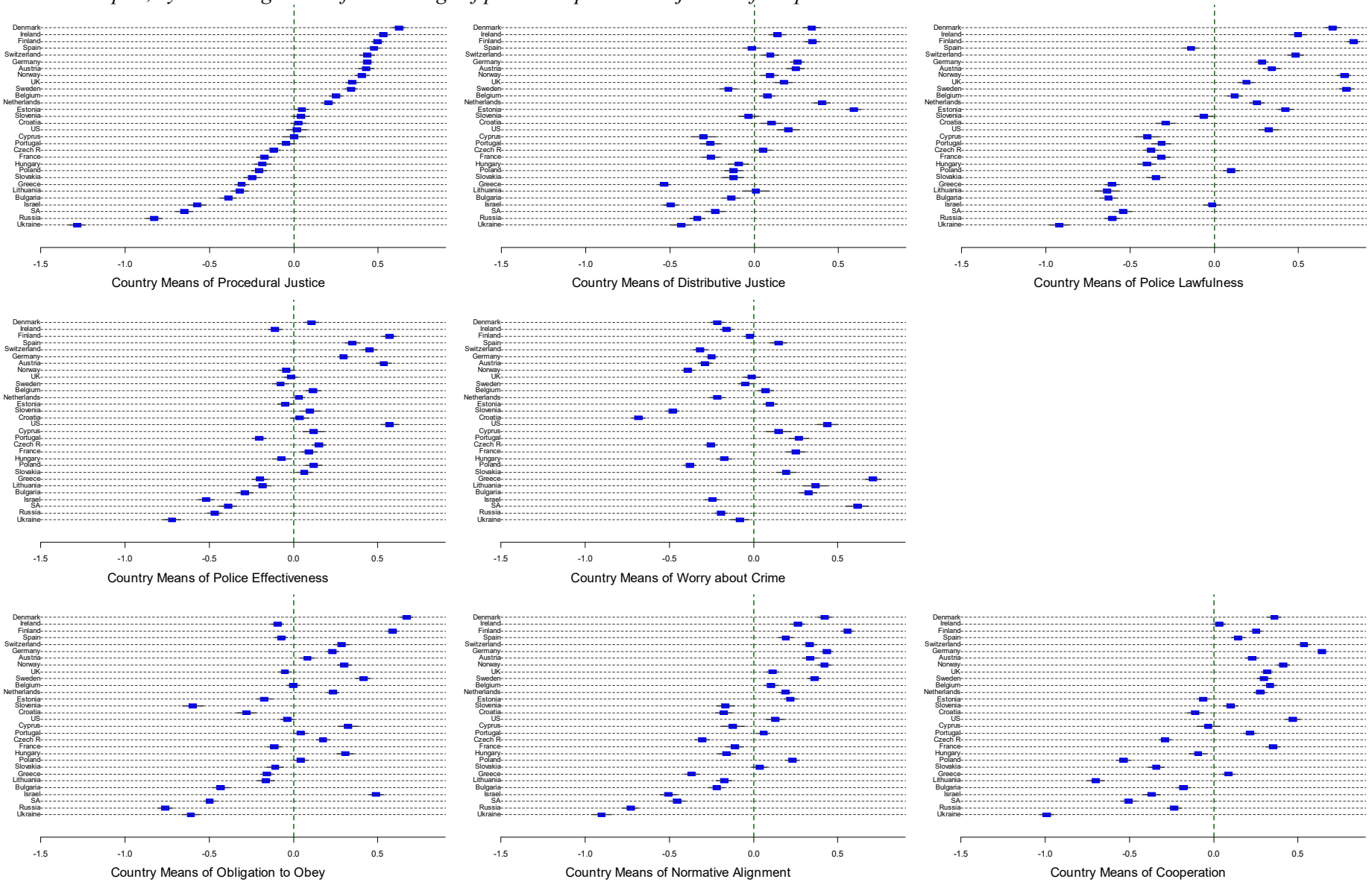


FIGURE 6. *Scatterplots of estimated country means of perceived procedural justice (on the X-axis of the plots) against regression coefficients in the countries (on the Y-axis). The top two plots show the coefficients of procedural justice predicting normative alignment with the police and obligation to obey the police, and the bottom two plots show the coefficients for perceived police effectiveness predicting normative alignment with the police and obligation to obey the police*

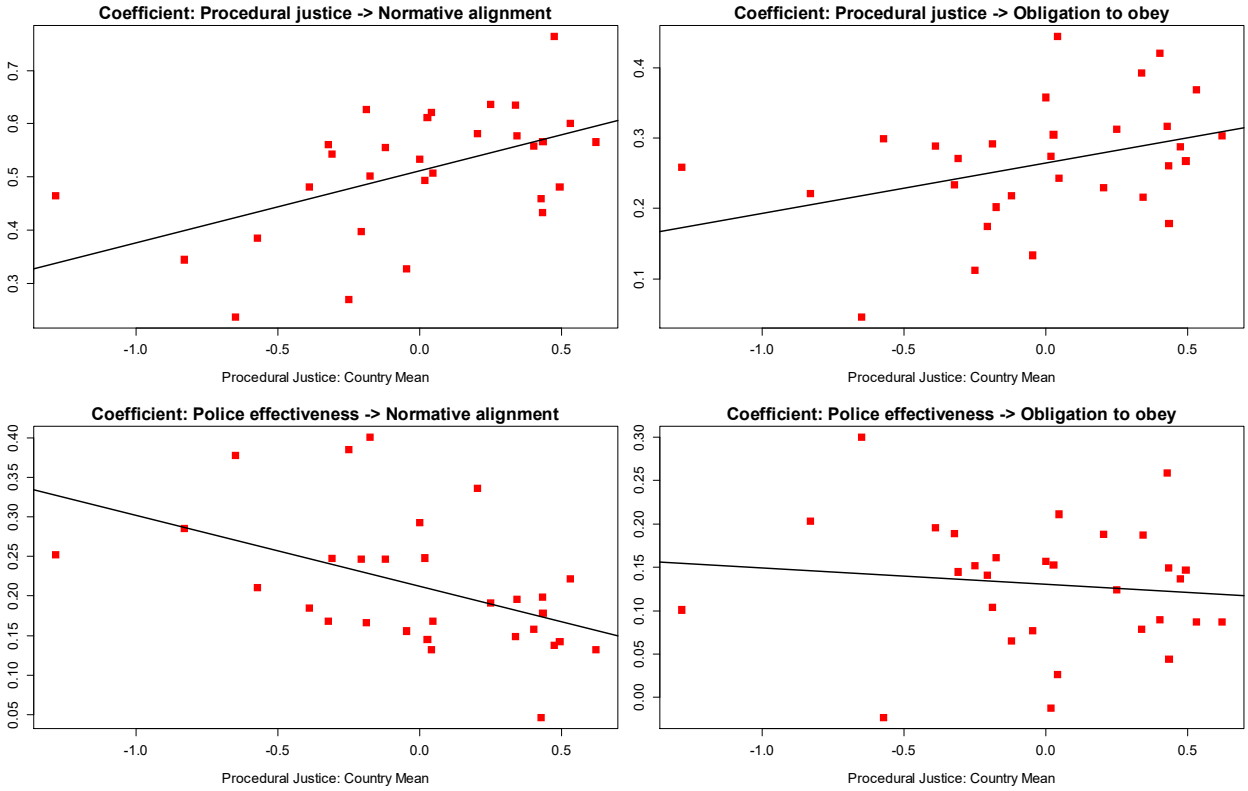
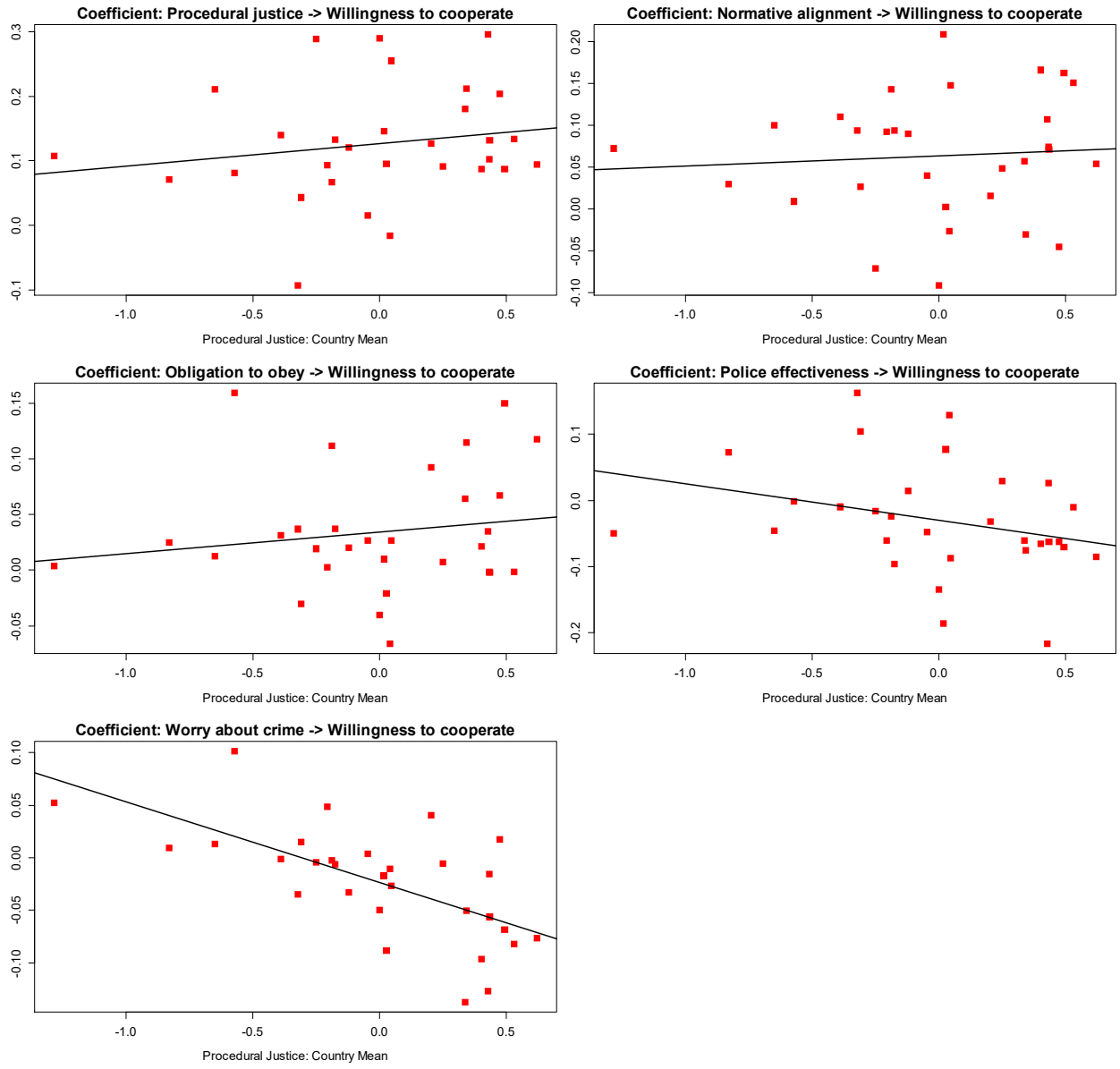


FIGURE 7. *Scatterplots of estimated country means of perceived procedural justice (on the X-axis of the plots) against regression coefficients in the countries (on the Y-axis). The plots show the coefficients of five explanatory variables (procedural justice, normative alignment with the police, obligation to obey the police, police effectiveness and worry about crime) predicting willingness to cooperate with the police*



DISCUSSION

Procedural justice theory (PJT) was developed in the US (Tyler & Huo, 2002; Sunshine & Tyler, 2003; Tyler, 2006a, 2011a; Papachristos et al., 2012) and has since gained substantial international traction. Empirical studies have now been conducted in a diverse range of countries—including the UK (Kyprianides et al., 2021), Australia (Ali et al., 2022), Israel (Jonathan-Zamir et al., 2024), South Africa (Bradford et al., 2014), Canada (Jackson et al., 2023a), China (Wu & Liu, 2023), Hong Kong (Cheng, 2015), Taiwan (Sun et al., 2014), Turkey (Sahin et al., 2024), South Korea (Lee & Cho, 2020), Nigeria (Akinlabi, 2017), Ghana (Tankebe, 2009), Pakistan (Asif et al., 2023), Trinidad & Tobago (Kochel, 2012), Japan (Tsushima & Hamai, 2015), Jamaica (Grant & Pryce, 2020), Chile (Gerber et al., 2018) and Brazil (Oliveira, 2024). Yet despite this expanding reach, efforts to build a systematic, comparative evidence base remain limited.[20] Most empirical tests of PJT have been concentrated in just a few countries—particularly the US, UK, Australia and Israel—and variation in sampling strategies, measurement approaches and modelling techniques has made generalization and cross-national comparison difficult (Jackson, 2018).

We have presented findings from the most comprehensive cross-national test of PJT to date. Drawing on harmonized data from 30 countries—matching Round 5 of the European Social Survey (ESS) with methodologically equivalent surveys from the US and South Africa—we have leveraged a uniquely comparable dataset in terms of sampling, fieldwork mode, conceptual framing and measurement. Across most countries in the study, we found that people were more likely to view the police as legitimate when they believed that officers made fair decisions and treated citizens with respect. Procedural justice consistently emerged as a stronger predictor of police legitimacy than distributive justice, lawfulness, fear of crime or police effectiveness. That said, instrumental concerns still mattered. In many countries, perceived effectiveness was a statistically significant predictor of legitimacy—and the size of its effect was larger than in many previous studies. Notably, in South Africa and Slovakia, effectiveness overtook procedural justice as the dominant predictor of police legitimacy, suggesting that in some contexts, competence in crime-related outcomes remain central to how people judge institutional authority.

Turning to cooperation, we found broad support for the normative account. Individuals were more likely to report willingness to assist police and courts—by reporting crimes, offering information, or participating in court—when they viewed the police as legitimate and procedurally fair. In most countries, cooperation was predicted by at least two of the three normative indicators: procedural justice, duty to obey and normative alignment. However, there were some exceptions. In Belgium, Greece, Croatia, Lithuania, Poland, and Portugal, only one normative factor significantly predicted cooperation. In Greece and Lithuania, instrumental predictors—effectiveness and fear of crime—were more important than normative ones.

Overall, PJT holds in most countries, but its psychological force varies depending on the broader normative environment. We found that PJT functions more strongly in countries where procedural justice is perceived to be widespread. When we ranked countries by average levels of perceived procedural justice, Eastern European countries—notably the Russian Federation, Ukraine, Bulgaria, and Lithuania—along with Israel and South Africa, fell toward the lower end. By contrast, Northern and Western European countries tended to report higher levels of fair treatment and impartial decision-making by police.

We tested whether the strength of key predictors varied with these national-level patterns. Correlating country-level averages of procedural justice with model coefficients for legitimacy revealed a consistent pattern: where procedural justice was seen as common, individuals were more likely to relate to the police in normative rather than instrumental terms. In these countries, procedural justice more strongly predicted legitimacy, while police effectiveness was less influential. The most plausible explanation is social identity: when officers are widely believed to treat people with dignity and fairness, they are seen as representing a valued, superordinate group—typically law-abiding society or the national community. In these contexts, procedural justice is not just a predictor of legitimacy, it is the symbolic currency that ties legal authority to shared identity (Tyler, 1997; Trinkner, 2019; Bradford & Jackson, 2024).

Limitations

[20] Two notable cross-national studies—one covering 28 African countries (Boateng, 2017), the other spanning 29 Asian countries (Boateng & Buckner, 2017)—focused on public responses to a single general item on police confidence ("How confident are you…") or trust ("To what extent do you trust…"). However, neither study measured legitimacy as a multi-dimensional construct and nether tested predictors such as procedural justice, distributive justice, effectiveness or lawfulness, nor examined links between confidence/trust and cooperation.

Our study has several limitations that must be acknowledged. First, the data were collected between 2010 and 2012, meaning that the national-level patterns presented in this paper may look different today. Political polarization, rising populism, declining institutional trust, and the rise of far-right movements may have significantly altered public attitudes toward the police. Second, we relied on observational (non-experimental) survey data, estimating national-level conditional correlations between public perceptions of police activity, legitimacy and willingness to cooperate. While this allows for formal country-level comparisons, it does not permit causal conclusions. Third, our sample included only 30 countries, with 28 from Europe. Ideally, the study would have incorporated more countries from other continents, particularly the Global South (see, for instance, Jackson et al., 2022), to enhance comparative scope and coverage.

Fourth, our measures of distributive justice assessed whether respondents believed the police treat different social groups (e.g., rich vs. poor, racial majority vs. minority) better, equally, or worse as victims of crime (see supplementary materials S3 for discussion). This approach may not fully distinguish between procedural justice (fairness in interactions and decision-making processes in individual police-citizen encounters) and distributive justice (fairness in resource allocation and outcomes, looking across aggregate groups in society). Future research should aim for greater conceptual and methodological differentiation between these two dimensions. By refining the measures, future studies might be able to more precisely assess the independent predictive roles that procedural and distributive justice play in public perceptions of police legitimacy and cooperation. One could, for instance, draw on measures of the under- and over-policing of different groups in society (Jackson, et al., 2023c).

Finally, we did not measure actual (behavioural) cooperation. While stated willingness to cooperate is valuable, responding affirmatively in a survey hypothetical scenario is an easier and more socially acceptable response than actually cooperating in real-life situations, which can be more costly and complex. Nevertheless, examining stated willingness to cooperate remains important. Unlike general confidence in the police (Stanko et al., 2012), it reflects a more concrete and action-oriented stance—one that acknowledges the role and function of police in specific situations and signals positive intentions to support law enforcement. Ideally, we would have measured both intentions to cooperate and past cooperative actions, but survey space restrictions precluded this. Moreover, including behavioural measures would have significantly reduced the sample size, as only a subset of respondents would have recently faced a situation where they had the opportunity to cooperate (or not) with legal authorities.

Where next?

Our findings point to a range of opportunities for future research—both methodological and theoretical. From a methodological standpoint, there is a clear need for more cross-national studies that are fully comparable in design. This means defining, measuring and modelling legitimacy consistently across countries, and including a fuller set of police behaviours—procedural justice, distributive fairness, effectiveness, lawfulness and bounded authority. Without such alignment, it remains difficult to assess how and why procedural justice and legitimacy dynamics vary across contexts.

At a theoretical level, we need to better understand why the predictors of legitimacy and cooperation differ across national settings. Our study tested one explanation: that people are more likely to relate to the police in normative, identity-based terms when the police represent a valued superordinate group. We used country-level averages of perceived procedural justice as a proxy for identity-relevance. While defensible, this remains an indirect approach. Future work should seek to directly measure identification with the police, and assess how social identity, group belonging and symbolic inclusion shape public engagement with legal authority.

Further research should also examine how different types of contact with the police—both direct and indirect—affect legitimacy and cooperation. So-called 'focusing events' (Reny & Newman, 2021) such as the police killing of George Floyd and the subsequent resurgence in the Black Lives Matter social movement, may dramatically shift public attitudes, even in the absence of personal experience (Fine et al., 2025). Understanding how such events ripple through public consciousness across countries is an important next step.

Another critical gap is legal compliance. While Round 5 of the ESS included self-reported offending, the measures performed poorly. Respondents were asked: "How often have you, in the last five years: (a) Made an exaggerated or false insurance claim? (b) Bought something you thought might be stolen? (c) Committed a traffic offence like speeding or crossing a red light?" Most denied engaging in serious violations—likely due to underreporting. Traffic offences were reported more frequently, especially in Denmark and the Netherlands, where bicycle-related infractions may have been captured. To extend this line

of inquiry, future cross-national studies should (a) develop more sensitive and behaviourally varied measures of offending, and (b) model a broader set of predictors of compliance—including perceptual deterrence, legal legitimacy, and personal morality (see Trinkner et al., 2018).

Finally, our study raises broader questions about the structural, cultural and institutional foundations of legitimacy. Future research should explore how macro-level characteristics—such as democratic governance, rule of law, institutional accountability, inequality, corruption, and crime—shape public views of fairness, effectiveness and legitimacy. Historical legacies should matter too. Colonial policing, authoritarian rule, and transitional justice processes cast long shadows over contemporary police-citizen relations. To explore these dynamics, scholars will need to combine individual-level survey data with country-level indicators—using multilevel models that integrate measures of state capacity, political stability, institutional trust, and economic inequality. Only then can we begin to map the deeper social and political terrain on which legitimacy is built—and sometimes broken.

To close

Without public reporting, crimes go unnoticed. Without shared information, crimes go unsolved. Without testimony, trials falter. Cooperation is vital to the functioning of the justice system—but it cannot be commanded, it must be earned. Drawing on nationally representative data from 30 countries across Europe and beyond, our findings suggest that the most powerful lever for fostering cooperation is procedural justice. When people view the police as fair and legitimate, they are more inclined to support not only law enforcement, but the criminal courts too (Tyler, 2011a, 2011b). This pattern held not only in the US and UK, but also across diverse contexts—including France, Greece, Spain, Norway, Hungary and Ukraine. The procedural justice-legitimacy link posited by PJT was robust and was particularly pronounced in places where fair treatment and impartial decision-making were widely perceived. In such contexts, police officers may come to symbolise more than just enforcement—they may symbolise a civic order grounded in values of justice, inclusion and respect.

For policymakers, the message is clear. Policing is not only about enforcing rules—it is also about *how* those rules are enforced. These goals are not in tension—they can, and should, reinforce one another (Weisburd et al., 2022). Our findings suggest that procedural justice and legitimacy travel best where fair treatment is the norm and where citizens see themselves reflected in those who wield authority. Investments in procedural justice—training, oversight and institutional culture—are not peripheral; they are foundational to democratic policing. The task ahead is not simply to enforce laws, but to do so in ways that reflect shared values. At a time of political fragmentation and institutional mistrust, building legitimacy through procedural fairness may be among the most powerful tools democratic states have to secure cooperation, maintain order, and strengthen the social contract (Tyler, 2023, 2025).

REFERENCES

Akinlabi, O. M. (2017). Young people, procedural justice and police legitimacy in Nigeria. *Policing and Society, 27*(4), 419–438. https://doi.org/10.1080/10439463.2015.1077836

Ali, M. M., Murphy, K., & Cherney, A. (2022). Counter-terrorism measures and perceptions of police legitimacy: The importance Muslims place on procedural justice, representative bureaucracy, and bounded-authority concerns. *Journal of Criminology, 55*(1), 3–22. https://doi.org/10.1177/26338076221081215

Asif, M., Weenink, D., & Mascini, P. (2023). Engineering vengeful effervescence: Lynching rituals and religious–political power in Pakistan. *British Journal of Criminology, 63*(6), 1441–1459. https://doi.org/10.1093/bjc/azad038

Baćak, V., & Apel, R. (2020). The thin blue line of health: Police contact and wellbeing in Europe. *Social Science & Medicine*, *267*, 112404. https://doi.org/10.1016/j.socscimed.2019.112404

Boateng, F. D. (2017). Police legitimacy in Africa: A multilevel multinational analysis. *Policing and Society, 27*(8), 917-933. https://doi.org/10.1080/10439463.2016.1251439

Boateng, F. D., & Buckner, Z. N. (2017). Police legitimacy in Asia: Findings from a multilevel hierarchical non-linear analysis. *Policing and Society, 27*(4), 341-358. https://doi.org/10.1080/10439463.2017.1365915

Boateng, F. D., Pryce, D. K., & Abess, G. (2022). Legitimacy and cooperation with the police: Examining empirical relationship using data from Africa. *Policing and Society, 32*(3), 411-433. https://doi.org/10.1080/10439463.2022.2037554

Bolger, P. C., & Walters, G. D. (2019). The relationship between police procedural justice, police legitimacy, and people's willingness to cooperate with law enforcement: A meta-analysis. *Journal of Criminal Justice, 60*, 93-99. https://doi.org/10.1016/j.jcrimjus.2019.01.001

Bottoms, A., & Tankebe, J. (2012). Beyond procedural justice: A dialogic approach to legitimacy in criminal justice. *Journal of Criminal Law and Criminology, 102*(1), 119-170.

Bottoms, Anthony E., and Tankebe, Justice. 2021. Procedural justice, legitimacy and social contexts. In *Procedural Justice and Relational Theory*, edited by Meyerson, D., Mackenzie, C., and MacDermott, T., 85–110. London: Routledge.

Bradford, B. & Jackson, J. (2024). Legitimacy, relational norms and reciprocity. In *Research Handbook in Law and Psychology*, edited by Hollander-Blumoff, R., 343-360. Elgar Press.

Bradford, B. (2014). Policing and social identity: Procedural justice, inclusion and cooperation between police and public. *Policing & Society, 24*(1), 22-43. https://doi.org/10.1080/10439463.2012.724068

Bradford, B., & Jackson, J. (2018). Police legitimacy among immigrants in Europe: Institutional frames and group position. *European Journal of Criminology, 15*(5), 567-588. https://doi.org/10.1177/1477370817749496

Bradford, B., Huq, A., Jackson, J., & Roberts, B. (2014). What price fairness when security is at stake? Police legitimacy in South Africa. *Regulation and Governance, 8*(2), 246–268. https://doi.org/10.1111/rego.12012

Bradford, B., Jackson, J., & Stanko, E. (2009). Contact and confidence: Revisiting the impact of public encounters with the police. *Policing & Society, 19*(1), 20-46. https://doi.org/10.1080/10439460802457594

Bradford, B., Murphy, K., & Jackson, J. (2014). Officers as mirrors: Policing, procedural justice and the (re)production of social identity. *British Journal of Criminology, 54*(4), 527–550. https://doi.org/10.1093/bjc/azu021

Brouwer, J., Van Der Woude, M., & Van Der Leun, J. (2017). Border policing, procedural justice and belonging: The legitimacy of (cr)immigration controls in border areas. *British Journal of Criminology*. https://doi.org/10.1093/bjc/azx050

Chan, A., Bradford, B., & Stott, C. (2023). A systematic review and meta-analysis of procedural justice and legitimacy in policing: the effect of social identity and social contexts. *Journal of Experimental Criminology*, 1-58. https://doi.org/10.1007/s11292-023-09595-5

Cheng, K. K.-y. (2015). Prosecutorial procedural justice and public legitimacy in Hong Kong. *British Journal of Criminology, 57*(1), 94–111. https://doi.org/10.1093/bjc/azv042

Elliott, I., Thomas, S., & Ogloff, J. (2011). Procedural justice in contacts with the police: Testing a relational model of authority in a mixed methods study. *Psychology, Public Policy, and Law, 17*, 592-610. https://doi.org/10.1037/a0024212

European Social Survey. (2011a). *Round 5 Module on Trust in the Police & Courts – Final Question Design Template*. London: Centre for Comparative Social Surveys: City University London. Retrieved from http://www.academia.edu/4160691/ESS_Round_5_Design_Template_for_Trust_in_Justice_Module

European Social Survey. (2011b). *Trust in justice: Topline findings from the European Social Survey*. ESS Topline Results Series Issue 1. Jackson, J., Hough, M., Bradford, B., Pooler, T. M., Hohl, K., & Kuha, J. Retrieved from https://www.europeansocialsurvey.org/sites/default/files/2023-06/ESS5_toplines_issue_1_trust_in_justice.pdf

European Social Survey. (2012). *Policing by consent: Understanding the dynamics of police power and legitimacy*. ESS Country Specific Topline Results Series Issue 1 (UK). Jackson, J., Hough, M., Bradford, B., Hohl, K., & Kuha, J. Retrieved from https://www.europeansocialsurvey.org/sites/default/files/2023-06/ESS5_gb_toplines_policing_by_consent.pdf

Factor, R., Mahalel, D., Rafaeli, A., & Williams, D. R. (2013). A social resistance perspective for delinquent behavior among non-dominant minority groups. *British Journal of Criminology, 53*(5), 784-804, https://doi.org/10.1093/bjc/azt011

Fine, A., Oliveira, T., Jackson, J., Bradford, B., Pósch, K., & Trinkner, R. (2025). Did the murder of George Floyd damage public perceptions of police and law in the United States? *Journal of Research in Crime & Delinquency, 62*(2), 333–382. https://doi.org/10.1177/00224278241263527

Frydl, K., & Skogan, W. (Eds.). (2004). *Fairness and Effectiveness in Policing: The Evidence*. National Academies Press.

Gerber, M. M., González, R., Carvacho, H., Jiménez-Moya, G., Moya, C., & Jackson, J. (2018). On the justification of intergroup violence: The roles of procedural justice, police legitimacy, and group identity in attitudes toward violence among indigenous people. *Psychology of Violence, 8*(3), 379–389. https://doi.org/10.1037/vio0000132

Grant, L., & Pryce, D. K. (2020). Procedural justice, obligation to obey, and cooperation with police in a sample of Jamaican citizens. *Police Practice and Research, 21*(4), 368–382. https://doi.org/10.1080/15614263.2019.1644178

Hamm, J. A., Wolfe, S. E., Cavanagh, C., & Lee, S. (2022). (re)organizing legitimacy theory. *Legal and Criminological Psychology*. *27*(2), 129-146. https://doi.org/10.1111/lcrp.12199

Hasisi, B., & Weisburd, D. (2011). Going beyond ascribed identities: The importance of procedural justice in airport security screening in Israel. *Law & Society Review, 45*(4), 867-892. https://doi.org/10.1111/j.1540-5893.2011.00459.x

Hohl, K., Jackson, J. & Bradford, B. (2025). Relational in/justice journeys: Revising procedural justice theory through an analysis of rape and sexual assault victims' experiences of police investigation. *British Journal of Criminology*, https://doi.org/10.1093/bjc/azaf004

Hough, M., Jackson, J., & Bradford, B. (2013a). Legitimacy, trust and compliance: An empirical test of procedural justice theory using the European Social Survey. In J. Tankebe & A. Liebling (Eds.), *Legitimacy and Criminal Justice: An International Exploration* (pp. 326-352). Oxford: Oxford University Press.

Hough, M., Jackson, J., & Bradford, B. (2013b). The governance of criminal justice, legitimacy and trust. In S. Body-Gendrot, R. Lévy, M. Hough, S. Snacken, & K. Kerezsi (Eds.), *The Routledge Handbook of European Criminology* (pp. 243-265). Oxon: Routledge.

Huq, A., Jackson, J. & Trinkner, R. (2017). Legitimating practices: Revisiting the predicates of police legitimacy. *British Journal of Criminology*, 57, 5, 1101-1122, doi: 10.1093/bjc/azw037

Jackson, J. (2015). Cognitive closure and risk sensitivity in the fear of crime. *Legal and Criminological Psychology,* 20, 2, 222-240, doi: 10.1111/lcrp.12031

Jackson, J. (2018). Norms, normativity and the legitimacy of legal authorities: International perspectives. *Annual Review of Law and Social Science, 14*, 145-165. https://doi.org/10.1146/annurev-lawsocsci-110316-113734

Jackson, J., & Bradford, B. (2019). Blurring the distinction between empirical and normative legitimacy? A methodological commentary on "Police legitimacy and citizen cooperation in China". *Asian Journal of Criminology, 14*(4), 265-289. https://doi.org/10.1007/s11417-019-09289-w

Jackson, J., Asif, M., Bradford, B., & Zakar, M. Z. (2014). Corruption and police legitimacy in Lahore, Pakistan. *British Journal of Criminology, 54*(6), 1067-1088. https://doi.org/10.1093/bjc/azu069

Jackson, J., Bradford, B., Hough, M., Kuha, J., Stares, S. R., Widdop, S., Fitzgerald, R., Yordanova, M., & Galev, T. (2011). Developing European indicators of trust in justice. *European Journal of Criminology, 8*(4), 267-285. https://doi.org/10.1177/1477370811411458

Jackson, J., Bradford, B., Hough, M., Myhill, A., Quinton, P., & Tyler, T. R. (2012). Why do people comply with the law? Legitimacy and the influence of legal institutions. *British Journal of Criminology, 52*(6), 1051-1071. https://doi.org/10.1093/bjc/azs032

Jackson, J., Bradford, B., Stanko, E. A., & Hohl, K. (2013). *Just Authority? Trust in the Police in England & Wales.* Oxon: Routledge.

Jackson, J., Brunton-Smith, I., Bradford, B., Rodriguez-Oliveira, T., Pósch, K., & Sturgis, P. (2021). Police legitimacy and the norm to cooperate: Using a mixed effects location-scale model to estimate social norms at a small spatial scale. *Journal of Quantitative Criminology, 37*(2), 547-572. https://doi.org/10.1007/s10940-020-09467-5

Jackson, J., Pósch, K., Oliveira, T. R., Bradford, B., Mendes, S. M., Natal, A. L. & Zanetic, A. (2022). Fear and legitimacy in Sao Paulo, Brazil: Police-citizen relations in a high violence, high fear context. *Law & Society Review,* 56, 1, 122-145, https://doi.org/10.1111/lasr.12589

Jackson, J., Bradford, B., Giacomantonio, C., & Mugford, R. (2023a). Developing core national indicators of public attitudes towards the police in Canada. *Policing and Society*, *33*(3), 276-295. https://doi.org/10.1080/10439463.2022.2102757

Jackson, J., Fine, A., Bradford, B., & Trinkner, R. (2023b). Social identity and support for defunding the police in the aftermath of George Floyd. *Group Processes & Intergroup Relations, 26*(4), 833-858. https://doi.org/10.1177/13684302221128230

Jackson, J., McKay, T., Cheliotis, L., Bradford, B., Fine, A. & Trinkner, R. (2023c). Centering race in procedural justice theory: Systemic racism and the under-policing and over-policing of Black communities. *Law & Human Behavior*, *47*, 1, 68–82, https://doi.org/10.1037/lhb0000524

Jonathan-Zamir, T., & Weisburd, D. (2013). The effects of security threats on antecedents of police legitimacy: Findings from a quasi-experiment in Israel. *Journal of Research in Crime and Delinquency*, *50*(1), 3-32. https://doi.org/10.1177/0022427811414800

Jonathan-Zamir, T., Perry, G., Kaplan-Damary, N., & Weisburd, D. (2024). Police compliance with the social contract as an antecedent of police legitimacy, of satisfaction with the police, and of willingness to obey: Findings from a two-stage vignette experiment. *Journal of Experimental Criminology, 1–36.* https://doi.org/10.1007/s11292-024-09592-3

Jowell, R., Roberts, C., Fitzgerald, R., & Eva, G. (2007). *European Social Survey. Measuring Attitudes Cross-Nationally: Lessons from the European Social Survey*. London: Sage.

Kochel, T. R. (2012). Can police legitimacy promote collective efficacy? *Justice Quarterly, 29*(3), 384–419. https://doi.org/10.1080/07418825.2011.561805

Kochel, T. R. (2018). Police legitimacy and resident cooperation in crime hotspots: Effects of victimisation risk and collective efficacy. *Policing and Society, 28*(3), 251-270. https://doi.org/10.1080/10439463.2016.1174235

Kochel, T. R., Parks, R., & Mastrofski, S. (2013). Examining police effectiveness as a precursor to legitimacy and cooperation with police. *Justice Quarterly*. https://doi.org/10.1080/07418825.2011.633544

Kyprianides, A., Bradford, B., Jackson, J., Yesberg, J. A., Stott, C., & Radburn, M. (2021). Identity, legitimacy and cooperation with the police: Comparing general-population and street-population samples in London. *Psychology, Public Policy, and Law, 27*(4), 492-508. https://doi.org/10.1037/law0000312

Kyprianides, A., Stott, C., & Bradford, B. (2021). 'Playing the game': Power, authority, and procedural justice in interactions between police and homeless people in London. *The British Journal of Criminology, 61*(3), 670–689. https://doi.org/10.1093/bjc/azaa080

Lee, Y. H., & Cho, S. (2020). The significance of instrumental pathways to legitimacy and public support for policing in South Korea: Is the role of procedural fairness too small? *Crime, Law and Social Change, 73*, 575–603. https://doi.org/10.1007/s10611-019-09883-4

Lind, E. A., & Tyler, T. R. (1988). *The Social Psychology of Procedural Justice*. New York: Plenum.

Mazerolle, L., Antrobus, E., Bennett, S., & Tyler, T. R. (2013). Shaping citizen perceptions of police legitimacy: A randomized field trial of procedural justice. *Criminology, 51*(1), 33-63. https://doi.org/10.1111/j.1745-9125.2012.00289.x

Meares, T. (2017). Policing and procedural justice: Shaping citizens' identities to increase democratic participation. *Northwestern University Law Review, 111*(6), 1525-1536. Retrieved from

https://www.proquest.com/scholarly-journals/policing-procedural-justice-shaping-citizens/docview/1946276272/se-2
Metcalfe, C., Wolfe, S. E., Gertz, E., & Gertz, M. (2016). They protect our homeland but neglect our community: Homeland security overemphasis, legitimacy, and public cooperation in Israel. *Journal of Research in Crime and Delinquency, 53*(6), 814-839. https://doi.org/10.1177/0022427816657738
Moravcová, E. (2016). Willingness to cooperate with the police in four central European countries. *European Journal on Criminal Policy and Research, 22*(1), 171-187. https://doi.org/10.1007/s10610-015-9271-0
Murphy, K., & Cherney, A. (2012). Understanding cooperation with police in a diverse society. *British Journal of Criminology, 52*(1), 181-201. https://doi.org/10.1093/bjc/azr065
Murphy, K., Bradford, B., & Jackson, J. (2016). Motivating compliance behavior among offenders: Procedural justice or deterrence? *Criminal Justice and Behavior, 43*(1), 102-118. https://doi.org/10.1177/0093854815611166
Murphy, K., Bradford, B., Sargeant, E., & Cherney, A. (2022). Building immigrants' solidarity with police: Procedural justice, identity and immigrants' willingness to cooperate with police. *British Journal of Criminology, 62*(2), 299-319. https://doi.org/10.1093/bjc/azab052
Murphy, K., Tyler, T. R., & Curtis, A. (2009). Nurturing regulatory compliance: Is procedural justice effective when people question the legitimacy of the law? *Regulation & Governance, 3*(1), 1-26. https://doi.org/10.1111/j.1748-5991.2009.01043.x
Nagin, D. S., & Telep, C. W. (2017a). Procedural justice and legal compliance. *Annual Review of Law and Social Science, 13*, 5-28. https://doi.org/10.1146/annurev-lawsocsci-110316-113310
Nagin, D. S., & Telep, C. W. (2017b). Response to "Procedural justice and policing: A rush to judgment?". *Annual Review of Law and Social Science, 13*, 55-58. https://doi.org/10.1146/annurev-lawsocsci-120516-024409
Oliveira, T. R., Jackson, J., Murphy, K. & Bradford, B. (2021). Are trustworthiness and legitimacy "hard to win, easy to lose"? A longitudinal test of the asymmetry thesis of police-citizen contact. *Journal of Quantitative Criminology*, *37*(4), 1003-1045, https://doi.org/10.1007/s10940-020-09478-2
Oliveira, T. R. (2024). Aggressive policing and undermined legitimacy: Assessing the impact of police stops at gunpoint on perceptions of police in São Paulo, Brazil. *Journal of Experimental Criminology*, *20*(1), 83–121, https://doi.org/10.1007/s11292-022-09527-9
Oliveira, T. R. (2025). Legal cynicism, intrusive policing, and the dynamics of police legitimacy: evidence from Brazil's largest city. *Law & Society Review*. Published online doi:10.1017/lsr.2025.10
Papachristos, A. V., Meares, T. L., & Fagan, J. (2012). Why do criminals obey the law? The influence of legitimacy and social networks on active gun offenders. *Journal of Criminal Law and Criminology, 102*(2), 397-440.
Pósch, K., Jackson, J., Bradford, B., & MacQueen, S. (2021). "Truly free consent"? Clarifying the nature of police legitimacy using causal mediation analysis. *Journal of Experimental Criminology, 17*(4), 563-595. https://doi.org/10.1007/s11292-020-09426-x
R Core Team. (2022). *R: A Language and Environment for Statistical Computing*. Vienna: R Foundation for Statistical Computing.
Radburn, M., Stott, C., Bradford, B., & Robinson, M. (2018). When is policing fair? Groups, identity and judgements of the procedural justice of coercive crowd policing. *Policing and Society, 28*(6), 647-664. https://doi.org/10.1080/10439463.2016.1234470
Reisig, M. D., & Lloyd, C. (2009). Procedural justice, police legitimacy, and helping the police fight crime: Results from a survey of Jamaican adolescents. *Police Quarterly, 12*(1), 42-62. https://doi.org/10.1177/1098611108327311
Reisig, M. D., Bratton, J., & Gertz, M. G. (2007). The construct validity and refinement of process-based policing measures. *Criminal Justice and Behavior, 34*(8), 1005-1028. https://doi.org/10.1177/0093854807301275
Reny, T., & Newman, B. (2021). The opinion-mobilizing effect of social protest against police violence: Evidence from the 2020 George Floyd protests. American Political Science Review, 115(4), 1499–1507. https://doi.org/10.1017/S0003055421000524
Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software, 48*(1), 1-36. 10.18637/jss.v048.i02
Sahin, N. M., Braga, A. A., & Apel, R. (2024). Procedural fairness, socioeconomic status, and driver perceptions of the police during traffic stops: A test of the invariance thesis. *Journal of Experimental*

Criminology, 20(4), 1175–1191. https://doi.org/10.1007/s11292-023-09564-7
Sargeant, E., Murphy, K., & Cherney, A. (2014). Ethnicity, trust and cooperation with police: Testing the dominance of the process-based model. *European Journal of Criminology, 11*(4), 500-524. https://doi.org/10.1177/1477370813511386
Skogan, W. G. (2006). Asymmetry in the impact of encounters with the police. *Policing and Society, 16*(2), 99-126. https://doi.org/10.1080/10439460600662098
Skogan, W. G. (2012). Assessing asymmetry: The life course of a research project. *Policing and Society, 22*(3), 270-279. https://doi.org/10.1080/10439463.2012.704035
Stanko, E. A., Jackson, J., Bradford, B. & Hohl, K. (2012). 'A Golden Thread, a Presence amongst Uniforms, and a Good Deal of Data: Discourses of Confidence in the London Metropolitan Police', *Policing & Society*, 22, 3, 317-331, https://doi.org/10.1080/10439463.2012.671825
Sun, I. Y., Jou, S., Hou, C. C., & Chang, Y. C. (2014). Public trust in the police in Taiwan: A test of instrumental and expressive models. *Australian & New Zealand Journal of Criminology, 47*(1), 123–140. https://doi.org/10.1177/0004865813497731
Sun, I. Y., Wu, Y., Hu, R., & Farmer, A. K. (2017). Procedural justice, legitimacy, and public cooperation with police: Does Western wisdom hold in China? *Journal of Research in Crime and Delinquency, 54*(4), 454–478. https://doi.org/10.1177/0022427816638705
Sunshine, J., & Tyler, T. R. (2003). The role of procedural justice and legitimacy in shaping public support for policing. *Law and Society Review, 37*(3), 555-589. https://doi.org/10.1111/1540-5893.3703002
Tankebe, J. (2009). Public cooperation with the police in Ghana: Does procedural fairness matter? *Criminology, 47*, 1265–1293. https://doi.org/10.1111/j.1745-9125.2009.00175.x
Tankebe, J. (2013). Viewing things differently: The dimensions of public perceptions of police legitimacy. *Criminology, 51*(1), 103–135. https://doi.org/10.1111/j.1745-9125.2012.00291.x
Trinkner, R. (2019). Clarifying the contours of the police legitimacy measurement debate: A response to Cao and Graham. *Asian Journal of Criminology, 14*(4), 309-335. https://doi.org/10.1007/s11417-019-09300-4
Trinkner, R., & Tyler, T. R. (2016). Legal socialization: Coercion versus consent in an era of mistrust. *Annual Review of Law and Social Science, 12*, 417-439. https://doi.org/10.1146/annurev-lawsocsci-110615-085141
Trinkner, R., Jackson, J., & Tyler, T. R. (2018). Bounded authority: Expanding "appropriate" police behavior beyond procedural justice. *Law & Human Behavior, 42*(3), 280-293. https://doi.org/10.1037/lhb0000285
Tsushima, M., & Hamai, K. (2015). Public cooperation with the police in Japan: Testing the legitimacy model. *Journal of Contemporary Criminal Justice, 31*(2), 212–228. https://doi.org/10.1177/1043986214568843
Tyler, T. R. (1988). What is procedural justice? Criteria used by citizens to assess the fairness of legal procedures. *Law & Society Review, 22*(1), 103-135. Retrieved from https://www.proquest.com/scholarly-journals/what-is-procedural-justice-criteria-used-citizens/docview/1297907919/se-2
Tyler, T. R. (1989). The psychology of procedural justice: A test of the group-value model. *Journal of Personality and Social Psychology, 57*(5), 830-838. https://doi.org/10.1037/0022-3514.57.5.830
Tyler, T. R. (1994). Psychological models of the justice motive. *Journal of Personality and Social Psychology, 67*(5), 850-863. https://doi.org/10.1037/0022-3514.67.5.850
Tyler, T. R. (1997). The psychology of legitimacy: A relational perspective on voluntary deference to authorities. *Personality and Social Psychology Review, 1*(4), 323-344. https://doi.org/10.1207/s15327957pspr0104_4
Tyler, T. R. (2003). Procedural justice, legitimacy, and the effective rule of law. *Crime and Justice*, *30*, 283-357.
Tyler, T. R. (2006a). *Why People Obey the Law*. Princeton University Press.
Tyler, T. R. (2006b). Psychological perspectives on legitimacy and legitimation. *Annual Review of Psychology, 57*, 375-400. https://doi.org/10.1146/annurev.psych.57.102904.190038
Tyler, T. R. (2011a). Trust and legitimacy: Policing in the USA and Europe. *European Journal of Criminology, 8*(4), 254-266. https://doi.org/10.1177/147737081141146
Tyler, T. R. (2011b). *Why People Cooperate: The Role of Social Motivations*. Princeton University Press.

Tyler, T. R. (2017). Procedural justice and policing: A rush to judgment? *Annual Review of Law and Social Science, 13*, 29-53. https://doi.org/10.1146/annurev-lawsocsci-110316-113318
Tyler, T. R. (2023). Whither legitimacy? Legal authority in the twenty-first century. *Annual Review of Law and Social Science*, 19(1), 1-17. https://doi.org/10.1146/annurev-lawsocsci-110722-074236
Tyler, T. R. (2025). Legitimacy-based policing. *Criminology & Public Policy, 24*(1), 123–145. https://doi.org/10.1111/1745-9133.12567
Tyler, T. R., & Blader, S. L. (2003). The group engagement model: Procedural justice, social identity, and cooperative behavior. *Personality and Social Psychology Review, 7*(4), 349-361. https://doi.org/10.1207/S15327957PSPR0704_07
Tyler, T. R., & Fagan, J. (2008). Legitimacy and cooperation: Why do people help the police fight crime in their communities? *Ohio State Journal of Criminal Law, 6*, 231-275.
Tyler, T. R., & Huo, Y. J. (2002). *Trust in the Law*. Russell-Sage.
Tyler, T. R., & Jackson, J. (2014). Popular legitimacy and the exercise of legal authority: Motivating compliance, cooperation and engagement. *Psychology, Public Policy, and Law, 20*(1), 78-95. https://doi.org/10.1037/a0034514
Tyler, T. R., & Lind, E. A. (1992). A relational model of authority in groups. In M. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 25, pp. 115-191). Academic Press.
Tyler, T. R., & Trinkner, R. (2018). *Why Children Follow Rules: Legal Socialization and the Development of Legitimacy*. New York: Oxford University Press.
Van Damme, A., Pauwels, L., & Svensson, R. (2015). Why do Swedes cooperate with the police? A SEM analysis of Tyler's procedural justice model. *European Journal on Criminal Policy and Research, 21*(1), 15-33. https://doi.org/10.1007/s10610-013-9224-4
Van der Toorn, J., Tyler, T. R., & Jost, J. T. (2011). More than fair: Outcome dependence, system justification, and the perceived legitimacy of authority figures. *Journal of Experimental Social Psychology, 47*(1), 127-138. https://doi.org/10.1016/j.jesp.2010.09.003
Weisburd, D., Telep, C. W., Vovak, H., Zastrow, T., Braga, A. A., & Turchan, B. (2022). Reforming the police through procedural justice training: A multicity randomized trial at crime hot spots. *Proceedings of the National Academy of Sciences, 119*(14), e2118780119. https://doi.org/10.1073/pnas.2118780119
White, M. D., Mulvey, P., & Dario, L. M. (2016). Arrestees' perceptions of the police: Exploring procedural justice, legitimacy, and willingness to cooperate with police across offender types. *Criminal Justice and Behavior, 43*(3), 343-364. https://doi.org/10.1177/0093854815602501
Williams, B. (2005). *In the Beginning was the Deed: Realism and Moralism in Political Argument*. Princeton, NJ: Princeton University Press.
Wu, G., & Liu, J. (2023). Extending procedural justice theory to the Chinese context: The role of collective efficacy. *British Journal of Criminology*, *63*(1), 40–58. https://doi.org/10.1093/bjc/azac055

SUPPORTING INFORMATION

CONTENTS

S1: SURVEY MEASURES
S2: COMMENTS ON SURVEY DEVELOPMENT AND COMPARABILITY
S3: STATISTICAL MODELING: SPECIFICATION AND ESTIMATION
S4: TABLES OF RESULTS FROM THE ESTIMATED MODELS
S5: ADDING POLICE-INITIATED CONTACT TO THE MODELS
S6: FURTHER COMMENTS ON POLICE EFFECTIVENESS AS PREDICTOR OF COOPERATION
S7: SUPPLEMENTARY MODELS FOR SOUTH AFRICA
S8: R CODE AND FULL COUNTRY-SPECIFIC MODEL DETAILS HAVE BEEN UPLOADED AS A SEPARATE PDF FOR PEER REVIEW BECAUSE OF THE SIZE (ONCE ACCEPTED, THEY WILL BE PUT ONLINE)

Supplement S1. Survey measures

Table S1. Full wording

ESS	South Africa	US
Perceived police procedural justice:		
Now some questions about when the police deal with crimes like house burglary and physical assault.	*Now some questions about when the police deal with crimes like house burglary and physical assault.*	*Thinking about the police in your community*
[1] Based on what you have heard or your own experience how often would you say the police generally treat people in [country] with respect?	*[1] Based on what you have heard or your own experience how often would you say the police generally treat people in South Africa with respect?*	*[1] How often do the police treat the people with dignity and respect?*
[2] About how often would you say that the police make fair, impartial decisions in the cases they deal with?	*[2] About how often would you say that the police make fair, impartial decisions in the cases they deal with?*	*[2] How often do the police make fair and impartial decisions in the cases they deal with?*
[3] And when dealing with people in [country], how often would you say the police generally explain their decisions and actions when asked to do so?	*[3] And when dealing with people in South Africa, how often would you say the police generally explain their decisions and actions when asked to do so?*	*[3] How often do the police explain their decisions and actions in ways that people can understand?*
Options: Not at all often (1), Not very often (2), Often (3), Very often (4)	*Options: Not at all often (1), Not very often (2), Often (3), Very often (4)*	*Options: Almost never (1), Sometimes (2), Often (3), Almost always (4)*
[1], [2], [3] used as items in factor analysis measurement model of perceived procedural justice.		
Perceived police distributive justice:		
Now some questions about whether or not the police in [country] treat victims of crime equally. Please answer based on what you have heard or your own experience.	*Now some questions about whether or not the police in South Africa treat victims of crime equally. Please answer based on what you have heard or your own experience.*	*…"your community" instead of name of the respondent's country*
[1] When victims report crimes, do you think the police treat rich people worse, poor people worse, or are rich and poor treated equally?	*[1] When victims report crimes, do you think the police treat rich people worse, poor people worse, or are rich and poor treated equally?*	*[1] When victims report crimes do you think that the police…* *Treat rich people worse than others (0), Treat rich and poor people equally (1), Treat rich people better than others (0)*
Options for [1]: rich people treated worse (0), poor people treated worse (0), rich and poor treated equally (1)	*Options for [1]: rich people treated worse (0), poor people treated worse (0), rich and poor treated equally (1)*	
[2] And when victims report crimes, do you think the police treat some people worse because of their race or ethnic group or is everyone treated equally?	*[2] And when victims report crimes, do you think the police treat some people worse because of their race or ethnic group or is everyone treated equally?*	*[2] When victims report crimes do you think that the police…* *Treat white people worse than minorities (0), Treat people of different ethnicities equally (1), Treat white people worse than minorities (0)*
Options for [2]: People from a different race or ethnic group than most [country] people treated worse (0), People from the same race or ethnic group as most [country] people treated worse (0), Everyone treated equally regardless of their race or ethnic group (1)	*Options for [2]: White, Indian and Coloured South Africans are treated worse than black South Africans (0), Black South Africans are treated worse than other race groups (0), [equally, as in ESS] (1)*	
Combined measure of distributive justice: [1]+[2]		
Perceived police lawfulness:		

Now one last question about the police and things they may or may not do.	*[No introduction]*	*Do you disagree or agree that:*
[1] How often would you say that the police in [country] take bribes?	*[1] How often would you say that the police in South Africa take bribes?*	*[1] The police take bribes*
Options for [1]: 11-point scale, from Never (0) to Always (10)	*Options for [1]: 11-point scale, from Never (0) to Always (10)*	*Options for [1]: Disagree strongly (5), Disagree (4), Neither (3), Agree (2), Agree strongly (1)*
[2] … please say to what extent you agree or disagree with each of the following statements about the police in [country]… The decisions and actions of the police are unduly influenced by pressure from political parties and politicians.	*[2] … please say to what extent you agree or disagree with each of the following statements about the police in South Africa… The decisions and actions of the police are unduly influenced by pressure from political parties and politicians.*	*[2] The decisions and actions of the police are unduly influenced by pressure from political parties and politicians.*
Options for [2]: Agree strongly (1), Agree (2), Neither agree nor disagree (3), Disagree (4), Disagree strongly (5)	*Options for [2]: Agree strongly (1), Agree (2), Neither agree nor disagree (3), Disagree (4), Disagree strongly (5)*	*Options for [2]: Disagree strongly (5), Disagree (4), Neither (3), Agree (2), Agree strongly (1)*
Combined measure of lawfulness: average of [1] and [2]		
Perceived police effectiveness:		
[1] Based on what you have heard or your own experience how successful do you think the police are at preventing crimes in [country] where violence is used or threatened?	*[1] Based on what you have heard or your own experience how successful do you think the police are at preventing crimes in South Africa where violence is used or threatened?*	*[1] How successful do you think the police are at preventing crimes where violence is used or threatened in your community?*
[2] And how successful do you think the police are at catching people who commit house burglaries in [country]?	*[2] And how successful do you think the police are at catching people who commit house burglaries in South Africa?*	*[2] And, how successful do you think the police are at catching people who commit house burglaries?*
Options for [1] and [2]: 11-point scale, from Extremely unsuccessful (0) to Extremely successful (10)	*Options for [1] and [2]: 11-point scale, from Extremely unsuccessful (0) to Extremely successful (10)*	*Options for [1] and [2]: 11-point scale, from Extremely unsuccessful (0) to Extremely successful (10)*
[3] If a violent crime were to occur near to where you live and the police were called, how slowly or quickly do you think they would arrive at the scene?	*[3] If a violent crime or house burglary were to occur near to where you live and the police were called how slowly or quickly do you think they would arrive at the scene?*	*[3] If a violent crime were to occur near to where you live and the police were called, how soon do you think they would arrive at the scene?*
Options for [3]: 11-point scale, from Extremely slowly (0) to Extremely quickly (10)	*Options for [3]: 11-point scale, from Extremely slowly (0) to Extremely quickly (10)*	*Options for [3]: 11-point scale, from Extremely slowly (0) to Extremely quickly (10)*
[1], [2], [3] used as items in factor analysis measurement model of perceived effectiveness.		
Worry about criminal victimization:		
		Now I would like to ask you about how much (if at all) you worry about specific crimes. How worried are you about …

[1] How often, if at all, do you worry about your home being burgled?	*[1] How often do you worry about your home being burgled?*	*[1] Having your home broken into and something stolen*
[2] How often, if at all, do you worry about becoming a victim of violent crime?	*[2] How often do you worry about becoming a victim of violent crime?*	*Being mugged or robbed*
Options: All or most of the time (4), Some of the time (3), Just occasionally (2), Never (1)	*Options: All or most of the time (4), Some of the time (3), Just occasionally (2), Never (1)*	*Options: Very worried (4), Fairly worried (3), Not very worried (2), Not at all worried (1)*
Combined measure of worry about victimization: average of [1] and [2]		
Normative alignment with the police:		
…please say to what extent you agree or disagree with each of the following statements about the police in [country].	*…please say to what extent you agree or disagree with each of the following statements about the police in South Africa.*	*Do you disagree or agree that:*
[1] The police generally have the same sense of right and wrong as I do.	*[1] The police generally have the same sense of right and wrong as I do.*	*[1] The police generally have the same sense of right and wrong as I do.*
[2] The police stand up for values that are important to people like me.	*[2] The police stand up for values that are important to people like me.*	*[2] The police stand up for values that are important to people like me.*
[3] I generally support how the police usually act.	*[3] I generally support how the police usually act.*	*[3] You generally support how the police act in your community.*
Options: Agree strongly (5), Agree (4), Neither agree nor disagree (3), Disagree (2), Disagree strongly (1)	*Options: Agree strongly (5), Agree (4), Neither agree nor disagree (3), Disagree (2), Disagree strongly (1)*	*Options: Agree strongly (5), Agree (4), Neither agree nor disagree (3), Disagree (2), Disagree strongly (1)*
[1], [2], [3] used as items in factor analysis measurement model of normative alignment.		
Duty to obey the police:		
Now some questions about your duty towards the police in [country]… To what extent is it your duty to…	*Now some questions about your duty towards the police in South Africa… To what extent is it your duty to…*	*Now some questions about the police in your community. Do you disagree or agree that it is your responsibility that:*
[1] back the decisions made by the police even when you disagree with them?	*[1]* was not included in the survey	*[1] You should support the decisions made by police officers even when you disagree with them.*
[2] do what the police tell you even if you don't understand or agree with the reasons?	*[2] do what the police tell you even if you don't understand or agree with the reasons?*	*[2] do what the police tell you even if you don't understand or agree with the reasons?*
[3] do what the police tell you to do, even if you don't like how they treat you?	*[3] do what the police tell you to do, even if you don't like how they treat you?*	*[3] do what the police tell you to do, even if you don't like how they treat you?*
Options: 11-point scale, from Not at all my duty (0) to Completely my duty (10)	*Options: 11-point scale, from Not at all my duty (0) to Completely my duty (10)*	*Options: Disagree strongly (0), Disagree (2.5), Neither (5), Agree (7.5), Agree strongly (10)*
[1], [2], [3] used as items in factor analysis measurement model of obligation to obey.		
Willingness to cooperate with the police and courts:		
Now some questions about what you would do if you were the only witness to a crime.	*Now some questions about what you would do if you were the only witness to a crime.*	*Imagine that you were the only witness to a crime.*
[1] Imagine that you were out and saw someone push a man to the ground and steal his wallet. How likely would you be to call the police? Would you be…	*[1] Imagine that you were out and saw someone push a man to the ground and steal his wallet. How likely would you*	*[1] If you saw someone push a person to the ground and steal their purse or wallet how*

	be to call the police? Would you be…	*likely would you be to call the police?*
Options for [1]: Not at all likely (1), Not very likely (2), Likely (3), Very likely (4)	*Options for [1]: Not at all likely (1), Not very likely (2), Likely (3), Very likely (4)*	*Options for [1]: Very unlikely (1), Unlikely (2), Likely (3), Very likely (4)*
[2] How willing would you be to identify the person who had done it? Would you be…	*[2] How willing would you be to identify the person who had done it? Would you be…*	*[2] How willing would you be to identify the person who had committed the crime?*
[3] And how willing would you be to give evidence in court against the accused? Would you be…	*[3] And how willing would you be to give evidence in court against the accused? Would you be…*	*[3] And how willing would you be to give evidence in court against the accused? Would you be…*
Options for [2] and [3]: Not at all willing (1), Not very willing (2), Willing (3), Very willing (4)	*Options for [2] and [3]: Not at all willing (1), Not very willing (2), Willing (3), Very willing (4)*	*Options for [2] and [3]:* Same as for [1], even though question stem has "willing" rather than "likely".
[1], [2], [3] used as items in factor analysis measurement model of willingness to cooperate.		
Public contact with the police:		
[1] In the past 2 years, did the police in [country] approach[21] you[22], stop you or make contact with you for any reason?	*[1] In the past 2 years, did the police in South Africa approach you, stop you or make contact with you for any reason?*	*[1] In the past 2 years, have the police in your community approached you, stopped you or made contact with you for any reason?*
Options for [1]: No (1), Yes (2)	*Options for [1]: No (1), Yes (2)*	*Options for [1]: No (1), Yes (2)*
[2] [Ask if has been approached / stopped / contacted by the police for any reason in past 2 years] *How dissatisfied or satisfied were you with the way the police treated[23] you the last time this happened?*	*[2]* [Ask if has been approached / stopped / contacted by the police for any reason in past 2 years] *How satisfied or dissatisfied were you with the way the police treated you the last time this happened?*	*[2]* [Ask if has been approached / stopped / contacted by the police for any reason in past 2 years] *How satisfied or dissatisfied were you with your experience with the police the last time this happened?*
Options for [2]: Very dissatisfied (1), Dissatisfied (2), Neither dissatisfied nor satisfied (3), Satisfied (4), Very satisfied (5)	*Options for [2]: Very dissatisfied (1), Dissatisfied (2), Neither dissatisfied nor satisfied (3), Satisfied (4), Very satisfied (5)*	*Options for [2]: Very dissatisfied (1), Dissatisfied (2), Neither dissatisfied nor satisfied (3), Satisfied (4), Very satisfied (5)*

[21] Approach for any reason (e.g. to ask you for information or because they suspect you have committed a crime or they need to ask you to do something).
[22] 'You' as in 'the police approached, stooped or contacted the respondent personally'.
[23] 'Treated' in the sense of how the police responded to or dealt with the respondent.

Procedural justice

Our scale of procedural justice captures three key dimensions of fair treatment and decision-making during police-citizen encounters. The first focuses on dignity and respect—whether officers acknowledge individuals' rights and treat them with courtesy. When they do, people are more likely to feel they have been treated fairly; when they do not—when officers stereotype, belittle or dismiss—interactions can feel dehumanising and unjust. The second item assesses neutrality: do officers make decisions based on consistent rules rather than personal bias or prejudice? Neutral decision-making signals that everyone is treated equally under the law. The third item concerns voice—whether people feel able to share their side of the story. Voice does not require formal procedures; even brief opportunities to explain oneself can make encounters feel more fair. Research on police stops suggests that when officers allow individuals to speak before acting, people are more likely to judge the process as fair, regardless of the outcome.

Distributive justice

Distributive justice refers to the fair distribution of policing resources and outcomes—how protection, attention and investigative effort are allocated across different social groups. Our measures capture public perceptions of whether victims receive equal treatment from the police, focusing specifically on differences by wealth and race. By anchoring these items in concrete victim group comparisons, we aim to make the concept more tangible and reduce ambiguity. While designed to tap into material aspects of policing—such as response times, prioritisation of cases and allocation of investigative resources—we do recognise that the phrase *treating people equally* may also evoke notions of interpersonal fairness, including demeanour and decision-making. See section S2 for further discussion.

Effectiveness, lawfulness and fear of crime

Effectiveness was measured using items that reflect key domains of police performance: crime detection, crime prevention and citizen protection, across property and violent crime. Perceived lawfulness was assessed using two items: (1) how often respondents believed police in their country accept bribes; and (2) the extent to which they thought police actions are unduly influenced by political parties or politicians. Fear of crime was measured by asking how frequently respondents worry about two specific risks: having their home burgled and becoming a victim of violent crime (see Jackson & Kuha, 2014 for details).

Legitimacy

Legitimacy was measured along two dimensions (Jackson et al., 2012, 2013). The first, normative alignment, captures whether respondents believe the police act in ways that reflect their own values and expectations of appropriate conduct. This belief signals more than approval—it reflects the perception that police exercise power in a morally appropriate way. When people see police behaviour as consistent with their normative standards, they are more likely to view the institution as rightful, justified, and worthy of support.

The second dimension, duty to obey, reflects a felt obligation to follow police directives—not out of fear, habit or convenience, but because the police are seen as legitimate authorities. This sense of obligation goes beyond passive compliance; it represents an active endorsement of the police's right to determine appropriate behaviour. The concept echoes Raz's (1986: 135) idea of *pre-emptive reasons*: individuals defer not because they always agree, but because they recognise the institution's rightful authority to decide. The items are designed to capture exactly this sense of positive obligation—compliance as a moral, civic or legal duty, rooted in democratic citizenship. See section S2 for further detail.

Willingness to cooperate

Cooperation was assessed through a vignette-based measure, reflecting a latent continuum of engagement with the justice system. At the lower end are those unlikely to report or assist; at the upper end are individuals willing to report a crime, identify the suspect and give evidence in court. This allows us to capture variation in both willingness and depth of cooperative behaviour in response to a hypothetical offence.

Police contact (for supplementary analysis)

In section S5 we supplement our main analyses by incorporating two measures of direct police contact: (1) a binary item asking whether respondents had been approached, stopped or otherwise contacted by the police in the past two years; and (2) an ordinal measure of satisfaction, in which those with contact rated how satisfied or dissatisfied they were with how they were treated.

REFERENCES

Jackson, J., Bradford, B., Hough, M., Myhill, A., Quinton, P., & Tyler, T. R. (2012). Why do people comply with the law? Legitimacy and the influence of legal institutions. *British Journal of Criminology, 52*(6), 1051-1071. https://doi.org/10.1093/bjc/azs032

Jackson, J., Bradford, B., Stanko, E. A., & Hohl, K. (2013). *Just Authority? Trust in the Police in England and Wales*. Oxon: Routledge.

Jackson, J. & Kuha, J. (2014). 'Worry about Crime in a Cross-National Context: A Model-Supported Method of Measurement Using European Social Survey Data', *Survey Research Methods*, 8, 2, 109-126, doi: 10.18148/srm/2014.v8i2.5457

Raz, J. (1986). *The Morality of Freedom*. Clarendon Press.

Supplement S2. Comments on survey development and comparability

The ESS data come from the *Trust in Justice* rotating module in Round 5 (Hough et al., 2013a, 2013b). Rotating modules are selected through open competition, where academic teams propose new content addressing pressing social and political issues. Each proposal outlines the substantive aims, theoretical frameworks, concepts and indicative measures using the ESS *Question Module Design Template*. Once selected, the module undergoes a multi-stage development process.

For *Trust in Justice*, this process spanned 18 months (Jackson et al., 2011). A multidisciplinary advisory panel reviewed the proposed questions and assessed their reliability and validity using the *Survey Quality Predictor Program*. The questions underwent multiple rounds of revision and reassessment before being presented to ESS National Coordinators for further evaluation of substantive and translation-related issues (see here for detailed documentation of the questionnaire development and testing process). The questionnaire was then tested in a two-nation quantitative pilot study, which included split-ballot multi-trait/multi-method experiments. Pilot data were analyzed for item non-response, factor structure, correlations and translation quality. This was followed by additional expert review and further consultations with National Coordinators. The finalized questionnaire incorporated annotated clarifications for translation and was subsequently translated into all relevant languages before fieldwork began.

To illustrate the process, we focus on two constructs—distributive justice and duty to obey. We highlight these for two reasons. First, the exact item wordings in our study departed slightly from prior approaches. Second, both constructs raise conceptual challenges worth clarifying.

Distributive justice

Procedural justice and distributive justice are typically distinguished as follows:

- Procedural justice concerns the fairness of processes in individual police-citizen encounters:
    - *Decision-making fairness*, whether officers make objective and unbiased decisions when dealing with the public (e.g., *"Do officers make fair and impartial decisions in their interactions?"*)
    - *Interpersonal treatment*, whether officers treat individuals with respect and dignity during encounters (e.g., *"Do officers engage with people in a respectful and professional manner?"*).
- By contrast, distributive justice refers to the fair distribution of legal outcomes and policing resources across aggregate social groups in society:
    - *Equity in legal outcomes*, whether certain groups receive the legal outcomes they deserve while others do not (e.g., *"Are legal outcomes applied fairly across different social groups?"*)
    - *Equitable allocation of policing resources*, whether some groups receive better policing services than others (e.g., *"Do certain social groups experience greater police responsiveness and protection?"*) and whether some groups receive more of the burdens of policing than other groups (e.g., *"Are some social groups more frequently stopped, searched, or surveilled by police than others?")*

This distinction separates (a) fairness in personal encounters from (b) fairness in the structural distribution of policing benefits and burdens. While procedural justice focuses on the micro-level—how officers treat individuals—distributive justice addresses systemic fairness at the macro-level, especially how outcomes are distributed across race, class and other group categories.

As such, measures of procedural justice typically focus on respectful treatment, neutral decision-making and voice provision in encounters between officers and citizens.[24] By contrast, measures of distributive justice typically stress resources and outcomes, mostly in terms of fair allocation across core societal groups. Consider some common survey indicators. Sunshine & Tyler's (2003) used the following in study 1: "(1) ''How often do people receive the outcomes they deserve under the law when they deal with the police?,'' (2)

[24] To be sure, procedural justice perceptions can be aggregated up. People can believe that police *generally* treat people with respect and dignity in individual police-citizen encounters—this is the belief that officers 'do' procedural justice *en masse*. But when aggregated up, procedural justice as a concept does not reference systematic differences between social groups in society—that is the domain of distributive justice.

‘‘Are the outcomes that people receive from the police better than they deserve, worse than they deserve, or about what they deserve under the law?,’’ (3) ‘‘How often do the police give people in your neighborhood less help than they give others due to their race?,’’ (4) ‘‘The police do not provide the same quality of service to people living in all areas of the city,’’ and (5) ‘‘Minority residents of the city receive a lower quality of service from the NYPD than do whites.” In study 2 the measures were: “…respondents whether eight groups received the quality of service they deserved from the police: people like the respondent, people in their neighborhood, minorities in their neighborhood, whites, African Americans, Hispanics, poor people, and wealthy people…Respondents were also asked whether (1) ‘‘The police treat everyone equally regardless of their race,’’ (2) ‘‘The police provide better services to the wealthy (reversed),’’ and (3) ‘‘They sometimes give minorities less help due to their race (reversed).’’[25]

How did we measure distributive justice? At the start of the design process, as rotating module designers we initially proposed three existing distributive justice indicators for the *Trust in Justice* rotating module: (A) ‘Provide the same quality of service to everyone,’ (B) ‘Enforce the law consistently when dealing with all people,’ and (C) ‘Make sure people receive the outcomes they deserve under the law.’ In response, the methodological board raised three main queries. For (A) it was unclear what ‘quality of service’ encompassed. For (B) and (C) the term ‘people’ lacked specificity—did it refer to criminals, witnesses, or victims? For (C) the phrase ‘receive the outcomes’ was ambiguous—did it refer to police decisions, legal punishments or broader judicial outcomes?

After several rounds of consultation, the focus shifted to victims—a clearer, more culturally universal frame—and specifically whether some victim groups were given a better quality of service by the police than other victim groups. The methodological development panel took the view that specifying *victims of crime* added clarity to the type of police-citizen encounter, helping to anchor the scenario in respondents' minds across all 28 countries. Upon further consideration, however, the phrase *same quality of service* was considered too culturally specific and difficult to translate. Because the panel believed that *quality of service* was not a universally understood concept in all countries, particularly outside the UK, the questions moved to *treating people equally.* As a clearer and more universally intelligible alternative, this hoped to ensure cross-national consistency, capturing whether respondents in each of the 28 countries perceived the police as prioritizing or privileging certain groups over others when dealing with and responding to crime victims.

The revised items were: *[1] “When victims report crimes, do you think the police treat rich people worse, poor people worse, or are rich and poor treated equally?” and [2] “When victims report crimes, do you think the police treat some people worse because of their race or ethnic group or is everyone treated equally?”*. ESS interviewers were given the following clarifying note, to be used if survey respondents queried what *treat people* means exactly: “*Treat in the sense of how the police respond to and deal with people*”.

Blurring lines? Distributive and procedural justice

Despite our efforts to distinguish them, some interpretive overlap between procedural and distributive justice is likely. For instance, the idea that certain groups are *treated worse* may not only signal perceptions of unequal resource allocation (distributive injustice) but also evoke concerns about disrespectful treatment and biased decision-making (procedural injustice)—just scaled up to group level. If people believe that poor victims are treated worse than rich victims, they may be thinking not just of slower response times or less investigative effort, but also of unequal demeanour and unfair judgements.

Two further points are worth emphasising. First, many respondents may assume that fair processes lead to fair outcomes. If police are perceived as disrespectful or biased toward minority victims, people may infer that those groups are also less likely to receive adequate protection or support. In this way, procedural unfairness can be read as a sign of distributive injustice. Second, people may substitute one fairness judgment for another. Evaluating systemic resource allocation is cognitively demanding. It is often easier to judge fairness from visible cues—tone of voice, body language, the officer’s attitude. Respondents may use these interpersonal signals as proxies for deeper systemic concerns.

[25] Reisig et al. (2007) asked "Provide the same quality of service to all citizens”, “Enforce the law consistently when dealing with all people”, “Make sure citizens receive the outcomes they deserve under the law”, “Give minorities less help because of their race” and “Provide better services to wealthier citizens”. Wolfe et al. (2016) asked whether police in their neighborhood ‘‘give minorities less help because of their race’’ and ‘‘provide better services to wealthy citizens’’. Jackson et al. (2023) asked “The police treat everyone fairly, regardless of who they are”, “The police treat everyone equally”, “The police provide the same quality of service to all citizens”, and “The police enforce the law consistently when dealing with people.”

That said, we would defend the view that our items primarily capture perceived disparities in outcomes and resources across wealth and race lines. While procedural concerns may inform these perceptions, the questions are explicitly anchored in group-level, structural fairness. The focus is on what happens after a crime is reported—whether police follow up, prioritise, and support victims equitably across groups.

Of course, in the real world, procedural and distributive injustices often go hand in hand. Disrespectful treatment and biased decisions can accumulate into institutional patterns of inequality. Our goal was to capture public beliefs about whether some groups are systematically disadvantaged in how police services are delivered—a core concern for public trust in justice across diverse societies.

Duty to obey

When considering how to measure felt obligation to obey the police, a key priority was to try to distinguish between two distinct types of obligation:

- Instrumentally grounded obligations arise from pragmatism, fear of consequences, or a sense of powerlessness, where compliance is motivated by external necessity rather than an internalized belief in the police's moral authority.
- Normatively grounded obligations reflect a freely chosen, morally driven sense of duty to obey the police, based on ascribed legitimacy and rightful authority.

One concern in the design process was that standard measures of legitimacy could conflate these two motivations (see Bottoms and Tankebe, 2012; Tankebe, 2009; Tankebe, 2013; Johnson et al., 2014; Posch et al., 2021; Van Petegem et al., 2021; Reisig et al., 2023; Reisig & Trinkner, 2024). In particular, survey respondents may agree with statements about obligation for reasons that blend instrumental compliance (e.g., fear of punishment) with normative commitment (e.g., belief in rightful authority).

To address this ambiguity, we designed measures that captured normatively grounded obligation, emphasizing the concept of a moral duty to obey the police. To aid this, ESS interviewers were provided with the following clarifying note to use if respondents asked for clarification on the term duty: "*Duty in the sense of a citizen's moral duty to the state*." This approach aims to align the measurement process with Raz's (1986) concept of pre-emptive consent, in which obligation arises from an internalized commitment to the police's authority rather than from a calculated assessment of potential consequences.

To assess how well the concept translated across languages, we asked the ESS team for a detailed breakdown of how duty—specifically, the idea of a moral duty to obey the police—was referred to in different languages within Round 5 of the ESS. The key question was whether these translations accurately captured legitimacy—that is, people obeying the police because they recognize their rightful authority—or whether they left room for interpretations rooted in instrumental compliance, where obedience stems from fear of punishment or a sense of powerlessness.

We find that many of the translations explicitly conveyed a sense of moral or civic responsibility. In German, *Pflicht* denotes an obligation arising from ethical, moral, or religious reasons, closely aligning with the intended meaning. Similarly, the French *devoir* is defined as a moral duty independent of legal enforcement, reinforcing that the obligation to obey is based on legitimacy rather than coercion. The Russian *долг* carries strong moral connotations, often used in phrases such as *"a man's duty to protect his family."* Other languages, such as Portuguese (*dever*) and Croatian (*dužnost*), also employ terms that clearly denote an obligation rooted in moral or civic values. In some cases, translations went even further to specify moral duty explicitly. For instance, the Hebrew and Arabic versions of the survey included clarifications to emphasize that the duty in question was moral, rather than legal or coercive.

Beyond individual moral duty, some translations frame the concept in terms of *civic duty*—a citizen's responsibility to the state. For example, the Norwegian version used *borgerplikt*, which directly translates to *citizen's duty*. In Russian and Ukrainian, the phrase *гражданский долг* (*civic duty*) was used, reinforcing the idea that duty to the police is rooted in legitimacy within the broader social contract rather than individual fear of punishment. Similarly, the Greek *υποχρέωση* conveys a blend of moral and personal obligation rather than a strictly legal or externally imposed duty.

However, in a few cases, the translations are less precise in distinguishing moral duty from other forms of obligation. The Czech *povinnost* and Polish *obowiązek* can refer to both moral and legal duties, allowing for multiple interpretations. Similarly, the Estonian *kohus* can mean *duty, obligation, or responsibility*, making it more open-ended than some of the stronger moral translations. The Swiss-German term *verpflichtet sein* (*to*

be bound to) lacks an explicit moral component. In some languages, particularly Lithuanian and Ukrainian, softer wording is used, such as modal verbs (*should* rather than *must*), which may slightly weaken the normative force of the term.

Despite these minor variations, the overwhelming pattern across languages is that duty was translated in a way that captures moral responsibility rather than coercion. Overall, the translation analysis suggests that, in most cases, the wording preserves the normative, moral dimension of duty rather than implying fear-based obedience. In most languages, respondents likely interpret the question as assessing their genuine belief in the police's right to issue directives, rather than whether they comply due to fear or powerlessness.

We acknowledge, however, a limitation in how obligation to obey was measured in the US survey. While the ESS measures explicitly framed obligation as a normative duty, the US survey relied on traditional measures that asked respondents to what extent they believe they should comply with police directives. These measures may conflate normative motivation (a moral duty to obey) with instrumental compliance (e.g., obeying out of fear of punishment or strategic self-interest).

Future cross-national research should refine measures of obligation to obey by explicitly distinguishing between different motivations for compliance. It is essential to ensure that survey questions across countries and languages accurately capture the internalized normative basis of legitimacy, rather than instrumental forms of compliance rooted in coercion or strategic calculation. By adopting measures that clearly differentiate between duty-based and instrumental obedience, future comparative studies can provide a more precise assessment of the role legitimacy plays in shaping public cooperation with legal authorities across different jurisdictions.

Differences in framing of the police comparing the ESS/South Africa to US

We should note that the framing of *the police* in the overall question set varied slightly across surveys. The ESS and SASAS instructed respondents to consider the police responsible for crimes such as house burglary and physical assault, while the US survey asked about *police in your community*. This distinction was intentional, reflecting the diverse policing structures across countries. In some nations, such as France and Italy, different police forces handle different types of policing, which could create ambiguity if respondents were asked about *the police* in general. By anchoring questions to common neighbourhood-level crimes, we aimed to ensure that respondents across different contexts were thinking about everyday policing—specifically, the officers most likely to engage with the public in routine interactions. In the US, *police in your community* does the same work. While we recognize this as a minor difference in question framing, we believe it ultimately strengthens the validity of cross-national comparisons by reducing ambiguity in respondent interpretation and directing attention to the most relevant aspects of procedural justice within each policing system.

REFERENCES

Bottoms, A., & Tankebe, J. (2012). Beyond procedural justice: A dialogic approach to legitimacy in criminal justice. *Journal of Criminal Law & Criminology*, *102*(1), 119–170.

Jackson, J., Bradford, B., Giacomantonio, C. & Mugford, R. (2023). Developing core national indicators of public attitudes towards the police in Canada. *Policing & Society*, 33, 3, 276-295, https://doi.org/10.1080/10439463.2022.2102757

Jackson, J., Bradford, B., Hough, M., Kuha, J., Stares, S. R., Widdop, S., Fitzgerald, R., Yordanova, M. & Galev, T. (2011). Developing European indicators of trust in justice. *European Journal of Criminology*, 8, 4, 267-285, https://doi.org/10.1177/1477370811411458

Johnson, D., Maguire, E. R., & Kuhns, J. B. (2014). Public perceptions of the legitimacy of the law and legal authorities: Evidence from the Caribbean. *Law & Society Review, 48*(4), 947–978, https://doi.org/10.1111/lasr.12102

Pósch, K., Jackson, J., Bradford, B. & MacQueen, S. (2021). '"Truly free consent"? Clarifying the nature of police legitimacy using causal mediation analysis. *Journal of Experimental Criminology*, 17, 4, 563-595, https://doi.org/10.1007/s11292-020-09426-x

Reisig, M. D., & Trinkner, R. (2024). Distinguishing between normative and non-normative motivations to obey the police: furthering the development of a police legitimacy scale. *Policing: An International Journal*, *47*(1), 50-65, https://doi.org/10.1108/PIJPSM-05-2023-0069

Reisig, M. D., Bratton, J., & Gertz, M. G. (2007). The construct validity and refinement of process-based policing measures. *Criminal Justice and Behavior, 34*(8), 1005-1028. https://doi.org/10.1177/0093854807301275

Reisig, M. D., Trinkner, R., & Sarpong, D. (2023). Measuring normative obligation to obey the police: An empirical assessment of a new police legitimacy scale. *Journal of Criminal Justice*, *86*, 102045, https://doi.org/10.1016/j.jcrimjus.2023.102045

Sunshine, J., & Tyler, T. R. (2003). The role of procedural justice and legitimacy in shaping public support for policing. *Law and Society Review, 37*(3), 555-589. https://doi.org/10.1111/1540-5893.3703002

Tankebe, J. (2009). Public cooperation with the police in ghana: Does procedural fairness matter? *Criminology*, *47*(4), 1265–1293. https://doi.org/10.1111/j.1745-9125.2009.00175.x

Tankebe, J. (2013). Viewing things differently: The dimensions of public perceptions of police legitimacy. *Criminology*, *51*(1), 103–135. https://doi.org/10.1111/j.1745-9125.2012.00291.x

Van Petegem, S., Trinkner, R., van der Kaap-Deeder, J., Antonietti, J. P., & Vansteenkiste, M. (2021). Police procedural justice and adolescents' internalization of the law: Integrating self-determination theory into legal socialization research. *Journal of Social Issues*, *77*(2), 336-366, https://doi.org/10.1111/josi.12437

Wolfe, S. E., Nix, J., Kaminski, R., & Rojek, J. (2016). Is the effect of procedural justice on police legitimacy invariant? Testing the generality of procedural justice and competing antecedents of legitimacy. *Journal of Quantitative Criminology*, *32*, 253-282, https://doi.org/10.1007/s10940-015-9263-8

Supplement S3. Statistical modelling: Specification and estimation

In this section we describe the specification, motivation and estimation of the statistical models that were used in our analysis. Let $\boldsymbol{X}_{ji}=(X_{1ji},X_{2ji},X_{3ji},X_{4ji},X_{5ji},X_{6ji},\ X_{7ji},\eta_{1ji},\eta_{2ji})$ denote the exogenous variables, i.e. the ones furthest to the left in the path diagram in Figure 1, for respondent i=1,…,n_j in country j=1,…,J=30. These include the observed covariates (age and dummy variables for female gender and upper secondary and higher education levels; X_{1ji} – X_{4ji} respectively), plus the observed measures of perceived distributive justice (X_{5ji}), lawfulness of the police (X_{6ji}) and the respondent's worry about crime (X_{7ji}), together with the latent variables for procedural justice (η_{1ji}) and effectiveness (η_{2ji}). We denote the rest of the latent variables as η_{3ji} for normative alignment with the police, η_{4ji} for duty to obey the police, and η_{5ji} for willingness to cooperate with the police and the courts. Our model of interest is then of the form

$$\eta_{3ji} = \beta_{30j} + \beta_{3xj}\boldsymbol{X}_{ji} + \varepsilon_{3ji} \qquad (1)$$
$$\eta_{4ji} = \beta_{40j} + \beta_{4xj}\boldsymbol{X}_{ji} + \varepsilon_{4ji} \qquad (2)$$
$$\eta_{5j} = \beta_{50j} + \beta_{5xj}\boldsymbol{X}^{*}_{ji} + \beta_{53j}\eta_{3j} + \beta_{54j}\eta_{4ji} + \varepsilon_{5ji} \qquad (3)$$

where the β-terms are parameters (regression coefficients) and the ε-terms are normally distributed residuals with mean 0 and variances $var(\varepsilon_{kji}) = \sigma_k^2$ for k=3,4,5 and one non-zero covariance $cov(\varepsilon_{3ji},\varepsilon_{4ji}) = \sigma_{34}$. Here ε_{5ji} is taken to be independent of $(\varepsilon_{3ji},\varepsilon_{4ji})$ for respondent ji, and $(\varepsilon_{3j}\ ,\varepsilon_{4ji},\varepsilon_{5ji})$ all independent of each other for different respondents. In (3), $\boldsymbol{X}^{*}_{ji}$ omits distributive justice and lawfulness from $\boldsymbol{X}_{ji}$. This is a conventional linear structural equation model (SEM) for the latent responses ($\eta_{3ji},\ \eta_{4ji},\ \eta_{5ji}$), corresponding to the model represented in Figure 1. We refer to (1)-(3) as the *structural model* of our analysis. Note that all of the parameters can have different values in every country, as indicated by the subscript j in them.

Each of the five latent variables η_{kji} is measured by three observed items Y_{klij}, for k=1,…,5 and l=1,2,3. The *measurement model* for each of them is of the form

$$Y_{klij} = \tau_{kl} + \lambda_{kl}\eta_{kji} + \delta_{klij} \qquad (4)$$

where the τ-terms (measurement intercepts) and λ-terms (factor loadings) are parameters and the δ-terms are normally distributed residuals with mean 0 and variances $var(\delta_{kl ji}) = \theta_{kl}^2$, and with all δ_{klij} independent of each other. This is a conventional factor analysis measurement model, separately for each of the five latent variables. Each parameter in (4) is taken to have the same value in every country j. This is the assumption of measurement equivalence of the items across the countries, as discussed further below.

We estimate the models using a "two-step" method of estimation. In its first step, only the parameters of the measurement models are estimated, separately for the measures of each latent variable and omitting all other variables. This means for each of $\eta_{1ji},\ldots,\eta_{5ji}$ we fit a factor analysis model (4), to the sample of all $n = \sum_j n_j$ respondents across all the countries. In each model the latent variable is taken to be normally distributed, with its mean fixed at 0 and variance at 1 for identification of the model. This implies that the scale of each latent variable is defined so that its marginal distribution across all the countries has mean 0 and variance 1. No further identification constraints are required in the rest of the estimation. To match the scaling of the latent variables, we also scaled the values of the observed summary measures of distributive justice, lawfulness and worry about crime so that their means and variances across all the countries were 0 and 1 respectively.

In the second step, the structural model (1)-(3) is estimated, combined with the measurement models (4) but with all the measurement parameters fixed at their estimated values from the first step. The likelihood function in this second step is what it would be for a structural equation model where (1)-(3) and (4) were estimated together, except that the step-1 estimates are substituted for τ_{kl} and λ_{kl} as known values. Thus, only the structural parameters (the βs and σs) are estimated in this step.

The basic idea and general properties of two-step estimation of this kind are described for different types of latent variable models by Bakk and Kuha (2018), Rosseel and Loh (2022), and Kuha and Bakk (2023). Two-step estimates of the structural parameters are consistent and have essentially similar large-sample properties as "one-step" estimates that would be obtained by fitting both structural and measurement parts of the model together. The two-step approach is motivated by two broad considerations. Conceptually, by separating the estimation of the measurement and structural models, it also separates the effective *definition*

of the latent variables from other variables in the structural model. This way, the measurement model is not affected even if the structural model is changed or misspecified. In our analysis, the operational definition of each of the five latent variables is thus determined only by their own indicators, without any contribution (even indirect ones) from the other variables in the model. Practically, two-step estimation can be computationally much less demanding than one-step estimation, especially for complex structural models. In our analysis, one-step estimation would involve fitting all of (1)-(4) to the pooled sample of all the countries, requiring the estimation of 1965 distinct parameters at once. The two-step approach is substantially simpler, because its second step for (1)-(3) can be done separately for each country.

Note that we do not report or discuss conventional model fit statistics (e.g., Root Mean Square Error of Approximation, Comparative Fit Index) that are commonly presented in structural equation modeling. These statistics primarily assess the specification of the *measurement model* component of a joint model. In our case however, the measurement models are specified and estimated separately for each latent variable in the structural model (as shown in Figure 1 of the paper) and then fixed at their estimated values. Each measurement model is a factor analysis for a single latent variable, with distinct survey measures identified *a priori* (as listed in Supplementary Materials S1). Because each of these models includes three indicators, they are saturated, meaning that conventional fit statistics would necessarily indicate perfect fit.

Moreover, conventional model fit statistics would not be particularly informative even if we had estimated the joint model using a one-step estimation approach. In cases where such statistics suggest poor fit—especially in large samples—the only way to adjust the measurement model to improve these indices would be to introduce cross-loadings between different sets of variables (e.g., allowing some indicators of procedural justice to also serve as indicators of police effectiveness) or to incorporate additional error correlations. However, such modifications would be both theoretically problematic and interpretationally unhelpful.

We also calculate estimates of the country-level marginal means of the variables. For the latent variables this is done by fitting for each of them separately a model of the form $\eta_{kji} \sim N(\mu_{kj}, \sigma_{kj}^2)$ in the second step, with the same measurement model from step 1. This is a structural model η_{kji} where its mean μ_{kj} and variance σ_{kj}^2 depend only on the country k. We also denote by μ_{kj} the population means of the observed measures of distributive justice, lawfulness and worry about crime, which are estimated by their means in the sample. These estimates of μ_{kj} for both latent and observed variables were calculated using the survey weights that are available for the surveys.

We used the *lavaan* package (Rosseel 2012) in the R language (R Core Team 2022) to carry out both steps of the estimation (using a likelihood-based approach as described above, rather than the closely related SAM formulation of Rosseel and Loh 2022, which is also implemented in *lavaan*). The weighted estimates of the country means of the variables were calculated using also the the *lavaan.survey* (Oberski 2014) and *survey* packages (Lumley 2010). The R code that was used for the analysis is included in supplementary materials as section S4.

Using the statistical models for comparative analysis

The basic approach of our empirical analysis is to compare estimated regression coefficients of the model (1)-(3) between and within countries, in order to examine the estimated effect sizes in the theoretical model in Figure 1 of the main manuscript across these diverse social, political and legal contexts. We also examine how the estimated means of the variables (μ_{kj}) vary across the countries, and how the regression coefficients correlate with the estimated country-level means μ_{kj} of perceived procedural justice.

For these comparisons to be meaningful, we have to first be able to assume that the variables are defined in the same way across all the countries. The first methodological part of this assumption is the careful cross-national harmonization of the survey questions, as already discussed. Second, for the latent variables we make the assumption of formal measurement equivalence across the countries, meaning that the parameters of the measurement models (4) do not depend on country k. We therefore impose on each latent variable an operational definition which is the same in each country and which is determined by the measurement model for the variable which is estimated from the pooled data for all the countries together. The estimated coefficients of all the variables then refer to the variables thus defined and are comparable across the countries in this sense.

We acknowledge that measurement equivalence could be examined empirically rather than assumed. This would involve estimating measurement models where certain parameters vary across countries, allowing differences to be assessed using likelihood ratio tests. If significant differences were detected, these variations

could be retained in the structural equation model used for the main analysis, accounting for non-equivalence in parts of the model.

However, we did not take this approach because, in cross-national analyses, we find that it often reduces rather than enhances conceptual and face-value interpretability. In large-scale surveys such as the ESS, where data are collected from numerous countries with sizable samples, formal statistical tests almost invariably detect some degree of measurement non-equivalence. Incorporating such adjustments into the fitted models would introduce a key drawback: the definition of a latent variable's scale would then differ across countries. In practical terms, this would mean that respondents from different countries who provide identical survey responses could still be assigned different latent variable values according to the model.

Instead, we assume measurement equivalence, ensuring that the scales remain consistent across countries. This assumption preserves interpretability, as the qualitative meaning of the latent variables aligns with theoretical expectations—for example, more cooperative responses to the three indicators of *willingness to cooperate with the police* correspond to higher values of that latent variable. Quantitatively, the weights assigned to different survey items remain the same across all countries, as they are defined in the first step of our two-step estimation process, where measurement models are estimated jointly for all countries.

Another important type of comparison involves examining the relative strength of different predictors both within and between countries. For example, we may wish to compare the influence of *instrumental motives*—such as perceptions of police effectiveness in crime reduction and personal concerns about victimization risk—against *normative motives*, including procedural justice, normative alignment, and duty to obey. Fully addressing such comparisons is inherently complex, as in any regression analysis, and requires substantive considerations beyond the statistical framework. Our approach is therefore a commonly used, more limited version: we rely on standardized coefficients, which ensure comparability by expressing all variables in similarly defined units of measurement. In our study, standardization is built into the model for all key explanatory variables (excluding background covariates such as age, gender, and education), as they are constructed so that their standard deviations across all countries equal 1. For latent variables, this constraint is imposed when estimating the measurement models, while observed measures—such as perceived lawfulness, distributive justice, and fear of crime—are directly standardized in the same way. Every regression coefficient β of these variables is then in a "fully standardised" form where a difference of 1 unit of standard deviation in this sense in the corresponding explanatory variable is associated with an expected difference of β standard deviation units in the response variable.

For the country means μ_{kj} of individual latent variables, a useful reference value is provided by the overall mean across the countries, which is fixed at 0. For example, a country for which the mean of perceived procedural justice is positive has a higher mean level of this variable than do these countries on average.

REFERENCES

Bakk, Z., & Kuha, J. (2018). Two-step estimation of models between latent classes and external variables. *Psychometrika, 83*(4), 871-892. https://doi.org/10.1007/s11336-017-9592-7

Kuha, J., & Bakk, Z. (2023). Two-step estimation of latent trait models. *arXiv preprint arXiv: 2303.16101*. https://doi.org/10.48550/arXiv.2303.16101

Lumley, T. (2010). *Complex Surveys: A Guide to Analysis Using R*. Hoboken, NJ: John Wiley and Sons.

Oberski, D. (2014). lavaan.survey: An R package for complex survey analysis of structural equation models. *Journal of Statistical Software, 57*(1), 1-27. https://doi.org/10.18637/jss.v057.i01

R Core Team. (2022). *R: A Language and Environment for Statistical Computing*. Vienna: R Foundation for Statistical Computing.

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software, 48*(1), 1-36. 10.18637/jss.v048.i02

Rosseel, Y., & Loh, W. W. (2022). A Structural After Measurement approach to Structural Equation Modeling. *Psychological Methods*. Advance online publication. https://doi.org/10.1037/met0000503

Supplement S4. Tables of results from the estimated models

Note: The estimation code and detailed outputs from the models are shown in separate Supplement S8. They include the estimates for those parameters and standard errors that are not included in the tables in this Supplement S4.

Table S4a. Measurement loadings in estimated factor analysis measurement models

Construct	Item 1	Item 2	Item 3
Procedural justice	0.579	0.573	0.533
Effectiveness	1.737	1.821	1.428
Obligation to obey	2.156	2.728	2.495
Normative alignment	0.727	0.789	0.685
Cooperation	0.482	0.813	0.771

Note: See Supplement S1 for the wordings and response options of the measurement items for each construct

Table S4b. Sample sizes and R^2 statistics in the structural equation models (SEMs).

Country	*n*	Normative alignment	Duty to obey	Cooperation
Austria	2,256	0.45	0.32	0.16
Belgium	1,699	0.50	0.14	0.06
Bulgaria	2,430	0.46	0.18	0.11
Croatia	1,608	0.52	0.17	0.06
Cyprus	1,068	0.61	0.30	0.07
Czech Republic	2,384	0.49	0.06	0.06
Denmark	1,573	0.44	0.14	0.09
Estonia	1,792	0.44	0.12	0.10
Finland	1,875	0.40	0.21	0.13
France	1,719	0.57	0.13	0.06
Germany	3,021	0.39	0.11	0.06
Greece	2,714	0.66	0.26	0.03
Hungary	1,560	0.50	0.13	0.07
Ireland	2,537	0.62	0.26	0.14
Israel	2,241	0.39	0.13	0.08
Lithuania	1,621	0.45	0.16	0.03
Netherlands	1,823	0.55	0.12	0.06
Norway	1,540	0.47	0.20	0.09
Poland	1,746	0.45	0.13	0.04
Portugal	2,149	0.33	0.09	0.03
Russia	2,594	0.40	0.23	0.03
Spain	1,879	0.68	0.19	0.06
Slovakia	1,841	0.45	0.05	0.07
Slovenia	1,381	0.48	0.08	0.05
Sweden	1,487	0.59	0.15	0.08
Switzerland	1,501	0.55	0.05	0.05
Ukraine	1,923	0.28	0.14	0.05
United Kingdom	2,333	0.57	0.18	0.10
South Africa	2,388	0.37	0.20	0.07
US	1,603	0.70	0.20	0.14

Table S4c: Estimated regression coefficients in the structural equation models (SEMs) for normative alignment with the police, separately for each country.

Country	Procedural justice	Distributive justice	Lawfulness	Effectiveness	Fear of crime
Austria	0.459	0.190	0.045	0.046	-0.060
Belgium	0.636	0.064	0.062	0.191	0.001
Bulgaria	0.481	0.079	0.029	0.185	-0.072
Croatia	0.612	0.040	0.021	0.145	0.010
Cyprus	0.534	0.033	0.122	0.293	0.100
Czech Republic	0.556	0.074	-0.018	0.246	0.005
Denmark	0.566	0.025	0.086	0.132	-0.020
Estonia	0.507	0.001	0.078	0.168	0.064
Finland	0.481	0.033	0.074	0.142	0.027
France	0.502	0.061	0.018	0.401	0.125
Germany	0.433	0.075	0.023	0.198	0.015
Greece	0.543	0.063	0.082	0.247	0.022
Hungary	0.626	0.054	0.038	0.166	0.032
Ireland	0.601	0.047	0.054	0.221	0.018
Israel	0.385	0.036	0.212	0.210	0.062
Lithuania	0.561	0.033	-0.053	0.168	0.046
Netherlands	0.581	0.016	0.018	0.336	0.031
Norway	0.557	-0.019	0.045	0.158	0.041
Poland	0.397	-0.016	0.042	0.246	0.078
Portugal	0.328	0.022	0.039	0.156	-0.034
Russia	0.344	0.057	0.084	0.286	-0.019
Spain	0.764	0.004	0.065	0.137	-0.022
Slovakia	0.269	0.031	0.103	0.385	-0.006
Slovenia	0.621	0.038	-0.026	0.132	-0.024
Sweden	0.635	-0.032	0.041	0.149	-0.018
Switzerland	0.567	0.050	0.090	0.179	-0.007
Ukraine	0.465	0.073	-0.163	0.252	0.054
United Kingdom	0.577	0.078	0.049	0.196	0.016
South Africa	0.236	0.138	-0.029	0.378	0.021
US	0.494	0.044	0.098	0.248	0.024

Table S4d: Estimated regression coefficients in the structural equation models (SEMs) for duty to obey the police, separately for each country.

Country	Procedural justice	Distributive justice	Lawfulness	Effectiveness	Fear of crime
Austria	0.317	-0.039	0.033	0.258	0.050
Belgium	0.313	0.012	0.038	0.124	0.026
Bulgaria	0.288	0.015	0.013	0.196	-0.035
Croatia	0.305	-0.103	0.191	0.153	-0.094
Cyprus	0.358	-0.106	0.041	0.157	0.011
Czech Republic	0.218	0.023	-0.030	0.065	0.007
Denmark	0.303	0.042	0.039	0.087	-0.008
Estonia	0.243	-0.063	0.130	0.211	0.007
Finland	0.267	0.020	0.054	0.147	0.030
France	0.202	0.034	-0.003	0.161	0.038
Germany	0.260	0.045	0.038	0.149	0.072
Greece	0.271	0.041	0.032	0.145	0.066
Hungary	0.292	0.010	0.056	0.104	0.007
Ireland	0.368	-0.004	0.112	0.087	-0.039
Israel	0.299	0.120	-0.053	-0.023	0.004
Lithuania	0.234	0.084	0.044	0.189	0.079
Netherlands	0.229	0.010	0.009	0.188	0.026
Norway	0.420	-0.018	0.026	0.090	0.055
Poland	0.175	0.053	0.101	0.141	0.120
Portugal	0.134	0.035	0.049	0.077	-0.029
Russia	0.221	0.059	0.055	0.203	-0.012
Spain	0.288	-0.025	0.068	0.136	0.028
Slovakia	0.112	0.011	0.010	0.152	0.044
Slovenia	0.444	-0.093	-0.039	0.026	-0.107
Sweden	0.393	-0.033	0.052	0.078	-0.001
Switzerland	0.178	-0.012	0.079	0.044	0.027
Ukraine	0.258	0.139	-0.082	0.101	-0.074
United Kingdom	0.216	0.023	0.054	0.187	0.050
South Africa	0.046	0.008	-0.024	0.300	0.006
US	0.274	-0.009	0.037	-0.012	-0.002

Table S4e: Estimated regression coefficients in the structural equation models (SEMs) for cooperation with the police, separately for each country.

Country	Procedural justice	Effectiveness	Fear of crime	Duty to obey	Normative alignment
Austria	0.295	-0.217	-0.127	0.035	0.107
Belgium	0.091	0.021	-0.006	0.007	0.049
Bulgaria	0.140	-0.010	-0.001	0.031	0.110
Croatia	0.095	0.077	-0.088	-0.021	0.003
Cyprus	0.289	-0.135	-0.050	-0.040	-0.091
Czech Republic	0.121	0.014	-0.033	0.020	0.090
Denmark	0.094	-0.086	-0.076	0.118	0.054
Estonia	0.255	-0.088	-0.027	0.027	0.148
Finland	0.087	-0.071	-0.068	0.150	0.163
France	0.133	-0.097	-0.006	0.037	0.094
Germany	0.102	0.026	-0.016	-0.001	0.074
Greece	0.043	0.105	0.015	-0.031	0.027
Hungary	0.067	-0.024	-0.003	0.112	0.143
Ireland	0.134	-0.011	-0.082	-0.001	0.151
Israel	0.081	-0.001	0.101	0.159	0.009
Lithuania	-0.093	0.162	-0.035	0.037	0.094
Netherlands	0.127	-0.032	0.040	0.092	0.016
Norway	0.088	-0.065	-0.096	0.021	0.166
Poland	0.094	-0.061	0.048	0.003	0.092
Portugal	0.016	-0.048	0.004	0.027	0.040
Russia	0.071	0.073	0.009	0.025	0.030
Spain	0.204	-0.062	0.017	0.067	-0.045
Slovakia	0.289	-0.017	-0.005	0.019	-0.071
Slovenia	-0.016	0.129	-0.010	-0.066	-0.027
Sweden	0.180	0.061	-0.138	0.064	0.057
Switzerland	0.132	-0.062	-0.056	-0.002	0.071
Ukraine	0.107	-0.050	0.052	0.004	0.072
United Kingdom	0.212	-0.075	-0.050	0.115	-0.030
South Africa	0.210	-0.046	0.013	0.013	0.100
US	0.146	-0.186	-0.017	0.010	0.208

Table S4f: Estimated conditional (residual) correlations between duty to obey the police and normative alignment with the police, obtained from the structural equation models (SEMs) separately for each country.

Country	Residual correlation
Austria	0.200
Belgium	0.155
Bulgaria	0.238
Croatia	0.240
Cyprus	0.081
Czech Republic	0.194
Denmark	0.206
Estonia	0.029
Finland	0.300
France	0.189
Germany	0.207
Greece	0.256
Hungary	0.176
Ireland	0.215
Israel	0.117
Lithuania	0.198
Netherlands	0.149
Norway	0.319
Poland	0.085
Portugal	0.339
Russia	0.245
Spain	0.099
Slovakia	0.122
Slovenia	0.236
Sweden	0.244
Switzerland	-0.022
Ukraine	0.169
United Kingdom	0.230
South Africa	0.045
US	0.332

Supplement S5. Adding police-initiated contact to the models

We examine whether (and how) accounting for police contact influences the conclusions drawn from our models of interest—specifically, the regression coefficients for perceived normative alignment, perceived duty to obey and cooperation with the police, as reported in Tables S4c–S4e of the paper. Given the large number of coefficients across different variables and countries, we present these comparisons in graphical form for clarity, as explained below. First, we adjust for police-initiated contact—the only available measure of personal experience with the police—to assess whether it alters key findings from the SEMs. Second, we conduct a split-group analysis to compare individuals who have had recent contact with the police to those who have not, examining whether the SEM results differ between these groups.

Controlling for contact with the police in the models

We incorporate information about police contact as additional control variables across all components of the structural model—specifically, in the regression models for all eight variables presented in Figure 1 of the paper. The key question is whether this adjustment affects the conclusions regarding the relationships between the other variables in the models. This could occur if police contact and satisfaction with such contact are strongly associated with key factors such as perceptions of normative alignment, obligation to obey and cooperation with the police.

These models include both the variables *nocontact* and *contactsat*, with *contactsat* now coded as 0 also for those for whom *nocontact* is 1. The contribution of these variables to the linear predictor of each model is of the form *b_0 + b_nocontact*nocontact + b_contactsat*contactsat*, where *b0* is the intercept term and *b_nocontact* and *b_contactsat* are coefficients of *nocontact* and *contactsat* respectively, for a given response variable. The contribution from this to the expected value of the response variable is then *b_0 + b_nocontact* for those who have not had contact with the police, and *b_0 + b_contactsat*contactsat* for those who have.

Values of the contact variables (*nocontact* and/or *contactsat* for those who have had contact) are missing for some respondents. Because of this, some of the respondents who were included in estimating the models in the paper are excluded here when the contact variables are added. This reduction is small, however: an additional 285 respondents, or around 0.5% of the samples that were used for the main analysis.

Comparisons of results from models with and without the contact variables are shown in Figures S5a-5c below. Each plot shows coefficients of one explanatory variable for one response variable, in the same order as in Figures 2-4 of the paper respectively. Each point in the plots shows the value of a coefficient for one country estimated from the model without the contact variables (i.e. the estimates reported in the paper; horizontal axis of the plots) against its estimated value from the model with the contact variables included (vertical axis).

The clear conclusion from these plots is that all the estimated coefficients are very similar whether or not the contact variables are included. A similar conclusion holds for the estimated standard errors (which are not shown here): on average over the 450 coefficients shown in these plots, the estimated standard errors are 0.4% higher from models which control for the contact variables than from ones which do not. Together, these results mean that the results shown in Figures 2-4 of the paper, and the conclusions drawn from them, would be essentially unchanged if measures of the respondents' contact with the police were included in the models as additional control variables.

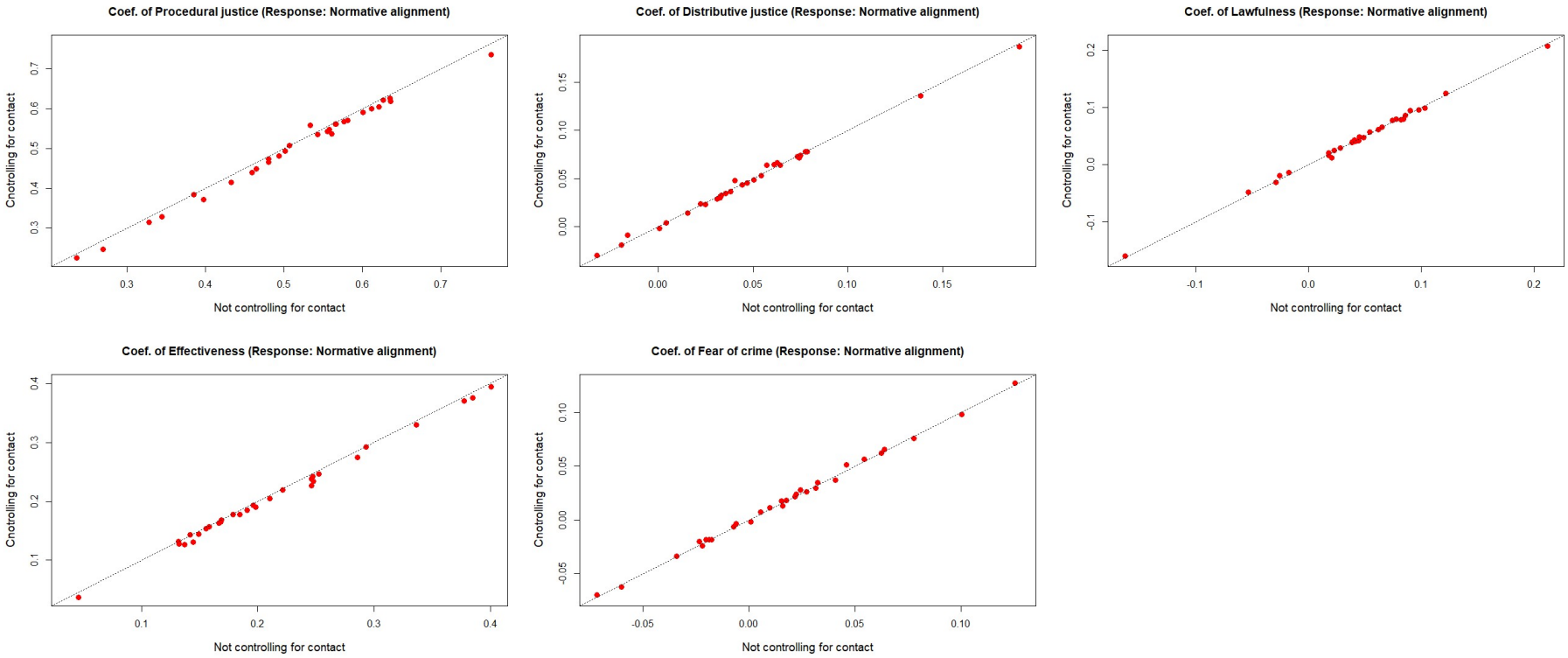


FIGURE S5a. Regression coefficients predicting normative alignment with the police in the 30 countries included in the analysis, from models which do not include predictor variables on contact with the police (horizontal axis; i.e. these are the coefficients that are shown also in Figure 2 of the paper) vs. models which do include predictor variables on contact with the police (vertical axis).

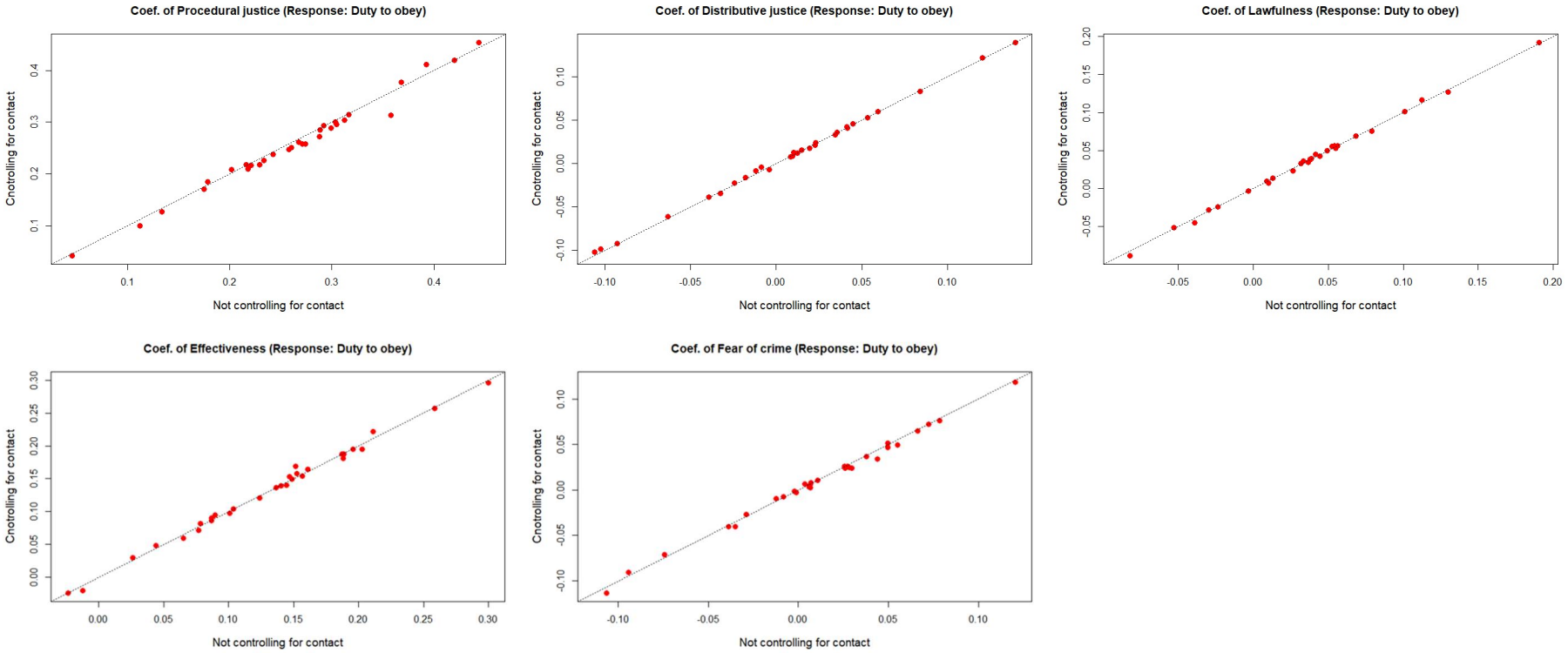


FIGURE S5b. Regression coefficients predicting duty to obey the police in the 30 countries included in the analysis, from models which do not include predictor variables on contact with the police (horizontal axis; i.e. these are the coefficients that are shown also in Figure 3 of the paper) vs. models which do include predictor variables on contact with the police (vertical axis).

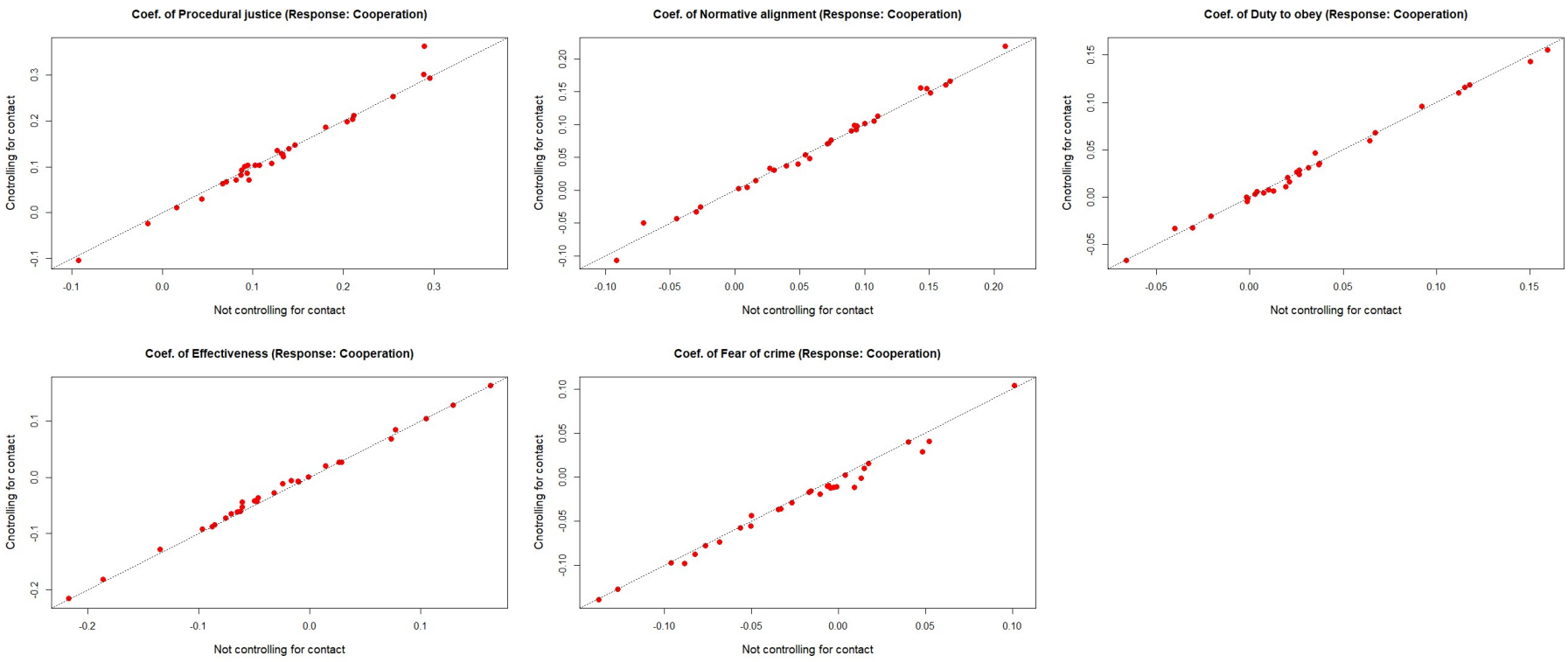


FIGURE S5c. Regression coefficients predicting cooperation with the police in the 30 countries included in the analysis, from models which do not include predictor variables on contact with the police (horizontal axis; i.e. these are the coefficients that are shown also in Figure 4 of the paper) vs. models which do include predictor variables on contact with the police (vertical axis).

Fitting the models separately for those who have had contact with the police and those who have not

We divide the data within each country into two groups: respondents who have had contact with the police in the last two years (*nocontact = 0*) and those who have not (*nocontact = 1*). We then estimate the models separately for each group to assess whether and how the coefficients differ in ways that might influence our conclusions. Differences between these groups could arise if the survey questions used in the analysis have varying salience or if respondents interpret them differently based on their personal experience with the police. Specifically, individuals with direct police contact may draw on firsthand experiences when answering, while those without such encounters may rely on broader societal perceptions. Identifying these differences helps evaluate whether and to what extent police contact shapes responses in ways that impact our findings.

Note that there is a reasonable amount of data for both groups in all the countries. The smallest sample size is 359, for respondents in Lithuania who have had contact with the police.

Our primary focus remains on the models for normative alignment, duty to obey and cooperation with the police. We first compare estimated models in which all coefficients for these variables are constrained to be the same across contact and non-contact groups with models where these coefficients are allowed to differ. In both cases, the coefficients for other key variables—procedural justice, distributive justice, lawfulness, effectiveness, and worry about crime—are permitted to vary freely between the groups.

Likelihood ratio tests conducted separately for each country indicate that these models differ significantly (at the 5% level) in 24 out of the 30 countries. This suggests that at least some parts of the models vary depending on whether respondents have had direct contact with the police. However, while these differences are statistically significant, they are not necessarily substantively meaningful for our analysis. The more important question is whether these differences follow a systematic pattern that could influence our main conclusions.

For instance, the results would be of greater concern if certain relationships—such as the link between procedural justice and cooperation—were consistently stronger for those with prior police contact, at least in some countries. This possibility is explored in Figures S5d–S5f. Each plot visualizes the coefficients for one explanatory variable in relation to one response variable, maintaining the same order as Figures 2–4 in the main paper. Each point in the plots represents the coefficient for a given country, with the horizontal axis showing estimates for respondents who have not had contact with the police and the vertical axis showing estimates for those who have had such contact. The points are drawn as blue circles when the absolute value of the coefficient is smaller for the contact group and as red triangles when it is larger.

The main message from these plots is the qualitative impression that red and blue markers are evenly distributed: approximately half of the estimated coefficients are further from zero for those who have had police contact, while the other half are further from zero for those who have not. Specifically, this pattern holds for 235 of the 450 coefficients (52.2%) in the contact group and 215 coefficients (47.8%) in the non-contact group.

While this even split suggests no systematic pattern overall, it is still possible that country-level variations exist—for example, that the associations might be consistently stronger for the contact group in some countries but systematically weaker in others. However, this is not the case. When we fit a binary logistic random intercepts (variance components) model to these data—where the response variable indicates whether a coefficient is larger in absolute value for the contact group—we find an estimated between-country variance of essentially zero. Additionally, a binomial test (assuming a probability of 0.5 for the pooled observations, i.e., 235 out of 450) yields $p = 0.370$, indicating that the distribution is statistically indistinguishable from a random 50/50 split.

Moreover, the estimated coefficients for the two groups closely align with those used in the main paper, which were obtained by pooling data from all respondents. The average absolute difference between these pooled estimates and the group-specific estimates is 0.035, and in only 5% of cases does this difference exceed 0.1—the same spacing as the axis ticks in Figures 2–4. In other words, if we were to replace the pooled estimates in these figures with those from either the contact or non-contact group separately, the shapes of the plots and the conclusions drawn from them would remain essentially unchanged.

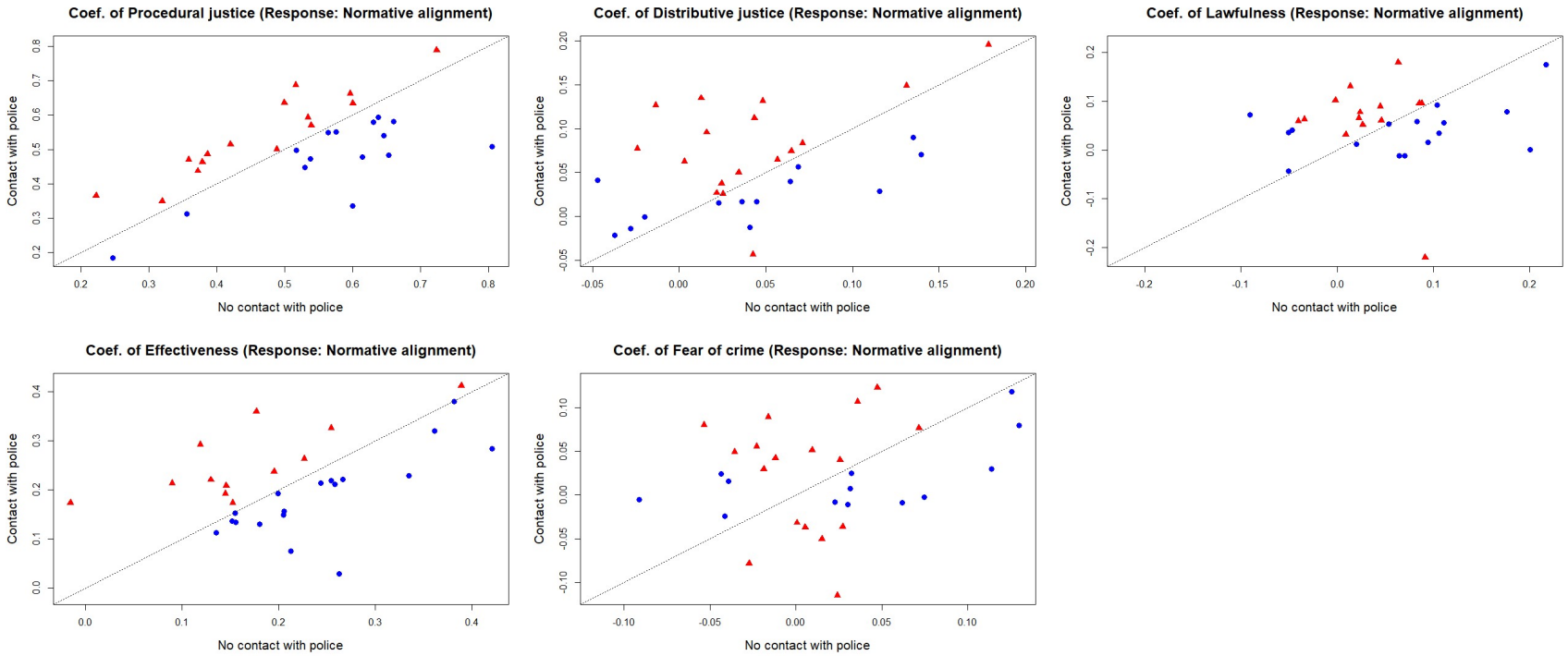


FIGURE S5d. Regression coefficients predicting normative alignment with the police in the 30 countries included in the analysis, from models fitted to data from respondents who have not had contact with the police in the last two years (horizontal axis) vs. data from respondents who have had such contact (vertical axis). The points are shown as blue circles when the estimate for the non-contact group is larger in absolute value, and as red triangles when the estimate for the contact group is larger in absolute value.

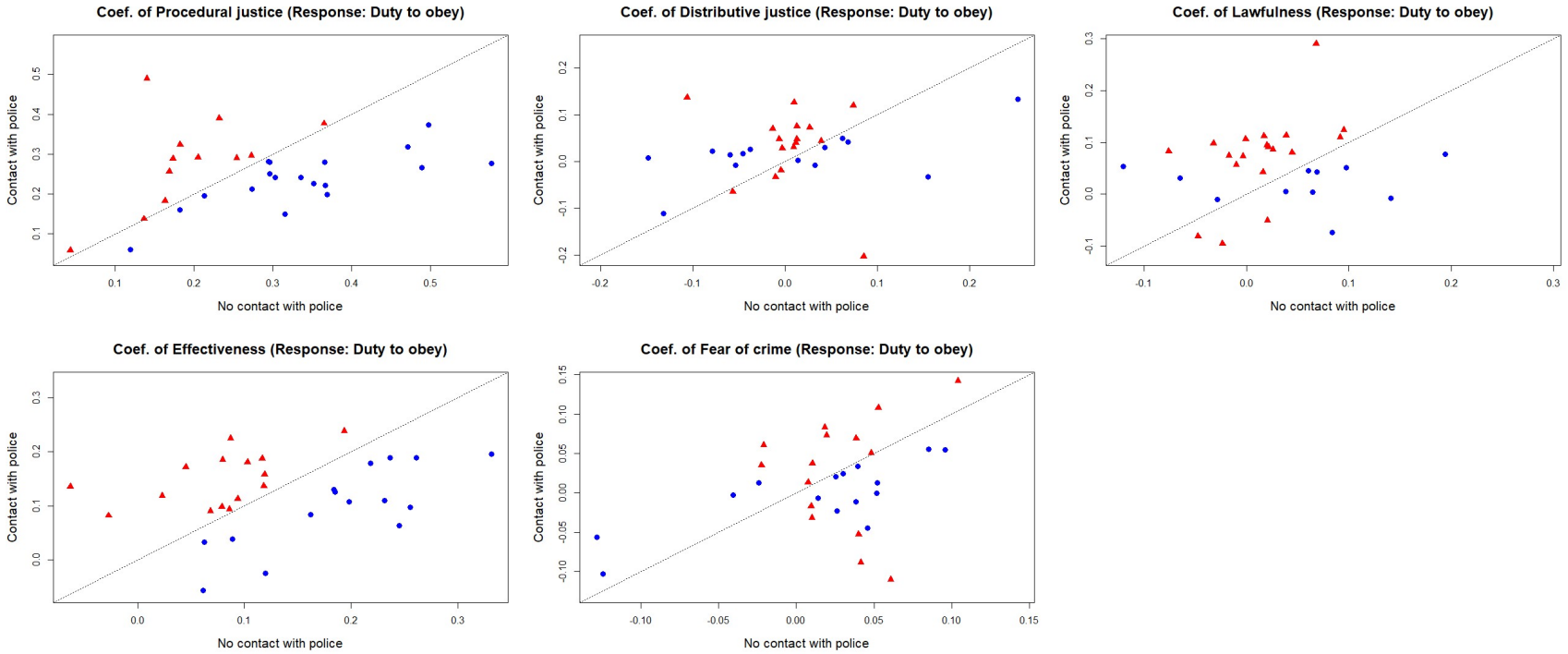


FIGURE S5e. Regression coefficients predicting duty to obey the police in the 30 countries included in the analysis, from models fitted to data from respondents who have not had contact with the police in the last two years (horizontal axis) vs. data from respondents who have had such contact (vertical axis). The points are shown as blue circles when the estimate for the non-contact group is larger in absolute value, and as red triangles when the estimate for the contact group is larger in absolute value.

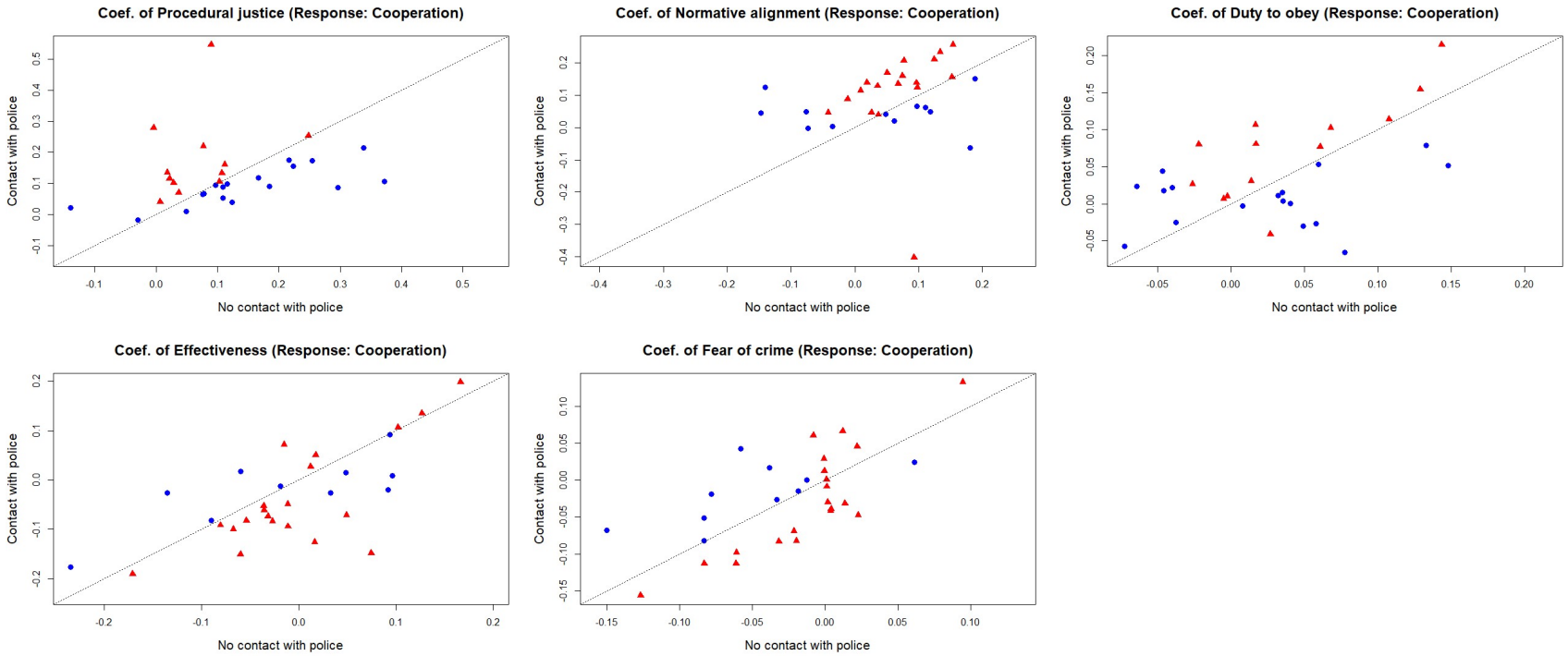


FIGURE S5f. Regression coefficients predicting cooperation with the police in the 30 countries included in the analysis, from models fitted to data from respondents who have not had contact with the police in the last two years (horizontal axis) vs. data from respondents who have had such contact (vertical axis). The points are shown as blue circles when the estimate for the non-contact group is larger in absolute value, and as red triangles when the estimate for the contact group is larger in absolute value.

Supplement S6. Further comments on police effectiveness as a predictor of cooperation

One aspect of our main results that may seem counterintuitive at first glance is that the coefficients for perceived police effectiveness as a predictor of cooperation with the police (as shown in Figure 4 of the paper) are negative (albeit mostly not statistically significant) in most countries. In other words, respondents who perceive the police as highly effective tend to report lower levels of cooperativeness, controlling for other predictor variables in the model. However, we caution against placing too much emphasis on this observation, given that effectiveness is not statistically significant (at the 5% level) in most countries. Nevertheless, since the majority of point estimates are negative, some commentary is warranted.

When we investigated the issue further, we found that the association between perceived effectiveness and cooperation turns negative only when controlling for other variables in the model—particularly perceived procedural justice. Figure S6 presents the effectiveness coefficients across the 30 countries, estimated under different model specifications that include varying sets of explanatory variables. The horizontal axis of each plot shows the estimates from the full model reported in the paper (as shown in Figure 4), which includes all explanatory variables. The vertical axis represents estimates from alternative models that retain demographic controls (age, gender and education) but omit some or all of the following: worry about crime, perceived procedural justice, normative alignment and obligation to obey the police.

- In the top-left plot, all of these variables are omitted, leaving only demographic controls and police effectiveness in the model. Here, the effectiveness coefficient is positive in all but one country, and almost all estimates are statistically significant (though standard errors are not shown).
- The top-right plot includes worry about crime and obligation to obey the police alongside demographic controls. The coefficients remain mostly positive.
- The bottom-left plot adds normative alignment as a control, leading to a shift in some estimates.
- The bottom-right plot, which controls for procedural justice (alongside demographic factors), most closely mirrors the pattern seen in the full model—where effectiveness is negative in most cases.

This pattern suggests that, among individuals with the same level of perceived procedural justice, those who view the police as more effective tend to be less cooperative with the police in many countries. Numerically, this result follows from the fact that procedural justice is both positively associated with willingness to cooperate (as seen in Figure 4) and positively correlated with perceived effectiveness (with correlations ranging from 0.4 to 0.8 across countries).

From a substantive perspective, the interpretation of these (mostly non-significant) partial associations between perceived effectiveness and cooperation remains unclear. Given the general lack of statistical significance and clear theoretical explanation, we refrain from offering speculative interpretations.

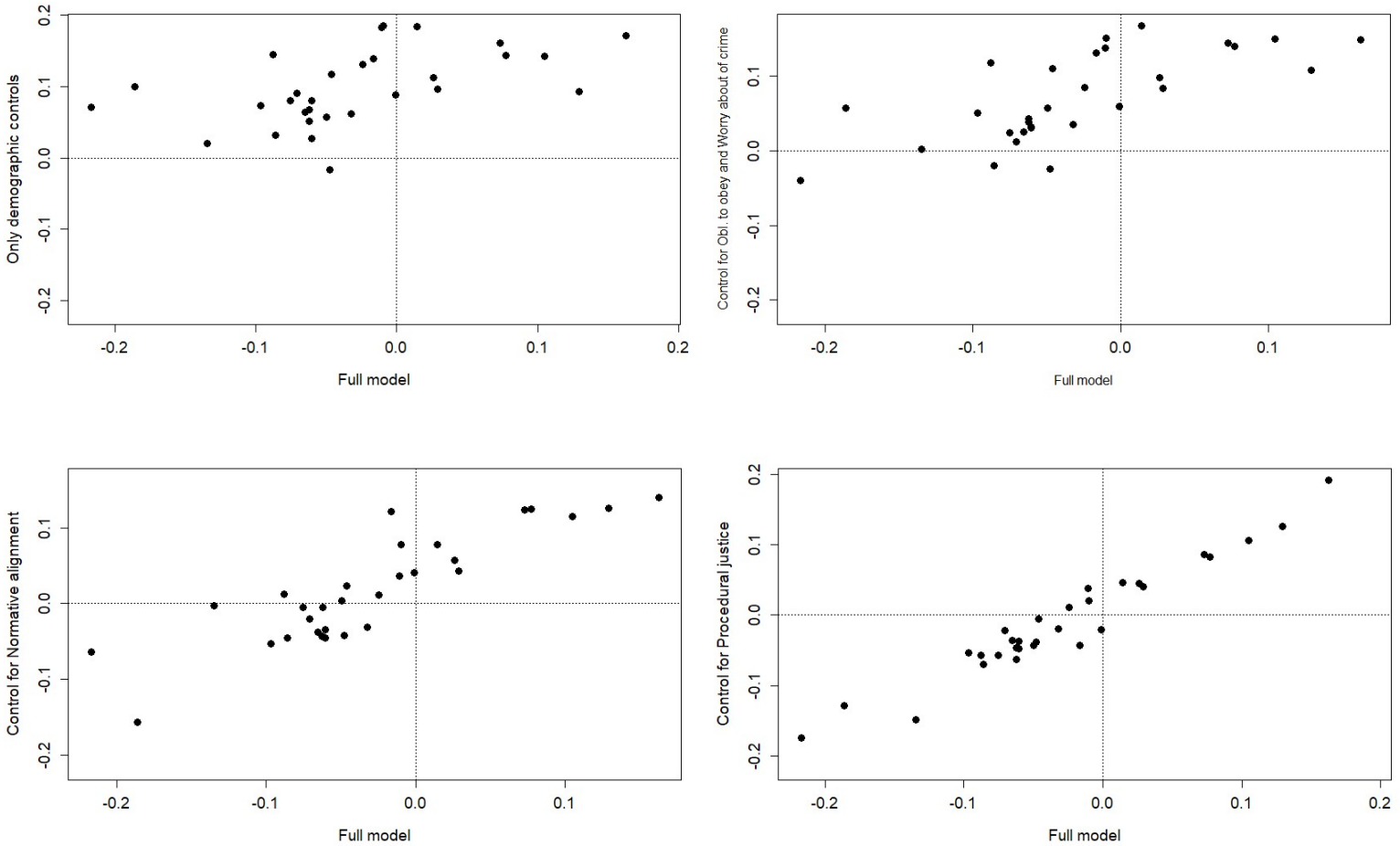


FIGURE S6. Regression coefficients of perceived police effectiveness in models for cooperation with the police in the 30 countries included in the analysis, from different models. In each plot the coefficients on the horizontal axis are from the full model used in the paper (i.e. the coefficients that are also shown also in Figure 4 of the paper). The coefficients on the vertical axis are from models which include different control variables (in addition to age, sex and education): none of them (top left), obligation to obey and worry about crime (top right), normative alignment (bottom left), or procedural justice (bottom right).

Supplement S7. Supplementary models for South Africa

Bradford et al. (2014) used data from the 2010 SASAS to examine whether procedural justice theory applies in post-Apartheid South Africa. To test whether procedural justice theory required adaptation to South Africa's unique context, Bradford et al. (2014) introduced four additional factors: perceived group threat, anti-immigrant sentiment, trust in government and satisfaction with service provision. Despite South Africa's high crime rates, deep social divisions and historically strained police-community relations, their findings indicated that procedural justice was a strong predictor of police legitimacy. However, unlike in wealthier, more stable democracies—where effectiveness is often a secondary concern—South Africans placed greater emphasis on police effectiveness in combating crime. Concerns about crime levels and state legitimacy also played significant roles, emphasizing the fragile social utility of public policing. Their results suggest that while procedural fairness remains central to police legitimacy, legitimacy is also deeply intertwined with broader socio-political conditions, particularly public confidence in the state's ability to govern effectively.

To assess whether the inclusion of perceived group threat, anti-immigrant sentiment, trust in government and satisfaction with service provision altered our main findings for South Africa, we conducted a supplementary analysis using the 2010 SASAS data (these measures were unavailable in the 2012 SASAS data). We fitted a model using only South African data, incorporating these additional control variables that were not used in our main cross-national analysis. This serves as an illustrative example of how country-specific variables—important in a particular national context—may not always be relevant or available for broader comparative cross-national analysis. The key focus here is whether including these additional variables modifies our main conclusions about procedural justice and legitimacy in South Africa.

Each of the four additional constructs—group threat, anti-immigrant sentiment, trust in government, and satisfaction with service provision—is measured using multiple indicators. For two-step estimation, measurement models were first fitted for each of the four additional constructs, and measurement parameters from this step were fixed in the second step, where structural models were estimated. Measurement models for the other latent constructs were fixed at the same values obtained from the 2012 SASAS data, ensuring consistency with our main analysis. To facilitate interpretation, the new variables were defined such that higher values indicate more *benign views*:

- Lower perceived group threat
- More pro-immigrant sentiment
- Higher trust in government
- Higher satisfaction with service provision

This approach allows us to examine whether controlling for these additional variables affects the previously reported conclusions for South Africa and whether their inclusion offers further insights into the relationship between procedural justice, police legitimacy and willingness to cooperate in the South African context.

We focus again on models for normative alignment, duty to obey and willingness to cooperate, and examine the estimated coefficients of their predictors, now including in one model also the four additional variables. Estimates of these coefficients are shown in Table S7, for three model fits. The first two of them are for the model considered in the paper, fitted to the 2012 data (as in the paper) and to the 2010 data. The third model adds the four additional variables. They are included in the same way as the variables in the left-hand box in Figure 1 of the paper, i.e. as predictors of some or all of normative alignment, duty to obey and cooperation (and themselves predicted by gender, age and education).

Comparing first the main model fitted in 2012 and 2010, the results are broadly similar. For example, the pattern that police effectiveness is a stronger predictor of normative alignment and duty to obey than is procedural justice, which is peculiar to South Africa, appears in both years. One difference appears in the model for cooperation, where in 2012 normative alignment is a significant predictor while duty to obey is not, but the opposite is the case in 2010.

The main comparison of interest in this supplementary analysis is between models for the 2010 data which control for the four additional variables. The conclusions are not affected by this, in that the magnitudes and levels of significance of the explanatory variables of interest remain essentially unchanged when we control for the additional variables. We refrain from speculating on a post-hoc explanation for this.

TABLE S7. Regression coefficients predicting normative alignment with the police, duty to obey the police and cooperation with the police in South Africa. Three models are shown: the model considered in the paper, fitted to data from 2012 (as in the paper), the same model fitted to data from 2010, and a model with four additional explanatory variables fitted to 2010 data.

Explanatory variable	Models reported in the paper, fitted to 2012 data	Same models as in the paper, but fitted to 2010 data	Models with four additional explanatory variables, fitted to 2010 data
Response variable: Normative alignment with the police			
Procedural justice	0.236***	0.246***	0.245***
Distributive justice	0.138***	0.114***	0.111***
Lawfulness	-0.029	-0.007	-0.009
Effectiveness	0.378***	0.311***	0.285***
Fear of crime	0.021	-0.021	-0.031*
Group threat			-0.037
Anti-immigrant sentiment			0.026
Trust in government			0.120***
Provision of services			0.020
Response variable: Duty to obey the police			
Procedural justice	0.046*	0.042*	0.038
Distributive justice	0.008	0.048*	0.045*
Lawfulness	-0.024	-0.054*	-0.046*
Effectiveness	0.300***	0.219***	0.221***
Fear of crime	0.006	-0.021	-0.021
Group threat			-0.051*
Anti-immigrant sentiment			-0.039*
Trust in government			0.001
Provision of services			0.087***
Response variable: Cooperation with the police			
Procedural justice	0.210***	0.226***	0.222***
Normative alignment	0.100***	-0.013	-0.005
Duty to obey	0.013	0.119***	0.116***
Effectiveness	-0.046	0.051*	0.062*
Fear of crime	0.013	-0.026	-0.021
Trust in government			-0.069**
Provision of services			0.032

p-values: *** <0.001; ** <0.01; * <0.05

Each model includes also respondent's age, sex and level of education as explanatory variables.

The four additional concepts and their survey measures in the SASAS 2010:

Group threat: taps into fears that other racial groups are trying to get ahead at the expense of the respondent's own, by, for example, excluding members of their group from positions of power and responsibility or by undermining their traditions and values.

- Q73: People of other race groups in South Africa are trying to get ahead economically at the expense of my group
- Q74: People of other race groups in South Africa try to exclude members of my group from positions of power and responsibility
- Q75: The traditions and values that are important to people of my race are under threat
- Q76: Other race groups in South Africa will never understand what members of my group are like

(response options: five-point Strongly agree – Strongly disagree scale)

Anti-immigrant sentiment: assessments of, on the one hand, the 'threat' immigrants pose to South African society, and, on the other, the contribution immigrants might make.

- Q92: Immigrants increase crime rates
- Q93: Immigrants are generally good for South Africa's economy
- Q94: Immigrants take jobs away from people who were born in South Africa
- Q95: Immigrants make South Africa more open to new ideas and cultures
- Q96: Immigrants bring disease to South Africa
- Q97: Immigrants bring skills that are needed in South Africa

(response options: five-point Strongly agree – Strongly disagree scale)

Trust in government: the extent individuals trust different institutions of government and politics.
Indicate the extent to which you trust or distrust the following institutions in South Africa at present:

- Q7: National government
- Q11: Parliament
- Q14: Local government
- Q17: Political parties
- Q18: Politicians

(response options: five-point Strongly trust – Strongly distrust scale)

Provision of services: satisfaction with basic services (water, electricity, refuse collection).
How satisfied are you with the way that the government is handling the following matters in your neighbourhood?

- Q20: Supply of water and sanitation
- Q21: Providing electricity
- Q22: Removal of refuse
- Q24: Access to health care

(response options: five-point Very satisfied – Very dissatisfied scale)

REFERENCES

Bradford, B., Huq, A., Jackson, J., & Roberts, B. (2014). What price fairness when security is at stake? Police legitimacy in South Africa. *Regulation and Governance, 8*(2), 246–268. https://doi.org/10.1111/rego.12012