THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

DEPARTMENT OF METHODOLOGY

It's a matter of (change over) time:
The role of police conduct on the dynamics of attitudes towards legal authority

Thiago R. Oliveira

A thesis submitted to the Department of Methodology of the London School of Economics and Political Science for the degree of Doctor of Philosophy

London

February 2022

For my parents Luiz and Simone,
and my sister Bianca.
And for Louise.

Essa tese não existiria sem o apoio de vocês.

Declaration

I certify that the thesis I have presented for examination for the PhD degree of the London School of Economics and Political Science is solely my own work other than where I have clearly indicated that it is the work of others (in which case the extent of any work carried out jointly by me and any other person is clearly identified in it).

The copyright of this thesis rests with the author. Quotation from it is permitted, provided that full acknowledgement is made. This thesis may not be reproduced without my prior written consent. I warrant that this authorisation does not, to the best of my belief, infringe the rights of any third party.

I declare that my thesis consists of approximately 75,000 words (excluding references).

Statement of co-authored work

I confirm that Chapter 4 was co-authored with Jonathan Jackson, Debora Piccirillo, Renan Theodoro, and Rick Trinkner, and I contributed 70% of this work; and that Chapter 5 was co-authored with Jonathan Jackson, Kristina Murphy, and Ben Bradford, and I contributed 75% of this work.

Thiago R. Oliveira

As the candidate's primary supervisor I hereby confirm that the extent of the candidate's contribution to the joint-authored papers was as indicated above.

Prof. Jonathan Jackson

Acknowledgements

It takes a village to finish a PhD.

First and foremost, I would like to thank my supervisor, Jon Jackson, who has been a brilliant mentor and a great friend. Jon has taught me so much during my PhD, from thinking creatively about research and writing with *Anglo-Saxon bluntness* to discussing the best pizza places in London and generally teaching me about life in the UK. I would also like to thank my co-supervisor, Jouni Kuha, for offering outstanding feedback on everything I wrote, showing me how to maintain academic rigour at all times, and always pushing me to higher standards of academic research.

My PhD would not have been possible without the support from people in the Department of Methodology. I had the privilege of having an amazing PhD community, with colleagues who were always there to engage in LaTeX debates, chip in for an office mini fridge, or just go to the pub: many thanks to Chris Pósch, Tom Paskhalis, Cristian Mueller, Noam Titelman, Poorvi Iyer, Denise Baron, Oriol Bosch, Nancy Breton, and Yuanmo He. A special thanks to Chris for helping me ever since I first moved to London, guiding me throughout my PhD, and overall being a great friend. I would also like to thank the professional staff from the Department, who provided key logistic support which I greatly appreciate: Camilya Maleh, Sam Scott, Anna Izdebska, Esther Sidley, and Caroline Thurtle. I am also indebted to the faculty in the Department for phenomenal academic support, and the incredible community of the 7th floor.

I would like to express my gratitude to the LSE Mannheim Centre for Criminology, and a special thanks goes to Johann Koehler for setting up the Mannheim Doctoral Working Group and for being a fantastic academic. I also thank Mike Shiner for his role on my upgrade review panel.

I would also like to thank my co-authors: Ben Bradford, Kristina Murphy, Debora Piccirillo, Renan Theorodo, and Rick Trinkner. In particular, I owe gratitude to the Centre for the Study of Violence of the University of São Paulo (NEV-USP), where I worked prior to starting my PhD; without the support of the Centre, this PhD would not be a reality. I am indebted to Sergio Adorno for granting me access to survey data collected by NEV, and to André Rodrigues de Oliveira and Ariadne Natal for being two of the best collaborators with whom I have ever worked.

Studying at the LSE was an amazing experience. I was lucky to make fantastic friends who helped me enormously throughout my PhD. Special thanks to Sarah Jewett

Abstract

This thesis draws on procedural justice theory and work into legal socialisation and legal cynicism to investigate the dynamics of public perceptions of trustworthiness and legitimacy of legal authority over time. Illustrating how longitudinal data can be theoretically fruitful in studies on public-police relations, I rely upon several analytic strategies that exploit panel data to examine attitudinal change over time. To examine the development of legitimacy judgements during adolescence, the mutual reproduction of different aspects of police trustworthiness over time, and the degree to which police contact leads to attitudinal change, I draw on data from three longitudinal surveys, which are representative of the adult population living in selected neighbourhoods in São Paulo, Brazil, adolescents who live in São Paulo, and the adult population living in Australia. At the heart of the thesis are four empirical papers. The first paper suggests that perceptions of overpolicing and underpolicing undermine legitimacy judgements and mutually reproduce each other over time, with implications for people's recognition of the ruling power of the law. The second paper focuses on the development of legitimacy judgements among adolescents, and shows that exposure to neighbourhood and police violence may damage the process of healthy legal socialisation. The third paper examines whether police-citizen encounters are teachable moments, with the potential of leading to either positive or negative attitudinal change depending upon the perceived appropriateness of the interaction. The fourth paper addresses the issue of causality – an important gap in the procedural justice literature. Analysis suggests that aggressive police stops (e.g., at gunpoint) have a short-term effect on perceived police fairness and a long-term effect on perceived overpolicing. Overall, results indicate that reliance on coercive policing strategies have several social costs, including public detachment and alienation from from the law. Adolescents who witness cases of police brutality show diminished development in legitimacy judgements, and the experience or expectation that police officers repeatedly intrude in the lives of people (overpolicing) and fail to ensure public safety (underpolicing) undermine people's recognition of the state's monopoly of violence. Yet, there is room for improvement. Perceptions of procedural fairness seem to enhance police trustworthiness and legitimacy. In sum, results indicate that people develop legal attitudes throughout the life course, but police (mis)conduct can lead to attitudinal change over time.

Contents

Chapter 7

Concluding remarks   **251**

List of Figures

List of Tables

Preface

This document constitutes my PhD submission to the London School of Economics and Political Science. This thesis differs from the usual format because the Department of Methodology uses the "paper-based" model in its PhD programme. The structure of the submission is as follows. The thesis starts with Chapter 1, an introductory chapter which outlines my substantive motivation, namely the role of police conduct on the dynamics of legal attitudes over time. This is followed by Chapter 2, a conceptual review chapter that introduces key concepts and the theoretical framework I use throughout this thesis – drawing heavily on procedural justice theory with insights from the legal cynicism and legal socialisation approaches. Chapter 2 also includes a brief empirical overview of each paper and the methods used. The four papers can be found in Chapters 3 to 6, which constitute the core of the submission. Each of the four papers consists of a stand-alone study using a different longitudinal method to address several aspects concerning the dynamics of trustworthiness and legitimacy over time. The empirical papers are separated by short interludes which aim to strengthen narrative continuity. Chapter 7 then sums up what has preceded, outlines the main findings, discusses some limitations, and attempts to draw out the main lessons from this work, including future directions of research.

This format inevitably entails some repetition, for example of key theoretical concepts, methods, and bibliography discussed in each paper. Overall, where possible I have tried to keep this to a minimum. Of the four papers, two are completely my own: the first paper (in Chapter 3) is currently under first review at the *American Journal of Sociology* and the fourth paper (in Chapter 6) is currently under first review at *Criminology*. The two other papers are co-authored. I wrote the study in Chapter 4 in collaboration with Jonathan Jackson, Renan Theodoro, Debora Piccirillo, and Rick Trinkner, for which I contributed 70% of the work; we intend to submit this paper to *Criminology* in the coming weeks. The study in Chapter 5, which is already published in the *Journal of Quantitative Criminology* (2020), was co-authored with Jonathan Jackson, Kristina Murphy, and Ben Bradford, and I contributed 75% of the work. Each chapter of this thesis is referenced separately.

Chapter 1

SMALL CAPSIntroduction

Why do people comply with the law? How do people relate with legal authority? What can legal institutions do to promote public compliance with the law? To what extent can the behaviour of legal agents *alter* people's pre-existing views about the law? These are important questions for social science and policy alike. The goal of this thesis is to assess the role of police conduct, and police misconduct in particular, on the dynamics of public attitudes towards legal authority over time. According to the deterrence theoretical framework, people balance out the potential benefits and costs of any given action; when the costs of engaging in a rule-violating behaviour (e.g., the certainty and severity of punishment) outweigh its benefits, people will tend to be deterred from engaging in criminal conduct (Nagin, 2013). The idea here is that legal institutions can promote public legal compliance by increasing the number of police officers on the streets, making use of stop-and-search powers, and generally coercing members of the public to obey via threats of sanction and punishment.

An alternative to instrumental strategies is to try to foster self-regulation through people's normative expectations and judgements about the exercise of legal power. A large body of research suggests that people tend to voluntarily comply with the law and legal agents' directives when they have a normatively grounded sense of duty to obey legal authority (Tyler, 2006; see Jackson, 2018 for an international review). When members of the public believe legal authority has a *legitimate* claim of power, fostered by perceptions that legal agents conform to the norms and expectations associated with legitimation (i.e,. can be trusted to wield their power in normatively appropriate ways), they tend to follow the rules simply because "it is the right thing to do." Legal institutions, and the police in particular, could thus promote public legal compliance by acting in ways that foster public perceptions of legitimacy and trustworthiness.

In this thesis, I examine the role of police (mis)conduct and perceptions of police behaviour on the dynamics of trustworthiness and legitimacy of legal authority. According to procedural justice theory, people's judgements about the legitimacy of legal authority are

enhanced when they perceive legal power to be exercised as they normatively expect. Encounters with the law (e.g., interactions with police officers) are teachable moments where members of the public experience the exercise of power and, based on their judgements about the appropriateness of officer use of power, update their views about the legitimacy of the law and the legal institutions (Tyler et al., 2014). This process, known as *legal socialisation*, occurs during the life course, with the cumulative (personal and collective) experiences of contact with agents of the law informing people's attitudes towards legal authority (Fagan and Tyler, 2005; Tyler and Trinkner, 2017). In contexts where people identify with the superordinate group that the police represent, people not only expect legal power to be exercised with procedural fairness (e.g., treating citizens with dignity and respect, making neutral and transparent decisions, and not overstepping their authority; see Trinkner et al., 2018), the perception of procedural fairness in police-citizen encounters is also a powerful influence on people's beliefs about police and legal legitimacy. However, other task-specific evaluations of police conduct could also play a role and be legitimising factors, particularly in contexts where individuals do not identify with the group an authority represents, or have little motivation to be a member of that group, such as the expectation that police officers ensure public safety, act effectively and lawfully, and do not repeatedly intrude in the lives of people.

Legitimacy can be won, but it can also be lost. When people perceive legal institutions and agents to be acting in ways they morally disapprove of, their beliefs about the legitimacy of legal authority can be undermined. That could include the experience of procedural injustice, but also other aspects of police misconduct and violence. The cumulative experience of normatively inappropriate interactions with police officers, as well as the enduring legacy of police mistreatment in some neighbourhoods, could lead to public alienation from the law, where people feel detached and socially excluded by the legal system and the values it represents (Bell, 2017; Kirk and Papachristos, 2011). Legal institutions could therefore damage their trustworthiness and legitimacy in the eyes of citizens and contribute to a state of legal cynicism (Sampson and Bartusch, 1998) or legal estrangement (Bell, 2017).

A recent review by two prominent scholars in the discipline has, however, highlighted some gaps in the procedural justice literature (Nagin and Telep, 2017, 2020). According to Nagin and Telep, the premised causal mechanisms linking police-citizen encounters and compliance with the law (via increased levels of police trustworthiness and legitimacy of legal authority) are yet to be shown. They highlight two potential methodological issues. First, potential common causes can confound the relationships (e.g., between contact and trustworthiness, between trustworthiness and legitimacy, and between legitimacy and com-

pliance). Only with a credible causal identification strategy would it be possible to draw causal inference and remove the influence of observed and unobserved confounders. The second is the issue of reverse causality. For example, it is possible that people who believe that the police can be trusted to behave in normatively appropriate ways have more positive perceptions about each interaction with a police officer, leading them to see the police as legitimate because they are predisposed/motivated to believe that.[1]

In this thesis, I partly address some of the issues raised by Nagin and Telep (2017, 2020). For instance, in Chapter 5 I discuss the influence of pre-existing attitudes towards the police on the potential impact of recent interactions with police officers on changes in police trustworthiness and legitimacy, and in Chapter 6 I discuss the plausible causal effect of aggressive police stops on trust in legal authority – I elaborate both arguments below. But this thesis also addresses another important gap in the literature that relates to, but extends beyond, Nagin and Telep's (2017; 2020) argument: the matter of *time* in studies about public attitudes towards legal authority.

According to work on procedural justice, legal socialisation, and legal cynicism, people develop and update their views about the law and the legal institutions throughout their lifetime, implying that a life-course perspective is required to study the development of attitudes over time (see, e.g., McLean et al., 2019; Nivette et al., 2019). The notion that police-citizen encounters can be teachable moments where people evaluate the exercise of power and update their legal attitudes (Tyler et al., 2014) reflects a theory of change: people's levels of trustworthiness and legitimacy could change before and after an interaction with a police officer (Skogan, 2012). The impact of contact on attitudinal change needs also to be disentangled between short-term and long-term effects, thus putting the matter of time at the centre of the discussion. While Nagin and Telep (2017, 2020) emphasise the importance of experimental studies to assess the causal mechanisms linking police-citizen encounters to compliant public behaviour, this thesis highlights the importance of *longitudinal* studies to properly model the dynamics of trustworthiness and legitimacy over time.

By way of contribution, the studies included in this thesis rely on longitudinal survey data to address the matter of time in the relationship between (perceived) police conduct and attitudes towards the law and the legal institutions. While some previous research has drawn on panel data (see, e.g., Tyler, 2006; Tyler and Fagan, 2008; Rosenbaum et al., 2005; Bradford et al., 2014), this type of data has not been fully exploited by the literature.

---

[1]Although both points raised by Nagin and Telep (2017, 2020) have already been partly addressed by recent studies (see, e.g., Pósch, 2021; Trinkner et al., 2019).

For instance, only a handful of studies has taken a life-course approach to model the development of legal attitudes over time (see, e.g. Piquero et al., 2005; Kaiser and Reisig, 2019; McLean et al., 2019; Nivette et al., 2019, for some exceptions) or assessed reciprocal relationships based on cross-lagged panel models (see, e.g., Brunton-Smith, 2011; Pina-Sánchez and Brunton-Smith, 2020, for some exceptions). Crucially, no study has relied upon panel data and a difference-in-differences design to assess the causal effect of police contact on attitudinal change (as noted by Nagin and Telep, 2017, p. 13). I demonstrate in this thesis the degree to which longitudinal data can be more effectively exploited to contribute to the study of the dynamics of police trustworthiness and judgements about the legitimacy of the law and the legal institutions.

To set the scene for the remainder of the document, I now focus on the two motivations for this thesis. I start outlining my substantive motivation, which concerns the matter of time in the relationship between police (mis)conduct and attitudes towards legal authority, and in particular the consequences of some aggressive policing approaches based on coercive strategies – this section summarises my overall research questions and the research questions addressed by each of the four papers. I then set out my methodological motivation: I briefly outline some potentialities of panel data analysis and argue that the literature could benefit from more longitudinal studies. The rest of the thesis proceeds as follows. Chapter 2 is a conceptual review where I introduce most theoretical concepts and the framework I use throughout this thesis, largely drawing on procedural justice theory as well as on legal socialisation and legal cynicism approaches. Chapters 3 to 6 constitute the core of this thesis, each chapter displaying a separate research paper that has been (or will be) submitted or published in a specialised journal. Although they are stand-alone studies, these chapters are followed by interludes linking the previous and the next paper to ease narrative coherence. Finally, in Chapter 7 I conclude this thesis outlining the main findings, discussing some limitations, and indicating future directions of research.

Police (mis)conduct, legal attitudes, and the matter of time

Several studies have indicated the existence of a relationship between police-citizen encounters and attitudes towards legal authority. In a nutshell, Tyler (2006) suggests that people evaluate how legal power is being exercised during such interactions; to the extent that the exercise of power corresponds to what people normatively expect, their beliefs about legitimacy would be enhanced. According to procedural justice theory, the experience of procedural fairness is a key normative expectation and constitutes a strong legitimising factor (Sunshine and Tyler, 2003; Wolfe et al., 2016; Huq et al., 2017), and one of my sub-

stantive motivations consists precisely of assessing the role of perceptions of police fairness on the dynamics of police trustworthiness (do people believe that officers can be trusted to do the things they are supposed to do?) and legitimacy (do people believe that the institution has the right to power and authority to govern?).

This thesis also addresses whether other normative expectations about police conduct, like underpolicing and overpolicing, might *undermine* people's views about legal authority? For instance, several police forces worldwide rely on policing strategies that focus on increased involuntary police contact with people deemed suspicious, such as the stop-and-frisk and stop-and-search practices in the US and UK. Some of those practices could involve officers aggressively intruding in the lives of citizens and sometimes acting violently, especially against Black and other ethnic minority populations. In this context, it is plausible that people who are constantly stopped by the police, or whose network of friends and neighbours are constantly stopped by the police, feel over-policed; yet at the same time, it is also plausible that those people feel under-policed, as frequent police stops might not translate into feelings that legal institutions ensure public safety (Rios, 2011; Carr et al., 2007). The extent to which people's normative expectations about the exercise of legal power involves, on top of procedural fairness, police officers providing protection and not coercively intruding in their lives is one of the questions I address in this thesis.

In Chapter 3, I examine whether perceptions of overpolicing and underpolicing damage beliefs of police legitimacy. Focusing on the matter of change over time, I also investigate the reciprocal relationship between perceptions of overpolicing and underpolicing, whereby views of repeated police intrusion and cynicism about police protection simultaneously reproduce each other over time. Understanding the dynamic relationship of overpolicing and underpolicing is important as it highlights that the demand for public safety in disadvantaged communities does not seem to be solved by aggressive policing approaches based on coercive strategies; on the contrary, this type of police conduct could backfire and undermine people's recognition of the ruling power of legal authority.

Additionally, coercive policing could have long-term costs to the development of legitimacy judgements. The process of legal socialisation occurs during the life course, but most prominently during childhood and adolescence. What, then, are the consequences of a violent socialisation, where people since early ages are continuously exposed to neighbourhood and police violence? For instance, children and adolescents who are frequently exposed to cases of police violence could develop undermined judgements about the legitimacy of the law because they experience the exercise of legal power in ways that potentially contradict their normative expectations. Similarly, people who are frequently exposed to

neighbourhood violence, or whose network of friends and neighbours are frequently exposed to neighbourhood violence, could potentially develop undermined legitimacy beliefs because they do not experience public safety, i.e., the exercise of legal power would not correspond to their normative expectations of police protection.

Chapter 4 addresses the issue of exposure to violence during early adolescence in the process of legal socialisation using a life-course perspective. Examining how adolescents develop their judgements about legal legitimacy throughout the years from the ages 11 to 14, I investigate the influence of personal exposure to cases of police brutality and overall violence in the neighbourhood on the developmental trajectories of adolescents' beliefs that the ruling power of the law is appropriate and should be obeyed. Drawing on insights from studies on legal cynicism (e.g., Sampson and Bartusch, 1998; Kirk and Matsuda, 2011; Bell, 2017), I also assess the influence of the environment on legal socialisation, e.g., adolescents who study at schools where most other students are frequently exposed to neighbourhood violence could also have a diminished development of legitimacy judgements.

Even though it occurs more prominently during childhood and adolescence, legal socialisation is a lifetime process: people, including adults with already-formed attitudes towards legal authority, can update their views of the law and the legal institutions throughout their life course. As Tyler and Fagan (2008) and Tyler et al. (2014) emphasise, every encounter with the law and law enforcement agents is a teachable moment where people evaluate the appropriateness of the exercise of legal power and update their views about the ruling power of the law accordingly. However, past research has suggested that the impact of police contact on views about legal institutions would be asymmetrical: while normatively inappropriate police behaviour could swiftly undermine trustworthiness and legitimacy, appropriate police behaviour would do little to positively alter people's attitudes (Skogan, 2006; see also Bradford et al., 2009).

Yet, the asymmetry thesis is a theory of change. If encounters with the police are teachable moments, that means that people would *change* their views about the law and the legal institutions in relation to their pre-existing views. Only by properly framing the matter of time and focusing on change in public opinion before and after police-citizen interactions is it possible to address the asymmetry thesis and evaluate the degree to which people update their judgements about police trustworthiness and legitimacy. In Chapter 5, I test the asymmetry thesis and discuss the role of pre-existing views about the law and the legal institutions on the evaluation of public-police encounters, particularly in terms of procedural fairness.

The question of whether police-citizen encounters lead to changes in public opinion is

a causal one, as noted by Nagin and Telep (2017, 2020). As a causal matter, any potential impact of police contact on different aspects of trustworthiness and legitimacy can have varying duration – e.g., the effects can be short-term and eventually die out, they can be immediate but long-lasting, they can be long-term and temporally stable, and so forth. This implies that temporal issues need to be appropriately framed – an issue this thesis directly addresses. For instance, given the use of aggressive policing strategies in some contexts, one important research question is about the costs of repeated involuntary police stops on (dis)trust and (il)legitimacy of legal authority. In Chapter 6, I use various statistical methods to draw causal inference with panel data to assess the impact of aggressive police stops on several aspects of police trustworthiness (e.g., perceptions of procedural fairness, overpolicing, and underpolicing). Crucially, I discuss the degree to which the experience of police stops at gunpoint – an undeniably aggressive experience – leads to distinctively durable impacts, such as a more short-term effect on perceptions of police fairness and a more long-term effect on perceptions of overpolicing.

In summary, this thesis addresses the matter of time on the relationship between police (mis)conduct (experienced or perceived) and attitudes towards legal authority. I explore people's normative expectations about the exercise of power and the degree to which the expectation that legal agents usually behave accordingly (or not) enhances (or undermines) legitimacy judgements – apart from perceptions of procedural fairness, I investigate whether perceptions of overpolicing and underpolicing are also legitimising factors. This is a process that occurs during the life course and is conditioned upon cumulative experiences (personal and collective) with the law, but is also informed by every interaction with a legal agent. I argue that police conduct can effectively contribute to attitudinal change. This influence can be positive, e.g., by communicating procedural fairness and enhancing legitimacy judgements; but also negative, by acting aggressively or violently against citizens and undermining legitimacy judgements. Unfortunately, it seems that policy-makers worldwide persistently insist on coercive policing strategies that could lead to public detachment and alienation from the law. This is particularly noticeable in most cities in the US – and in Brazil, as I now discuss.

Note on context: legal attitudes in a Global South setting

The discussion above summarises the substantive contributions this thesis makes, and yet it purposely does not mention any specific contextual settings. The point was to highlight the substantive motivations that drive this thesis. The research questions outlined above could be empirically studied in several social contexts. That being said, it should be noted

that studies on procedural justice, legal socialisation, and legal cynicism are still largely concentrated on Western contexts (see, e.g., Tankebe, 2009; Jackson et al., 2014; Nivette, 2016; Trinkner et al., 2019, for exceptions) and could benefit from examinations of police-citizen relations in the Global South. In particular, the exploration of other assessments of police behaviour, such as perceptions of overpolicing and underpolicing, could benefit from settings where violence is a constituent part of sociability and the police are seen as "just another gang" (Bell, 2017; Jackson et al., 2022). In this thesis, I contribute to a growing list of international evidence and partly focus on one of the largest cities in the world: São Paulo, Brazil. While this thesis is not *about* Brazil, three of the four papers (Chapters 3, 4, and 6) are staged in the context of Brazil's largest city.

The metropolitan region of São Paulo has 18 million residents. Amid a sea of skyscrapers, the landscape can swiftly change from astonishing developments for the well-off to *favelas*, where a large proportion of the poor population dwells – the city is considered one of the most unequal in the world (Nery et al., 2019). Most crime rates are high, and scholars have interpreted the persistence of social violence in the country as evidence of a weak rule of law (Adorno, 2013). Cases of police violence perpetrated by officers of the São Paulo Military Police are common: in 2019, 13% of all 45,000 victims of murder were killed by security forces.[2] The city is also a leading example of criminal governance, as the PCC (*Primeiro Comando da Capital*), a powerful prison gang, governs extensively, ruling large urban populations across enormous swaths of territory (Lessing and Willis, 2019). Overall, this context is particularly suitable to examine perceptions of overpolicing and underpolicing, the influence of neighbourhood and police violence on legal socialisation, and the costs of aggressive police stops.

Methodological motivation

The studies that comprise this thesis speak to the dynamics of public attitudes towards legal authority and the role of police conduct in forming and changing those attitudes during the life course. They have been (or will be) submitted or published in criminology and sociology journals. As a PhD in Social Research Methods, however, this thesis is also driven by a specific methodological concern: the potentialities of several methods to analyse longitudinal data. I do not write it as a methodologist to methodologists, but as a quantitative criminologist to other social scientists; my goal is simply to demonstrate that relying on panel data can be theoretically fruitful to studies about policing and legal

---

[2]According to the *Anuário Brasileiro de Segurança Pública 2020*, available at https://forumseguranca.org.br/wp-content/uploads/2020/10/anuario-14-2020-v1-interativo.pdf.

attitudes.

This section can therefore serve as a guide to an alternative reading of this thesis. Apart from the substantive focus described above, it is possible to read this thesis in terms of its methodological contributions. Each of the four papers uses a different panel method and highlights specific potentialities of longitudinal data analysis, which are suitable to answer specific substantively-oriented research questions. This is, of course, a non-exhaustive selection of methodological possibilities, but one that could prove useful to scholars using longitudinal survey data to study public opinion about the law and the legal institutions.

In the first paper (Chapter 3), I draw on three waves of survey data and fit a cross-lagged panel model to examine the mutual reproduction of perceptions of overpolicing and underpolicing. Cross-lagged panel models consist of a powerful strategy to explore reciprocal relationships over time (Allison et al., 2017), even though they cannot address the issue of reverse causality. In this case, I demonstrate that people's beliefs that police officers repeatedly intrude in the lives of neighbourhood residents and that the police are unprepared and disinterested in ensuring public safety are simultaneously associated with changes on each other, mutually reproducing each other in a type of vicious cycle. I also estimate a dynamic panel model that uses the panel structure of the data to assess longitudinal mediation (Preacher, 2015); I demonstrate that perceptions of overpolicing and underpolicing have an indirect effect on more tolerant attitudes towards the acceptability of personal use of violence *via* undermined judgements about police legitimacy.

In the second paper (Chapter 4), I draw on four waves of a cohort-based longitudinal survey of adolescents and estimate growth curve models to examine the developmental trajectories of adolescents' judgements about the legitimacy of the law from ages 11 to 14. The analysis of latent trajectories is a powerful strategy to tackle life-course developments such as the process of legal socialisation (McLean et al., 2019; Nivette et al., 2019). I rely on both the structural equation and the multilevel frameworks to estimate growth curve models: first to evaluate the type of trajectory that best describes the legal socialisation process in that context (e.g., I fit no-growth, linear, nonlinear, and quadratic latent growth curve models and a latent change score model); then to assess the influence of several variables on the development of legitimacy judgements (e.g., I fit several three-level growth models including school-level covariates).

In the third paper (Chapter 5), I draw on two waves of data and estimate autoregressive structural equation models to examine changes in judgements about police trustworthiness and legitimacy before and after an encounter with the police that occurred between waves. The inclusion of lagged dependent variables permits the modelling of change in pub-

lic opinion in some circumstances (Keele and Kelly, 2006). In this case, I demonstrate that outcome and process evaluations of contact are symmetrically associated with changes in some aspects of trust and legitimacy. I also estimate latent moderated structural models, which include interaction terms between lagged dependent variables and evaluations of contact. This is useful to investigate the extent to which pre-existing attitudes towards the police "colour" how people perceive an interaction with a law enforcement agent (Skogan, 2012).

Finally, in the fourth paper (Chapter 6) I draw on three waves of data and address the issue of causality. Exploiting the longitudinal structure of the data, I employ a multi-period difference-in-differences design that allows for causal inference under a number of assumptions considering the potential outcomes framework. I estimate average treatment effects among treated units using three different estimators, each of which has different modelling assumptions: a two-way fixed effects regression estimator, a matching framework for panel data (Imai et al., 2020), and a doubly robust estimator assuming a staggered treatment adoption (Callaway and Sant'Anna, 2020). The scarcity of causal conclusions in the procedural justice literature was recently highlighted by Nagin and Telep (2017, 2020). This paper addresses this gap and discusses the necessary assumptions to draw causal inference with longitudinal data. Using state-of-the-art causal inference methods, I demonstrate that aggressive police stops at gunpoint have a short-term effect on perceptions of procedural fairness and a long-term effect on perceptions of overpolicing.

Table 1.1 below summarises the four papers.

Note on data sources

This thesis relies upon three longitudinal surveys. First, I draw on three waves of data from a representative survey of adults who reside in eight selected neighbourhoods in São Paulo, Brazil, on the extent and nature of citizens' experiences with the police and their attitudes towards the law and the legal institutions. Data were collected between 2015 and 2018 by the Centre for the Study of Violence of the University of São Paulo (NEV-USP). Prior to starting my PhD in 2017, I was part of the team that coordinated this study, and was involved with decisions including questionnaire design and sampling procedures. I thank Sergio Adorno and colleagues from NEV-USP for granting me access to the data. In this thesis, data from this longitudinal survey are used in Chapters 3 and 6.

Second, I draw on all four waves of data from the *São Paulo Legal Socialization Study* (SPLSS), a cohort-based survey representative of 2005-born adolescents living in São

Paulo, Brazil. Data were collected between 2016 and 2019 as part of another sub-project conducted by NEV-USP. Although I was not part of the research team that coordinated this study, I was overall involved in the process and offered insights on topics such as questionnaire design and sampling procedures. The two longitudinal surveys (with adults and adolescents) were held almost simultaneously in the context of a larger research about legitimacy conducted at NEV-USP. I thank Renan Theodoro and Debora Piccirillo, who coordinate the the SPLSS, for granting me access to the data and contributing as co-authors to Chapter 4.

Third, I draw on both waves of data from *The Crime, Safety, and Policing in Australia Survey*, a nationally representative longitudinal survey of adults residing in Australia in 2007 and 2009. Data were kindly shared by Kristina Murphy, who has also contributed to Chapter 5 as a co-author. I thank Kristina for granting me access to the data and for the collaboration.

Table 1.1: **Overview of the four papers that comprise this thesis**

	Dynamics of legal attitudes	Methodological objective	Panel method used	Longitudinal survey data	Number of waves	Authors	Submission plan
First paper: *Violence and coercive policing: dynamics and consequences of the overpolicing-underpolicing paradox in Brazil's largest city*	· Reproduction of overpolicing and underpolicing · Mediating role of police legitimacy · Acceptability of violence	· Reciprocal relationships · Longitudinal mediation	· Cross-lagged panel model · Dynamic panel model	Adult residents of eight neighbourhoods in São Paulo (2015-2018)	3	Thiago R. Oliveira	Under second review (R&R) at the *American Journal of Sociology*
Second paper: *Socialisation through violence: exposure to neighbourhood and police violence and the developmental trajectories of legal legitimacy among adolescents in São Paulo*	· Legal socialisation (development of legal legitimacy among adolescents) · Exposure to structural and police violence	· Developmental trajectories	· Growth curve modelling	2005-born students residing in São Paulo (2016-2019)	4	Thiago R. Oliveira Jonathan Jackson Renan Theodoro Debora Piccirillo Rick Trinkner	Under review at *Criminology*
Third paper: *Are trustworthiness and legitimacy 'hard to win, easy to lose'? A longitudinal test of asymmetry thesis of police-citizen contact*	· Asymmetry thesis of police-citizen contact · Influence of prior attitudes on contact evaluation	· Change in public opinion	· Autoregressive SEM (lagged dependent variable) · LMS (lagged dependent variable with interaction)	Adults residing in Australia (2008-2010)	2	Thiago R. Oliveira Jonathan Jackson Kristina Murphy Ben Bradford	Published in the *Journal of Quantitative Criminology* (2020)
Fourth paper: *Aggressive policing and undermined trust in a violent city: assessing the impact of police stops at gunpoint on police trustworthiness in São Paulo, Brazil*	· Impact of aggressive police stops on distrust of legal authority	· Causal inference with panel data (multi-period difference-in-differences)	· ATT TWFE regression estimator · ATT_{change} matching estimator · $ATT(g,t)$ doubly robust estimator	Adult residents of eight neighbourhoods in São Paulo (2015-2018)	3	Thiago R. Oliveira	To be submitted to *Sociological Science* in the coming weeks

Bibliography

Adorno, S. (2013). Democracy in progress in contemporary Brazil: Corruption, organized crime, violence and new paths to the rule of law. *International Journal of Criminology and Sociology 2*, 409–425.

Allison, P. D., R. Williams, and E. Moral-Benito (2017). Maximum likelihood for cross-lagged panel models with fixed effects. *Socius 3*.

Bell, M. C. (2017). Police reform and the dismantling of legal estrangement. *The Yale Law Journal*, 2054–2150.

Bradford, B., J. Jackson, and E. A. Stanko (2009). Contact and confidence: Revisiting the impact of public encounters with the police. *Policing & society 19*(1), 20–46.

Bradford, B., K. Murphy, and J. Jackson (2014). Officers as mirrors: policing, procedural justice and the (re)production of social identity. *The British Journal of Criminology 54*, 527–550.

Brunton-Smith, I. (2011). Untangling the relationship between fear of crime and perceptions of disorder: Evidence from a longitudinal study of young people in England and Wales. *The British Journal of Criminology 51*(6), 885–899.

Callaway, B. and P. H. Sant'Anna (2020). Difference-in-differences with multiple time periods. *Journal of Econometrics*. Published online.

Carr, P. J., L. Napolitano, and J. Keating (2007). We never call the cops and here is why: A qualitative examination of legal cynicism in three Philadelphia neighborhoods. *Criminology 45*(2), 445–480.

Fagan, J. and T. Tyler (2005). Legal socialization of children and adolescents. *Social Justice Research 18*(3), 217–241.

Huq, A. Z., J. Jackson, and R. Trinkner (2017). Legitimating practices: revisiting the predicates of police legitimacy. *The British Journal of Criminology 57*, 1101–1122.

Imai, K., I. S. Kim, and E. Wang (2020). Matching methods for causal inference with time-series cross-sectional data. Working paper. Available at https://imai.fas.harvard.edu/research/files/tscs.pdf.

Jackson, J. (2018). Norms, normativity, and the legitimacy of justice institutions: International perspectives. *Annual Review of Law and Social Science 14*(1), 145–165.

Jackson, J., M. Asif, B. Bradford, and M. Zakria Zakar (2014). Corruption and police legitimacy in Lahore, Pakistan. *British Journal of Criminology 54*(6), 1067–1088.

Jackson, J., K. Pósch, T. R. Oliveira, B. Bradford, S. M. Mendes, A. L. Natal, and A. Zanetic (2022). Fear and legitimacy in São Paulo, Brazil: Police-citizen relations in a high violence, high fear city. *Law & Society Review 56*(1).

Kaiser, K. and M. D. Reisig (2019). Legal socialization and self-reported criminal offending: The role of procedural justice and legal orientations. *Journal of Quantitative Criminology 35*(1), 135–154.

Keele, L. and N. J. Kelly (2006). Dynamic models for dynamic theories: The ins and outs of lagged dependent variables. *Political Analysis 14*(2), 186–205.

Kirk, D. and M. Matsuda (2011). Legal cynicism, collective efficacy, and the ecology of arrest.

Criminology 49(2), 443–472.

Kirk, D. and A. Papachristos (2011). Cultural mechanisms and the persistence of neighborhood violence. *American Journal of Sociology 116*(4), 1190–1233.

Lessing, B. and G. D. Willis (2019). Legitimacy in criminal governance: Managing a drug empire from behind bars. *American Political Science Review 113*(2), 584–606.

McLean, K., S. E. Wolfe, and T. C. Pratt (2019). Legitimacy and the life course: An age-graded examination of changes in legitimacy attitudes over time. *Journal of Research in Crime and Delinquency 56*(1), 42–83.

Nagin, D. (2013). Deterrence: A review of the evidence by a criminologist for economists. *Annual Review of Economics 5*(1), 83–105.

Nagin, D. and C. Telep (2017). Procedural justice and legal compliance. *Annual Review of Law and Social Science 13*, 5–28.

Nagin, D. and C. Telep (2020). Procedural justice and legal compliance: A revisionist perspective. *Criminology & Public Policy 19*(3), 761–786.

Nery, M. B., A. A. Souza, and S. Adorno (2019). Os padrões urbano-demográficos da capital paulista. *Estudos Avançados 33*(97), 5–36.

Nivette, A. E. (2016). Institutional ineffectiveness, illegitimacy, and public support for vigilantism in Latin America. *Criminology 54*(1), 142–175.

Nivette, A. E., M. Eisner, and D. Ribeaud (2019). Evaluating the shared and unique predictors of legal cynicism and police legitimacy from adolescence into early adulthood. *Criminology 58*(1), 70–100.

Pina-Sánchez, J. and I. Brunton-Smith (2020). Reassessing the relationship between procedural justice and police legitimacy. *Law and Human Behavior 44*(5), 377–393.

Piquero, A., J. Fagan, E. Mulvey, L. Steinberg, and C. Odgers (2005). Developmental trajectories of legal socialization among serious adolescent offenders. *Journal of Criminal Law and Criminology 96*(1), 267–298.

Pósch, K. (2021). Prying open the black box of causality: A causal mediation analysis test of procedural justice policing. *Journal of Quantitative Criminology 37*, 217–245.

Preacher, K. J. (2015). Advances in mediation analysis: A survey and synthesis of new developments. *Annual Review of Psychology 66*.

Rios, V. M. (2011). *Punished: Policing the lives of Black and Latino boys*. NYU Press.

Rosenbaum, D. P., A. M. Schuck, S. K. Costello, D. F. Hawkins, and M. K. Ring (2005). Attitudes toward the police: The effects of direct and vicarious experience. *Police Quarterly 8*(3), 343–365.

Sampson, R. J. and D. J. Bartusch (1998). Legal cynicism and (subcultural) tolerance of deviance: the neighborhood context of racial difference. *Law & Society Review 32*(4), 777–804.

Skogan, W. (2006). Asymmetry in the impact of encounters with the police. *Policing and Society 16*, 99–126.

Skogan, W. G. (2012). Assessing asymmetry: the life course of a research project. *Policing and Society 22*(3), 270–279.

Sunshine, J. and T. Tyler (2003). The role of procedural justice and legitimacy in public support for policing. *Law and Society Review 37*(3), 513–548.

Tankebe, J. (2009). Public cooperation with the police in Ghana: Does procedural fairness matter? *Criminology 47*(4), 1265–1293.

Trinkner, R., J. Jackson, and T. R. Tyler (2018). Bounded authority: Expanding "appropriate"

police behavior beyond procedural justice. *Law and Human Behavior 42*(3), 280–293.

Trinkner, R., R. D. Mays, E. S. Cohn, K. T. Van Gundy, and C. J. Rebellon (2019). Turning the corner on procedural justice theory: exploring reverse causality with an experimental vignette in a longitudinal survey. *Journal of Experimental Criminology 15*(4), 661–671.

Trinkner, R., H. Rodrigues, D. Piccirillo, F. E. Gifford, and A. M. M. Gomes (2019). Legal socialisation in Brazil: examining the generalisability of the procedural justice model. *International Journal of Comparative and Applied Criminal Justice 44*(1), 7–27.

Tyler, T. (2006). *Why People Obey the Law.* Princeton University Press.

Tyler, T. and J. Fagan (2008). Legitimacy and cooperation: why do people help the police fight crime in their communities? *Ohio State Journal of Criminal Law 6*(1), 231–275.

Tyler, T., J. Fagan, and A. Geller (2014). Street stops and police legitimacy: Teachable moments in young urban men's legal socialization. *Journal of Empirical Legal Studies 11*(4), 751–785.

Tyler, T. and R. Trinkner (2017). *Why children follow rules: legal socialization and the development of legitimacy.* New York: Oxford University Press.

Wolfe, S., J. Nix, R. Kaminski, and J. Rojek (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.

Chapter 2

Conceptual overview

Legal institutions need public support to function properly. When members of the public believe that legal authority has the right to dictate and police public behaviour, they tend to voluntarily comply with the rules (e.g., see Tyler, 2006b). When people are sceptical of agents of the law, they may develop defiant attitudes towards legal authority, and even question the state's monopoly of the use of violence (e.g., see Jackson et al., 2013; Kirk et al., 2012). Understanding how public opinion about legal institutions is formed, and the extent to which it can change during the life course, is therefore an important puzzle for social science and policy. Specifically, investigating antecedents that can drive change in public-authority relations over time is crucial. What role does police conduct play in forming and changing public opinion about the law and its agents? To what extent can personal experiences of resident-police interactions and exposure to a violent environment influence attitudinal change?

In this chapter, I present a broad theoretical framework of public attitudes towards legal authority. I focus on the conceptual map I use throughout the thesis and leave most of the empirical literature review on police-citizen relations to each paper, so that it can be directly discussed *vis-à-vis* each specific research question. In the first section of this chapter, I review three popular approaches: procedural justice theory, which in a nutshell posits that when law enforcement agents act with procedural fairness, people's judgements about the legitimacy of the legal institutions are enhanced (Sunshine and Tyler, 2003; Jackson, 2018); legal socialisation, which focuses on the development of attitudes towards legal authority during the life course (Fagan and Tyler, 2005; Tyler and Trinkner, 2017); and legal cynicism, which premises that police misconduct and neighbourhood structural conditions produce a cultural frame through which legal institutions are viewed as unfit for ensuring public safety (Sampson and Bartusch, 1998; Kirk and Papachristos, 2011). In the second section, I present the theoretical framework that I use throughout this thesis, which embodies most previous work on legal attitudes and emphasises the degree to which procedural justice theory can benefit from legal socialisation and legal cynicism insights and the role of time on the dynamics of legal attitudes. Finally, in the third section I provide

an overview of the empirical component of this thesis and discuss how the literature can properly address the matter of time and benefit from the use of longitudinal data to assess several aspects of people's relationship with legal authority.

Public attitudes towards legal authority

How do people form and change their opinions about the law and the legal institutions? What shapes the degree to which people accept legal authority as the rightful authority in society? In this section, I review some previous work that sought to answer those questions, with a focus on procedural justice, legal socialisation, and legal cynicism frameworks. I discuss how previous work has handled concepts such as legitimacy, cynicism, and trust, as well as some of their antecedents and consequences.

Procedural justice theory

At the core of procedural justice theory is the idea that citizens start to question the legitimacy of legal institutions when legal agents fail to exercise their authority with fair procedures (Tyler, 2006b). Law enforcement agents demonstrate procedural justice in public-authority interactions by indicating fairness in the decision-making process (e.g., making decisions in open, transparent, and neutral ways and taking citizens' concerns into account), by treating citizens with fairness (e.g., treating them with respect, dignity, and politeness), and by respecting citizens' normative boundaries (e.g., not overstepping the police power) (Tyler and Jackson, 2013; Trinkner et al., 2018). Fair procedures communicate status and values in the subordinate-authority relationship (Lind and Tyler, 1988), and the application of fair process strengthens the social bonds between individuals and the authority figure and the legal institutions they represent (Tyler and Huo, 2002; Sunshine and Tyler, 2003).

Procedural justice theory is premised on the idea that police conduct itself can change public views of the police and the law. Police-citizen encounters are "teachable moments" about policing values, so the assumption goes, because in part they are a socialising experience that builds or undermines legitimacy (Tyler et al., 2014). According to the theory, when people experience a procedurally fair interaction with a law enforcement agent, their views about legal authority are enhanced. Such encounters involve direct (e.g., police contact) or indirect experiences (e.g., witnessing an interaction or seeing something on social media), and police contact can be citizen- or police-initiated. Proactive policing strategies based on the use of stop-and-search or stop-and-frisk powers could, theoretically,

either boost or undermine legitimacy judgements depending on the extent to which officers communicate procedural justice (Tyler et al., 2015; Bradford, 2017).

The key aspect of procedural justice policing is that the *process* is more important than the *outcome*. The theory premises that people will value *how* they were treated by police officers to a greater extent than they will value the conclusions of whatever prompted an encounter with law enforcement agents. For instance, using longitudinal survey data from New York City, Tyler and Fagan (2008) found that even when police officers deliver negative outcomes (e.g., administering a fine), judgements about the procedural fairness of the encounters were still associated with higher levels of police legitimacy. People were (relatively) happy because they trust the process was fair even if the outcome was negative.

One potential 'fly in the ointment' is the asymmetry thesis, or at least a strong version of the asymmetry thesis. Skogan (2006) suggested that the impact of police contact on trust in the police is asymmetrical, in that a poorly-handled interaction could do more damages than a well-handled interaction could enhance public opinion. This asymmetry thesis is widely supported by evidence from cross-sectional surveys (e.g., see Bradford et al., 2009; Jackson et al., 2012; Rengifo et al., 2019; Slocum, 2018). A strong version (whereby 'bad' contact is very bad and 'good' contact does not help) directly confronts some theoretical claims of the procedural justice framework. However, as I demonstrate in details in Chapter 5, the asymmetry thesis is a theory of change that requires the matter of time to be appropriately framed (see Skogan, 2012). Using a two-wave longitudinal survey of adults residing in Australia, I show that the degree to which people judge their most recent encounter with police officers as procedurally fair is symmetrically associated with changes in police trustworthiness (e.g., perceptions of police fairness) and legitimacy (e.g., a normatively grounded sense of duty to obey the police). Other studies have also shown that public judgements of the procedural fairness enacted by law enforcement agents during resident-police interactions are indeed associated with increased levels of police legitimacy (Mazerolle et al., 2013; Tyler et al., 2014; Bradford et al., 2014).

There is a good amount of evidence supporting the idea that police-initiated encounters tend to be more harmful to public opinion about legal authority than do citizen-initiated encounters (Bradford et al., 2009; Jackson et al., 2013; Wiley et al., 2013). This is expected given that those are, by definition, involuntary encounters (Bradford, 2017). Specifically, recent studies have shown that the impact of police stops on legal attitudes depend on the intensity of exposure to police contact; repeated stops can have a cumulative effect, as opposed to a single, exceptional stop (Tyler et al., 2014). Considering that some marginalised communities of colour tend to be more commonly stopped by police

officers than others (Epp et al., 2014; Rios, 2011), the use of police powers to stop and search members of the public based on suspicion can potentially amplify distrust of legal authority.

The extent to which officers can communicate procedural justice even when making use of stop-and-search or stop-and-frisk powers is a contested matter. Tyler et al. (2015) argue that fair procedures can be employed even in such circumstances, although legitimacy can be damaged when officers make people feel an object of suspicion. Rios et al. (2020), on the other hand, sustain that procedural justice policing of criminalised communities creates a tension between police as civil servants and protectors versus police as front-line enforcers (where punitive practices such as the extensive use of stop-and-frisk powers are the dominant model). Their argument is that policing strategies that seek to build community trust and legitimacy need to operate independently from – and not in addition to – punitive practices based on constant (racialized) surveillance.

Recent research has also examined the idea that appropriate police conduct is not only about *how* police officers exercise their authority during an encounter, but also about *what* power they exercise, *when* and *where*. Trinkner and colleagues suggest that, on top of concerns about treatment and the decision-making process, people assess the extent to which law enforcement agents act within appropriate normative boundaries and do not overstep their authority in resident-police interactions; concerns about bounded authority can equally undermine people's relationship with legal authority (Huq et al., 2017; Trinkner et al., 2018; Tyler and Trinkner, 2017). They argue that intrusive police stops can be delegitimising regardless of how residents were treated and the decisions were made. For instance, Tyler et al. show that, in the context of pedestrian stops by the police in New York City, and separate to the statistical effects of procedural justice, "more police intrusion of any type in the lives of people in the neighbourhood was linked to lower legitimacy" (2014, p. 766).

As a result, while I concur with Rios et al.'s (2020) conclusion that procedural justice policing needs to operate separately from punitive practices based on the extensive use of stop-and-search or stop-and-frisk powers, their descriptions of intrusive police stops against criminalised communities of colour in Oakland, California, can be framed as inappropriate police conduct considering the procedural justice framework. In order to communicate procedural justice, law enforcement agents need to treat citizens with fairness, make transparent and neutral decisions, *and* exercise their power without overstepping their authority.

In this thesis, apart from assessing the extent to which procedurally just encounters with the police are symmetrically associated with changes in police trustworthiness and

legitimacy in Chapter 5, as mentioned above, I investigate the role of police intrusiveness and violence when assessing the relationship between resident-police interactions and public attitudes towards legal authority. In Chapter 3, I demonstrate how perceptions of police intrusion and cynicism about police protection mutually reproduce each other over time and contribute to more favourable views about personal use of violence. In Chapter 4, I show that exposure to police violence contributes to a diminished development of legitimacy judgements among adolescents in the high-crime, low-trust context of the city of São Paulo, Brazil. Finally, in Chapter 6 I indicate that when law enforcement agents use stop-and-frisk powers in an aggressive style (e.g., pointing a gun at a resident during an interaction), people's distrust of legal authority increases.

Trust and legitimacy of legal institutions

In the previous section, I discussed the degree to which appropriate police conduct can improve people's relationship with legal institutions. Yet, I employed concepts such as "trust", "confidence", and "legitimacy" loosely, even though they represent different aspects of public attitudes towards legal authority. I now provide a conceptual clarification considering the procedural justice framework, with particular focus on the distinction between *legitimation* and *legitimacy*.

In a theoretical account about the basis of a legitimate claim of power, Beetham (1991) argues that the legitimacy of an authority has three roots: *shared values*, in that the power-holder and subordinates need to be in concordance about the normative expectations of the exercise of power; *consent*, in that subordinates need to recognise and authorise the power-holder to exercise power; and *lawfulness*, in that power needs to be exercised following established rules. If an authority figure's claim of power lacks any of these elements – e.g., moral values are not aligned with those of the subordinates, subordinates do not consent to the rules imposed, and/or the exercise of power disrespects a system of laws or rules – then its claim of power lacks legitimacy (Bottoms and Tankebe, 2017).

The first element of a legitimate claim of power according to Beetham (1991) – that authority needs to share normative expectations about the exercise of power with the subordinates in order to gain legitimacy – stresses that power needs to be normatively justifiable (Jackson et al., 2012). A common moral purpose (alignment between salient values of power-holders and subordinates) is the basis on which subordinates judge the appropriateness of power. Subordinates' acceptance (or rejection) of an authority's claim to rightfully hold power is conditional upon their normative expectations regarding the appropriate use of power converging with the normative expectations of the power-holder.

Shared values therefore refer to perceived appropriateness of power, and consist of the basis on which subordinates concede the authority the *right to rule* (Gur and Jackson, 2020).

The second point raised by Beetham (1991) is that power is only legitimate when subordinates recognise the authority's claim of power by consenting to its rules. The discussion on obligation to obey an authority dates back to Weber (2004), who suggested that a power-holder's ability to issue commands is not grounded on power possession itself, but on the belief – among subordinates – that the authority must be obeyed. According to Weber, the reason for obedience can vary (depending on the three types of legitimate domination: traditional, charismatic, and legal or rational), but subordinates need to believe that they must obey the power-holder. When subordinates feel that they have an obligation to obey the authority figure, they give the power-holder *authority to govern* (Trinkner et al., 2018).

Finally, the third element that would characterise a legitimate claim of power according to Beetham (1991) is the legality inscribed in the exercise of power. A legitimate authority would act following established rules. However, as emphasised by Weber (2004), the power-holder's ability to exercise power is dependent upon the *belief* that it is appropriate and entitled to be obeyed. It is reasonable to assume a hypothetical power being exercised outside the scope of established laws and still recognised and deemed appropriate. Furthermore, whether or not an authority figure exercises its power lawfully is an assessment of conduct. As such, it can potentially be a legitimising factor, but not an element of legitimacy itself – I return to this point below.

Judgements about the legitimacy of an authority figure therefore refer to the normative justification of power in the eyes of those who have to abide by that power structure. An authority figure which claims to hold power gains legitimacy from beliefs that it wields its power in normatively appropriate ways – i.e., subjects judge a power-holder's right to rule and accept or reject its claim to rightfully hold power (Gur and Jackson, 2020). It also gains legitimacy from beliefs that it has authority to govern – i.e., when subordinates internalise a normatively grounded sense of duty to obey the power-holder's directives and rules, which they believe are appropriate (Jackson, 2018). Empirically, it is those who are subject to a power structure who judge the legitimacy of an authority's claim of power, regardless of how and what power is being exercised.

Applied to legal authority, this means that legal institutions gain legitimacy as citizens accept the law and its agents' claims to dictate and enforce appropriate public behaviour and judge them to be morally appropriate. When people accept legal authority as the rightful authority in society, they feel that it is their obligation to obey the law and

the rules irrespective of their content (Tyler and Trinkner, 2017). Of course, perceptions of the law and perceptions of legal institutions are not interchangeable (Jackson, 2018) and it is possible, for instance, that some people have positive views of the content of the law and antagonistic attitudes towards law enforcement agents (Kirk and Papachristos, 2011). As a result, judgements about the legitimacy of legal authority refer to perceptions of normative appropriateness (i.e., right to rule) and authority to govern of both the law *and* the legal institutions. However, law enforcement is inextricably tied to people's orientations toward the law (Trinkner et al., 2018) – which means that while empirically legal and police legitimacy should be studied separately (where legal legitimacy flows from police legitimacy; see Jackson et al., 2012), conceptually it is reasonable to conceive of a general idea of judgements about the legitimacy of legal authority.

Perceived appropriateness of the law is usually operationalised as the degree to which values represented by the content of the law converge with people's expectations about the content of the law, while perceptions that the law has authority to govern is usually measured by the degree to which people have a normatively grounded sense of duty to obey the law. Likewise, judgements about the legitimacy of law enforcement agencies are related to the degree to which people judge the power exercised by police officers normatively justifiable and develop a sense of duty to obey police officers' directives (Hough et al., 2013; Jackson et al., 2015).

While legitimacy judgements refer to perceived right to rule and authority to govern, *legitimation* refers to the normative criteria subordinates apply to judge whether an authority's claim of power is right and proper (Tyler, 2006a). It therefore consists of the antecedents of police and legal legitimacy. Overall, the extent to which legal institutions are judged as the rightful authority flows from perceptions that they are *trustworthy* to exercise their power in normatively appropriate ways in the eyes of members of the public. Legal authority gains legitimacy when legal agents are trustworthy to act in accordance with people's normative expectations (Huq et al., 2017).

What exact criteria citizens use to judge legal institutions' appropriateness of power – i.e., what citizens consider appropriate and expect from law enforcement agents – is an empirical question (Jackson, 2018). For instance, hypothetically legal institutions could gain legitimacy when people believe they effectively enforce the law, to behave lawfully, tofairly distribute their resources, and protect citizens and ensure public safety, among other common tasks police forces are usually expected to perform; empirically, social science research seeks to identify to which task-specific assessments of police conduct (i.e., police trustworthiness) citizens give more importance when forming legitimacy judgements (Trinkner,
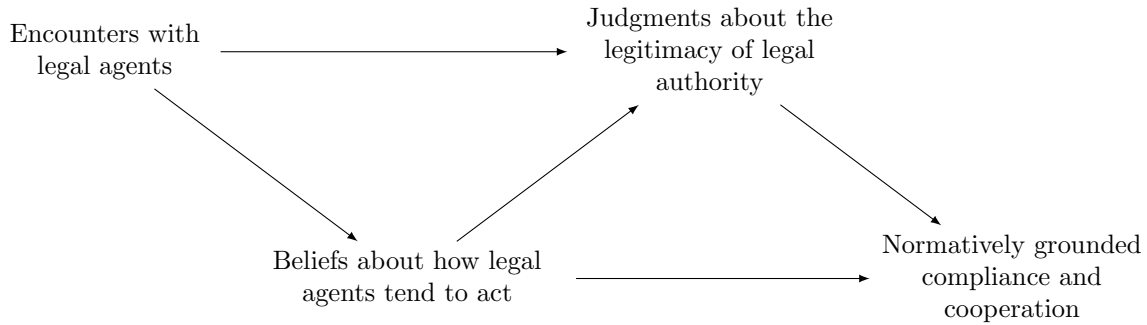
Figure 2.1: **An overview of procedural justice theory (Jackson, 2018)**

2019; Jackson and Bradford, 2019; Tyler, 2006a).[1] Figure 2.1 displays an overview of procedural justice theory. As discussed in the previous section, encounters with legal agents are teachable moments because they are socialising experiences about policing values. Essentially, people evaluate whether agents are exercising their power appropriately – both in terms of specific interactions with police officers and broad beliefs about how police officers tend to exercise their power.

People's normative expectations about the exercise of police power can be different in different contexts (Bottoms and Tankebe, 2012). Procedural justice theory posits that, in contexts with people identify with the superordinate group that the police represent, the most important aspect that people evaluate in the exercise of power is fair procedures – fairness in the interpersonal treatment, neutral and transparent decision-making, and respect for the limits of their rightful authority (Huq et al., 2017; Trinkner et al., 2018). The basis of this approach is rooted in a psychological understanding of group dynamics in hierarchical systems (Trinkner, 2019; Lind and Tyler, 1988). Crucially, procedural justice theory does not *assume* but rather *hypothesises* that perceptions of procedural fairness enhance judgements about the legitimacy of legal authority. Indeed, trust in procedural

---

[1]Based on work developed by Bottoms and Tankebe (2012), Tankebe (2013) draws on Coicaud's (2002) work on the premises of a legitimate power and suggest that police legitimacy is composed (rather than predicted) by perceptions of lawfulness and shared values, the latter of which would specifically entail perceptions of police fairness, effectiveness, and distributive justice. Duty to obey the police would be a consequence rather than a component of legitimacy. The direction of the associations described by Tankebe (2013) are consistent with previous work, in that perceptions of police fairness, effectiveness, distributive justice, and lawfulness predict a sense of duty to obey the police. The difference is conceptual and lies on how to label the constructs. I concur with previous work on procedural justice and consider assessments of police performance (including perceptions of police fairness, effectiveness, distributive justice, and lawfulness) as potential sources of legitimacy and perceived authority to govern as a key aspect of legitimacy. Tankebe's approach of police legitimacy would therefore refer to *legitimation* – i.e., he is discussing what makes power morally justifiable within certain societies. For a discussion on this alternative approach to measuring police legitimacy, see Jackson and Kuha (2016), Pósch et al. (2020), Cao and Graham (2019), Jackson and Bradford (2019), and Trinkner (2019).

fairness seems to be the most common source of legitimacy judgements (see Jackson, 2018, for an international review), but other aspects of police trustworthiness can also play a role. For instance, in places in the Global South such as São Paulo (Brazil), Lahore (Pakisthan), and Accra (Ghana), where the state's ability to control crime is low, trust in police effectiveness has also been found to boost police and legal legitimacy (Oliveira et al., 2020; Jackson et al., 2014; Tankebe, 2009).

In this thesis, I test whether various aspects of police trustworthiness contribute to changes in judgements about the legitimacy of legal authority in different contexts. For instance, in Chapter 3 I show that perceptions of police intrusion and cynicism about the ability of the police to ensure public safety (which I label as perceptions of overpolicing and underpolicing, respectively) are associated with damages in police legitimacy in São Paulo, Brazil; in Chapter 4, I demonstrate that exposure to police violence contributes to an undermined development of legal legitimacy among adolescents in São Paulo, Brazil; and in Chapter 5, I indicate that recent encounters with the police where citizens are satisfied with the process and the outcome of the interaction are associated with changes in duty to obey the police in Australia.

Consequences of legitimacy

Why does legitimacy matter? Legal institutions could manage to enforce the law even without public support, after all they have plenty of coercive powers to apprehend, prosecute, and punish those who do not behave appropriately. As long as they convince people that the risks of criminal behaviour (e.g., certainty and severity of punishment; see Nagin, 2013) outweigh potential benefits, most people will be deterred from engaging in rule-violating behaviour. Policies that promote self-regulation are the most effective crime-control strategy that law enforcement agencies can implement. Yet policing works best when it is not needed; relying on coercive crime-control strategies based on extensive police surveillance and severe punishment is a costly and ineffective way of ensuring acquiescent public behaviour (see Waddington, 1999; Reiner, 2010; Skogan and Hartnett, 1999; see also Kirk and Wakefield, 2018).

An alternative approach to promote self-regulation is based on consensual crime-control strategies that seek to enhance legitimacy judgements (Sunshine and Tyler, 2003). This is because one of the key predictions made by procedural justice theory is that people will comply with the law and cooperate with the legal authorities when they ascribe legitimacy to justice institutions (Tyler, 2006b). When people believe that the power exercised by legal institutions is proper and right and thus develop a normatively grounded sense of

duty to obey the law and the police, they tend to voluntarily behave in ways that are socially desirable for the functioning and maintenance of power (Meares, 2017). Specifically, previous work has emphasised two outcomes boosted by more positive judgements about police legitimacy: voluntary compliance with the law (e.g., Walters and Bolger, 2019; Jackson et al., 2012; Papachristos et al., 2012; Hough et al., 2013) and proactive willingness to cooperate with legal authority (e.g., Jackson et al., 2020; Bolger and Walters, 2019; Murphy et al., 2008).

Normative compliance with the law flows from a normatively grounded duty to obey the law. If people internalise an obligation to obey the rules, they tend to engage in acquiescent behaviour because they accept that it is morally right to abide by the law. By promoting legitimacy beliefs, legal institutions can foster self-regulation without the costs of communicating negative incentives that could deter people from breaking the law; people will comply simply because it is the morally right thing to do (Jackson et al., 2012). Similarly, people will voluntarily cooperate with legal authorities because it is morally right. This is crucial as legal institutions need public support to function properly – only with widespread cooperative behaviour can law enforcement agencies effectively collect information on what is going on on the streets and start criminal investigations accordingly (Murphy et al., 2008). Consensual crime-control strategies that seek to enhance legitimacy judgements make the jobs of legal agents easier (Tyler, 2004).

Another downstream effect of police and legal legitimacy suggested by Jackson et al. (2013) is "the belief that it is morally unacceptable to use violence to protect oneself, violence to take revenge and resolve disputes, and violence to achieve political objectives" (p. 481). The authors argue that legitimacy has a "crowding out" effect: when people believe that the legal institutions have the rightful monopoly of the use of force in society, they believe it is morally wrong to use violence privately for purposes of social control or social changes. In this thesis, I only discuss consequences of judgements about the legitimacy of legal authority in Chapter 3 – when I demonstrate that perceptions of overpolicing and underpolicing contribute to more tolerant attitudes towards the acceptability of violence via undermined judgements of police legitimacy.

Legal socialisation

A second framework of public attitudes towards legal authority involves understanding how people, most notably children and adolescents, come to develop and understand their relationship with the law in the process of *legal socialisation* (Tyler and Trinkner, 2017). As a subset of larger socialisation pressures, legal socialisation is concerned with the long-term

development of legal values inscribed in society that instill in people a moral responsibility to obey the law and accept legal authority. Traditionally, research in this field has been dominated by a cognitive developmental approach and focused on assessing how individuals develop increasingly more complex abilities such as legal reasoning as they get older (see, e.g., Cohn and White, 1990). Tapp and Levine (1974) suggest two important processes that characterise legal socialisation. First, the internalisation of social norms and legal values that connect to one's sense of right and wrong and influence behaviour, including compliance with the law. Second, the development of positive orientations towards legal authority (Trinkner and Cohn, 2014). This process occurs through the life course, but by the time people become adults, most of their law-related attitudes are already formed and stable; it is during childhood and adolescence that legal socialisation occurs more predominantly (Tyler and Trinkner, 2017).

More recently, researchers have argued that legal socialisation is primarily driven by interactions with authority figures (Fagan and Tyler, 2005; Trinkner and Cohn, 2014; Piquero et al., 2005; Trinkner and Tyler, 2016; Tyler and Trinkner, 2017; Geller and Fagan, 2019). The procedural justice model of legal socialisation premises that individuals learn about values important to legal authority based on how power is exercised in social interactions. When power is exercised appropriately – e.g., interactions occur with fairness and respect, decisions are made in neutral and transparent ways, and power is exercised within certain normative boundaries (Trinkner et al., 2018) –, individuals internalise a sense of duty to obey the authority because it is proper and right. Essentially, interactions with authority figures (e.g., parents, teachers, legal actors) are socialising moments that contribute to the process of legal socialisation (Trinkner and Cohn, 2014; Tyler and Trinkner, 2017). The goal of this research agenda is to investigate the socialising moments that influence the development of legitimacy judgements.

In one of the first studies on legal socialisation with a focus on the development of legitimacy judgements, Fagan and Tyler (2005) focused on interactions with law enforcement agents. Using a convenient sample of children and adolescents aged 10-16 in New York City, the authors identified a developmental process that unfolds during childhood and adolescence and promotes compliance with the law and cooperation with legal actors. They had measures of procedural justice (i.e., the perceived quality of interactions with legal actors including police, school security officers, and store security staff), three domains of legal socialisation (i.e., legal cynicism, legitimacy, and moral disengagement), and antisocial behaviour (i.e., self-reported delinquency), and showed that neighbourhood contexts and experiences with legal actors shape the process of legal socialisation. While legitimacy judgements overall tend to decline as children get older, perceptions of unfair

and harsh encounters with legal authority figures were associated with more cynic views of the law. Beliefs of procedural justice played a significant role in the legal socialisation process by shaping consensual views towards legal authority.

Similarly, but expanding the scope of authority figures with which children and adolescents tend to interact, Trinkner and Cohn (2014) assessed the procedural justice model of legal socialisation with legal (e.g., police officers) and nonlegal authorities (e.g., parents and teachers). Using data from the New Hampshire Youth Study (Cohn et al., 2010), the authors analysed the degree to which adolescents' judgements of fair treatment and decision making from law enforcement agents, teachers, and parents had an indirect effect on scores of self-reported rule-violating behaviour mediated by authority-specific legitimacy judgements and cynical beliefs about laws and social norms. Additionally, they used experimental methods drawing on a sample of adolescents and young adults. By manipulating the procedural fairness (e.g., voice and impartiality) of encounters with each authority type in a scenario participants read, Trinkner and Cohn were able to assess the effect of exposure to contact with authority on legitimacy, cynicism, and beliefs about rule violation. Overall, they found support for the procedural justice model of legal socialisation: interaction with authority figures, especially during early ages, influences the way people come to understand and internalise social norms and law-related values.

Essentially, one key point of legal socialisation is to create a binding to the law whereby people accept its directives – either through consent or through coercion (Trinkner and Tyler, 2016). According to Tyler and Trinkner (2017), the development of beliefs that the authority is appropriate and entitled to be obeyed occurs as a function of continuous experiences, predominantly during childhood and adolescence, of fairness in the interactions with authority figures. The procedural justice model of legal socialisation would then lead to the development of a consensual relationship with the authorities. On the other hand, when children and adolescents cumulatively experience harsh, aggressive, and unfair treatment from their parents, teachers, and any legal agents – i.e., when legal socialisation occurs through coercion –, they tend to develop a relationship with legal authority based on fear (Geller and Fagan, 2019).

Given that legal socialisation is a process that unfolds through childhood and adolescence, studies analysing key aspects of legal socialisation need to address the matter of time and take a life-course approach (McLean et al., 2019). Only by collecting longitudinal data on children and adolescents is it possible to assess the development of judgements about the legitimacy of legal authority as individuals get older. Considering the recent literature, there are just a few studies that collected panel data on adolescents' social norms

and law-related values.

Most empirical studies on legal socialisation rely upon longitudinal data from a juvenile court sample of adolescent offenders charged with serious crimes: the Pathways do Desistance (Mulvey, 2016). For instance, Piquero et al. (2005) analysed variation in the developmental trajectories of legal cynicism and legitimacy and demonstrated that, while those constructs are highly stable over time considering adolescents aged 14 to 18, perceptions of procedural justice were associated with changes in the process of legal socialisation. Using 11 waves of data, Kaiser and Reisig (2019) used random effects models to address the development of legitimacy beliefs and showed that vicarious procedural justice judgements reduce involvement in criminal offending *via* enhanced legal orientations. More recently, McLean et al. (2019) also estimated developmental trajectories of those adolescents and found that perceptions of legitimacy increase as individuals progress through adolescence before stabilising in emerging adulthood (see, e.g., Augustyn, 2016; Fine and Cauffman, 2015; Fine et al., 2016, 2017; Schubert et al., 2016, for other studies using data from the Pathways to Desistance project).

Despite its merits, the Pathways to Desistance only includes serious juvenile offenders, which means that their experiences with the justice system are substantially different than the experiences of most individuals – who, on average, do not interact with the juvenile courts (Tyler and Trinkner, 2017). It is possible that the process of legal socialisation among adolescents involved with this study is distinct from that of most youth (Piquero et al., 2005). Other longitudinal studies that collect longitudinal data on general youth are therefore crucial to study legal socialisation

One such study was conducted with adolescents from Zurich, Switzerland (Eisner et al., 2011; Nivette et al., 2015), a cohort study of children aged 7, 8, 9, 11, 13, 15, 17, and 20. Drawing on this panel study, Nivette et al. (2019) estimated developmental trajectories of adolescents aged 13 to 20 and assessed the legal socialisation process with a focus on the development of cynic views about the law and evaluations of police performance. Like McLean et al. (2019), the authors showed that the development of legal attitudes was not linear, first increasing as individuals progress through adolescence before stabilising or even decreasing slightly as they approached the adult life. Nivette et al. also showed that legal cynicism was primarily driven by individual characteristics, while beliefs about police performance were shaped by social antecedents such as police contact.

Finally, another recent panel study with young adolescents is the São Paulo Legal Socialisation Study (SPLSS, see Piccirillo et al., 2021; Trinkner et al., 2019), a yearly four-wave cohort-based longitudinal survey focused on the context of São Paulo, Brazil, and

developed by the Centre for the Study of Violence of the University of São Paulo (NEV-USP). The study surveyed 800 2005-born students living in the city of São Paulo who attended state or private schools from 2016 to 2019. Trinkner et al. (2019) drew on data from the second wave of the SPLSS and found some support for the procedural justice model of legal socialisation in this Brazilian context, although this was cross-sectional analysis that did not assess the development of legal attitudes over time. A longitudinal evaluation using all four waves was conducted by Piccirillo et al. (2021), who showed that direct and vicarious police contact contributed to diminished views about police legitimacy. Using three waves of data from the SPLSS, Komatsu et al. (2020) also demonstrated that negative contact with law enforcement agents was associated with negative changes in police legitimacy.

In this thesis, I focus on the process of legal socialisation in Chapter 4. I draw on all four waves of the SPLSS and investigate how adolescents in São Paulo come to understand the authority of the law as the body entitled to dictate appropriate behaviour in society. In particular, I assess the extent to which exposure to neighbourhood and police violence influences the process of legal socialisation. For instance, I show that exposure to cases of police brutality and a violent environment (e.g., at school) contributes to a more cynical development of legal attitudes where adolescents perceive the law to lack the authority to govern.

Legal cynicism

Finally, a third framework to study attitudes towards legal authority comes from the sociological tradition of neighbourhood effects and neighbourhood culture. Similarly to work on procedural justice, studies on *legal cynicism* focus on causes and consequences of public judgements about the legitimacy of the law and the legal institutions, but with more emphasis on neighbourhood structural conditions and aggregate levels of public opinion. There are two main approaches to the conceptualisation and measurement of legal cynicism. Sampson and Bartusch (1998) draw on the Dukheimian concept of "anomie" and define legal cynicism as a state of "normlessness" in which the law is not psychologically binding, while Kirk and Papachristos (2011) define it as a cultural frame through which the laws and the legal institutions are viewed as illegitimate, unresponsive, and ill equipped to ensure public safety. I first explain each approach in detail in the next two sections, then I discuss some antecedents of legal cynicism commonly reported in the literature – with focus on neighbourhood structural conditions, violence, and police misconduct. Finally, I explore what Bell (2017) names "legal estrangement," a conceptual expansion from the

state of legal cynicism that brings into focus public detachment and eventual alienation from the law and its enforcers.

Legal cynicism as a state of normlessness

Based on Durkheim's notion of anomie and Merton's concept of normlessness, Sampson and Bartusch (1998) define legal cynicism as a state "in which the rules of the dominant society (and hence the legal system) are no longer biding in a community or for a population subgroup" (p. 782). Laws and social norms embodied by legal authority are not considered binding in the lives of people. When individuals feel like the law does not apply to them (Nivette et al., 2015), that acting in ways that are outside the community norms of appropriate conduct is appropriate (Fagan and Tyler, 2005), they are in a state of cynicism towards the law and the legal institutions.

Normlessness is a state wherein the recognition that the law has the authority to govern does not flow perceptions of the normative appropriateness of power – when, regardless of their views on the content of the law, people do not feel an obligation to accept the law's authority to govern and thus do not internalise a sense of duty to obey the law; on the contrary, people in a state of legal cynicism do not recognise the law's authority to dictate the norms of appropriate public behaviour.

Crucially, Sampson and Bartusch argue that legal cynicism is part of a social system and not merely a property of the individual. As such, it is conceived as *both* a community and an individual attribute. The authors make the point that an individual can be highly intolerant of crime and violence and yet live in a structurally disadvantaged context wherein legal norms are not binding or too weak to warrant social trust. As a neighbourhood-level attribute, legal cynicism would thus be contextual in origin, emerging as a network of individuals who collectively perceive injustice in the application of legal norms and express cynicism about the ability of the legal institutions to do their job in an effective and nondiscriminatory manner (pp. 784-785).

In order to empirically measure legal cynicism, Sampson and Bartusch rely on survey research and use measures adapted from Srole's (1956) anomie scale. Survey indicators measure the level of agreement with the following statements: "laws are meant to be broken," "it is okay to do anything you want as long as you don't hurt anyone," "to make money, there are no right and wrong ways anymore, only easy ways and hard ways," "fighting between friends or within families is nobody else's business," and "nowadays a person has to live pretty much for today and let tomorrow take care of itself." Their

measures therefore tackle the unbinding aspect of social norms, reflecting a belief that the law lacks the authority to govern.

Over the past two decades, legal cynicism as defined by Sampson and Bartusch has been extensively studied by social science research. For instance, aggregate scores of cynicism about the legitimacy of the law have been shown to correlate with some neighbourhood-level variables such as crime rates, structural deprivations, and prisoner reentry (Sampson, 2012; Kirk, 2016). Yet, despite the emphasis that Sampson and Bartusch put on the contextual nature of the state of anomie and normlessness, most previous work measured legal cynicism only as an individual-level attribute. For instance, research on legal socialisation usually finds that the individual development of cynic views about the law during adolescence is associated with greater willingness to engage in rule-violating behaviour (Fagan and Tyler, 2005; Piquero et al., 2005; Trinkner and Cohn, 2014; Fine and Cauffman, 2015; Schubert et al., 2016; Kaiser and Reisig, 2019); some studies have also drawn on Sampson and Bartusch's measure and shown that individual attributes such as low self-control and other personality traits are linked to higher levels of legal cynicism (Reisig et al., 2011; Nivette et al., 2015, 2019); similarly, research on police-citizen relations usually shows that unfair interactions with police officers tend to breed legal cynicism, which in turn is associated with greater willingness to cooperate with the police (Carr et al., 2007; Gau, 2015; Bell, 2016; Moule Jr et al., 2019; Geller and Fagan, 2019).

Legal cynicism as a cultural frame

Kirk and colleagues developed an alternative approach to conceptualise and measure legal cynicism (Kirk and Papachristos, 2011; Kirk and Matsuda, 2011). Drawing on the fact that Sampson and Bartusch's definition does not involve people's perceptions of legal institutions, the authors sustain that the original concept does not handle a relatively common paradox: some individuals might have law-abiding beliefs but at the same time hold negative views towards legal agents. As such, they conceive of legal cynicism more narrowly, emphasising the *legal* aspect of the state of anomie. Legal cynicism is then defined as a cultural frame through which people view the law *and the legal institutions* as illegitimate, unresponsive, and ill equipped to ensure public safety (Kirk and Matsuda, 2011, p. 447; Kirk and Papachristos, 2011, p. 1191; Kirk et al., 2012, p. 83).

The authors rely on Goffman's (1974) frame analysis and premise that people's perceptions of the law and the legal institutions are filtered through a particular cultural frame which shapes their views on social norms and their choices of action. Through this frame, individuals interpret the functioning and viability of the law and the police, especially in

terms of their ability to provide protection and ensure public safety (Hagan et al., 2016). The main motivation to contrast Sampson and Bartusch's definition of legal cynicism is the fact that there sometimes is a gap between some people's beliefs in the substance of the law and their antagonistic views of legal officials, which "may propel [them] toward violence simply because they cannot rely upon the police to help them resolve grievances" (Kirk and Papachristos, 2011, p. 1191). Crucially, cynicism becomes cultural through social interaction – it becomes part of the social fabric of neighbourhoods as individuals develop a shared (though not identical) meaning of the substance and the agents of the law.

This approach on legal cynicism is typically measured by survey responses tapping into attitudes towards both the law and the police, such as "laws are meant to be broken," "the police are not doing a good job in preventing crime in this neighbourhood," and "the police are not able to maintain order on the streets and sidewalks in the neighbourhood" – so the emphasis is on public assessments of the ability of legal institutions to protect people in the neighbourhood. Kirk and Papachristos (2011) showed that aggregate scores of legal cynicism are associated with neighbourhood-level crime rates (e.g., homicide) and Kirk and Matsuda (2011) reported the spatial association between legal cynicism and arrest rates, both in Chicago using data from the Project on Human Development in Chicago Neighborhoods (PHDCN, see Sampson, 2012). Additionally, this conception of legal cynicism has been associated with Sunni insurgent attacks in post-invasion Iraq (Hagan et al., 2016) and less cooperation with the police in New York City (Kirk et al., 2012), Chicago (Hagan et al., 2018) and Milwaukee (Desmond et al., 2016).

Antecedents of legal cynicism: structural features, violence, and police misconduct

Legal cynicism is produced by structural features of neighbourhoods – this is the core of the concept both in its original formulation as a state of normlessness and in its reformulation as a cultural frame. For this reason, most research on legal cynicism draws on data from the PHDCN (Sampson, 2012), which is representative of both individuals and neighbourhoods in Chicago. PHDCN is one of the few studies that permit the disentangling of individual and neighbourhood attributes including attitudes towards the law and the legal institutions.

Specifically, economic disadvantage and violence seem to be a key driver in the production of a state of anomie towards legal norms and values. Sampson and Bartusch (1998) show that communities characterised by neighbourhood concentration of resource disadvantage – e.g., high levels of poverty, unemployment, and public assistance – was associated with cynicism toward societal institutions. Similarly, Kirk and Papachristos (2011)

found that concentrated poverty, residential stability, and higher proportion of youth in a neighbourhood all predicted higher levels of legal cynicism. Kirk (2016) demonstrates that neighbourhoods where former prisoners tend to cluster also tend to concentrate cynic views about the law and the legal institutions. In violent neighbourhoods, people often need to adapt to their surroundings and behave differently than they would otherwise (e.g., staying close to home, refraining from leaving after dark, avoiding interactions with specific groups of people; see Harding, 2009; Carr et al., 2007; Haldipur, 2019; Rios, 2011) – sometimes this adaptation involves scepticism about the interest of legal institutions in ensuring public safety (Kirk and Papachristos, 2011).

The idea is that cultural tools (e.g., legal cynicism) originate as an adaptation to neighbourhood structural conditions (see Sampson and Wilson, 1995). People interpret the viability of the law and the legal systems based on the structural conditions around which they are surrounded (and behave accordingly); as conditions are characterised by social and economic disadvantage and violence, cynic attitudes towards legal institutions emerge. This individual interpretation and adaption to neighbourhood conditions is then transmitted and collectively shaped through social interaction (Kirk and Papachristos, 2011). Specifically, exposure to a violent environment can play an important role in the transmission of cultural tools (Harding, 2009).

A second source of legal cynicism is public-police interactions, particularly harassing police behaviour. Police misconduct can breed cynicism towards the law and the legal institutions because personal experiences of encounters with officers are communicated via social interaction and create a shared belief about how law enforcement agents usually behave. Policing is also a product of neighbourhood structural conditions (Kirk and Matsuda, 2011; see also Sampson, 2012; Terrill and Reisig, 2003) – when interactions with legal officials foster a perception that the behaviour of the law excludes and mistreats neighbourhood residents, a common understanding that the legal institutions are unable and disinterested in ensuring public safety emerges (Hagan et al., 2020). Figure 2.2 displays a diagram summarising the sources (and consequences) of legal cynicism based on Kirk and Papachristos (2011).

Recent work has empirically verified the extent to which structural neighbourhood conditions and public-police interactions produce legal cynicism. For instance, in a qualitative study in three high-crime neighbourhoods (e.g., homicide rates of 61, 74, and 150 per 100,000 inhabitants) in Philadelphia, Pennsylvania, Carr et al. (2007) described parts of the process through which young men and women develop antagonistic views about the law and the legal institutions. Being constantly exposed to a violent environment (see
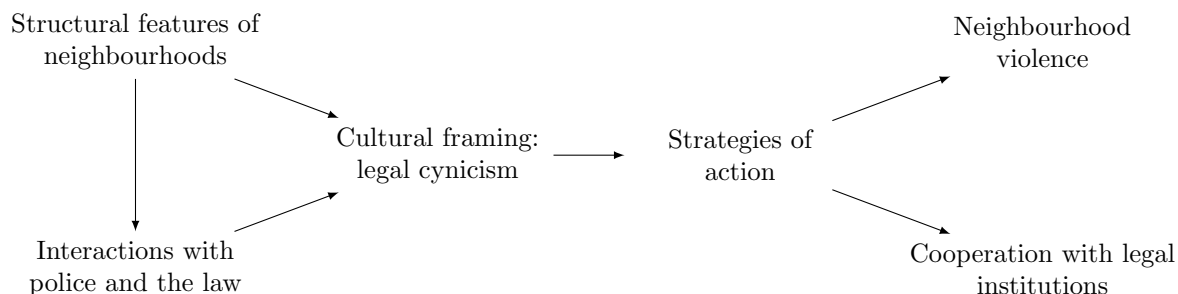
Figure 2.2: **An overview of the sources and consequences of legal cynicism (Kirk and Papachristos, 2011)**

Sharkey, 2018), people in those neighbourhoods feel under-policed as legal institutions fail to ensure public safety. Yet, participants of the study also report feeling over-policed. Law enforcement agents make themselves present in the communities, repeatedly stopping and harassing citizens and enforcing petty illegalities – not only did the constant presence of police officers not improve residents' exposure to a violent exposure, but it made it worse, as residents would then fear both neighbourhood and police violence (Carr et al., 2007). This process (named the "overpolicing-underpolicing paradox" by Rios, 2011; I return to this point in detail in Chapter 3) is often described by neighbourhood ethnographers as a key driver of antagonistic and sceptic views about the authority of the law and the legal institutions (see, e.g., Bell, 2016; Haldipur, 2019; Rios, 2011; Stuart, 2016).

With regards to exposure to police violence specifically, in a recent study about police-related 911 calls in Milwaukee, Winsconsin, Desmond et al. (2016) showed that a highly-publicised case of police violence – the beating of an unarmed black man, Frank Jude, in 2014 – had a downstream effect on the cooperative behaviour of residents of predominantly Black neighbourhoods. The authors argued that the mechanism of the relationship between exposure to police violence and fewer 911 calls was precisely an increase in levels of legal cynicism in some communities. By being exposed to a police-citizen interaction in which a legal agent severely assaulted another Black man, residents of other Black and often over-policed neighbourhoods developed a common understanding that law enforcement agencies were ill-equipped and unwilling to provide protection to their communities, which in turn led them to refrain from voluntarily reporting crimes to the police (see also Zoorob, 2020; Desmond et al., 2020).

Other studies have also focused on the relationship between legal cynicism and reliance and engagement with the police at the neighbourhood level. Paradoxically, in some places police receive more calls coming from neighbourhoods with higher levels of legal

cynicism (Bell, 2016; Hagan et al., 2018). For instance, in a qualitative examination about moments when poor African-American mothers from Washington, DC, interact with the police, Bell (2016) showed that trust in legal authority was tightly attached to context – as such, even individuals embedded in a context with high levels of legal cynicism and who are themselves highly sceptic at the law and the legal institutions would strategically deposit situation-specific trust in law enforcement agents to solve urgent conflicts. Hagan et al. (2018) suggested that cooperation with the police is high in neighbourhoods where most people are cynic about the ability of legal agents to provide security precisely because those neighbourhoods have a (historically accumulated) high demand of prevention and protection against crime.

In terms of other consequences of legal cynicism, apart from higher levels of homicide rates as previously mentioned (Kirk and Papachristos, 2011), Kirk and Matsuda (2011) showed that Chicago neighbourhoods characterised by high levels of legal cynicism were also characterised by low levels of collective efficacy, and tended to have a larger number of unsanctioned (and potentially unreported) crimes, making the probability of arrest vary considerably across the city. Additionally, McCarthy et al. (2020) demonstrated that Chicago neighbourhoods with more cases of police misconduct between 2012 and 2014 were the ones with higher scores of legal cynicism in 1995, suggesting that complaints about police misconduct is spatially grounded in temporally stable and collectively shared beliefs that legal institutions are ill equipped to ensure public safety.

Some other studies assessed the antecedents of legal cynicism, but only using individual perceptions of legal authority – without taking neighbourhood features into account as originally suggested by Sampson and Bartusch (1998). With a focus on individual and developmental antecedents and using measures adapted from Sampson and Bartusch's scale, they often argue that legal cynicism is also partly founded in childhood when personal and moral characteristics are forming (see, e.g., Piquero et al., 2005; Fagan and Tyler, 2005; Reisig et al., 2011; Trinkner and Cohn, 2014; Nivette et al., 2015, 2019; Kaiser and Reisig, 2019). For instance, Nivette et al. (2015) suggested four pathways to legal cynicism during childhood and adolescence: bonds to social institutions, developmental predispositions (e.g., moral reasoning and low-self control), negative experiences with authority, and involvement in delinquent activities (p. 276). Empirically, Reisig et al. (2011) and Nivette et al. (2019) showed that early forms of moral reasoning and developmental factors such as low self-control were linked to higher scores of individual-level legal cynicism.

Legal estrangement

More recently, Bell (2017) introduced the concept of *legal estrangement*, which seeks to capture and expand the state of legal cynicism. The concept includes both the subjective cultural orientation through which the law and its agents are viewed as illegitimate, unresponsive, and ill equipped and the objective structural conditions that breed this cultural frame. Essentially, Bell's concept implies public detachment and alienation from the law – it reflects the perception that law enforcement agents operate to exclude disadvantaged groups, including poor communities of colour, from society. At both an interactional and structural level, legal institutions function to effectively banish whole communities from the body politic (p. 2067).

Bell introduced the concept of legal estrangement in the context of the discussion on police reform in the United States. By opposing legal estrangement and legitimacy theories, she argued that the main goal of reformed legal institutions should be ensuring social inclusion, not just fostering voluntary compliance with the law. This distinction traces back to different theoretical roots: while the legitimacy approach is analytically focused on the individual and is based on Weber's remarks about dominance, the legal estrangement approach emphasises cultural and collective processes and draws on Durkheim's remarks about anomie, colective alienation, and social cohesion. According to Bell, police reforms focused only on implementing procedurally just policing[2] would not solve the main problem related to systemic racism in policing, as it would just seek more effectiveness at the work of crime deterrence (p. 2080). Only by acknowledging that some disadvantaged communities are estranged from legal authority and promoting structural inclusion would it be possible to reform legal institutions so as to ensure social inclusion for all groups and communities.

Legal estrangement, like legal cynicism, is founded on the idea of anomie about the law. This is more than distrust of the law: anomie is a broken social order in which some people are structurally unable to act in accordance with the cultural norms and goals, and therefore are not fully included in society. Bell sustains that while the concept "legal cynicism" as defined by Sampson and Bartusch (1998) or Kirk and Papachristos (2011) focuses on how communities relate to the law, legal estrangement theory emphasises the structural process that leads to a cultural orientation of distrust. Legal estrangement is a systemic mechanism that is partly representative of a state of anomie, and partly interactive with structural conditions that produce segregation (e.g., poverty and racism; p. 2086).

---

[2]Although she mostly focuses on one aspect of procedural justice – namely, fairness and dignity in treatment – and neglects transparent and neutral decisions and the exercise of power within normatively appropriate boundaries (see Huq et al., 2017; Trinkner et al., 2018).

Understanding this crisis of estrangement described by Bell (2017) is important. Even though I do not entirely agree with her characterisation of procedural justice theory – I return to this point in the section "Putting things together" below –, the emphasis she puts on collective processes and structural conditions that produce a state of public detachment from the law and the legal institutions is crucial to comprehend the relationship between members of the public and legal authority. It is reasonable to assume that policing strategies that operate effectively excluding groups of people from society produce a state wherein a large number of people develop some type of alienation from the law. I argue below that judgements about the legitimacy of legal authority and legal cynicism can be studied together under a unified framework of legal attitudes; but this framework only makes sense taking into account the legal estrangement approach and structural conditions that give birth to a collective sense of distrust of the law.

Legal cynicism in this thesis

Given that I only analyse data at the individual level in the studies that comprise this thesis, strictly speaking I do not discuss legal cynicism as originally conceived by Sampson and Bartusch (1998) and Kirk and Papachristos (2011) – according to whom legal cynicism is both an individual and a neighbourhood level attribute. But I do investigate public cynicism about the ability of legal institutions to ensure public safety and perceptions of a state of normlessness. For instance, in Chapter 3 I draw on Kirk and Papachristos's approach and measure public cynicism about police protection, which I frame as perceptions of underpolicing (i.e., people are cynic about the ability of the police to provide protection). I assess both the extent to which it reproduces perceptions of overpolicing and whether it contributes to more tolerant views about the use of violence for private matters. I use the same framing in Chapter 6 and investigate whether police stops at gunpoint have a causal impact on cynicism about police protection. In Chapter 4, I draw on Sampson and Bartusch's concept and frame anomie as a state wherein the law lacks the authority to govern. I also draw on Bell's (2017) legal estrangement approach and assess the degree to which exposure to a violent environment during adolescence contributes to public detachment from law-related values. I show that exposure to both neighbourhood and police violence in early ages contributes to a diminished development of judgements about the legitimacy of the law.

Putting things together

Concepts such as legitimacy, cynicism, and trust are sometimes loosely employed by studies on public attitudes towards legal authority. The extent to which these constructs are distinct and/or overlap is therefore not clear. In this section, I provide some conceptual clarification about the theoretical framing I use throughout this thesis. I draw primarily on procedural justice theory, but also rely on insights from the legal socialisation and legal cynicism approaches.

First, it is important to emphasise the distinction between legitimacy and legitimation, and in particular the distinction between the law and legal institutions' *authority to govern* (consent), perceptions of *power appropriateness* (assent) among members of the public (both of which constitute beliefs about the legitimacy of legal authority), the extent to which legal institutions are *trustworthy* to behave as normatively expected, and the *antecedents* and conditions that produce people's normative expectations about the exercise of power. These four aspects are depicted by Figure 2.3. I now explore each of them separately.

A legitimate claim of power essentially means that the law and the legal institutions have authority to govern. Members of the public recognise the right of legal authority to dictate and enforce appropriate behaviour and internalise a sense of duty to behave accordingly. Authority to govern implies that people consent to the directives of the law and its agents. The recognition of the ruling power of the law is horizontally and vertically motivated – i.e., people believe they should obey the law both because it mutually benefits everyone in society if everyone does so and because they perceive rule of law to be homogeneously applied across all social strata.

I frame what Sampson and Bartusch (1998) characterise as a state of normlessness as perceptions that the law and the legal institutions lack the authority to govern. The fact that law-related values and norms might not be binding in a community or for a population subgroup implies that some people do not recognise the ruling power of the law and do not consent to its directives – i.e., they do not internalise a normative sense of duty to obey the rules and norms of the dominant society. As Sampson and Bartusch emphasise, this usually happens when people have feeling that the law is not the same for everyone, in what Gifford and Reisig (2019, p. 388) describe as the "legal corruption" aspect of legal cynicism: views that the law-making process has been corrupted by individuals who enact laws solely based on their own self-interest. Some people might not consent to legal directives because of vertical discrepancies in the behaviour of the law and the legal institutions. This is not to

Legitimacy

<u>*Antecedents*</u> ⟶ <u>*Legitimation*</u> ⟶ <u>*Power appropriateness*</u> ⟶ <u>*Authority to govern*</u>

→ Conditions that produce normative expectations

→ How should power be exercised?

→ Authority has the right to rule

→ People consent to legal directives

Personal experience
· Encounters with legal agents

Structural conditions
· Concentrated disadvantage
· Exposure to violence
· Legacy of police brutality

Trustworthiness
· Task-specific evaluations of legal agents' conduct
· Legal institutions are trustworthy to behave as normatively expected (e.g., procedurally fair, effectivelly, respecting boundaries, ensuring public safety)

Normative alignment
· Content-independent moral identification with norms and values

Duty to obey
· Horizontal reasoning (consenting to legal directives is mutually beneficial to everyone)
· Vertical reasoning (rule of law is perceived to be homogeneously applied across all social strata)

Life-course process

Figure 2.3: **Theoretical framework used in this thesis**

say that the whole concept of legal cynicism as defined by Sampson and Bartusch is simply the other side of the coin of a normatively grounded sense of duty to obey the law. Legal cynicism is both an individual and a collective attribute that emerges as part of the social fabric of neighbourhoods, whereas I am exclusively assessing individual attitudes towards legal authority. But the specific individual perception of normlessness can be framed as a state in which legal institutions lack the authority to govern.

I assume that public recognition that the law and the legal institutions have authority to govern flows from perceptions that they have the right to rule, when members of the public perceive the ruling power that legal authority exercises as appropriate. Perceptions of power appropriateness refer to content-independent moral identification with norms and values represented by the law, when law-related values are in line with people's moral expectations about what those values should be. This is a key aspect of beliefs that legal authority holds a legitimate claim of power.

What exactly are people's expectations about how power should be exercised is a dif-

ferent matter. The criteria that people use to judge whether legal authority is exercising its ruling power in normatively appropriate ways is an empirical question about *legitimation*. People evaluate specific tasks inscribed in the exercise of power, each of which can be a legitimising factor or not. For instance, members of the public might normatively expect legal institutions to control crime effectively; legal institutions therefore, in this hypothetical scenario, gain legitimacy when people evaluate and expect them to be effective at fighting crime. As discussed above, I frame task-specific evaluations of conduct as *trustworthiness*; in this case, that would mean that the police are trustworthy to act effectively. Encounters between members of the public and representatives of legal agents (e.g., police officers) are therefore crucial moments in the legitimation process, as they can be teachable moments about how legal authority usually exercises its power and the values it represents (Tyler et al., 2014). When people experience, during a direct interaction, power being exercised as they morally expect, this interaction can contribute to the process of legitimation of legal authority.

Legitimation is therefore about trustworthiness. When legal authority is judged as trustworthy to act as normatively expected, people's beliefs of legitimacy are enhanced. One interesting research agenda is therefore investigating what makes power morally justifiable across people from different contexts and social groups (see, e.g., Bottoms and Tankebe, 2012) – i.e., investigating which aspects of perceived trustworthiness in legal authority enhance legitimacy judgements. One hypothesis, based on procedural justice theory, is that perceptions of procedural fairness are legitimising: people's beliefs about the legitimacy of the law and the legal institutions are enhanced when they expect agents of the law to exercise their power with fairness and dignity, make transparent and neutral decisions, and not overstep their authority. But people could have other normative expectations about the exercise of legal power.

Linking this discussion to what Kirk and Papachristos (2011) frame as "legal cynicism," a cultural orientation through which people perceive the law and the legal institutions as unfit and disinterested in ensuring public safety can also be framed as another aspect of police trustworthiness – with a potential impact on public legitimacy judgements. If people's normative expectations about the exercise of legal power involve the provision of protection to a community, their beliefs that legal authority is a legitimate force will be undermined when they evaluate and expect agents of the law to fail in the task of ensuring public safety. As before, I do not claim that the whole concept concept of legal cynicism as defined by Kirk and Papachristos can be captured by the umbrella definition of (dis)trust in the police. But the specific individual assessment that legal institutions fail to provide protection to community residents can be framed as one possible aspect of police trust-

worthiness with a potential undermining effect on legitimacy judgements – I elaborate this argument in Chapter 3.

That said, it is important to build on some of the insights offered by studies on legal cynicism and neighbourhood effects to understand the antecedents of trust in legal authority. People can only judge the behaviour of the law in the context in which they are inscribed, so structural conditions play an important role (Sampson and Wilson, 1995). Residents of disadvantaged communities, where poverty and cases of violence are concentrated, might have distinct expectations about the exercise of legal power. Single encounters with agents of the law might do little to alter pre-existing perceptions among people who feel socially excluded by the legal institutions and who have been socialised to think that the police are racist and abusive – the historical legacy of police mistreatment in over-policed neighbourhoods could therefore influence the degree to which every encounter with the law is a teachable moment (Nagin and Telep, 2020). In the studies that comprise this thesis, I include neighbourhood conditions as key antecedents of police trustworthiness.

Relatedly, it is important to take the matter of time seriously and consider the dynamics of public attitudes towards legal authority as a process that occurs during the life course, as emphasised by studies on legal socialisation. People's experiences with the law during their life course build on perceptions that the law has the authority to govern and the right to rule, as well as task-specific evaluations of legal agents are a reflection of all those cumulative experiences (Tyler and Trinkner, 2017). While encounters with the law can be teachable moments during which people update their beliefs about how legal agents tend to behave, they can also do little to alter judgements about legal authority when the specific experience contradict a lifetime of opposite expectations about the behaviour of the law. Understanding how people develop their normative expectations about the exercise of legal power and their legitimacy judgements is therefore crucial to comprehend the dynamics of legal attitudes.

In this context, some studies suggested that it is naïve to consider that single interactions with law enforcement agents are sufficient to alter historically built attitudes towards legal authority, regardless of the procedural fairness communicated during the encounter (see, e.g., Epp et al., 2014; Bell, 2017; Rios et al., 2020; Nagin and Telep, 2017, 2020). Such scepticism is reasonable, as discussed above, considering the influence of the structural context in which people are inscribed and their life-course process of legal socialisation. However, most of these studies incur some type of misrepresentation of procedural justice theory. First, because they usually emphasise only one aspect of appropriate police behaviour – namely, respectful and fair treatment, even though making transparent

and neutral decisions and respecting authority boundaries are equally important (Trinkner et al., 2018). Second, as I seek to demonstrate throughout this thesis, the theoretical suggestion of procedural justice theory is that the experience and expectation of procedural fairness in the exercise of police power *during the life course* and *taking into account contextual characteristics* boosts legitimacy judgements.

For instance, Rios et al.'s (2020) descriptions of police officers starting interactions with procedural fairness but then engaging in punitive practices in the context of police stop-and-frisk powers should not be treated as evidence against procedural claims, but rather as evidence *for* procedural justice claims. Despite those police officers' first attempt to treat citizens with dignity and respect, they clearly did not communicate procedural justice throughout the interaction, as they did not make open and impartial decisions and overstepped their authority during such punitive practices. Citizens who have received this type of treatment from police officers throughout their life course and who have seen fellow neighbourhood residents receiving this type of treatment would therefore question the appropriateness of the power exercised by legal institutions, thus questioning the legitimacy of legal authority. Evidence brought by Rios et al. therefore *backs* some of the theoretical claims made by procedural justice theory.

This also relates to Bell's (2017) juxtaposition of legitimacy and legal estrangement approaches. According to Bell, the final goal of procedural justice policing is simply fostering voluntary compliance with the law, whereas legal estrangement theory emphasises structurally ensuring social inclusion. However, group inclusion has always been at the heart of procedural justice theory (Lind and Tyler, 1988). Fostering legitimacy judgements across members of the public implies fostering social inclusion – and even though the procedural justice approach does not emphasise collective processes and structural conditions that produce normative expectations about the exercise of legal power, this is by no means contradictory to its theoretical claims. Procedural justice policing is not about punctual fairness on top of punitive and aggressive practices, but about an alternative policing strategy that focuses on officers throughout the life course treating citizens with dignity and respect, making high-quality, impartial, and transparent decisions, and never overstepping their authority; and the point is not short-term changes after a few interactions, but the cumulative effect of several demonstrations of procedural fairness during people's lifetime – which could even lead to structural changes, in the sense of different perceptions of the context.

It is therefore clear that the matter of time is crucial for procedural justice theory, as the focus needs to be on dynamic changes in legal attitudes over time. First, it is important

to understand how legitimacy judgements develop during childhood and adolescence taking a life-course perspective. Second, it is fundamental to assess the degree to which police-citizen encounters lead to changes in police trustworthiness and legitimacy. Third, it is essential to investigate whether changes in trust and legitimacy lead to changes in various behavioural or attitudinal outcomes. The use of longitudinal data, therefore, is crucial to empirically evaluate most of procedural justice theory's claims. The four studies included in this thesis consist of a first stab in this direction: focusing on the role of police (mis)conduct on the dynamics of trustworthiness and legitimacy over time.

Overview of the empirical component

The substantive component of this thesis comprises two single-authored and two jointly-authored papers. Each paper draws on a different analytic strategy using longitudinal survey data that is particularly suitable to address each specific research question about the role of police (mis)conduct on the dynamics of legal attitudes over time. This section briefly outlines these papers, with a focus on the research questions and the relevant panel methods employed to address the matter of change over time. The first paper demonstrates how panel data can be used to model reciprocal relationships (see Allison et al., 2017; Hamaker et al., 2015), which is suitable to examine the overpolicing-underpolicing paradox; the second paper draws on life-course methods and estimates individual developmental trajectories (see Bollen and Curran, 2005; Bianconcini and Bollen, 2018), which are essential to evaluate the legal socialisation process; the third paper shows how longitudinal data are crucial to model change over time (Keele and Kelly, 2006, see), which is fundamental to test the asymmetry thesis of police-citizen contact; and the fourth paper discusses alternative assumptions necessary to draw causal inference with panel data considering the potential outcomes framework (Callaway and Sant'Anna, 2020; Imai et al., 2020), which is essential to assess the impact of aggressive police stops on distrust of legal authority.

Modelling reciprocal relationships to examine the overpolicing-underpolicing paradox

The first paper is a single-authored piece entitled "Violence and coercive policing: dynamics and consequences of the overpolicing-underpolicing paradox in Brazil's largest city" and can be found in Chapter 3. I use data from a three-wave longitudinal survey representative of adults residing in eight neighbourhoods in the city of São Paulo, Brazil, collected by researchers based at the Centre for the Study of Violence of the University of São Paulo (NEV-USP) between 2015 and 2018 – prior to joining LSE to start my PhD, I was part of

the team that designed and coordinated this survey at NEV-USP (for studies using the same data, see Oliveira et al., 2019; Jackson et al., 2022). This paper has been submitted through the revise-and-resubmit process and is currently under second review by the *American Journal of Sociology*.

This paper starts with a paradox commonly reported by neighbourhood ethnographers: communities characterised by constant and aggressive police presence tend also to be characterised by generalised fear of crime and the feeling that law enforcement agents do not provide residents with any type of protection, in what Rios (2011) named the overpolicing-underpolicing paradox (see also Carr et al., 2007; Campeau et al., 2020). I provide a quantitative assessment of this paradox and examine its dynamics and consequences over time in the context of São Paulo neighbourhoods.

Perceived overpolicing is framed as beliefs that officers are repeatedly intruding and harassing neighbourhood residents, while perceived underpolicing is framed as cynicism about the ability of legal institutions to ensure public safety. In line with the qualitative descriptions of the overpolicing-underpolicing paradox found in the literature, I ask whether they are reciprocally related, mutually reproducing each other over time in a type of vicious cycle; I also ask whether they share the same correlates, as an indication that these phenomenon are produced by the same social forces. To address these questions, I employ a cross-lagged panel model (see Figure 3.2), which makes use of the longitudinal structure of the data to model reciprocal relationships. The answer is yes, the dynamics of overpolicing-underpolicing paradox involve a mutual reproduction, with perceptions of overpolicing influencing changes in perceived underpolicing and, simultaneously, perceptions of underpolicing influencing changes in perceived overpolicing, creating a vicious cycle. Both variables are also produced by similar social antecedents, as aggressive police stops, neighbourhood conditions, and some demographic characteristics all predict variation in both perceived police intrusion and cynicism about police protection.

In terms of consequences, I ask whether perceptions of overpolicing and underpolicing could lead to more tolerant attitudes towards the acceptability of the use of violence. The mechanism of this relationship involves diminished judgements about the legitimacy of legal authority: perceptions of police intrusion and cynicism about police protection are premised to damage police legitimacy, which in turn contributes to more favourable views about the use of violence outside the scope of the state (see Jackson et al., 2013). To address this question, I make use of three waves of data and estimate a panel model assessing longitudinal mediation (see Figure 3.3). The answer again is yes, perceptions of both overpolicing and underpolicing seem to undermine legitimacy judgements, which

in turn leads to more tolerance about personal use of violence. With longitudinal data from residents of eight neighbourhoods in São Paulo, I demonstrate that coercive policing strategies based on repeated intrusion are usually accompanied by scepticism about the competency of legal institutions to ensure public safety, with significant implications for people's recognition of the ruling power of legal authority.

Estimating developmental trajectories to evaluate the legal socialisation process

The second paper is entitled "Socialisation through violence: exposure to neighbourhood and police violence and the developmental trajectories of legal legitimacy beliefs among adolescents in São Paulo" and can be found in Chapter 4. I use data from a four-wave, cohort-based longitudinal survey representative of 2005-born students residing in the city of São Paulo, Brazil, between 2016 and 2019, also collected by researchers based at NEV-USP (for studies using the same data, see, e.g., Trinkner et al., 2019; Piccirillo et al., 2021; Komatsu et al., 2020). The survey was coordinated by Renan Theodoro and Debora Piccirillo, who are both co-authors of this paper alongside Jonathan Jackson and Rick Trinkner. I was not part of the research team that coordinated this survey, although I was closely involved with several decisions taken until 2017. This paper was recently submitted and is currently under review at *Criminology*.

This paper is focused on the legal socialisation of adolescents (aged 11 to 14) in São Paulo. Specifically, the domain of interest is the development of judgements about the legitimacy of the law – the degree to which adolescents come to understand the appropriateness of the ruling power of the law and internalise the idea that the law has the authority to dictate appropriate behaviour. To address this, I fit a number of growth curve models drawing on all four waves of data. This type of analytic strategy is appropriate to life-course research, as it allows the estimation of individual developmental trajectories over time for each respondent. While some studies have found little variation over time, suggesting that legitimacy judgements are partly formed at even earlier ages (see also McLean et al., 2019; Nivette et al., 2019), there does seem to be a nonlinear trajectory where adolescents first increase their scores of legal legitimacy until they reach a peak at an average age of 13, after which their perceptions of legitimacy decrease slightly.

Considering the high-crime, low-trust context of São Paulo, I focus on the influence of exposure to violence. In the first paper (Chapter 3), I show that one of the consequences of the overpolicing-underpolicing paradox (via diminished perceptions of legitimacy) involves more tolerant views about the use of violence for private matters; in this paper, I focus on the other end of this relationship and evaluate the degree to which exposure to neigh-

bourhood and police violence undermines the development of legitimacy judgements. The answer is an emphatic yes. While witnessing a police stop does not influence changes in the developmental trajectories of legitimacy, witnessing a police assault is distinctively associated with undermined views about the law. Additionally, witnessing various scenarios involving citizen violence is also associated with damages in the legal socialisation process.

Exposure to a violent environment is particularly harmful to the development of legal legitimacy. Using three-level models to account for school-level variation on top of growth parameters, I demonstrate that adolescents who study at schools where most students are used to seeing cases of violence also have undermined perceptions of the law. By addressing the matter of time and estimating individual developmental trajectories of legal legitimacy among adolescents, I demonstrate that exposure to neighbourhood and police violence can lead to long-term damages in the process of legal socialisation.

Modelling change over time to test the asymmetry thesis of police-citizen contact

The third paper is a co-authored study entitled "Are trustworthiness 'hard to win, easy to lose'? A longitudinal test of the asymmetry thesis of police-citizen contact" that can be found in Chapter 5. I use data from a two-wave longitudinal survey nationally representative of adults residing in Australia in 2008 and 2010. The survey was coordinated by a research team led by Kristina Murphy, who is one of my co-authors alongside Jonathan Jackson and Ben Bradford (for studies using the same data, see, e.g., Bradford et al., 2014; Sargeant et al., 2018). This paper has been published by the *Journal of Quantitative Criminology* (see Oliveira et al., 2021).

The asymmetry thesis of police-citizen contact was first introduced by Skogan (2006), who suggested that poorly-handled interactions between members of the public and law enforcement agents had a stronger potential of undermining public confidence in policing than well-handled encounters of boosting trust. Negative police-citizen contact could be very harmful, but positive contact could at best aim at cutting losses. Yet, the asymmetry thesis is a theory of change, and as such the matter of time needs to be addressed – e.g., it requires longitudinal data to be appropriately tested. To my knowledge, no study has used panel data to test the asymmetry thesis, a surprising gap in the literature.

Drawing on two waves of survey data from Australia and considering police-citizen encounters that happened between both waves, I estimate autoregressive structural equation models comparing the expected changes in police trustworthiness (perceptions of police fairness and effectiveness) and legitimacy (duty to obey the police) between people who

had a positive, neutral, or negative contact with a law enforcement agent and people who had no contact between waves. Results indicate that the dynamic relationship between police contact and changes in legal attitudes is as asymmetric as previously thought when it comes to changes in perceptions of police effectiveness, but not in relation to perceptions of police fairness and legitimacy – in which case outcome and process evaluations of encounters are symmetrically associated with changes. By making use of longitudinal data, this paper supports the idea that police-citizen encounters are "teachable moments" that can either undermine or enhance public attitudes towards legal authority (see Tyler et al., 2014).

Drawing causal inference to assess the impact of police stops on trust in legal authority

The fourth paper is entitled "Aggressive policing and undermined trust in a violent city: assessing the impact of police stops at gunpoint on police trustworthiness in São Paulo, Brazil" and can be found in Chapter 6. I use data from the same three-wave longitudinal survey representative of adults residing in eight neighbourhoods in São Paulo, Brazil, which I helped coordinate prior to starting at LSE. This paper is also a single-authored piece and will be submitted to *Sociological Science* in the coming weeks.

Expanding from the third paper (Chapter 5) on the relationship between police contact and attitudinal change, this paper discusses the plausibility of establishing a *causal* relationship between aggressive police stops and trust in legal authority using panel data. Using the potential outcomes framework and Directed Acyclic Graphs (DAGs, see Morgan and Winship, 2015), I analyse the impact of two treatment (self-reported police stops and police stops at gunpoint) and three outcome variables (attitudinal change in perceptions of police fairness, perceptions of overpolicing, and cynicism about police protection).

In order to assess the relationship between the experience of aggressive policing and public distrust of legal authority, it is important to use modelling strategies that allow for the correct identification of temporal lags and leads. The impact of aggressive policing can have varying duration and different patterns of decay. For instance, it is possible that a single police stop at gunpoint is such a traumatic experience that its effects outlast the period covered by this study; but it is also possible that this experience has just a short-term effect, which can potentially accumulate as people have multiple experiences with the police over time. Crucially, these are theoretical assumptions that need to be made explicit to make causal conclusions. This paper discusses the implications of different treatment dynamic regimes.

The most common analytic approach to infer causal relationships using panel data is the difference-in-differences design, which involves assuming parallel trends – e.g., assuming that trust among individuals who were stopped by the police, had they not been stopped by the police, would have the same rate of change over time as that of individuals who were not stopped by the police. Given that I draw on three waves of data and individuals can report recent police stops at each occasion (i.e., two years before the first wave and at some point between each wave), the ideal design is a multi-period difference-in-differences – whether or not treatment status is allowed to switch over time is one of the topics I explore in the paper.

I review the identification assumptions, present the results, and discuss the plausibility of three multi-period difference-in-difference estimators: two-way fixed effects regression models (Imai and Kim, 2020), a doubly robust estimator considering a staggered treatment adoption (Callaway and Sant'Anna, 2020), and a matching framework for longitudinal data that includes the calculation of the difference-in-differences (Imai et al., 2020). The answer is yes, the experience of aggressive policing seems to have an impact on (dis)trust in legal authority. While it seems unlikely that general police stops damage trust in legal authority in São Paulo over time, being stopped by the police at gunpoint does seem to have a short-term effect on perceived police fairness and a long-term effect on perceived overpolicing.

Bibliography

Allison, P. D., R. Williams, and E. Moral-Benito (2017). Maximum likelihood for cross-lagged panel models with fixed effects. *Socius 3*.

Augustyn, M. B. (2016). Updating perceptions of (in)justice. *Journal of Research in Crime and Delinquency 53*(2), 255–286.

Beetham, D. (1991). *The legitimation of power*. London: Macmillan.

Bell, M. C. (2016). Situational trust: How disadvantaged mothers reconceive legal cynicism. *Law & Society Review 50*(2), 314–347.

Bell, M. C. (2017). Police reform and the dismantling of legal estrangement. *The Yale Law Journal*, 2054–2150.

Bianconcini, S. and K. A. Bollen (2018). The latent variable-autoregressive latent trajectory model: A general framework for longitudinal data analysis. *Structural Equation Modeling: A Multidisciplinary Journal 25*(5), 791–808.

Bolger, P. C. and G. D. Walters (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.

Bollen, K. and P. Curran (2005). *Latent Curve Models: A Structural Equation Perspective*. New Jersey: John Wiley & Sons.

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

Bottoms, A. and J. Tankebe (2017). Police legitimacy and the authority of the state. In A. du Bois-Pedain, M. Ulvang, and P. Asp (Eds.), *Criminal Law and the Authority of the State*, pp. 47–88. Oxford: Hart Publishing.

Bradford, B. (2017). *Stop and search and police legitimacy*. Routledge.

Bradford, B., J. Jackson, and E. A. Stanko (2009). Contact and confidence: Revisiting the impact of public encounters with the police. *Policing & society 19*(1), 20–46.

Bradford, B., K. Murphy, and J. Jackson (2014). Officers as mirrors: policing, procedural justice and the (re)production of social identity. *The British Journal of Criminology 54*, 527–550.

Callaway, B. and P. H. Sant'Anna (2020). Difference-in-differences with multiple time periods. *Journal of Econometrics*. Published online.

Campeau, H., R. Levi, and T. Foglesong (2020). Policing, recognition, and the bind of legal cynicism. *Social Problems*.

Cao, L. and A. Graham (2019). The measurement of legitimacy: a rush to judgment? *Asian Journal of Criminology 14*(4), 291–299.

Carr, P. J., L. Napolitano, and J. Keating (2007). We never call the cops and here is why: A qualitative examination of legal cynicism in three Philadelphia neighborhoods. *Criminology 45*(2), 445–480.

Cohn, E. S., D. Bucolo, C. J. Rebellon, and K. Van Gundy (2010). An integrated model of legal and moral reasoning and rule-violating behavior: The role of legal attitudes. *Law and Human Behavior 34*(4), 295.

Cohn, E. S. and S. O. White (1990). Comparing theories of legal socialization. In *Legal Socialization*, pp. 27–49. Springer.

Coicaud, J.-M. (2002). *Legitimacy and politics*. Cambridge: Cambridge University Press.

Desmond, M., A. V. Papachristos, and D. S. Kirk (2016). Police violence and citizen crime reporting in the black community. *American Sociological Review 81*(5), 857–876.

Desmond, M., A. V. Papachristos, and D. S. Kirk (2020). Evidence of the effect of police violence on citizen crime reporting. *American Sociological Review*.

Eisner, M. P., T. Malti, and D. Ribeaud (2011). Large-scale criminological field experiments: The Zurich project on the social development of children. *Sage handbook of criminological research methods*, 410–424.

Epp, C. R., S. Maynard-Moody, and D. P. Haider-Markel (2014). *Pulled over: How police stops define race and citizenship*. University of Chicago Press.

Fagan, J. and T. Tyler (2005). Legal socialization of children and adolescents. *Social Justice Research 18*(3), 217–241.

Fine, A. and E. Cauffman (2015). Race and justice system attitude formation during the transition to adulthood. *Journal of Developmental and Life-Course Criminology 1*(4), 325–349.

Fine, A., C. Cavanagh, S. Donley, P. J. Frick, L. Steinberg, and E. Cauffman (2017). Is the effect of justice system attitudes on recidivism stable after youths' first arrest? Race and legal socialization among first-time youth offenders. *Law and human behavior 41*(2), 146–158.

Fine, A., C. Cavanagh, S. Donley, L. Steinberg, P. J. Frick, and E. Cauffman (2016). The role of peer arrests on the development of youths' attitudes towards the justice system. *Law and Human Behavior 40*(2), 211–218.

Gau, J. M. (2015). Procedural justice, police legitimacy, and legal cynicism: A test for mediation effects. *Police Practice and Research 16*(5), 402–415.

Geller, A. and J. Fagan (2019). Police contact and the legal socialization of urban teens. *RSF: The Russell Sage Foundation Journal of the Social Sciences 5*(1), 26–49.

Gifford, F. and M. Reisig (2019). A multidimensional model of legal cynicism. *Law and Human Behavior 43*(4), 383–396.

Goffman, E. (1974). *Frame analysis: An essay on the organization of experience.* Harvard University Press.

Gur, N. and J. Jackson (2020). Procedure-content interaction in attitudes to law and in the value of the rule of law. *Procedural Justice and Relational Theory: Empirical, Philosophical, and Legal Perspectives*, 111.

Hagan, J., J. Kaiser, and A. Hanson (2016). The theory of legal cynicism and Sunni insurgent violence in post-invasion Iraq. *American Sociological Review 81*(2), 316–346.

Hagan, J., B. McCarthy, and D. Herda (2020). What the study of legal cynicism and crime can tell us about reliability, validity, and versatility in law and social science research. *Annual Review of Law and Social Science 16*, 1–20.

Hagan, J., B. McCarthy, D. Herda, and A. C. Chandrasekher (2018). Dual-process theory of racial isolation, legal cynicism, and reported crime. *Proceedings of the National Academy of Sciences 115*(28), 7190–7199.

Haldipur, J. (2019). *No place on the corner: The costs of aggressive policing.* NYU Press.

Hamaker, E. L., R. M. Kuiper, and R. P. Grasman (2015). A critique of the cross-lagged panel model. *Psychological methods 20*(1), 102.

Harding, D. J. (2009). Violence, older peers, and the socialization of adolescent boys in disadvantaged neighborhoods. *American sociological review 74*(3), 445–464.

Hough, M., J. Jackson, and B. Bradford (2013). Legitimacy, trust and compliance: An empirical test of procedural justice theory using the european social survey. In J. Tankebe and A. Liebling (Eds.), *Legitimacy and Criminal Justice: an International Exploration*, pp. 326–352. Oxford: Oxford University Press.

Huq, A. Z., J. Jackson, and R. Trinkner (2017). Legitimating practices: revisiting the predicates of police legitimacy. *The British Journal of Criminology 57*, 1101–1122.

Imai, K. and I. S. Kim (2020). On the use of two-way fixed effects regression models for causal inference with panel data. *Political Analysis*.

Imai, K., I. S. Kim, and E. Wang (2020). Matching methods for causal inference with time-series cross-sectional data. Working paper. Available at https://imai.fas.harvard.edu/research/files/tscs.pdf.

Jackson, J. (2018). Norms, normativity, and the legitimacy of justice institutions: International perspectives. *Annual Review of Law and Social Science 14*(1), 145–165.

Jackson, J., M. Asif, B. Bradford, and M. Zakria Zakar (2014). Corruption and police legitimacy in Lahore, Pakistan. *British Journal of Criminology 54*(6), 1067–1088.

Jackson, J. and B. Bradford (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.

Jackson, J., B. Bradford, M. Hough, A. Myhill, P. Quinton, and T. R. Tyler (2012). Why do people comply with the law? Legitimacy and the influence of legal institutions. *British Journal of Criminology 52*(6), 1051–1071.

Jackson, J., B. Bradford, B. Stanko, and K. Hohl (2013). *Just authority?: Trust in the police in England and Wales.* Willan.

Jackson, J., I. Brunton-Smith, B. Bradford, T. R. Oliveira, K. Pósch, and P. Sturgis (2020). Police legitimacy and the norm to cooperate: using a mixed effects location-scale model to estimate the strength of social norms at a small spatial scale. *Journal of Quantitative Criminology*, 1–26.

Jackson, J., M. Hough, B. Bradford, and J. Kuha (2015). Empirical legitimacy as two connected psychological states. In *Trust and legitimacy in criminal justice*, pp. 137–160. Springer.

Jackson, J., A. Z. Huq, B. Bradford, and T. R. Tyler (2013). Monopolizing force? police legitimacy and public attitudes toward the acceptability of violence. *Psychology, Public Policy, and Law 19*(4), 479.

Jackson, J. and J. Kuha (2016). How theory guides measurement: Examples from the study of public attitudes toward crime and policing. In T. S. Bynum and B. M. Huebner (Eds.), *Handbook on Measurement Issues in Criminology and Criminal Justice.* John Wylie.

Jackson, J., K. Pósch, T. R. Oliveira, B. Bradford, S. M. Mendes, A. L. Natal, and A. Zanetic (2022). Fear and legitimacy in São Paulo, Brazil: Police-citizen relations in a high violence, high fear city. *Law & Society Review 56*(1).

Kaiser, K. and M. D. Reisig (2019). Legal socialization and self-reported criminal offending: The role of procedural justice and legal orientations. *Journal of Quantitative Criminology 35*(1), 135–154.

Keele, L. and N. J. Kelly (2006). Dynamic models for dynamic theories: The ins and outs of lagged dependent variables. *Political Analysis 14*(2), 186–205.

Kirk, D. (2016). Prisoner reentry and the reproduction of legal cynicism. *Social Problems 63*(2), 222–243.

Kirk, D. and M. Matsuda (2011). Legal cynicism, collective efficacy, and the ecology of arrest. *Criminology 49*(2), 443–472.

Kirk, D. and A. Papachristos (2011). Cultural mechanisms and the persistence of neighborhood violence. *American Journal of Sociology 116*(4), 1190–1233.

Kirk, D., A. Papachristos, J. Fagan, and T. R. Tyler (2012). The paradox of law enforcement in immigrant communities: Does tough immigration enforcement undermine public safety? *The Annals of the American Academy of Political and Social Science 641*(1), 79–98.

Kirk, D. S. and S. Wakefield (2018). Collateral consequences of punishment: A critical review and path forward. *Annual Review of Criminology 1*, 171–194.

Komatsu, A. V., R. Theodoro, M. Chies-Santos, and M. C. Alvarez (2020). Contacts with police officers and changes in police legitimacy perceptions among Brazilian adolescents over time. *International Annals of Criminology 58*(2), 237–252.

Lind, E. A. and T. R. Tyler (1988). *The social psychology of procedural justice.* Springer Science & Business Media.

Mazerolle, L., S. Bennett, J. Davis, E. Sargeant, and M. Manning (2013). Procedural justice and police legitimacy: A systematic review of the research evidence. *Journal of experimental criminology 9*(3), 245–274.

McCarthy, B., J. Hagan, and D. Herda (2020). Neighborhood climates of legal cynicism and complaints about abuse of police power. *Criminology 58*(3), 510–536.

McLean, K., S. E. Wolfe, and T. C. Pratt (2019). Legitimacy and the life course: An age-graded examination of changes in legitimacy attitudes over time. *Journal of Research in Crime and Delinquency 56*(1), 42–83.

Meares, T. (2017). Policing and procedural justice: shaping citizens' identities to increase democratic participation. *Northwestern University Law Review 111*(6), 1525–1535.

Morgan, S. and C. Winship (2015). *Counterfactuals and Causal Inference: Methods and Principles for Social Research.* New York: Cambridge University Press.

Moule Jr, R. K., B. H. Fox, and M. M. Parry (2019). The long shadow of ferguson: Legitimacy, legal cynicism, and public perceptions of police militarization. *Crime & Delinquency 65*(2), 151–182.

Mulvey, E. P. (2016). Research on Pathways to Desistance [Maricopa County, AZ and Philadelphia County, PA]: Subject Measures, 2000-2010. *MI: Inter-university Consortium for Political and Social Research [distributor].* https://doi.org/10.3886/ICPSR29961.v2.

Murphy, K., L. Hinds, and J. Fleming (2008). Encouraging public cooperation and support for police. *Policing and Society 18*(2), 136–155.

Nagin, D. (2013). Deterrence: A review of the evidence by a criminologist for economists. *Annual Review of Economics 5*(1), 83–105.

Nagin, D. and C. Telep (2017). Procedural justice and legal compliance. *Annual Review of Law and Social Science 13*, 5–28.

Nagin, D. and C. Telep (2020). Procedural justice and legal compliance: A revisionist perspective. *Criminology & Public Policy 19*(3), 761–786.

Nivette, A. E., M. Eisner, T. Malti, and D. Ribeaud (2015). The social and developmental antecedents of legal cynicism. *Journal of Research in Crime and Delinquency 52*(2), 270–298.

Nivette, A. E., M. Eisner, and D. Ribeaud (2019). Evaluating the shared and unique predictors of legal cynicism and police legitimacy from adolescence into early adulthood. *Criminology 58*(1), 70–100.

Oliveira, T. R., J. Jackson, K. Murphy, and B. Bradford (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*, 1003–1045.

Oliveira, T. R., A. R. Oliveira, and S. Adorno (2019). Legitimidade policial: um modelo de mensuração. *Revista Brasileira de Ciências Sociais 34*(100).

Oliveira, T. R., A. Zanetic, and A. Natal (2020). Preditores e impactos da legitimidade policial: testando a teoria da justeza procedimental em São Paulo. *Dados – Revista de Ciências Sociais.* in press.

Papachristos, A., T. Meares, and J. Fagan (2012). Why do criminals obey the law? The influence of legitimacy and social networks on active gun offenders. *The Journal of Criminal Law and Criminology 102*(2), 397–440.

Piccirillo, D., E. García-Sánchez, M. Chies-Santos, and A. Mizutani Gomes (2021). The role of police contact and neighborhood experiences on legal socialization: Longitudinal evidence from adolescents in Brazil. *Journal of Social Issues*.

Piquero, A., J. Fagan, E. Mulvey, L. Steinberg, and C. Odgers (2005). Developmental trajectories of legal socialization among serious adolescent offenders. *Journal of Criminal Law and Criminology 96*(1), 267–298.

Pósch, K., J. Jackson, B. Bradford, and S. Macqueen (2020). Truly free consent? Clarifying the nature of police legitimacy using causal mediation analysis. *Journal of Experimental Criminology*.

Reiner, R. (2010). *The politics of the police.* Oxford University Press.

Reisig, M. D., S. E. Wolfe, and K. Holtfreter (2011). Legal cynicism, legitimacy, and criminal offending: The nonconfounding effect of low self-control. *Criminal Justice and Behavior 38*(12), 1265–1279.

Rengifo, A. F., L. A. Slocum, and V. Chillar (2019). From impressions to intentions: Direct and indirect effects of police contact on willingness to report crimes to law enforcement. *Journal of Research in Crime and Delinquency 56*(3), 412–450.

Rios, V. M. (2011). *Punished: Policing the lives of Black and Latino boys.* NYU Press.

Rios, V. M., G. Prieto, and J. M. Ibarra (2020). Mano suave–mano dura: Legitimacy policing and latino stop-and-frisk. *American Sociological Review.*

Sampson, R. J. (2012). *Great American city: Chicago and the enduring neighborhood effect.* University of Chicago Press.

Sampson, R. J. and D. J. Bartusch (1998). Legal cynicism and (subcultural) tolerance of deviance: the neighborhood context of racial difference. *Law & Society Review 32*(4), 777–804.

Sampson, R. J. and W. J. Wilson (1995). Toward a theory of race, crime, and urban inequality. In J. Hagan and R. D. Peterson (Eds.), *Crime and Inequality*, pp. 37–54. Stanford University Press.

Sargeant, E., K. Murphy, and N. S. Madon (2018). Is dissatisfaction with police inevitable? Testing an integrated model of motivational postures and procedural justice in police-citizen contacts. *Police Practice and Research 19*(2), 125–137.

Schubert, C. A., E. P. Mulvey, and L. Pitzer (2016). Differentiating serious adolescent offenders who exit the justice system from those who do not. *Criminology 54*(1), 56–85.

Sharkey, P. (2018). The long reach of violence: A broader perspective on data, theory, and evidence on the prevalence and consequences of exposure to violence. *Annual Review of Criminology 1*, 85–102.

Skogan, W. (2006). Asymmetry in the impact of encounters with the police. *Policing and Society 16*, 99–126.

Skogan, W. G. (2012). Assessing asymmetry: the life course of a research project. *Policing and Society 22*(3), 270–279.

Skogan, W. G. and S. M. Hartnett (1999). *Community policing, Chicago style.* Oxford University Press.

Slocum, L. A. (2018). The effect of prior police contact on victimization reporting: Results from the police–public contact and national crime victimization surveys. *Journal of Quantitative Criminology 34*(2), 535–589.

Srole, L. (1956). Social integration and certain corollaries: An exploratory study. *American Sociological Review 21*(6), 709–716.

Stuart, F. (2016). *Down, out, and under arrest: Policing and everyday life in Skid Row.* University of Chicago Press.

Sunshine, J. and T. Tyler (2003). The role of procedural justice and legitimacy in public support for policing. *Law and Society Review 37*(3), 513–548.

Tankebe, J. (2009). Public cooperation with the police in Ghana: Does procedural fairness matter? *Criminology 47*(4), 1265–1293.

Tankebe, J. (2013). Viewing things differently: The dimensions of public perceptions of legitimacy. *Criminology 51*(1), 103–135.

Tapp, J. L. and F. J. Levine (1974). Legal socialization: Strategies for an ethical legality. *Stan L. Rev. 27*, 1.

Terrill, W. and M. D. Reisig (2003). Neighborhood context and police use of force. *Journal of*

Research in Crime and Delinquency 40(3), 291–321.

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.

Trinkner, R. and E. Cohn (2014). Putting the "social" back in legal socialization: procedural justice, legitimacy, and cynicism in legal and nonlegal authorities. *Law and Human Behavior 38*(6), 602–617.

Trinkner, R., J. Jackson, and T. R. Tyler (2018). Bounded authority: Expanding "appropriate" police behavior beyond procedural justice. *Law and Human Behavior 42*(3), 280–293.

Trinkner, R., H. Rodrigues, D. Piccirillo, F. E. Gifford, and A. M. M. Gomes (2019). Legal socialisation in Brazil: examining the generalisability of the procedural justice model. *International Journal of Comparative and Applied Criminal Justice 44*(1), 7–27.

Trinkner, R. and T. Tyler (2016). Legal socialization: Coercion versus consent in an era of mistrust. *Annual Review of Law and Social Science 12*, 417–439.

Tyler, T. (2006a). Psychological perspectives on legitimacy and legitimation. *Annual Review of Psychology 57*, 375–400.

Tyler, T. (2006b). *Why People Obey the Law.* Princeton University Press.

Tyler, T. and J. Fagan (2008). Legitimacy and cooperation: why do people help the police fight crime in their communities? *Ohio State Journal of Criminal Law 6*(1), 231–275.

Tyler, T., J. Fagan, and A. Geller (2014). Street stops and police legitimacy: Teachable moments in young urban men's legal socialization. *Journal of Empirical Legal Studies 11*(4), 751–785.

Tyler, T. and Y. Huo (2002). *Trust in the Law: Encouraging Public Cooperation with the Police and the Courts.* New York: Russell Sage Foundation.

Tyler, T. and J. Jackson (2013). Future challenges in the study of legitimacy and criminal justice. In J. Tankebe and A. Liebling (Eds.), *Legitimacy and Criminal Justice: an International Exploration*, pp. 83–104. Oxford: Oxford University Press.

Tyler, T. and R. Trinkner (2017). *Why children follow rules: legal socialization and the development of legitimacy.* New York: Oxford University Press.

Tyler, T. R. (2004). Enhancing police legitimacy. *The Annals of the American Academy of Political and Social Science 593*(1), 84–99.

Tyler, T. R., J. Jackson, and A. Mentovich (2015). The consequences of being an object of suspicion: Potential pitfalls of proactive police contact. *Journal of Empirical Legal Studies 12*(4), 602–636.

Waddington, P. A. (1999). *Policing citizens: authority and rights.* Psychology Press.

Walters, G. D. and P. C. Bolger (2019). Procedural justice perceptions, legitimacy beliefs, and compliance with the law: A meta-analysis. *Journal of experimental Criminology 15*(3), 341–372.

Weber, M. (2004). *Economia e sociedade: fundamentos da sociologia compreensiva*, Volume 2. São Paulo: Editora UnB.

Wiley, S. A., L. A. Slocum, and F.-A. Esbensen (2013). The unintended consequences of being stopped or arrested: An exploration of the labeling mechanisms through which police contact leads to subsequent delinquency. *Criminology 51*(4), 927–966.

Zoorob, M. (2020). Do police brutality stories reduce 911 calls? Reassessing an important criminological finding. *American Sociological Review*.

Chapter 3

VIOLENCE AND COERCIVE POLICING: DYNAMICS AND CONSEQUENCES
OF THE OVERPOLICING-UNDERPOLICING PARADOX IN BRAZIL'S LARGEST
CITY

Thiago R. Oliveira

Abstract

Residents of some neighbourhoods often experience an overwhelming police presence that intrudes
upon their lives, and yet feel unprotected by law enforcement agents who neglect safety provision,
in a process named by the literature the *overpolicing-underpolicing paradox*. In the context of one
of the largest cities in the Global South, this study provides a quantitative assessment of the dy-
namics and consequences of public expectations of overpolicing and underpolicing. Drawing upon a
three-wave longitudinal survey representative of eight neighbourhoods in Sõ Paulo, Brazil, I demon-
strate that perceptions of overpolicing and underpolicing (a) mutually reproduce each other over
time, (b) share similar correlates, most notably related to exposure to structural disadvantage and
aggressive police stops, (c) harm legitimacy judgements by sending negative relational messages of
marginalisation and neglect, and (d) contribute to increased levels of tolerance of violence via un-
dermined legitimacy beliefs. This study provides further evidence that the demand for public safety
in disadvantaged communities does not seem to be solved by policing strategies centred around the
increase of coercive police presence, and highlights the relevance of investigating public-authority
relations in understudied Global South settings.

Keywords:
Overpolicing-underpolicing paradox · Legal cynicism · Legitimacy · Violence · Brazil

Introduction

Ethnographic studies often describe how residents of some neighbourhoods face an overwhelming presence of law enforcement agents in their daily lives. Reports of members of poor communities of colour being repeatedly stopped, questioned, and even harassed by police officers in places like Chicago, Philadelphia, and New York City are not uncommon (Vargas, 2016; Carr et al., 2007; Haldipur, 2019). In some cities in the Global South, although evidence is still scarce, residents of some neighbourhoods also experience frequent scrutiny and abuse from (usually armed) police officers (Steinberg, 2020; Christensen and Albrecht, 2020; Telles and Hirata, 2010). Yet, at the same time, residents of such over-policed neighbourhoods sometimes report high levels of fear of crime and unsafety (Bell, 2016; Campeau et al., 2020). People often feel unprotected by law enforcement agents, suggesting that their over-policed communities are also under-policed: legal institutions make themselves overwhelmingly present in the neighbourhood, but neglect residents and fail to ensure public safety. This is a process that Rios (2011) named the *overpolicing-underpolicing paradox.*

Using a longitudinal survey of adult residents in Brazil's largest city, this study provides a quantitative assessment of the dynamics and consequences of the overpolicing-underpolicing paradox in one of the largest cities in the world. Like several cities in the US, São Paulo is a heterogeneous and extremely unequal metropolitan area (Marques, 2016). In what can be described as an example of the increasing globalisation and outsourcing of some policing tactics commonly adopted in the United States across the Global South, street-level policing is mostly conducted by São Paulo Military Police officers, who are trained for war-like situations and are always (sometimes heavily) armed (Zanetic et al., 2016). People expect law enforcement agents to use violence to wield their power, as the ability of the police to actually use force is tacitly palpable even in routine circumstances (Jackson et al., 2022), and cases of police brutality and excessive use of force are increasingly common (Sinhoretto et al., 2016). Like many other high-fear, low-trust cities with high rates of interpersonal and state-sanctioned violence in the US, São Paulo is a place in the Global South where simultaneous reports of repeated police intrusion and scepticism about police protection are common (Cardia, 1997).

In order to provide a quantitative assessment of the dynamics and consequences of the overpolicing-underpolicing paradox in Brazil's largest city, perceptions of overpolicing are defined as the extent to which law enforcement agents are expected to repeatedly intrude upon the lives of members of the public, whereas perceptions of underpolicing are defined

as the degree to which people view police officers' ability and interest in providing security and protection with scepticism. The study has two parts. I first investigate the dynamics of perceived overpolicing and underpolicing in São Paulo, and then focus on some of their consequences.

Previous ethnographic work suggests that overpolicing and underpolicing consist of two complementary rather than antagonistic features of people's perceptions of neigh-bourhood policing (Rios, 2011; Carr et al., 2007). To demonstrate that quantitatively, I investigate whether perceptions of repeated police intrusion and scepticism about police protection mutually reproduce each other over time. Additionally, to explore the extent to which they are shaped by the same social forces, this study evaluates whether perceptions of overpolicing and underpolicing share similar correlates. I demonstrate how exposure to structural disadvantage (Kirk and Matsuda, 2011) and the experience of aggressive policing practices (Tyler et al., 2015) are associated with increased expectations that officers will both frequently intrude upon people's lives and act carelessly and disinterested in ensuring public safety. Understanding the dynamics of perceived overpolicing and underpolicing is important for tackling a social problem faced by most unequal metropolitan areas, especially in the Global South: namely, that the demand for public safety in disadvantaged communities does not seem to be solved by policing strategies centred around the increase of coercive police presence.

To explore some of the consequences of perceptions of overpolicing and underpolicing, I assess the degree to which they undermine judgements about the legitimacy of the legal institutions. According to procedural justice theory (PJT), members of the public judge the legitimacy of legal authority's claim to power in terms of its normative justification to power and their recognition of such power (Tyler and Jackson, 2014; Bottoms and Tankebe, 2012). Therefore, legal institutions can gain or lose legitimacy depending on whether they communicate citizens that they are trustworthy to exercise legal power in normatively appropriate ways (Huq et al., 2017; Oliveira et al., 2021). In particular, PJT predicts that communicating procedural fairness in public-police interactions (e.g., open and transparent decisions and respectful treatment) enhances public beliefs of police legitimacy, mostly because fair process would send positive identity-related messages of status and value, signalling members of the public that they are valued members of society (Tyler, 2006; Lind and Tyler, 1988).

Yet, recent work shows that other aspects of police behaviour can also send relational messages that enhance or harm police legitimacy (Trinkner et al., 2018). This study demonstrates that, above and beyond perceptions of procedural injustice, perceptions of

overpolicing and underpolicing can also undermine legitimacy judgements. When law enforcement agents repeatedly intrude upon the lives of members of the public and act as if they did not care about protecting them, they send negative identity-related messages of oppression, marginalisation and neglect, all of which communicate people that they are not valued members of society (Mackenzie, 2020; Oliveira and Jackson, 2021). This is particularly concerning in São Paulo, where fear of the police is central to public-authority relations (Jackson et al., 2022; Komatsu et al., 2020). Additionally, this is troublesome because a legitimacy crisis could lead to threats to the state monopoly on the use of violence. Not only can antagonism towards legal agents propel some individuals toward violence (Kirk and Papachristos, 2011), but research shows that failure to recognise legal institutions' right to dictate appropriate behaviour is associated with favourable attitudes towards the use of violence (Jackson et al., 2013). By simultaneously over-policing and under-policing some neighbourhoods, law enforcement agents could undermine legitimacy and contribute to an increase in the levels of tolerance of violence.

Drawing upon unique data from a representative three-wave panel survey of adult residents of eight neighbourhoods in São Paulo (2015-2018), this study seeks to answer questions about the dynamics and consequences of the overpolicing-underpolicing paradox in Brazil's largest city. Do perceptions of overpolicing and underpolicing mutually reproduce each over time? Do they share similar correlates? Do they undermine police legitimacy judgements, above and beyond other known legitimating norms in São Paulo? Do they contribute to increases in public tolerance of violence? Findings of this paper contribute to current research on policing and legitimacy by (i) demonstrating that people perceive the over-policing and under-policing of their communities as two complementary rather than antagonistic features of neighbourhood policing (see Boehme et al., 2022); (ii) showing that, by repeatedly intruding upon the lives of members of the public and neglecting the provision of security and protection, law enforcement agents send relational messages of oppression, marginalisation, and neglect – all of which, above and beyond procedural injustice, weakens the social bonds between the public and legal authority, undermining legitimacy beliefs; and (iii) highlighting the importance of investigating public-authority in other contexts outside the US, especially in the Global South, where several policing tactics centred around increased coercive presence commonly adopted in the US are currently being implemented. In a context where urban violence still directly affects city life (Sharkey, 2018), this study describes how the persistence of the simultaneous over-policing and under-policing of some neighbourhoods contribute to increases in tolerance of violence via harmed legitimacy beliefs.

The paper proceeds as follows. I start discussing dynamics of the overpolicing-

underpolicing paradox, with focus on the conceptual framing of perceptions of repeated police intrusion and scepticism about police protection. I then move on to the discussion on consequences, with focus on undermined legitimacy judgements and tolerance of violence. In the next section, I discuss the São Paulo context and its substantive relevance to the literature on policing and legitimacy. Next, I present the data, methods, and measures. After that, I address the two empirical objectives. First, I examine the dynamics of over-policing and underpolicing. Second, I examine their consequences. Finally, I present the discussion and the conclusions, highlighting (i) the importance of addressing overpolicing and underpolicing issues to research on legitimacy and policing, (ii) the relevance of exploring other aspects of police conduct, beyond procedural fairness, that could also send relational messages and enhance or harm legitimacy judgements, and (iii) the urgency of investigating public-authority relations in understudied Global South settings.

Dynamics of the overpolicing-underpolicing paradox

> "This is the process I refer to as the overpolicing-underpolicing paradox. Policing seemed to be a ubiquitous part of the lives of many of these marginalized young people; however, the law was rarely there to protect" (Rios, 2011, pp. 64-65)

In an in-depth study based on direct observations, Rios (2011) describes how policing is a common part of the lives of young African American and Latin boys in three neighbourhoods in Oakland, California. They have numerous and frequent interactions with officers, recognise police hotspots in the community, hear of friends getting arrested; policing is somehow always present in their daily lives. Similarly, but in the context of New York City when the stop-and-frisk policy was at its peak, Haldipur (2019) reports how residents of racial minority communities in the Southwest Bronx often experience multiple police stops a week, with officers constantly intruding upon their private lives. Policing is so deep-seated in some neighbourhoods' culture that police behavior becomes predictable and manipulable. For instance, Stuart (2016) shows that "copwise" residents of Los Angeles' Skid Row use this acquired wisdom and engage in public behaviours in such a way so as to avoid police scrutiny.

These are just a few examples of ethnographic evidence on over-policed neighbourhoods, where the state becomes deeply present in residents' everyday lives via punitive social control (Rios, 2011, p. 35). At the same time, residents of such neighbourhoods sometimes report precisely the opposite as well: state neglect. In the same over-policed

communities in New York, Haldipur (2019) describes how residents feel like their neighbourhoods are not safe because police do not ensure public safety. (Campeau et al., 2020, p. 9) also show how recently arrested suspects in Cleveland feel neglected by law enforcement "precisely when they are most in need of police response". An 18-year-old girl from Philadelphia interviewed by Carr and colleagues summarises this perception of constant police intrusion combined with scepticism about police protection: "I see cops so often in my neighbourhood, but when I see something bad going on, I look around and say 'where are the cops?' " (Carr et al., 2007, pp. 458-459).

This is a paradox: neighbourhoods can be characterised by both an excessive presence of police officers and malign neglect by those same officers. What Rios (2011) has named the overpolicing-underpolicing paradox involves intrusive and aggressive policing on a daily basis, and yet no assurance of public safety; underserved and economically marginalised communities experiencing an overwhelming police presence that intrudes upon their lives but does very little to protect them and limit crime within their community. This scenario is often described in large and highly unequal urban centres in the US, such as Philadelphia (Carr et al., 2007), New York City (Haldipur, 2019), and Chicago (Shedd, 2015), but also in several places in the Global South such as Uttar Pradesh, India (Jauregui, 2016), Durban, South Africa (Cooper-Knock, 2014), and Brazil's largest city, São Paulo (Willis, 2009; Telles and Hirata, 2010).

In this study, I investigate the dynamics of the overpolicing-underpolicing paradox in São Paulo by assessing the extent to which perceptions of repeated police intrusion and scepticism about police protection reproduce each other over time, creating a vicious cycle. To my knowledge, the reciprocal relationship between perceived overpolicing and underpolicing is yet to be assessed by the literature. I also ask whether they share the same correlates, in an indication that both phenomena are produced by similar social forces – such as structural disadvantage (Kirk and Matsuda, 2011) and exposure to abusive policing (Kane, 2005). I now explore how I conceptually frame perceptions of overpolicing and underpolicing in relation to existing concepts and previous research on legal cynicism and procedural justice.

Perceived underpolicing as scepticism about police protection

One's perceptions of an under-policed neighbourhood are related to their beliefs that legal institutions frequently neglect residents by failing to provide the community with minimum public needs, such as public safety and security. Perceived underpolicing therefore refers to public scepticism about police protection, to the degree to which an individual judges

police officers to be (un)trustworthy to ensure public safety in their communities.

Perceptions of legal institutions, the police in particular, as unresponsive, unfit and ill-equipped to ensure public safety have been previously framed as *legal cynicism* by Kirk and Papachristos (2011), who conceived of it as a cultural frame through which people believe that legal agents are not willing to allocate legal resources to ensure the protection of members of a community (see Hagan et al., 2020).[1] Legal cynicism is a cultural, neighbourhood-level attribute: through social interaction, it becomes part of the social fabric of neighbourhoods as people develop a shared orientation through which they make sense of the functioning of the law and the legal institutions (Kirk, 2016; Kirk and Matsuda, 2011).

This cultural frame is produced by exposure to structural disadvantage and to aggressive and abusive policing. According to Kirk and Papachristos, cultural tools emerge as an adaptation to neighbourhood structural conditions (Sampson and Wilson, 1995): in socially and economically disadvantaged neighbourhoods, people develop a shared understanding that legal institutions will not provide them with any type of security (Kirk and Papachristos, 2011, p. 1198). Cynicism toward legal authority is therefore fostered in neighbourhoods where most residents are exposed to pervasive segregation and economic subjugation (Sampson and Bartusch, 1998; Hagan et al., 2018). Similarly, neighbourhood variation in the way justice is administered influences legal cynicism, particularly repeated police harassing behaviour and insufficient and ineffective crime control (Kirk and Papachristos, 2011; Kubrin et al., 2010; McCarthy et al., 2020). Residents then adapt to their neighbourhood conditions and develop a cultural tool through which they interpret the functioning and viability of the law and the police, especially in terms of their (il)legitimacy, (un)responsiveness, and (in)ability to ensure public safety (Kirk and Matsuda, 2011; Hagan et al., 2020).

In this study, I conceptually frame individual perceptions of underpolicing as feelings of lack of police protection and scepticism about the legal institutions' ability to ensure public safety in their neighbourhood. This is similar and partially overlapping with Kirk and Papachristos's definition of legal cynicism. It is therefore reasonable to expect that, like

---

[1]Kirk and Papachristos built on, but departed from an early conception of legal cynicism, developed by Sampson and Bartusch (1998), that focused on social norms. Sampson and Bartusch, p. 782 drew on the Durkheimian notion of anomie to define legal cynicism as "a state of normlessness in which the rules of the dominant society (and hence the legal system) are no longer biding in a community". This definition of legal cynicism has been widely used by the social sciences, including studies on topics such as neighbourhood culture (Sampson, 2012; Kirk, 2016), police-citizen relations (Reisig et al., 2011; Gau, 2015; Moule Jr et al., 2019), and legal socialisation (Fagan and Tyler, 2005; Fine and Cauffman, 2015; Nivette et al., 2019; Piquero et al., 2005; Schubert et al., 2016; Trinkner and Cohn, 2014).

legal cynicism, exposure to structural disadvantage and to aggressive and abusive policing will also inform people's perceptions of underpolicing. However, albeit similar concepts, perceived underpolicing and legal cynicism are not the same. On the one hand, legal cynicism encompasses views about both the law and the legal institutions and involves conceiving it as both an individual and a neighbourhood-level attribute. Put another way, legal cynicism is a cultural tool. On the other hand, perceived underpolicing relates to individual perceptions of the neighbourhood, with focus on expectations of police behaviour. Perceived underpolicing is therefore an assessment of police conduct related to officers' ability and interest in providing residents with protection and security.

As a task-specific assessment of police behaviour, perceived underpolicing can be framed as one aspect of police (un)trustworthiness. According to research on procedural justice and legitimacy, police trustworthiness is an umbrella concept that refers to the degree to which people believe officers are trustworthy to behave in a certain way (Oliveira and Jackson, 2021). Perceived underpolicing is therefore related to the extent to which officers are seen as *untrustworthy* to ensure public safety and protection.

Perceived underpolicing is also not the same as perceived police effectiveness, which is related to evaluations of police performance and instrumental expectations about officers' ability to deliver positive results in terms of regular police work (e.g., responding to emergency calls, conducting criminal investigations, handling police station services, etc.). Perceptions of police effectiveness refer to the extent to which people judge officers to be trustworthy to effectively perform their duties (Sunshine and Tyler, 2003). In contrast, perceived underpolicing refers to public expectations that law enforcement agents do not care about providing security and protection, and is related to negative relational messages of marginalisation and neglect (Mackenzie, 2020).

Perceived overpolicing as perceptions of repeated police intrusion

Perceptions of an over-policed environment relate to beliefs that police officers repeatedly intrude upon the lives of people in a neighbourhood, harassing residents, giving too much attention to petty illegalities, and acting as if they were above the law. It is linked to an excessive authority presence: the state makes itself present, but over-regulates public behaviour and constantly overstep their authority (Sharkey, 2018). An over-policed neighbourhood could send negative identity-related messages of exclusion, oppression and marginalisation to neighbourhood residents (Mackenzie, 2020), who would then perceive the role of the police not in terms of protection and security, but in terms of confrontation and interference.

Perceptions of overpolicing could lead to antagonistic views about legal authority. For instance, in the context of police stops in New York City, Tyler, Fagan, and Geller (2014, p. 766) show that "more police intrusion of any type in the lives people in the neighbourhood was linked to lower legitimacy." Recent studies in PJT have focused on pitfalls of perceptions of police intrusion based on the concept of *bounded authority.* (Trinkner et al., 2018, p. 4) suggest that "increased intrusion by legal authorities can be in-and-of-itself delegitimizing." When officers act within normative boundaries of power, they send positive identity-related messages of agency and autonomy; in contrast, when people perceive officers to constantly overstep their authority, people's recognition of legal institutions as the rightful authority is undermined (Huq et al., 2017; Trinkner et al., 2018).

As another task-specific assessment of police behavior, the extent to which people see police as trustworthy to act within normative boundaries of power is a product of people's lifetime experiences with legal agents (Tyler and Trinkner, 2017). The idea is that every encounter with a law enforcement agent is a teachable moment about values legal institutions represent, where people judge the appropriateness of the exercise of power (Tyler et al., 2014; Oliveira and Jackson, 2021). Police-citizen encounters where officers overstep their authority would therefore increase people's expectations that officers tend to overstep their authority (Trinkner et al., 2018).

Additionally, previous research on neighbourhood effects suggests that neighbourhood variation in policing is a product of structural conditions of neighbourhoods (Kirk and Matsuda, 2011), with residents of more disadvantaged places receiving substantially more police scrutiny (Sharkey, 2018; Shedd, 2015). For instance, based on systematic social observation of police in Indianapolis, Indiana, and St. Petersburg, Florida, Terrill and Reisig (2003) showed that police officers tend to use high levels of force more frequently in disadvantaged neighbourhoods. In São Paulo, 15% of the city districts – all of which are characterised by structural disadvantage and racial diversity – accounted for 50% of all cases of police lethality in 2014 (Sinhoretto et al., 2016). Residents of some neighbourhoods could therefore expect police officers to repeatedly intrude upon their lives to a greater extent than residents of other – more affluent and less ethnically diverse – communities.

In this study, I conceptually frame individual perceptions of overpolicing as perceptions of repeated police intrusion, which speaks to expectations that officers will constantly interfere in the lives of neighbourhood residents, overstepping their authority and behaving as if they were above the law.[2] It is reasonable to expect shifts in perceptions of overpolic-

---

[2]This is similar and partly overlapping with Trinkner and colleagues' definition of bounded authority.

ing after police-citizen encounters, in particular aggressive and intrusive police stops that signal oppression and marginalisation. Similarly, considering how variation in policing is informed by neighbourhood structural conditions (Kirk and Matsuda, 2011), it is reasonable to expect that residents of more structurally disadvantaged neighbourhoods perceive their communities to be more over-policed than residents of other neighbourhoods. As another task-specific assessment of police conduct, perceived overpolicing can also be framed as one aspect of police (un)trustworthiness: it refers to the extent to which officers are seen as untrustworthy to refrain from repeatedly intruding upon the lives of neighbourhood residents.

Consequences of the overpolicing-underpolicing paradox

Police legitimation and delegitimation

The legitimacy of an authority figure can be defined as the recognition of its right to govern (Coicaud, 2002; Beetham, 1991). Applied to legal institutions, this implies that it is the citizens, who are subject to the power of the law, who judge legal authority's claim to power (Jackson and Bradford, 2019). Such empirical judgements generally refer both to the normative justification of legal power – i.e., to the extent to which citizens believe that legal agents share their normative values about the appropriate exercise of legal power – and to the recognition of such power – i.e., whether citizens accept the law's rightful authority to rule (Tyler, 2006; Tyler and Jackson, 2014).

Therefore, to gain legitimacy, agents of the law need to communicate citizens that they share and respect public normative expectations about the proper exercise of legal power. To the extent that people believe that law enforcement agents are trustworthy to exercise their power in normatively appropriate ways (i.e., when legal authority is seen to respect key legitimating norms), their judgements about the legitimacy of the law and the legal institutions are enhanced (Trinkner et al., 2018; Oliveira et al., 2021). What exact criteria people use to judge the normative appropriateness of the exercise of authority is an empirical question (Trinkner, 2019), and expectations about how power should be yielded tend to be a product of exposure to structural conditions and lifetime experiences with the law (Oliveira and Jackson, 2021).

Concerns about bounded authority are individual perceptions about officers overstepping their authority, which sends messages of agency and autonomy. In contrast, perceived overpolicing is about perceptions of the context; it refers to the degree to which people feel their neighbourhood is over-policed, which signals oppression and marginalisation.

According to PJT, legal institutions build legitimacy in the eyes of those who are asked to abide when they exercise their power with fairness in the procedures. This essentially means legal agents using their power in a way that emphasises high-quality interpersonal treatment (treating citizens with respect and dignity) and decision-making (making decisions in open, transparent, and neutral ways, and taking citizens' concerns into account) (Tyler, 2006; Sunshine and Tyler, 2003). The reason why procedural fairness would be central to boosting legitimacy judgements is twofold: first, it is predicted to be a legitimating norm, in that people would normatively expect power to be exercised with fairness; second, because fair process communicates status and value, signalling citizens that they are valued members of society and therefore strengthening the social bonds between individuals, authority figures, and the superordinate group that legal institutions represent (Lind and Tyler, 1988; Tyler and Huo, 2002). Empirically, beliefs about police officers' procedural fairness are generally found to be strongly associated with police legitimacy (see Jackson, 2018, for a review of the international literature), including in Global South settings such as Brazil (Jackson et al., 2022; Piccirillo et al., 2021; Oliveira et al., 2020).

Yet, there could be other aspects of police conduct beyond procedural fairness that potentially enhance or undermine public judgements about the legitimacy of the law and the legal institutions, both because there could be other legitimating norms (i.e., people could have other normative expectations about the proper exercise of legal power) and because other aspects of police conduct could also send identity-related messages about citizens' relationship with legal authority. Previous research has suggested that perceptions of bounded authority (Trinkner et al., 2018) and, in some high-violence and low-trust contexts, police effectiveness (Tankebe, 2009; Bradford, 2014; Theodoro de Oliveira et al., 2022) also play a role in legitimising public views of the legal institutions. In this study, I assess whether perceptions of overpolicing and underpolicing also contribute to undermine legitimacy beliefs, which is yet to be assessed by the literature, particularly in high crime cities in the Global South where the overpolicing-underpolicing paradox is so deep-seated, like São Paulo.

Overpolicing and underpolicing signal negative identity-related messages

Tyler's relational account of police legitimacy is grounded on the group value model and the group engagement model (Lind and Tyler, 1988; Tyler and Huo, 2002), which highlight the importance of identity-relevant normative police conduct. Essentially, legal agents enhance public legitimacy beliefs by showing people that they are a valued part of the group legal authority represents. This is neatly summarised by Brinkmann (2020, p. 1203) in his

review of Applbaum's (2019) book on legitimacy: '...*we are ruling over you, but you are part of this we.*'

The expectation underlying this study is that the over-policing and under-policing of some communities send negative identity-related messages – i.e., when police officers repeatedly intrude upon the lives of citizens and fail to ensure public safety in some neighbourhoods, they contribute to a state wherein people do not feel like they are '*part of this we.*' I build on Mackenzie's (2020) point that messages of oppression, marginalisation, and neglect have special moral significance, as they can potentially shape people's identities, autonomy, and sense of self-respect. When legal agents exercise legal power in the form of 'naked coercion,' sending messages of denigration, suspicion, control and neglect, they can contribute to a sense of otherness and group exclusion, weakening the social bonds between individuals and legal authority.

When police officers repeatedly stop and search members of the public, pay too much attention to petty illegalities, act as if they were above the law and generally overwhelm people with intrusive police presence, they could pass on messages of oppression and denigration; similarly, whey they fail to ensure public safety, act as if they were disinterested in providing communities with protection and security and generally fail to care about people's welfare, they could pass on messages of marginalisation and neglect. Above and beyond positive relational messages via procedural justice policing, law enforcement agents can therefore send negative relational messages via overpolicing and underpolicing, and as such contribute to delegitimise the law and the legal institutions.

Tolerance of personal use of violence

There are several reasons why undermined judgements of police legitimacy could be harmful to legal institutions. Previous work has identified several socially desirable consequences of police legitimacy, including greater levels of (self-reported) voluntary compliance with the law (Papachristos et al., 2012; Jackson et al., 2012) and willingness to proactively cooperate with the police (Murphy et al., 2008; Kirk et al., 2012; Jackson et al., 2020) and empower the police (Sunshine and Tyler, 2003). On the other hand, disbeliefs in the legitimacy of the police are associated with violent crime (Kane, 2005; Kirk and Papachristos, 2011) and public acceptance of violence "to protect oneself, violence to take revenge and resolve disputes, and violence to achieve certain political objectives" (Jackson et al., 2013, p. 481). When people believe the legal institutions have the rightful monopoly of the use of force in society, they believe it is morally wrong to privately use violence for social control or social change purposes.

The delegitimation of legal institutions could, therefore, lead to more tolerance about the use of violence outside the scope of the state. If people think it is morally acceptable to use violence to solve private and public conflicts in lieu of law enforcement agencies. (see Black, 1983), this could signal a legitimacy crisis.[3] Favourable views about the use of violence outside the limits imposed by legal authority, by their very nature, constitute a threat to the claims by the state of monopoly on the legitimate use of violence.[4] By constantly intruding upon the lives of citizens and, at the same time, failing to ensure public safety, law enforcement agents could, therefore, contribute to undermine public beliefs about the legitimacy of the police, which in turn could lead to greater levels of tolerance of violence.

Police-citizen relations in São Paulo, Brazil

With 12 million residents in the municipality alone and 18 million in the metropolitan region, the city of São Paulo has a larger population than most states in the US. In most neighbourhoods, rule of law is present and legal institutions function properly as in any other Western context. However, organised crime has increasingly become more bureaucratised, creating a threat to state legitimacy: in several communities across the city, criminal governance has started to claim legitimacy and occupy a power vacuum where the state has been negligent (Manso and Dias, 2018). Specifically, the Primeiro Comando da Capital (PCC), a powerful prison gang and the leading case of prison-based criminal governance, governs extensively, ruling large urban populations across enormous swaths of territory (Lessing and Willis, 2019). Areas dominated by the PCC are imposed their own set of rules and procedures – which include, for instance, the prohibition of killings (Dias and Darke, 2016; Lessing and Willis, 2019). Previous work suggests that the emergence of the PCC as an entity claiming the monopoly of the use of violence in some neighbourhoods is partly responsible for the huge drop in the city's homicide rates in the 21st century (Biderman et al., 2018; Manso, 2016).

While residents of several areas in the city are neglected by an absent state and

---

[3]People can accept the use of violence for a variety of reasons: as a substitute for legal institutions, as a form of self-help (Black, 1983), to achieve political goals (Tilly et al., 2003), as a form gender and family dominance (Caprioli and Boyer, 2001), among others. In this study, I mainly focus on the first aspect, the use of violence to solve private and public issues where legal institutions have presumably failed to intervene.

[4]It should be noted, however, that this study is concerned with public attitudes towards the acceptability of the use of violence, not actual violent behaviour. Inasmuch as moral shifts in the support for the use of violence could be harmful to the state, this study does not claim that this alone could damage judgements about the legitimacy of the state.

have to live with the constant threat of a criminal organisation's claim of power, legal authority makes itself present in the lives of most citizens with an overwhelming presence of its coercive arm. Street-level policing is mostly conducted by the São Paulo Military Police (PMSP), a highly militarised organisation that officially belongs to the Armed Forces (Muniz et al., 2001) and has approximately 83,000 sworn officers (a rate of one officer for every 530 residents in the state of São Paulo[5]). Every police officer always carries a firearm, and it is not uncommon for them to both threat and sometimes actually use force (Pinc, 2007), which is often excessive and not rarely lethal. For instance, out of the more than 8 thousand violent deaths in the city in 2020, almost 10% were police killings.[6] Despite the recent drop in the city's overall homicide rates, the annual average number of killings by police officers on duty remained relatively stable in the 21st century (Sinhoretto et al., 2016).

Reflecting patterns of social inequality and exclusion in São Paulo, police brutality mostly targets young black men who live in economically deprived neighbourhoods. For instance, Sinhoretto et al. (2016) showed that the odds of young people being victimised by police forces are 10.5 times larger than that of adults and elders, and that non-white citizens are 78% more likely to be killed by law enforcement agents than their white counterparts. Probably as a consequence, fear of the police is high, and a public image of the institution as "just violent another gang" has cultural currency (Jackson et al., 2022).

The spatial concentration of police violence mirrors the epidemic levels of violence in the city (Cardia, 2017). While the average homicide rate across the city is just under 10 per 100,000 residents, in some disadvantaged communities this rate reaches 20/100k, whereas several other communities have a rate of virtually zero. Most homicides happen in the poorest areas of the city (Lotufo and Bensenor, 2009), with young non-white citizens defining the most common demographic profile of the victims (Nery et al., 2019).

In this context, public support for authoritarianism has increased over the past years,[7] including tolerant views about use of violence and threats to the rule of law (Adorno, 2013). Public-authority relations are marked by strong negative attitudes towards legal institutions. Previous studies have shown that Brazilians tend to distrust the police (Silva and

---

[5]The PMSP is the police department in charge of street-level policing in the whole state of São Paulo, not just the city. For comparison purposes, the Chicago Police Department has approximately 12,000 sworn officers and a rate of one officer for every 220 residents, and the Philadelphia Police Department has approximately 6,300 sworn officers and a rate of one officer for every 250 residents.

[6]Anuário Brasileiro de Segurança Pública 2021, available at https://forumseguranca.org.br/wp-content/uploads/2021/07/anuario-2021-completo-v6-bx.pdf.

[7]"Medo da violência e o apoio ao autoritarismo no Brasil: índice de propensão ao apoio a posições autoritárias", Fórum Brasileiro de Segurança Pública (2017), https://forumseguranca.org.br/wp-content/uploads/2019/04/FBSP_indice_propensao_apoio_posicoes_autoritarios_2017_relatorio.pdf.

Beato, 2013; Oliveira Junior, 2011) and other legal institutions (Filgueiras, 2013; Ceratti et al., 2015), and to fear police officers (Jackson et al., 2022). A considerable proportion of the Brazilian society tolerates police brutality, and are actually in favour of it as long as it is targeted at the marginal and the excluded (Caldeira, 2002). Overall, while the magnitude of the social problems related to violence, inequality and distrust is probably larger in São Paulo, the nature of such issues is not too distinct from some low-trust, high-crime contexts in large US cities, such as Chicago (Vargas, 2016; Shedd, 2015) or Philadelphia (Carr et al., 2007).

Police legitimacy in São Paulo as a coercive-consensual continuum

Police legitimacy judgements are defined as beliefs about power appropriateness of the police and the normative recognition of legal authority as the rightful authority. In a study about the nature of police legitimacy in São Paulo, Jackson et al. (2022) asked whether a clean differentiation between normative and instrumental police-citizen relations could be identified. The standard approach is to distinguish the two motivations to comply with the law, where a normative motivation is related to a sense of duty to obey the police even when in disagreement with their commands, while an instrumental motivation is related to fear-based obedience. Empirical data often suggests that these are indeed two separate constructs, albeit negatively correlated (Pósch, 2021). But in the context of São Paulo, the authors show that the two motivations could not be empirically differentiated and rather formed one bipolar scale moving from instrumental to normative.

Combining survey indicators of normative alignment with the police, fear of the police, a binary indicator asking whether people believed they should obey the police when even they believed officers were wrong, and a follow-up open-ended question asking people's motivations (not) to obey the police, the authors developed what they labelled a 'coercive-consensual continuum.' People who fell on the coercive side of the continuum tended to fear police, believed that officers usually act in normatively inappropriate ways, and reported an instrumental obligation to obey officers; people in the middle of the scale exhibited an ambivalent mix of both instrumental and normative connections to the police; finally, people in the consensual side of the continuum had normative connections based on a lack of fear of police, the belief that officers act in normatively appropriate ways, and the belief that police have rightful authority (Jackson et al., 2022).

This speaks to the nature of public-authority relations in Brazil, and in particular echoes the style of policing tactics in São Paulo, which often combine consensual and coercive elements, with the possibility of use of force often palpable, even in relatively routine

public-police interactions. In this study, I build on this previous work and operationalise judgements about police legitimacy as a coercive-consensual continuum. To assess the degree to which undermined legitimacy beliefs mediate the association between overpolicing and underpolicing and tolerance of violence in Sõ Paulo neighbourhoods, I investigate whether perceptions of repeated police intrusion and scepticism about police protection are more associated with instrumental or normative connections to legal institutions – the overpolicing-underpolicing paradox could contribute to a legal socialisation through which people are socialised to expect an intrusive presence of police officers in their lives, whom they learn they should fear and not count on for protection, and thus it could enhance the fear-based of the coercive-consensual continuum.

Current study

In the present study, I investigate the dynamics and consequences of the overpolicing-underpolicing paradox in the context of eight neighbourhoods in São Paulo. First, to investigate whether perceptions of repeated police intrusion and widespread scepticism about police protection form two complementary rather than antagonistic features of neighbourhood policing, I explore the degree to which they mutually reproduce each other over time, and whether they share similar correlates. Second, I investigate the consequences of perceptions of overpolicing and underpolicing and explore whether they contribute to undermine public recognition of the law enforcement agencies' right to enforce the law, which in turn could lead people to morally accept the use of violence. Figure 1 translates the argument into a conceptual model.

First, dynamics of the overpolicing-underpolicing paradox. I rely upon both the legal cynicism and the procedural justice literatures to investigate the predictors of perceptions of overpolicing and underpolicing. Legal cynicism is a cultural frame partly produced by neighbourhood structural disadvantage and neighbourhood variation in police behaviour (Kirk and Papachristos, 2011), and is closely related to public scepticism about the legal institutions' ability to ensure public safety. Individuals who are more exposed to structural disadvantage and to abusive policing should therefore have higher average scores of perceived underpolicing. Similarly, aggressive public-police interactions that signal oppression and marginalisation could increase people's expectations that officers will repeatedly interfere in the lives of neighbourhood residents (Oliveira and Jackson, 2021). Additionally, considering how variation in policing is informed by neighbourhood structural conditions as well (Kirk and Matsuda, 2011), residents of some communities probably perceive their environment to be more over-policed than residents of other neighbourhoods. Therefore,
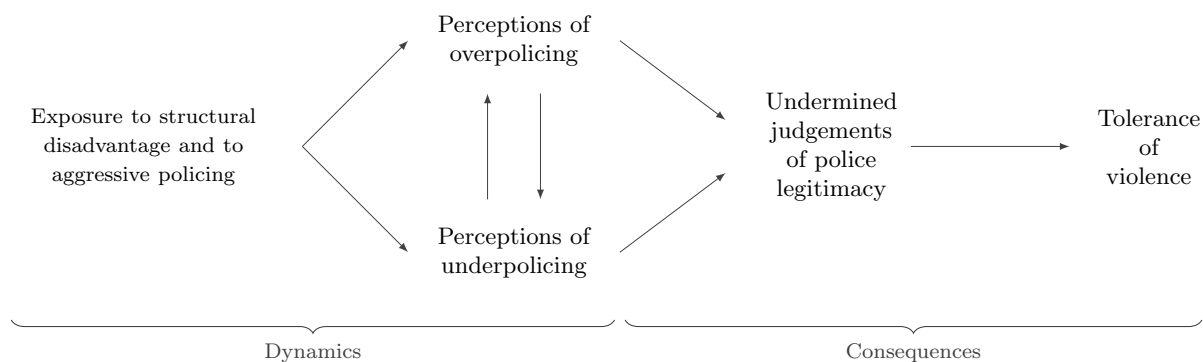
Figure 3.1: **A conceptual model of the dynamics and consequences of the overpolicing-underpolicing paradox**

individuals who are more exposed to structural disadvantage and to abusive policing should have higher scores of perceived overpolicing.

- **Hypothesis 1.1**: Residents of neighbourhoods characterised by more structural disadvantage have higher average scores of perceived underpolicing.

- **Hypothesis 1.2**: Residents of neighbourhoods characterised by more structural disadvantage have higher average scores of perceived overpolicing.

- **Hypothesis 1.3**: The experience of an aggressive police stop is associated with increases in perceived overpolicing.

- **Hypothesis 1.4**: The experience of an aggressive police stop is associated with increases in perceived underpolicing.

Still focused on the dynamics of the overpolicing-underpolicing paradox, I build on the ethnographic evidence from previous work (e.g., Rios, 2011; Carr et al., 2007) and examine whether overpolicing and underpolicing are complementary rather than antagonistic features of policing in some neighbourhoods. Public expectations that police officers will repeatedly intrude upon the lives of neighbourhood residents could increase the perceptions that law enforcement agents neglect people in their community; but, likewise, public scepticism about the ability of legal institutions to ensure public safety could be associated with beliefs that officers constantly overstep their authority. My hypothesis is that perceptions of overpolicing and underpolicing reproduce each other over time, somewhat following the logic of a vicious cycle. Making use of longitudinal data from eight neighbourhoods in São Paulo, I assess the extent to which changes in perceived overpolicing and underpolicing are reciprocally related.

- **Hypothesis 1.5**: Changes in perceived overpolicing are positively associated with changes in perceived underpolicing.

- **Hypothesis 1.6**: Changes in perceived underpolicing are positively associated with changes in perceived overpolicing.

The second part focuses on the consequences of the overpolicing-underpolicing paradox. My hypothesis is that perceptions of overpolicing and underpolicing undermine public beliefs about the legitimacy of legal institutions. The rationale here is twofold. First, I anticipate that overpolicing and underpolicing consist of (de)legitimatising norms: people normatively expect legal power to be exercised without the twin harms of excess and neglect. Second, overpolicing and underpolicing send negative identity-related messages of marginalisation and carelessness which could signal to members of the public that they do not belong to the superordinate group that legal institutions represent (Mackenzie, 2020). The context is the city of São Paulo, where policing's governing principle involves unduly coercion, so police legitimacy is measured as a coercive-consensual continuum (Jackson et al., 2022). In order to test this set of hypotheses, the association between overpolicing and underpolicing and police legitimacy beliefs need to be adjusted for other known legitimating norms in the context, such as perceptions of procedural fairness and police effectiveness (Oliveira et al., 2020).

- **Hypothesis 2.1**: Perceived overpolicing is negatively associated with police legitimacy judgements, net of perceptions of procedural fairness and police effectiveness.

- **Hypothesis 2.2**: Perceived underpolicing is negatively associated with police legitimacy judgements, net of perceptions of procedural fairness and police effectiveness.

Still in the second part of the study, I investigate one further consequence of the overpolicing-underpolicing paradox: tolerance of violence. My goal is to assess whether perceptions of overpolicing and underpolicing influence shifts in public attitudes towards the acceptability of violence, and specifically whether this relationship is mediated by changes in legitimacy judgements. Fear of the police and rejection of its authority might lead people to believe that legal institutions do not hold the monopoly of the legitimate use of force, whereas a normatively grounded acceptance of legal authority as the rightful authority might lead people to believe that only the state should be allowed to use violence in any circumstance (Jackson et al., 2013). I make use of three waves of longitudinal data to assess the indirect effects of perceptions of overpolicing and underpolicing on tolerance of violence via changes in police legitimacy.

- **Hypothesis 2.3**: Police legitimacy judgements longitudinally mediate the association between perceptions of overpolicing and underpolicing and tolerance of violence.

Data and methods

I draw upon data from a three-wave population-based survey representative of residents of eight neighbourhoods in São Paulo in 2015, 2017, and 2018,[8] on the extent and nature of citizens' experiences with the police and their attitudes towards the law and legal institutions (see Oliveira et al., 2019). Given that police behaviour and the dynamics of the overpolicing-underpolicing paradox should vary considerably by neighbourhood, sampling procedures employed in this study build on a previous study about São Paulo's extremely high levels of spatial heterogeneity (Nery et al., 2019).

After making census data since 1980 compatible at the census tract level, Nery et al. (2019) performed a cluster analysis of nearly 20,000 tracts in the city using information about their urban, criminal, demographic, and structural conditions. Eight urban patterns – distinct from each other but each very homogeneous – emerged within the city of São Paulo. The authors make the point that nonprobability survey designs often under-represent some clusters and over-represent others. For each of those eight clusters, the authors selected a highly representative contiguous area so as to substantively represent the eight types of places in São Paulo, to which they refer as *key areas*. In the current study, sampling procedures were employed to represent adults residing in the eight key areas.

In each neighbourhood, a two-stage cluster sampling design was used: first stage involved randomly selecting ten census tracts within each key area based on a systematic probability proportional to size (PPS); second stage involved selecting 150 respondents in each area, each following demographic quotas calculated based on census information (gender, age, and education).[9] In mid-2015, 150 adult residents were selected in each area, thus totalling a sample of 1,200 respondents. In early 2017, 928 of those responded to the second wave of the longitudinal study; in mid-2018, 801 respondents took part in the third wave of data collection. The attrition rates of 22.7% and 13.7% are lower than the rate of 25% which was expected by the researchers. I assume dropouts to be missing at random.[10]

---

[8]The gap between waves of data is approximately 18 months.

[9]In each selected census tract, interviewers randomly selected one household to start, and then went door to door asking residents to take part in the study until they completed their demographic quotas. Unfortunately, the company hired to conduct the data collection did not report the refusal rate. All interviews were conducted face-to-face, in Portuguese, at the respondents' place of residence using Tablet-Assisted Personal Interviewing (TAPI).

[10]A binomial logistic regression model predicting dropouts at the second wave indicates no association

The sample is fairly representative of the adult population in each of the eight areas; and even though it was not designed to represent the adult population residing in the city of São Paulo, demographic characteristics are similar: 53% of the respondents are female (52.7% in the population), 56% are white (60.6% in the population), and the average age is 40.2 years (37 years in the population). 9% of the respondents belong to social class A,[11] the wealthiest segment of society, 8% to social class B1, 24% to social class B2, 25% to social class C1, 24% to social class C2, and 10% to social classes D and E, the most economically deprived.

Variables and measurement strategies

- Perceived overpolicing and perceived underpolicing

To measure perceptions of overpolicing, respondents were asked survey items such as "police officers in your neighbourhood act as if they were above the law," whereas perceived underpolicing was measured with items such as "the police in my neighbourhood ensure my safety" (reverse coded). Table 3.1 displays descriptive statistics for all survey items across all three waves. To measure perceptions of overpolicing and underpolicing as latent variables, I use trait scores derived from two pooled graded response models for polytomous data with logistic function links; a full account of the measurement models can be found in Appendix 3.1. Each variable is represented by approximately normally distributed scores, with higher scores of perceived overpolicing indicating that one feels like officers repeatedly intrude upon their lives and higher scores of perceived underpolicing indicating that one is sceptic about the ability of the police to ensure public safety.

- Police legitimacy (coercive-consensual continuum)

I follow the modelling strategy used by Jackson et al. (2022) and measure police legitimacy as a coercive-consensual continuum. This construct is measured by items indicating

---

between perceptions of perceptions of overpolicing at T1, gender, race, social class, or age and the probability of dropping out at T2. The only significant predictor was perceived underpolicing at T1: an increase of one standard deviation in the scores of this variable was associated with a decrease of 4.6% in the probability of dropping out (marginal effects at the mean). Respondents at T2 have slightly more negative views of the police. In terms of the probability of dropping out at T3, the only significant predictor was age, where every year was associated with a small decrease of 0.3% in the probability of dropping out.

[11]Social classes are assigned following the *Critério Brasil*, a system of social class assignment based on respondents' economic positioning and buying power. It consists of a point-based system for the economic classification of households developed by the Brazilian Market Research Association (ABEP). In 2016, D-E households had an average monthly income of 768 BRL (approximately 230 USD) while A households had an average monthly income of 20,888 BRL (approximately 6,420 USD). The CCEB 2016 report is available at http://www.abep.org/criterio-brasil (retrieved on 01/08/2021).

normative alignment, fear of the police, and duty to obey the police – including open-ended responses classified using a supervised machine learning text classification model. A description of the measurement model can be found in Appendix 3.1.

Scores representing legitimacy judgements are derived from a pooled IRT model. Higher scores indicate police legitimacy, as reflected by respondents who believe that legal authority is appropriate and should be obeyed based on normative reasoning. Lower scores indicate instrumental and coercive motivations to comply with the law, as reflected by respondents who are fearful of the police, believe officers should only be obeyed out fear of sanction or violence, and do not share values with legal authority. Approximately normally distributed scores are used in subsequent analyses.

- Tolerance of violence

To measure tolerance of violence, respondents were asked whether they think it is right or wrong if people use violence in six different scenarios (e.g., to punish someone in case the authorities fail or to solve a dispute with neighbours). Answers of right were coded as 1 and answers of wrong were coded as 0. A summative index was created, constituting a count, from 0 to 6, which indicates the number of scenarios a respondent thinks justify personal use of violence.[12] On average, respondents think that 1.98 scenarios justify the use of violence, and the mode is 2, with 29% of respondents.

- Time-varying covariates

In the first analysis, I condition the reciprocal relationship between perceived over-policing and underpolicing on resident-police interactions at gunpoint. Being stopped by police officers at gunpoint reflects an experience of aggressive and abusive policing, which presumably contributes to people's overall perceptions of overpolicing and underpolicing. Respondents were first asked whether they "were stopped by the police (*over the last two years/since our last interview*) in the state of São Paulo" (response alternatives were 'yes' or 'no'). Those who answered 'yes' were then further asked whether during that stop "police officers pointed a gun" at them (again, 'yes' or 'no'), theoretically a last resort which can only be employed when the officer feels threatened and suspects of some serious illegal activity, according to the São Paulo Military Police bylaws. While this practice might

---

[12]As a robustness check, every statistical model that included the summative index of tolerance of violence was also estimated considering each of the six scenarios separately. Results are nearly identical in every case, which is why I use the summative index in the paper. A full account of the breakdown of approval of violence in different scenarios can be found in Appendix 3.4.

seem too extreme and rare from a western perspective, it is not uncommon that police-citizen interactions in Brazil involve the threat of firearm use: while about one third of the respondents reported having been stopped by the police, almost half (47.1%) of those self-reported encounters involved a gun being pointed at them by the police officer. The binary variable used in the models includes, in its reference category, every respondent who either was not recently stopped by the police or was stopped by the police but not at gunpoint.

Other time-varying covariates include other measures of expected police conduct, particularly related to perceptions of police effectiveness and procedural fairness. A full account of measurement models assessing the scaling properties and empirical distinctiveness of latent variables can be found in Appendix 3.1. Both constructs were measured using pooled graded response models, and derived scores were then used in subsequent analysis.

- Time-constant covariates

Other covariates included are constant over time at the individual level. One of them is the neighbourhood where respondents live, coded as the eight key areas used in the survey design (only respondents who did not move to a different neighbourhood were contacted at waves 2 and 3). Because of how the eight key areas were selected, they are proxy for structural differences between neighbourhoods (Nery et al., 2019). Other individual-level covariates are self-reported race,[13] gender, and estimated social class.

Police-citizen relations by neighbourhood

Table 3.2 displays some information about the eight neighbourhoods, including descriptive statistics of key variables. It is possible to see how different the neighbourhoods are, both demographically and in terms of perceived police conduct. Areas 1 through 4 are characterised by different levels of structural disadvantage, with a high proportion of young residents and high homicide rates (both in the area itself and in neighbouring locations). Most residents belong to social class C1 or lower. In line with previous knowledge about Brazilian demographics, these areas also tend to be more racially diverse, with about half

---

[13]There are officially five racial groups: white (caucasian), black (afro-descendant), mixed race, asian-descendant, and indigenous. I dichotomise racial groups for the sake of simplicity and because whiteness is what more clearly communicates social privileges in Brazil, but by no means do I imply that the other four groups are homogeneous. For a discussion on racial inequality in Brazil, including how to measure racial identities, see Bailey et al. (2013).

Table 3.1: **Average response of all survey indicators by wave**

Construct	Survey item	Wave 1	Wave 2	Wave 3
Perceived overpolicing	· Police officers act as if they were above the law in my neighbourhood	3.44	3.42	3.33
	· Police officers follow and harass people in my neighbourhood	2.84	2.86	2.74
Perceived underpolicing	· Police in my neighbourhood ensure my safety (reverse coded)	3.01	3.11	3.04
	· Considering both quantity and quality, how satisfied are you with each of these services in your neighbourhood: policing	2.98	2.92	2.85
	· How good a job are police in your neighbourhood doing in relation to: keeping the neighbourhood safe (reverse coded)	2.96	3.05	2.96
Police legitimacy	· The police act in accordance with what you believe is right and wrong	3.17	3.08	3.14
	· People are afraid of the police	3.87	3.44	3.33
	· Do you think you should obey the police when you believe they are wrong? (1 = yes)	0.69	0.74	0.73
	· Why do you think you (*should/should not*) obey the police even when you believe they are wrong?			
	- (Yes) Normatively grounded duty to obey	0.31	0.33	0.34
	- (Yes) Coercive obligation to obey	0.40	0.41	0.41
	- (No) Disobedient protest	0.08	0.09	0.07
	- (No) Rejection of authority	0.21	0.17	0.19
Tolerance of violence	Do you think it is right or wrong if people use violence to (1 = right; 0 = wrong):			
	· Defend themselves from an assault	0.54	0.64	0.64
	· Defend themselves from a robber or burglar	0.57	0.64	0.67
	· Solve a dispute with neighbours	0.07	0.12	0.10
	· Punish someone in case the authorities fail	0.16	0.18	0.17
	· Revenge for injuries to a relative	0.13	0.12	0.13
	· Protest against things considered unjust	0.24	0.34	0.38
Perceived police effectiveness	How good a job are police in your neighborhood doing in relation to:			
	· Reducing drug trafficking	3.47	3.43	3.74
	· Reducing armed robbery	3.78	3.69	3.89
	· Responding to emergency calls	4.10	4.00	4.01
	· Police station services	3.97	3.76	3.91
	· Criminal investigations	3.91	3.71	3.74
	· Demonstrations and protests	4.09	3.79	3.91
Perceived procedural fairness	The police in your neighbourhood:			
	· Explain clearly why they pull someone over	2.91	2.83	2.89
	· Make impartial and just decisions	3.15	3.12	3.17
	· Pay attention to the information people provide them with	3.32	3.32	3.30
	· Treat people with respect	3.67	3.69	3.70
–	Police stop (0 = no recent police stop)	0.38	0.24	0.24
–	Police stop at gunpoint (0 = no recent police stop or recent police stop with no guns)	0.17	0.12	0.12
–	Race (1 = white)	0.57	0.56	0.56
–	Gender (1 = male)	0.47	0.46	0.46
–	Social class (1 = class A; 6 = class E)	3.75	3.75	3.75

Note: Estimated means/proportions reported. Unless stated otherwise, all survey indicators were measured using a five-point Likert scale.

of their residents self-reporting as white. Area 4, in particular, is the only distinctively non-white neighbourhood, with only 31% of the respondents self-defining as white.

These areas are also characterised by an excessive police presence. On average, between one third and half of residents of these neighbourhoods reported being recently stopped and questioned by São Paulo Military Police officers, and around half of all those stops involved an officer pointing a gun at residents. In distinctively non-white area 4, 65% of all recent self-reported police stops were at gunpoint. Residents also tend to perceive officers repeatedly intruding upon the lives of their neighbours to a greater extent than residents of other areas, as well as higher levels of scepticism about the ability of the police to ensure public safety.

Areas 5 and 6 are characterised by less structural disadvantage. With lower homicide rates and fewer young people residing in the neighbourhood, most residents belong to social classes B2 and C1. Area 5 is also racially diverse, with approximately half of its residents self-identifying as white, while area 6 is a more predominantly white neighbourhood: two thirds of the respondents residing in this area self-identify as white. Residents' perceptions of overpolicing and underpolicing seem substantially lower than those of residents of areas 1 through 4; yet, even in such areas police conduct seems to rely on aggressive strategies, as respectively 50% and 40% of all recent self-reported police stops in areas 5 and 6 happened at gunpoint.

By contrast, areas 7 and 8 constitute wealthier neighbourhoods. With a predominantly white population (80% and 87%, respectively), these areas are characterised by lower levels of violence and residents who belong to wealthier segments of society (mostly to social classes A, B1, and B2). Residents also feel considerably less over-policed and under-policed, and are stopped and questioned by police officers less frequently than residents of other neighbourhoods. In comparison, police conduct seems to rely less on aggressive practices in these areas, as approximately one quarter of all self-reported police stops involved an officer pointing a gun at residents. Yet, these numbers reflect how coercive police behaviour generally is in São Paulo: even in wealthier neighbourhoods, police officers drawing their firearms during police stops is astonishingly common.

Table 3.2: **Demographics and perceived police conduct by neighbourhood**

	Area 1 (economically precarious, racially diverse)	Area 2 (remote and peri-urban, racially diverse)	Area 3 (structurally disadvantaged, racially diverse)	Area 4 (poor, pre-dominantly non-white)	Area 5 (middle class, racially diverse)	Area 6 (middle class, predomi-nantly white)	Area 7 (affluent, pre-dominantly white)	Area 8 (wealthy gated communities, predominantly white)
Criminal patterns†	High homicide rates	High homicide rates	High homicide rates	High homicide rates	Low homicide rates	Low homicide rates	No homicides registered between 2000 and 2010	Low homicide rates
Population	26,068	15,361	41,371	14,862	21,740	29,230	38,721	23,286
Proportion of youth (16-24 year-olds) $[0;1]$*	0.25	0.26	0.24	0.21	0.18	0.17	0.13	0.20
Proportion of whites $[0;1]$*	0.49	0.45	0.43	0.31	0.51	0.65	0.80	0.87
Average social class $[1(A);6(E)]$*	4.31	4.04	4.46	4.43	4.1	3.79	2.8	2.1
Proportion of police stops $[0;1]$ (0 = no recent police stop)*	0.35	0.43	0.41	0.42	0.37	0.40	0.34	0.33
Proportion of police stops at gunpoint $[0;1]$ (0 = recent police not at gunpoint)*	0.42	0.53	0.47	0.65	0.50	0.40	0.28	0.22
Average perceived overpolicing $[-2.0;+1.9]$*	+0.12	+0.08	+0.14	+0.32	−0.06	−0.11	−027	−0.23
Average perceived underpolicing $[-2.4;2.7]$*	+0.19	+0.16	+0.14	+0.00	+0.01	−0.24	−0.25	+0.01

Note: * Sample means of variables at first time point reported. Variable ranges shown in square brackets. † Criminal patterns are described according to Nery et al. (2012), who classified census tracts in São Paulo based on their own and their neighbouring tracts' homicide rates. 'High homicide rates,' in this case, refer to areas with a higher homicide rate than both the average for the city and their neighbours' rates – often consisting of at least 15 homicides per 100,000 habitants.

First part: dynamics of overpolicing and underpolicing

Estimation strategy

The first set of hypotheses state that perceived overpolicing and underpolicing are mutually dependent, reproducing each other. Previous research has framed this type of mutual relationship as *Granger* or *reverse causality* (Hamaker et al., 2015). But such relationships are not causal based on the potential outcomes framework (Imbens and Rubin, 2015). Not only are they not clearly defined in terms of counterfactuals, but Direct Acyclic Graphs (DAGs) do not allow for cyclic relationships (Morgan and Winship, 2015). Considering the causal inference literature, there are no statistical methods that can actually depict mutual causal relationships (VanderWeele, 2015). For this reason, I refrain from implying mutual causation and use the expression reciprocal relationship instead. In order to assess the first set of hypotheses, I investigate whether changes in perceived overpolicing are associated with changes in perceived underpolicing, and whether changes in perceived underpolicing are associated with changes in perceived overpolicing simultaneously.

To model the reciprocal relationship between them, a cross-lagged panel design is employed. This analytic strategy allows for simultaneously testing the associations as it models the pathways through which both constructs are related to each other. Figure 3.2 summarises the conceptual diagram. I am assuming that both overpolicing and underpolicing depend on their lagged values – i.e., one's perceptions of policing in the past generally shape one's perceptions of policing in the present. These autoregressive parameters are represented by β_{a1} and β_{a2} in the theoretical diagram and indicate the temporal stability of such constructs. But perceived overpolicing in the present is also assumed to be a function of values of perceived underpolicing in the past, and perceived underpolicing in the present a function of overpolicing in the past. Those cross-lagged parameters are represented by β_{c1} and β_{c2} (i.e., hypotheses 1.5 and 1.6, respectively) in the theoretical diagram and indicate the statistical effects of each construct on changes in the other construct adjusting for stability effects. All path coefficients are constrained to equality across waves so that they represent the average autoregressive and cross-lagged effects over time (Brunton-Smith, 2011).

Police stops at gunpoint at each wave are included as predictors of perceived overpolicing and underpolicing at each time point – these contemporaneous parameters are represented by $\gamma_{\mathbf{oj}}$ and $\gamma_{\mathbf{uj}}$ (i.e., hypotheses 1.3 and 1.4, respectively) and indicate the effect of aggressive police-resident interactions at each point in time. Finally, perceptions of overpolicing and underpolicing at the first wave are each regressed on time-constant
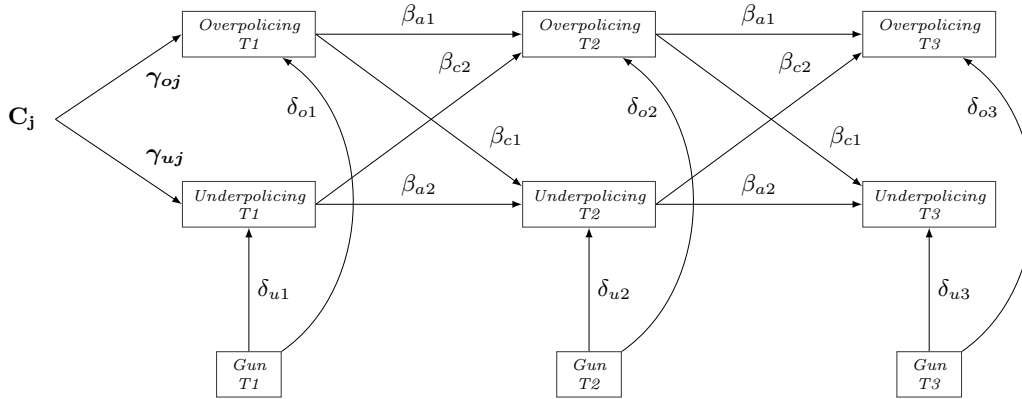
Figure 3.2: **Theorised diagram representing the cross-lagged panel model assessing the relationship between perceptions of overpolicing and underpolicing**

Note: All variables are set as manifest variables. Derived latent trait scores for perceived overpolicing and underpolicing were used. C_j is a vector with $j = 1, 2, \ldots, 10$ time-constant covariates (race, gender, social class, and seven dummy variables indicating neighbourhoods of residence), γ_{oj} and γ_{uj} are parameters for each covariate j predicting the initial conditions of perceived overpolicing and underpolicing, respectively. β_{a1} and β_{a2} are autoregressive parameters and β_{c1} and β_{c2} are cross-lagged parameters. δ_{ot} and δ_{ut} represent the association of police stops at gunpoint at each time point $t = 1, 2, 3$ and perceived overpolicing and underpolicing, respectively. All structural paths are identified as linear models; estimation method is maximum likelihood with robust standard errors.

covariates, including dummy variables for the neighbourhoods where the study took place (hypotheses 1.1 and 1.2), self-reported race, gender, and social class. All variables are set as manifest, and the model is estimated using maximum likelihood with robust standard errors with full information maximum likelihood to handle missing data. Because both perceived overpolicing and underpolicing are measured with trait scores and follow a normal distribution, all structural relationships are specified as linear models.

Results

Results of a cross-lagged panel model can be found in Table 3.3.[14] The first column displays estimates predicting perceived overpolicing at $T = t$ (i.e., parameters $\hat{\beta}_{a1}$, $\hat{\beta}_{c2}$, $\hat{\delta}_{ot}$ and $\hat{\gamma}_{oj}$ in Figure 3.2) and the second column displays estimates predicting perceived underpolicing at $T = t$ (i.e., parameters $\hat{\beta}_{a2}$, $\hat{\beta}_{c1}$, $\hat{\delta}_{ut}$ and $\hat{\gamma}_{uj}$j in Figure 3.2). Despite being two separate columns, they were estimated simultaneously as they refer to a single model.

---

[14]Given that some parameters were constrained to quality across waves, no observations were dropped to estimate the model. Another model without full information maximum likelihood and considering only respondents who took part in the study at each time period was estimated as a robustness check. Results remain virtually unaltered.

Table 3.3: **Reciprocal relationship between perceptions of overpolicing and underpolicing**

	Overpolicing at $T = t$		Underpolicing at $T = t$	
	Est.	*95% CI*	*Est.*	*95% CI*
Perceived overpolicing at $t - 1$	0.32*	[0.27, 0.37]	0.06*	[0.02, 0.211]
Perceived underpolicing at $t - 1$	0.08*	[0.04; 0.13]	0.52*	[0.47, 0.57]
Time-varying covariates				
Police stop at gunpoint $T1$	0.48*	[0.36, 0.59]	0.45*	[0.33, 0.57]
Police stop at gunpoint $T2$	0.36*	[0.26, 0.49]	0.16*	[−0.35, 0.39]
Police stop at gunpoint $T3$	0.54*	[0.13, 0.94]	0.53*	[0.02, 0.31]
Time-constant covariates				
Area 1 (ref.: *economically deprived and racially diverse*):	–	–	–	–
Area 2 (*peri-urban and racially diverse*)	−0.04	[−0.23, 0.14]	−0.17*	[−0.33, −0.01]
Area 3 (*structurally disadvantaged and racially diverse*)	−0.02	[−0.20, 0.17]	−0.03	[−0.20, 0.14]
Area 4 (*poor and predominantly non-white*)	0.07	[−0.10, 0.25]	−0.21*	[−0.38, −0.03]
Area 5 (*middle class, racially diverse*)	−0.09	[−0.28, 0.09]	−0.21*	[−0.39, −0.03]
Area 6 (*middle class, predominantly white*)	−0.13	[−0.31, 0.06]	−0.47*	[−0.65, −0.29]
Area 7 (*affluent, predominantly white*)	−0.14	[−0.33, 0.04]	−0.48*	[−0.67, −0.30]
Area 8 (*wealthy gated communities, predominantly white*)	−0.13	[−0.32, 0.06]	−0.33*	[−0.53, −0.13]
Race (1 = white)	−0.11*	[−0.21, −0.01]	0.07	[−0.03, 0.16]
Gender (1 = male)	−0.08	[−0.18, 0.01]	−0.22*	[−0.31, −0.212]
Social class (1-A − 6-E)	0.03	[−0.01, 0.07]	−0.08*	[−0.12, −0.04]
Correlation Overpolicing $T3$	Underpolicing $T3$	0.08*	[0.05; 0.12]	
N. Observations	1200			

Note: Cross-lagged panel model estimated on R's `lavaan` package using maximum likelihood with robust standard errors to handle non-normally distributed variables and full information maximum likelihood to handle missing data. No concurrent pathways other than police stops at gunpoint predicting perceived overpolicing and perceived underpolicing at each period. Perceived overpolicing and perceived underpolicing at $T3$ were allowed to covary. *Est.* = estimates; 95% CI = 95% confidence intervals. *$p < 0.05$.

    First, results indicate that both perceived overpolicing and underpolicing are relatively stable in time: the autoregressive parameter $\hat{\beta}_{a1} = 0.32$ suggests that people's perceptions of police intrusion in their neighbourhood tend to be similar across all three waves; likewise, the coefficient $\hat{\beta}_{a2} = 0.52$ suggests that people's scepticism about police protection also tends to vary little over time. However, both constructs are associated with some changes in each other. The cross-lagged parameter $\hat{\beta}_{c2} = 0.08$ indicates that a one-standard-deviation increase in perceived underpolicing is associated with a positive change of 0.08 standard deviations in perceived overpolicing at the following time point – i.e., the more sceptic people are about the ability of the police to ensure public safety, the more they believe police officers tend to repeatedly intrude upon their lives. At the same time, the other cross-lagged parameter $\hat{\beta}_{c1} = 0.06$ suggests that the reverse association is equally true: the more over-policed people feel, the more under-policed they feel at the

following time point.

The cross-lagged panel model demonstrates that perceptions of overpolicing and underpolicing are mutually dependent, simultaneously feeding each other, as predicted by hypotheses 1.5 and 1.6. They also share some correlates. For instance, the experience of a recent police stop at gunpoint is associated with increases in perceptions of overpolicing ($\hat{\delta}_{o1} = 0.48$, $\hat{\delta}_{o2} = 0.36$, and $\hat{\delta}_{o3} = 0.25$) and underpolicing ($\hat{\delta}_{u1} = 0.45$, $\hat{\delta}_{u2} = 0.16$ and $\hat{\delta}_{u3} = 0.18$); i.e., when officers rely on aggressive practices such as drawing their guns during police stops, people feel simultaneously more over-policed and under-policed, which resonates Rios's 2011 description of the overpolicing-underpolicing paradox. These results support hypotheses 1.3 and 1.4..

There are significant neighbourhood differences in expected initial perceptions of overpolicing and underpolicing. Residents of area 1 – the reference group, an economically precarious and racially diverse area – have similar views as residents of other structurally disadvantaged neighbourhoods, such as areas 2, 3, and 4. Residents of area 4, a poor and predominantly non-white community, have lower average scores of perceived underpolicing ($\hat{\gamma}_u = -0.44$). Residents of wealthier and less racially diverse neighbourhoods feel less over-policed ($\hat{\gamma}_o = \{-0.45; -0.42; -0.48\}$, respectively for areas 5, 6, and 7) and under-policed ($\hat{\gamma}_u = \{-0.42; -0.86; -1.10; -0.72\}$, respectively for areas 5, 6, 7, and 8) than area 1 residents. Interestingly, residents of a wealthy neighbourhood characterised by modern gated communities (area 8) perceive police officers to be equally intrusive as do area 1 residents. These considerable neighbourhood differences in public perceptions of overpolicing and underpolicing support hypotheses 1.1 and 1.2.

Perceptions of overpolicing and underpolicing have slightly different time-constant correlates. For instance, white respondents do not feel as over-policed as non-white respondents ($\hat{\gamma}_o = -0.11$) – which is consistent with a large body of previous work documenting racial disparities in Brazil (Sinhoretto et al., 2014) and the US (Epp et al., 2014) – but there is no difference in terms of perceived underpolicing. Male and female respondents have similar expected changes in perceived overpolicing, but women feel the lack of police protection to a greater extent than men ($\hat{\gamma}_u = -0.22$), which is consistent with previous studies on gender and legal cynicism (Bell, 2016). In terms of social class, the more economically deprived one's household is, the less one tends to feel under-policed ($\hat{\gamma}_u = -0.08$): residents of wealthier households are the ones who feel like the police do not ensure public safety.

Second part: consequences of overpolicing and underpolicing

Estimation strategies

The second set of hypotheses centre around judgements about the legitimacy of the police, which measures people's attitudes based on a single scale ranging from coercive to consensual motivations to obey the police. I first assess whether perceptions of overpolicing and underpolicing are associated with undermined legitimacy judgements net of perceptions of other known legitimating norms. Five hierarchical linear models are fitted: model 1A includes perceived overpolicing as a predictor, model 1B includes perceived underpolicing, model 1C includes both at the same time, model 1D adds perceptions of procedural fairness and police effectiveness, and model 1E adds other individual-level covariates. I estimated multilevel models in order to adjust for individual-level variability over time. A full account of the model selection process can be found in Appendix 3.3.

Finally, tolerance of violence. Hypothesis 2.3 states that perceptions of overpolicing and underpolicing increase people's approval of violence via undermined judgements about the legitimacy of legal authority. When people lose faith in law enforcement agencies' right to enforce the law, they might turn to alternative strategies of conflict-resolution. In order to test whether police legitimacy mediates this association, I fit another panel model – now using the three waves to assess longitudinal mediation using the product method (Preacher, 2015). A diagram summarising the fitted model can be found in Figure 3.3. Essentially, this model makes use of the three waves of data to model how a mediator at wave 2 mediates the association between a wave 1 predictor and a wave 3 outcome. In this case, autoregressive and cross-lagged parameters are constrained to equality over time to capture the average effects across the three waves. Models are estimated with maximum likelihood with robust standard errors to handle non-normally distributed variables and full information maximum likelihood to handle missing data.

Parameters $A1$, $A2$, B, and C represent autoregressive paths of perceived overpolicing, perceived underpolicing, police legitimacy, and tolerance of violence, respectively. Parameters $D1$ and $D2$ represent cross-lagged paths from each explanatory variable (overpolicing and underpoliving) to the mediator (legitimacy), while parameter E represents the path from the mediator to the outcome (tolerance of violence). Finally, parameters $F1$ and $F2$ represent a direct path from each of the explanatory variables at $T1$ to the outcome at $T3$. To assess the longitudinal mediation, I rely upon the product method (Preacher, 2015). The indirect effect of perceived overpolicing on tolerance of violence via police legitimacy is given by the product $D1 * E$, while the indirect effect of perceived underpolicing is given
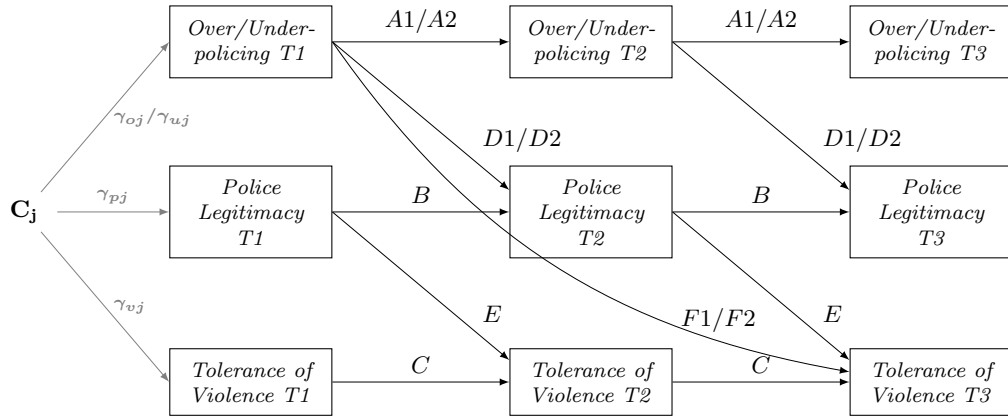
Figure 3.3: **Theorised diagram representing the panel model testing for longitudinal mediation**

Note: All variables set as manifest variables. Derived latent trait scores for perceived overpolicing, underpolicing, and police legitimacy were used. Tolerance of violence is a summative index based on the approval (1 = right; 0 = wrong) of six different scenarios that would justify the use of violence. C_j is a vector with $j = 1, 2, \ldots, 10$ time-constant covariates (race, gender, social class, and seven dummy variables indicating neighbourhoods of residence), γ_{oj}, γ_{uj}, γ_{pj}, and γ_{vj} are parameters for each covariate j predicting the initial conditions of perceived overpolicing, perceived underpolicing, police legitimacy, and tolerance of violence, respectively. All structural paths are identified as linear models; estimation method is maximum likelihood with robust standard errors to handle non-normally distributed variables (e.g., tolerance of violence).

by the product $D2 * E$.[15] All four $T1$ variables are regressed on time-constant covariates, including self-reported race, gender, social class, and neighbourhood or residence.

A full account of the direct association between police legitimacy and tolerance of violence can be found in Appendix 3.3, and results breaking down by each of the six scenarios prompting approval of violence that were used to create the tolerance of violence scale can be found in Appendix 3.4.

Results

Results of the five models predicting police legitimacy can be found in Table 3.4. Models 1A and 1B show that, net of the estimated random intercepts, a one-unit increase in one's perceptions of overpolicing is associated with a decrease of 0.21 points in the scores of police legitimacy; likewise, a one-unit increase in one's perceptions of underpolicing is associated with a decrease of 0.32 points. More importantly, model 1C demonstrates that even controlling for each other, perceptions of both overpolicing and underpolicing are associated

---

[15]This model does not imply causal mediation, as assumptions to identify natural indirect effects would be too unrealistic with observational data (Pósch, 2021).

with decreases in legitimacy beliefs ($\hat{\beta} = \{-0.17; -0.29\}$, respectively). These coefficients remain statistically significant even after controlling for other measures of perceived police behaviour: adjusting for procedural fairness and police effectiveness, perceived overpolicing and underpolicing contribute to shifts in police legitimacy ($\hat{\beta} = \{-0.10; -0.06\}$, respectively). These results remain virtually unaltered after adding individual-level covariates. It is worth mentioning that white respondents have more positive views about the police than their non-white counterparts ($\hat{\beta} = 0.05$), while respondents who live in poorer households tend to be more fearful and have more coercive views about the police ($\hat{\beta} = -0.02$).

The more people perceive police officers to be excessively intrusive and unfit for ensuring public safety, the closer they get to the coercive side of the scale in their judgements about the legitimacy of the police. Probably because they signal identity-related messages of marginalisation and neglect, perceptions of both overpolicing and underpolicing are associated with a loss of faith in the legal institutions' right to enforce the law. As predicted by hypotheses 2.1 and 2.2, perceptions of overpolicing and underpolicing both undermine judgements about police legitimacy even after adjusting for perceived procedural fairness and police effectiveness.

Results of a panel model assessing the indirect effects of overpolicing and underpolicing on tolerance of violence via diminished beliefs of police legitimacy can be found in Table 3.5. As expected, all constructs are relatively stable in time: autoregressive parameters $A1$, $A2$, B, and C are all positive and moderately high, which means that people's feelings of overpolicing and underpolicing, police legitimacy, and tolerance of violence all tend to be similar across the three waves. Table 3.5 shows again that perceptions of repeated police intrusion and scepticism about police protection are both associated with lower levels of police legitimacy (parameters $D1$ and $D2$), and that police legitimacy is associated with tolerance of violence (E).

The new information brought by Table 3.5, however, is that police legitimacy mediates the association between perceived overpolicing and underpolicing and tolerance of violence. The indirect effects of perceived overpolicing ($D1*E$) and underpolicing ($D2*E$) on tolerance of violence via undermined legitimacy judgements are both statistically different from zero, indicating longitudinal mediation. This result suggests that perceiving both overpolicing and underpolicing indeed contributes to increases in the moral support for personal use of violence as an alternative strategy for conflict resolution, and the mechanism of this link involves a loss of faith in the legal institutions' right to enforce the law.

Table 3.4: **Association between overpolicing and underpolicing and legitimacy**

	Model 1A	Model 1B	Model 1C	Model 1D	Model 1E
	Est.	*Est.*	*Est.*	*Est.*	*Est.*
	95% *CI*	95% *CI*	95% *CI*	95% *CI*	95% *CI*
Intercept (average)	−0.07*	−0.06*	−0.05*	−0.06*	−0.02
	[−0.12, −0.02]	[−0.11, −0.01]	[−0.10, −0.01]	[−0.10, −0.02]	[−0.13, 0.08]
Wave	0.03*	0.03*	0.03*	0.03*	0.04*
	[0.01, 0.06]	[0.01, 0.06]	[0.01, 0.05]	[0.01, 0.06]	[0.01, 0.06]
Perceived overpolicing	−0.21*		−0.17*	−0.10*	−0.09*
	[−0.24, −0.18]		[−0.19, −0.14]	[−0.12, −0.07]	[−0.11, −0.06]
Perceived underpolicing		−0.32*	−0.29*	−0.06*	−0.06*
		[−0.35, −0.29]	[−0.32, −0.27]	[−0.09, −0.03]	[−0.09, −0.03]
Perceived procedural fairness				0.38*	0.38*
				[0.36, 0.41]	[0.36, 0.41]
Perceived police effectiveness				0.08*	0.08*
				[0.05, 0.10]	[0.05, 0.11]
Race (1 = white)					0.05*
					[0.01, 0.09]
Gender (1 = male)					0.04
					[−0.00, 0.08]
Social class					−0.02*
					[−0.04, −0.00]
Area 1 (ref.: *economically deprived and racially diverse*):					−
					−
Area 2 (*peri-urban and racially diverse*)					0.01
					[−0.07, 0.09]
Area 3 (*structurally disadvantage and racially diverse*)					−0.01
					[−0.08, 0.07]
Area 4 (*poor and predominantly non-white*)					−0.03
					[−0.11, 0.04]
Area 5 (*middle class, racially diverse*)					0.01
					[−0.06, 0.09]
Area 6 (*middle class, predominantly white*)					−0.02
					[−0.09, 0.06]
Area 7 (*affluent, predominantly white*)					−0.03
					[−0.11, 0.06]
Area 8 (*wealthy gated communities, predominantly white*)					−0.02
					[−0.11, 0.06]
BIC	5236.97	4979.83	4840.77	4035.06	4033.72
N. Observations	2926	2926	2905	2891	2891
N. Individuals	1199	1199	1181	1170	1170
Variance: Intercept	0.14	0.11	0.08	0.03	0.03
Variance: Residual	0.25	0.24	0.24	0.20	0.20

Note: Hierarchical Linear Models with random intercepts (at the individual level) predicting police legitimacy estimated using R's package `lme4`. *Est.* = estimates; 95% CI = 95% confidence intervals; *BIC* = Bayesian Information Criteria. *$p < 0.05$.

Table 3.5: **Police legitimacy mediates the association between overpolicing and underpolicing and acceptability of violence**

Path	Parameter	*Est.*	95% *CI*
Direct effects:			
Overpolicing → Overpolicing	$A1$	0.35^*	$[0.29, 0.41]$
Underpolicing → Underpolicing	$A2$	0.54^*	$[0.51, 0.57]$
Legitimacy → Legitimacy	B	0.29^*	$[0.22, 0.35]$
Use of violence → Use of violence	C	0.41^*	$[0.30, 0.52]$
Overpolicing → Legitimacy	$D1$	-0.08^*	$[-0.01, -0.15]$
Underpolicing → Legitimacy	$D2$	-0.13^*	$[-0.07, -0.19]$
Legitimacy → Use of violence	E	-0.14^*	$[-0.23, -0.05]$
Overpolicing → Use of violence	$F1$	-0.11	$[-0.31, 0.09]$
Underpolicing → Use of violence	$F2$	-0.03	$[-0.08, 0.02]$
Indirect effects:			
Overpolicing T1 → Legitimacy T2 → Use of violence T3	$D1 * E$	0.01^*	$[0.00, 0.01]$
Underpolicing T1 → Legitimacy T2 → Use of violence T3	$D2 * E$	0.02^*	$[0.00, 0.02]$
N. Observations		1200	

Note: Panel model assessing longitudinal mediation as displayed in Figure 3.3 estimated on `Mplus` 7.11 using maximum likelihood with robust standard errors. *Est.* = estimates; 95% *CI* = 95% confidence intervals. $^*p < 0.05$.

Discussion

Sociologists have long studied how residents of some neighbourhoods experience an unduly police presence that intrudes upon their lives, and yet feel unprotected by law enforcement agents who fail to provide security and protection. Ethnographic evidence of the overpolicing-underpolicing paradox in disadvantaged and ethnically diverse neighbourhoods from cities in the US such as Oakland (Rios, 2011), Philadelphia (Carr et al., 2007), Chicago (Vargas, 2016; Shedd, 2015), and New York City (Haldipur, 2019) is abundant. In this study I contribute to this literature providing a quantitative assessment of the twin harms of intrusive excess and careless neglect (see also Boehme et al., 2022). Crucially, I build on but depart from previous work that are concentrated on public-authority relations in the US and focus instead on one of the largest cities in the Global South. In the context of eight neighbourhoods in São Paulo – where policing follows a highly militarised model, heavily armed officers are trained for war-like situations, public-police relations are marked by fear, and the idea that law enforcement agents are "just another violent gang" has cultural currency (Jackson et al., 2022) – this study relied upon three waves of longitudinal survey data to investigate the dynamics and consequences of the overpolicing-underpolicing paradox.

To assess whether public expectations of repeated police intrusion and scepticism about police protection were seen as two complementary rather than antagonistic features

of neighbourhood policing, I explored the extent to which those perceptions shared similar correlated and mutually reproduced each other. Hypotheses 1.1 through 1.4 predicted that perceptions of both overpolicing and underpolicing would be associated with exposure to structural disadvantage and to recent experiences of aggressive police stops, whereas hypotheses 1.5 and 1.6 predicted that changes in perceived overpolicing and changes in perceived underpolicing would be reciprocally related. Using a cross-lagged model, I found empirical support for all six hypotheses.

Perceptions of overpolicing and underpolicing are produced by similar social forces. Residents of neighbourhoods characterised by structural disadvantage have more expectations of police intrusion and are more sceptic about the ability of legal institutions to ensure public safety than residents of more affluent areas. Mirroring studies on legal cynicism (Kirk and Papachristos, 2011; Hagan et al., 2020), results of this study suggest that residents adapt to their environmental conditions and develop cultural interpretations about the functioning and viability of the law and the legal institutions (Kirk and Papachristos, 2011; Bell, 2016). Similarly, exposure to aggressive policing also seems to lead to greater expectations of overpolicing and underpolicing. A recent experience of being stopped and questioned by police officers at gunpoint is associated with higher scores of perceptions of repeated police intrusion and scepticism of police protection, which resonates previous work suggesting the influence of police-citizen encounters on perceptions of the law and the police (Oliveira et al., 2021; Tyler et al., 2014). Despite an apparent paradox, expectations of both overpolicing and underpolicing are informed by similar social factors.

Echoing Rios's (2011) description, I show that overpolicing and underpolicing walk side-by-side: people feel that officers often overstep their authority and fail to ensure public safety as two complementary rather than antagonist features. The cross-lagged model estimated in the first part of the study demonstrates that perceptions of overpolicing and underpolicing are reciprocally related: the more people expect law enforcement agents to be intrusive, the more sceptic they are at officers' ability to provide protection; and the more unprotected and sceptic at legal institutions they feel, the more they expect officers to overstep their authority. Overpolicing and underpolicing mutually reproduce each other, forming a kind of vicious cycle that characterises policing in several underserved communities in Brazil's largest city.

In terms of consequences, findings revealed by the second part of this study demonstrate that overpolicing and underpolicing are important legitimating norms which, above and beyond procedural injustice, can undermine judgements about the legitimacy of legal institutions. PJT posits that when law enforcement agents communicate procedural

fairness and people generally expect officers to be procedurally fair, public legitimacy beliefs are boosted (Sunshine and Tyler, 2003). The main reason, on top of fairness being a legitimating norm, is related to the fact that fair process signals status and value, enhancing the social bonds between members of the public and legal authority (Lind and Tyler, 1988). Yet, police behaviour can also send other relational signals that strengthens or weakens such social bonds (Oliveira and Jackson, 2021). Through a series of hierarchical linear models adjusting of perceptions of police fairness and effectiveness, this study shows that perceptions of both overpolicing and underpolicing are associated with lower scores of police legitimacy among São Paulo residents. When people expect police officers to repeatedly intrude upon their lives and are sceptic at officers' ability to ensure public safety, they lose faith in legal authority's right to rule and authority to govern.

This result suggests that, above and beyond fair process, other dimensions of police behaviour such as overpolicing and underpolicing can also signal relational messages and play a role in the legitimation of legal authority (see Rios et al., 2020). Beyond sending negative messages of status and value via procedural injustice, overpolicing and underpolicing send negative identity-related messages of oppression, marginalisation, and neglect, signalling that some members of the public do not belong to the group legal authority represents. By repeatedly intruding upon the lives of people and failing to provide basic protection and security, law enforcement agents in São Paulo contribute to weakening the social bonds between public and legal authority, undermining public beliefs about the legitimacy of the legal institutions. This is a crucial contribution to the literature on legitimacy and policing. Future research should incorporate measures of perceived overpolicing and underpolicing, and explore whether they undermine police legitimacy in other contexts as well.

Undermined legitimacy judgements can be a serious threat to the state's monopoly of the use of force (Jackson et al., 2013). As I demonstrate in the second part of this study, perceptions of overpolicing and underpolicing, by undermining harming legitimacy beliefs, contribute to increases in the levels of public tolerance of violence. When people stop believing that the legal institutions have the right to rule and the authority to govern, they could deposit their faith elsewhere and start supporting the private use of violence to solve private and public conflicts. Using a panel model for longitudinal mediation, this study demonstrates the pathway: intrusive policing and careless neglect about public safety lead to damages in public beliefs that legal authority is the rightful authority, which in turn leads to beliefs that the use of violence outside the scope of the state is morally acceptable. In a Global South city where urban violence is one of the most urgent social problems faced by residents, this study shows that the overpolicing-underpolicing paradox also seems to

contribute to shifts in tolerance of violence via undermined legitimacy beliefs.

Limitations

Limitations should, of course, be acknowledged. First, this study was carried out in the context of São Paulo, Brazil, which is a specific social setting in the Global South. More research about the dynamics and consequences of overpolicing and underpolicing is needed in other contexts, both in the US and elsewhere. In particular, the relationship between perceptions of overpolicing and underpolicing and legitimacy beliefs needs to be assessed in other contexts. Second, this study only reported associations as no attempts to identify causal effects were made. All data analysed here are observational and causal claims could not be made without unreasonably strong assumptions. Third, I did not engage in ecological analysis as only eight neighbourhoods were included in the study. Ideally, future research should conduct larger surveys covering all neighbourhoods within cities. More research like the Project on Human Development in Chicago Neighborhoods (Sampson, 2012) are necessary to properly assess ecological aspects of the overpolicing-underpolicing paradox, including public-authority relations in areas where criminal governance claims legitimacy (Lessing and Willis, 2019; Manso and Dias, 2018). Fourth, measures of perceived overpolicing and underpolicing introduced in this paper can still be improved upon. Future research should explore different survey items tapping into perceptions of police intrusion and into scepticism about the extent to which law enforcement agents care about providing members of the public with security and protection. Finally, this quantitative assessment of the dynamics and consequences of the overpolicing-underpolicing paradox focused on attitudinal measures. Future research could extend this and include administrative and behavioural data to investigate policing practices, contacts, and activities in certain neighbourhoods that could reflect overpolicing and underpolicing.

Conclusions

I started this study with the idea, largely documented by neighbourhood ethnographies in the US, that residents of some over-policed places often experience an overwhelming police presence who intrude upon their lives, and yet feel neglected by the law, who is never there to protect them. This has been described as an apparent paradox: legal institutions make themselves excessively present, but at the same time not present enough, and neighbourhoods are simultaneously over-policed and under-policed (Rios, 2011; Carr et al., 2007; Campeau et al., 2020). Although considerably less studied, the overpolicing-

underpolicing paradox is a particularly pressing issue in some Global South settings – like Brazil's largest city. In an example of the increasing globalisation of some policing tactics commonly adopted in the US, policing in São Paulo follows a highly militarised model, with armed officers trained for war-like situations (Zanetic et al., 2016). Residents of several neighbourhoods suffer with epidemic levels of violent crime (Nery et al., 2019), and at the same time are fearful of law enforcement agents who often use violence to wield their power (Jackson et al., 2022; Sinhoretto et al., 2016).

In this context, I made use of three waves of longitudinal survey data representative of adult residents in eight distinct neighbourhoods in São Paulo between 2015 and 2019 to quantitatively assess the dynamics and consequences of the overpolicing-underpolicing paradox. Respondents perceive the over- and under-policing of their communities as two complementary rather than antagonistic features, as perceptions of repeated police intrusion and scepticism about police protection mutually reproduce each other over time and are both informed by similar social forces, such as exposure to structural disadvantage and to aggressive and abusive policing. Crucially, results revealed that perceptions of overpolicing and underpolicing undermine legitimacy beliefs and contribute to increases in the levels of tolerance of violence.

This is an important contribution to the literature on policing and legitimacy. PJT posits that public judgements about the legitimacy of legal authority are enhanced when law enforcement agents exercise their power with procedural fairness, both because fairness is a legitimating norm and because fair process sends positive identity-related messages of status and value, making people feel like they are valued members of the group legal institutions represent (Tyler, 2006; Lind and Tyler, 1988). I build on and expand previous research by demonstrating that, above and beyond procedural injustice, overpolicing and underpolicing also send relational messages that weaken the social bonds between members of the public and legal authority – messages of oppression, marginaliaation, and neglect that potentially shape people's identities and undermine legitimacy beliefs (Mackenzie, 2020; Oliveira and Jackson, 2021). Future research should both incorporate measures of perceived overpolicing and underpolicing as important (de)legitimating aspects of police conduct, and explore other dimensions of police behaviour which could also send identity-related messages and strengthen or weaken the social bonds between legal authority and members of the public. Crucially, it is imperative that future research should investigate public-authority relations in understudied Global South settings, where militarised policing tactics centred around increased coercive presence commonly adopted in the US are being increasingly adopted.

Table 3.A1: **Survey items used to measure the coercive-consensual continuum**

Survey items	Response alternatives
· The police act in accordance with what you believe is right or wrong (*A polícia do seu bairro age de acordo com o que o(a) sr(a) acha que é certo*) · People are afraid of the police (*As pessoas sentem medo da polícia*)	Never, rarely, sometimes, very often, always (*Nunca, raramente, às vezes, quase sempre, sempre*)
· Do you think you should obey the police even when you believe they are wrong? (*O(a) sr(a) acha que deve obedecer a polícia mesmo quando acredita que ela está errada?*)	Yes, no Sim, não
· Why do you think you (*should / should not*) obey the police even when you believe they are wrong? (*Por que o(a) sr(a) acredita que [deve / não deve] obedecer a polícia mesmo quando acha que ela está errada?*)	Normatively frounded duty to obey, coercive obligation to obey, disdobedient protest, rejection of authority (based on thematic analysis and a text classification model)

Appendices

Appendix 3.1: Measurement models

Measuring police legitimacy

Following Jackson et al. (2022), police legitimacy is measured as a coercive-consensual continuum, which is measured by survey items tapping into the ideas of normative alignment with the police, fear of the police, and duty to obey the police. To measure normative alignment, respondents were asked about the extent to which they agreed that "the police act in accordance with what you believe is right or wrong." To measure fear of the police, respondents were asked about the extent to which they agreed that "people are afraid of the police." Both items were measured using a five-point Likert scale ranging from (1) never to (5) always. Exact wording can be found in Table 3.A1. All variables were measured in Portuguese and translated into English by me – for the sake of transparency, both the original and the translated versions of all survey items are displayed.

To measure duty to obey, respondents were asked whether they thought they "should obey the police even when you believe they are wrong" (a binary indicator with 'yes' or 'no' as response alternatives). They were then subsequently asked why they thought they "(*should/should not*) obey the police even when you believe they are wrong," an open-ended follow-up question. Those open-ended responses were classified based on a supervised machine learning text classification model using a support vector machine model algorithm

(Hastie et al., 2009). On previous work, Jackson et al. (2022) and Oliveira et al. (2020) have analysed the exact same open-ended responses for a different survey[16] and, based on a thematic analysis involving multiple researchers, proposed four categories of duty to obey the police: those who said they should obey the police did so because of a *normatively grounded duty to obey* or based on a *coercive obligation*, whereas those who said they should not did so as a form of *rejection of authority* or as a type of *disobedient protest*.

After removing punctuation and stop words, turning everything into lowercase, and stemming inflected words to their base forms using `R`'s package `quanteda` (Benoit et al., 2018), I first focused only on those who responded 'yes' to the first question (i.e., differentiating between normative and coercive obligation to obey) and used this previous classification to train a machine learning classification model; then I did the same for those who responded 'no' (i.e., differentiating between rejection of authority and disobedient protest). With a cross validation rate of 87% for the first and 80% for the second, both models successfully predicted the classes. I then fed the trained models with this study's data so as to classify the open-ended responses as either "consent", "coercive", "rejection of authority", or "disobedient protest." The final distribution across all three waves consists of 40% responses in the 'coercive' category, 33% in the 'consent' category, 19% in the 'rejection of authority' category, and 8% in the 'disobedient protest' category.

Table 3.A2: **Item response model measuring the coercive-consensual continuum using pooled data**

Survey items	Coercive-consensual continuum		
	Est.	s.e.	Link function
Act in accordance with what you believe	1.506	0.328	Ordinal logistic
People are afraid of the police	−0.601	0.101	
Normative duty to obey	0.511	0.087	Multinomial logistic
Disobedient protest	0.083	0.113	(reference: coercive
Rejection of authority	−0.159	0.093	obligation
AIC	24214.01		
BIC	24309.71		
N. obs	2926		

In order to estimate scores of police legitimacy at each time point, I would ideally use a wide dataset and fit a three-trait item response model with trait loadings of the same indicators over time constrained to equality to ensure measurement equivalence. However, such model was too computationally intense and never converged. As an alternative, I estimate a one-trait item response model using pooled data, which is preferable than

---

[16]Two surveys were fielded using the same questionnaire: a 2015 representative survey of the adult population residing in the city of São Paulo and a three-wave panel survey representative of the adult population residing in eight neighbourhoods in the city of São Paulo (see Oliveira et al., 2019, 2020).

estimating three different models at each time point as it imposes measurement equivalence.

As per Jackson et al. (2022), the estimated construct is a bipolar continuum ranging from coercive to consensual motivations to comply with the law. Results of the item response model estimated by `mPlus` 7.11 using maximum likelihood with robust standard errors are displayed in Table 3.A2. Respondents who are normatively aligned with the police will have higher scores ($\lambda_1 = 1.506$), whereas respondents who perceive the police to be fearful will have lower scores ($\lambda_2 = -0.601$). Respondents who have a normatively grounded duty to obey the police and those who do not think they should obey as a form of a disobedient protest will also have scores shifted towards the legitimacy end of the continuum ($\lambda_3 = 0.511$ and $\lambda_4 = 0.083$, respectively), whereas those who reject the police authority will have lower scores ($\lambda_5 = -0.159$) – in relation to the 'coercive obligation' category. Approximately normally distributed trait scores representing police legitimacy at each wave were then extracted and used in subsequent analyses.

Scaling properties and empirical distinctiveness between all latent constructs

Table 3.A3 displays all other survey items used in this study, tapping into the ideas of 'perceived overpolicing', 'perceived underpolicing', 'perceived police procedural fairness', and 'perceived police effectiveness'. All variables were measured in Portuguese and translated into English by me; both the original and the translated versions of all survey items are displayed.

Using only data from the first wave, I first estimate a number of confirmatory factor analysis models to assess the scaling properties of the four constructs and make sure they are empirically distinguishable, contrasting model fit statistics of models with different solutions. All models are estimated by R's package `lavaan` using diagonally weighted least squares (as all indicators are set as ordinal). I fit six CFA models that could make some substantive sense: a one-factor solution where all indicators tap into a single construct; a two-factor model, where items tapping into both procedural fairness and overpolicing load onto a single construct, while items tapping into underpolicing and police effectiveness tap into another construct; a model with three factors where indicators tapping into perceptions of overpolicing and underpolicing load onto a single construct, while perceptions of procedural fairness and police effectiveness are each a separate construct; another three-factor solution where indicators of underpolicing and police effectiveness tap into a single construct, while perceived overpolicing and procedural fairness are each separate constructs; an additional three-factor model where indicators of overpolicing and procedural fairness load onto a single construct, while perceived underpolicing and police effectiveness

Table 3.A3: **Survey items and latent constructs**

Construct	Survey items	Response alternatives
Perceived overpolicing	· Police officers act as if they were above the law in my neighbourhood (*Os policiais no seu bairro agem como se estivessem acima da lei*) · Police officers follow and harass people in my neighbourhood (*Os policiais no seu bairro perseguem e intimidam as pessoas*)	Never, rarely, sometimes, very often, always (*Nunca, raramente, às vezes, quase sempre, sempre*)
Perceived underpolicing	· Police in my neighbourhood ensure my safety (reverse coded) (*A polícia do seu bairro garante a sua segurança*) · Laws protect me (reverse coded) (*Sinto que as leis me protegem*) · Considering both quantity and quality, how satisfied are you with each of these services in your neighbourhood: policing (*Considerando a qualidade e a quantidade, o quanto o(a) sr(a) está satisfeito(a) com: o policiamento no seu bairro*) · How good a job are police in your neighbourhood doing in relation to: keeping the neighbourhood safe (reverse coded) (*Como o(a) sr(a) avalia o trabalho da polícia no seu bairro em relação a: manter as ruas do bairro tranquilas*)	Very satisfied, satisfied, little satisfied, unsatisfied, the service does not exist (*Muito satisfeito, satisfeito, pouco satisfeito, nada satisfeito, não existe o serviço*)
Perceived police effectiveness	How good a job are the police in your neighbourhood doing in relation to: (*Como o(a) sr(a) avalia o trabalho da polícia no seu bairro em relação a:*) · Reducing drug trafficking (*Diminuição do tráfico de drogas*) · Reducing armed robbery (*Diminuição do assalto à mão armada*) · Responding to emergency calls (*Atendimento às chamadas de emergência*) · Police station services (*Atendimento na delegacia de polícia*) · Criminal investigations (*Investigação de crimes*) · Demonstration and protests (*Manifestações e protestos*)	Very bad, bad, neither good nor bad, good, very good (*Muito ruim, ruim, nem bom nem ruim, bom, muito bom*)
Perceived police fairness	The police in your neighbourhood: (*A polícia no seu bairro:*) · Explain clearly why they stop and question or arrest people (*Explica claramente por que revista ou prende as pessoas*) · Make impartial and fair decisions (*Toma decisões que são justas e imparciais*) · Pay attention to the information people provide them with (*Dá atenção às informações que as pessoas trazem*) · Treat people with respect (*Trata bem as pessoas*)	Never, rarely, sometimes, very often, always (*Nunca, raramente, às vezes, quase sempre, sempre*)

are each a separate construct; and, finally, a model with four factors, where perceptions of overpolicing, underpolicing, police effectiveness, and procedural fairness are distinct latent constructs.

As Table 3.A4 shows, a four-factor solution has the best model fit. The CFA model with four separate constructs has the highest scores of CFI (.99) and TLI (.99), the lowest

Table 3.A4: **Contrasting model fit statistics of five CFA models**

	One factor	Two factors	Three factors	Three factors	Three factors	Four factors
Latent constructs	1) Overpolicing, Underpolicing, Effectiveness, and Procedural Fairness combined	1) Overpolicing and Procedural Fairness combined; 2) Underpolicing and Effectiveness combined	1) Overpolicing and Underpolicing combined; 2) Procedural Fairness; 3) Effectiveness	11) Underpolicing and Effectiveness combined; 2) Overpolicing; 3) Procedural Fairness	1) Overpolicing and Procedural Fairness combined; 2) Underpolicing; 3) Effectiveness	1) Overpolicing; 2) Underpolicing; 3) Procedural Fairness; 4) Effectiveness
Estimation	Diagonally weighted least squares	Diagonally weighted least squares	Diagonally weighted least squares	Diagonally weighted least squares	Diagonally weighted least squares	Diagonally weighted least squares
Chi-Square	943.43	429.40	396.66	493.64	391.42	221.55
(degrees of freedom)	(90)	(89)	(87)	(87)	(87)	(84)
p-value	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$
CFI	.954	.982	.983	.978	.985	.993
TLI	.947	.979	.980	.974	.982	.991
$RMSEA$	.119	.075	.073	.083	.065	.049
$RMSEA\ CI$	[.112; .126]	[.077; .091]	[.066; .080]	[.076; .091]	[.059; .072]	[.042; .058]

score of RMSEA (.049), and is the only model where the confidence interval for the RM-SEA does not exceed .06. Altogether, these results demonstrate that the four constructs are indeed empirically distinguishable. The four latent constructs are moderately to strongly correlated with each other, with the magnitude of all but one estimated correlation coefficients ranging from 0.47 to 0.75. The exception is the model-implied correlation between perceived underpolicing and police effectiveness, estimated at -0.88.

To further investigate whether perceptions of underpolicing and police effectiveness can indeed be empirically distinguished, I estimated another set of CFA models assessing the scaling properties only of those survey items: a two-factor model distinguishing between underpolicing and police effectiveness, and a one-factor model with all items loading onto a single construct. I estimated these CFA models using maximum likelihood (with robust standard errors, where indicators are set as non-normally distributed continuous variables), so that different fit statistics could be compared. Results are displayed in Table 3.A5.

Both models yield acceptable fit statistics, with high CFI and TLI scores and low $RMSEA$ estimates. From a data-driven approach, the two-factor solution slightly outperforms the one-factor solution: slightly higher CFI and TLI scores, slightly lower $RMSEA$ estimate, and – crucially – lower AIC and BIC scores, suggesting that perceived under-

Table 3.A5: **Assessing the empirical distinctiveness of perceptions of underpolicing and police effectiveness**

	One factor	Two factors
Latent constructs	1) Underpolicing and Police Effectiveness combined	1) Underpolicing 2) Police Effectiveness
Estimation	Maximum likelihood (with robust standard errors)	Maximum likelihood (with robust standard errors)
Chi-Square	95.60	65.96
(degrees of freedom)	(27)	(26)
p-value	$p < 0.001$	$p < 0.001$
CFI	.968	.982
TLI	.958	.975
$RMSEA$	.058	.045
$RMSEA\ CI$	[.046; .071]	[.032; .059]
AIC	20648.11	20620.47
BIC	20731.46	20708.45

policing and perceived police effectiveness can indeed be empirically distinguished, as I expected. Notably, the third item tapping into perceived underpolicing ("the police are doing a good job in keeping the neighbourhood safe," which was asked with the other items tapping into perceived police effectiveness) is the one with the highest factor loading ($\lambda_3 = 0.880$). Yet, given the high correlation between the two factors how and considering that the a one-factor solution also yielded acceptable fit statistics, the choice between the one- or the two-factor solution should not be purely data driven, but rather theory driven. From a theoretical point of view, considering all the reasons outlined in the rest of the paper, treating perceptions of underpolicing and police effectiveness as two separate constructs is more appropriate. Given all these reasons combined, I treat these variables as two different, albeit correlated variables.

Measuring all latent constructs

I then fit four separate pooled graded response models for polytomous data with logistic function links, each model measuring each latent construct of interest (i.e., perceptions of overpolicing, underpolicing, police fairness, and police effectiveness). Item response models like this are similar to CFA models, in that empirical indicators (e.g., survey items) are regressed on an estimated latent variable, but with logistic function links as the indicators are categorical variables; in this case, function links are specified as ordinal logistic, as all indicators were measured based on Likert scales. Models were estimated using R's `ltm` package (Rizopoulos, 2006). Estimating one single model with a wide data set and 12 latent traits (each construct at each period) would preferable as a covariance matrix between all

Table 3.A6: **Four longitudinal IRT models measuring latent constructs at three points in time**

	Overpolicing		Underpolicing		Effectiveness		Fairness	
	Loading	s.e.	Loading	s.e.	Loading	s.e.	Loading	s.e.
Act as if above the law	2.328	.130						
Follow and harass people	1.922	.099						
Ensure safety (rev.)			1.285	.065				
Laws protect me			0.837	.043				
Unsatisfied with policing			1.481	.068				
Keep neighbourhood safe (rev.)			1.710	.082				
Reducing drug trafficking					1.979	.076		
Reducing armed robbery					2.210	.085		
Responding to emergency calls					1.833	.067		
Police station services					1.912	.069		
Criminal investigations					2.545	.099		
Demonstrations and protests					1.611	.059		
Explain clearly							1.684	.066
Make impartial and fair decisions							2.237	.079
Pay attention to information							2.488	.091
Treat people with respect							2.265	.081
Cov. between $T1$ & $T2$	.586	.039	.757	.034	.530	.031	.618	.026
Cov. between $T1$ & $T3$	.683	.036	.782	.034	.495	.032	.642	.028
Cov. between $T2$ & $T3$	.672	.037	.941	.028	.604	.028	.685	.023
Estimator	MLF		MLF		MLF		MLF	
N. obs	1181		1200		1193		1189	
AIC	15753.065		31889.689		37109.804		29841.529	
BIC	15900.214		32184.914		37608.058		30120.977	

constructs could be estimated, but IRT models with more than three latent traits are too computationally intense and never converge. Pooled IRT models ensure measurement equivalence as all trait loadings and intercepts are constrained to equality across waves, and therefore can model change over time in latent variables. Trait loadings for the four models are displayed in Table 3.A6. I use trait scores derived from these pooled graded response models throughout the study.

Table 3.A7: **Correlation matrix between key constructs using first wave data**

	Overpolicing	Underpolicing	Effectiveness	fairness	Legitimacy
Overpolicing	1				
Underpolicing	.22	1			
Effectiveness	−.27	−.63	1		
Fairness	−.29	−.53	.47	1	
Legitimacy	−.30	−.39	.40	.66	1

Tables 3.A7, 3.A8, and 3.A9 display correlation matrices between the four derived latent trait scores and scores of police legitimacy (the coercive-consensual continuum) at

Table 3.A8: **Correlation matrix between key constructs using second wave data**

	Overpolicing	Underpolicing	Effectiveness	fairness	Legitimacy
Overpolicing	1				
Underpolicing	.19	1			
Effectiveness	−.22	−.68	1		
Fairness	−.30	−.53	.51	1	
Legitimacy	−.32	−.47	.47	.65	1

Table 3.A9: **Correlation matrix between key constructs using third wave data**

	Overpolicing	Underpolicing	Effectiveness	fairness	Legitimacy
Overpolicing	1				
Underpolicing	.28	1			
Effectiveness	−.33	−.33	1		
Fairness	−.37	−.59	.56	1	
Legitimacy	−.39	−.52	.49	.64	1

each time period.

Appendix 3.2: Model choice for multilevel models

I first fitted two unconditional growth models (i.e., only including time as an explanatory variable) to assess the growth process of legitimacy judgements across the three time points, one with varying intercepts and one with varying intercepts and coefficients. Table 3.A10 displays the two unconditional growth models. According to penalised model selection criteria, the random intercepts model is preferred as both *AIC* and *BIC* values are lower (Kuha, 2004), which is why all five covariate-adjusted models include only random intercepts. Essentially, this implicates no growth process of police legitimacy judgements across the three waves.

Table 3.A10: **Unconditional growth models assessing growth parameters of legitimacy judgements**

	Random Intercepts model	Random Coefficients model
Intercept (s.e.)	-0.08 (0.03)	-0.07 (0.03)
Wave (s.e.)	0.04 (0.02)	0.04 (0.01)
Variance: Intercept	0.18	0.20
Variance: Wave	–	0.00
Variance: Residual	0.25	0.25
Number of individuals	1199	1199
Number of observations	2926	2926
AIC	5423.68	5427.33
BIC	5447.60	5463.22
Log likelihood	−2707.84	−2707.67

Appendix 3.3: The association between police legitimacy and tolerance of violence

Hypothesis 2.3 is centred around attitudes towards the acceptability of the use of violence. I assess whether police legitimacy judgements longitudinally mediate the effects of perceptions of overpolicing and underpolicing onto tolerance of violence. In this section, I investigate the extent to which legitimacy judgements are negatively associated with greater attitudes towards the acceptability of violence. Tolerance of violence is treated as a count variable (ranging from 0 to 6), so both Poisson and negative binomial models were fitted – because the variance of the dependent variable (2.13) is larger than its mean (1.91), the negative binomial distribution is more appropriate and was therefore the model of choice. Again, I first fitted two unconditional growth models to assess the growth process of tolerance of violence across the three time points, one including just random intercepts and another including a random intercepts and coefficients. Table 3.A11 displays two random effects negative binomial models.; Once again, the random intercepts model was preferred according to the penalised model selection criteria, given that both *AIC* and *BIC* values are lower. This suggests that there was no linear growth process of public support the use of violence during the three-wave period.

Table 3.A11: **Random effects negative binomial models assessing growth parameters of tolerance of violence**

	Random Intercepts model	Random Coefficients model
Intercept (s.e.)	0.36 (0.04)	0.33 (0.04)
Wave (s.e.)	0.11 (0.02)	0.12 (0.02)
Variance: Intercept	0.17	0.23
Variance: Wave	–	0.00
Number of individuals	1200	1200
Number of observations	2929	2929
AIC	9941.32	9942.61
BIC	9965.25	9978.50
Log likelihood	−4966.66	−4965.30

Therefore, I estimate two random intercepts negative binomial models to assess the association between police legitimacy and tolerance of violence. Model A includes just police legitimacy as an explanatory variable, while model B adds individual-level covariates (race, gender, social class, and neighbourhood fixed effects). Both models were estimated using R's `MASS` package.

Table 3.A12 displays the results of two random intercepts negative binomial models assessing the association between judgements about the legitimacy of the police and tolerance of violence – a simple model (2A) and one controlling for individual-level covariates

(model 2B).

Even after the inclusion of covariates, results are virtually the same: every unit increase in the scores of police legitimacy is associated with an expected decrease in the rate for tolerance of violence by 13% (model 2A) or 12% (model 2B). More negative views about the police – the closer people get to rejecting the police's right to rule and authority to govern and being fearful of their power – imply that they tend to tolerate personal use of violence as a morally justified strategy of conflict resolution. Losing faith in legal institutions' right to rule and authority to govern could lead to a more favourable moral stance on the private use of violence. Men have a greater rate of acceptance than women ($\hat{\beta} = 0.24$) and residents of middle class and wealthier neighbourhoods tend to have a lower rate of acceptance than residents of a precarious and economically deprived area.

Appendix 3.4: Tolerance of violence – breakdown by scenario

To further investigate both the relationship between police legitimacy judgements and tolerance of violence and the extent to which perceptions of overpolicing and underpolicing have an indirect statistical effect on tolerance of violence which is mediated by undermined legitimacy beliefs, in this section I reproduce previous results breaking down by each of the six scenarios that were included in the tolerance of violence index. The idea is to assess the extent to which previous results are driven mostly by support for use of violence in specific scenarios. As mentioned above, respondents were asked whether they thought it was right or wrong to use violence to: (1) defend themselves from an assault; (2) defend themselves from a robber or burglar; (3) solve a dispute with neighbours; (4) punish someone in case the authorities fail; (5) revenge for injuries to a relative; and (6) protest against things considered unjust.

I first reproduce results displayed in Appendix 3.3, assessing the association between police legitimacy and tolerance of violence in each scenario. Table 3.A13 displays the results of six binomial logistic regression models with random intercepts.

Table 3.A12: **Association between police legitimacy and tolerance of violence**

	Model 2A	Model 2B
	Est.	*Est.*
	95% *CI*	95% *CI*
Intercept (average)	0.35*	0.39*
	[0.28, 0.43]	[0.20, 0.57]
Wave	0.11*	0.11*
	[0.08, 0.14]	[0.08, 0.14]
Coercive-consensual continuum	−0.14*	−0.13*
	[−0.18, −0.09]	[−0.17, −0.08]
Race (1 = white)		0.01
		[−0.06, 0.09]
Gender (1 = male)		0.24*
		[0.17, 0.31]
Social class		−0.02
		[−0.05, 0.01]
Area 1 (ref.: *economically deprived and racially diverse*):		−
		−
Area 2 (*peri-urban and racially diverse*)		0.09
		[−0.04, 0.22]
Area 3 (*structurally disadvantage and racially diverse*)		0.02
		[−0.12, 0.15]
Area 4 (*poor and predominantly non-white*)		−0.04
		[−0.17, 0.09]
Area 5 (*middle class, racially diverse*)		−0.22*
		[−0.35, 0.08]
Area 6 (*middle class, predominantly white*)		0.03
		[−0.10, 0.17]
Area 7 (*affluent, predominantly white*)		−0.29*
		[−0.43, −0.14]
Area 8 (*wealthy gated communities, predominantly white*)		−0.24*
		[−0.40, −0.09]
BIC	9899.87	9823.25
N. Observations	2926	2926
N. Individuals	1199	1199
Variance: Intercept	0.15	0.13

Table 3.A13: **Association between police legitimacy and tolerance of violence breaking down by use of violence in six scenarios**

	Model A-D1: Defend themselves from an assault	Model A-D2: Defend themselves from a robber or burglar	Model A-D3: Solve a dispute with neighbours	Model A-D4: Punish someone in case the authorities fail	Model A-D5: Revenge for injuries to a relative	Model A-D6: Protest against things considered unjust
	Est. [95% *CI*]	*Est.* [95% *CI*]	*Est.* [95% *CI*]	*Est.* [95% *CI*]	*Est.* [95% *CI*]	*Est.* [95% *CI*]
Intercept (average)	0.58 [−0.02; 1.18]	0.10 [−0.59; 0.79]	−2.70* [−3.52; −1.87]	−2.91* [−3.76; −2.06]	−4.65* [−6.37; −2.93]	−1.51* [−2.01; −1.00]
Police legitimacy	−0.35* [−0.50; −0.20]	−0.22* [−0.39; −0.05]	−0.25* [−0.46; −0.03]	−0.33* [−0.54; −0.13]	−0.48* [−0.79; −0.18]	−0.26* [−0.40; −0.13]
Wave	0.31* [0.20; 0.42]	0.35* [0.24; 0.47]	0.28* [0.12; 0.45]	0.07 [−0.07; 0.21]	0.05 [−0.14; 0.25]	0.39* [0.28; 0.49]
Race (1 = white)	−0.11 [−0.35; 0.13]	0.17 [−0.11; 0.44]	0.16 [−0.15; 0.48]	0.16 [−0.16; 0.49]	0.00 [−0.60; 0.61]	−0.10 [−0.29; 0.10]
Gender (1 = male)	0.59* [0.37; 0.81]	1.08* [0.81; 1.34]	−0.02 [−0.32; 0.28]	0.64* [0.33; 0.95]	0.37 [−0.22; 0.97]	0.23 [0.05; 0.41]
Social Class	−0.16* [−0.26; −0.06]	−0.09 [−0.21; 0.02]	−0.02 [−0.15; 0.11]	0.00 [−0.13; 0.13]	0.01 [−0.23; 0.26]	−0.01 [−0.09; 0.07]
Area 1 (ref.: *economically deprived and racially diverse*):						
Area 2 (*peri-urban and racially diverse*)	0.10 [−0.33; 0.54]	0.05 [−0.46; 0.56]	−0.03 [−0.53; 0.47]	0.23 [−0.36; 0.81]	−0.14 [−1.23; 0.95]	0.35* [0.02; 0.69]
Area 3 (*structurally disadvantaged and racially diverse*)	−0.21 [−0.64; 0.22]	−0.19 [−0.70; 0.32]	−0.35 [−0.88; 0.18]	0.51 [−0.07; 1.09]	−0.74 [−1.84; 0.337]	0.26 [−0.08; 0.60]
Area 4 (*poor and predominantly non-white*)	−0.35 [−0.78; 0.08]	−0.39 [−0.90; 0.11]	−0.41 [−0.93; 0.12]	0.29 [−0.30; 0.87]	−0.52 [−1.62; 0.57]	0.09 [−0.25; 0.42]
Area 5 (*middle class, racially diverse*)	−0.55* [−0.98; −0.11]	−0.57* [−1.08; −0.06]	−1.31* [−1.96; −0.66]	−0.15 [−0.76; 0.45]	−1.09 [−2.21; 0.03]	−0.39* [−0.74; −0.03]
Area 6 (*middle class, predominantly white*)	0.13 [−0.31; 0.57]	0.01 [−0.50; 0.53]	−0.37 [−0.0−; 0.17]	0.45 [−0.13; 1.04]	0.02 [1.09; 1.12]	−0.17 [−0.52; 0.18]
Area 7 (*affluent, predominantly white*)	−0.58* [−1.04; −0.11]	−0.66* [−1.20; −0.11]	−1.25* [−1.91; −0.58]	−0.79* [−1.47; −0.11]	−1.76 [−3.01; −0.50]	−0.53* [−0.92; −0.15]
Area 8 (*wealthy gated communities, predominantly white*)	−0.49 [−0.99; 0.01]	−0.35 [−0.94; 0.23]	−1.26* [−1.99; −0.54]	−0.49 [−1.20; 0.22]	−0.91 [−2.18; 0.35]	−1.06* [−1.51; −0.61]
BIC	3827.90	3679.15	1831.87	2567.61	2096.94	3540.26
N. Observations	2926	2926	2926	2926	2926	2926
N. Individuals	1199	1199	1199	1199	1199	1199
Variance: Intercept	1.26	2.13	0.92	2.37	16.22	0.30

Note. Negative binomial regression models with random intercepts predicting acceptability of violence estimated using R's package MASS. *Est.* = estimates; 95% CI = 95% confidence intervals; BIC = Bayesian Information Criteria. ∗$p < 0.05$.

In comparison with results displayed in Table 3.A12 (using the tolerance of violence index), results displayed in Table 3.A13 remain virtually unaltered. In every scenario, judgements about the legitimacy of the police (measured as a coercive-consensual continuum) are negatively associated with the odds of supporting the use of violence in every scenario. Coefficients range from -0.22 (implying that every unit increase in the scores of police legitimacy are associated with a decrease of 20 percentage points in the odds of supporting the use of violence to defend oneself from a robber or burglar) to -0.48 (implying a decrease of 38% in the odds of supporting the use of violence to revenge for injuries to a relative), but are all distinctively negative.

Next, I reproduce results displayed in Table 3.5, assessing the indirect effects of perceptions of overpolicing and underpolicing on tolerance of violence in each scenario. Table 3.A14 displays the results of six panel models assessing longitudinal mediation with binary outcomes.

Table 3.A14: **Police legitimacy mediates the association between overpolicing and underpolicing and tolerance of violence**

Parameter	Model A-D1: Defend themselves from an assault	Model B-D1: Defend themselves from a robber or burglar	Model C-D1: Solve a dispute with neighbours	Model D-D1: Punish someone in case the authorities fail	Model E-D1: Revenge for injuries to a relative	Model F-D1: Protest against things considered unjust
	Est.	Est.	Est.	Est.	Est.	Est.
	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)
A1	0.57*	0.57*	0.57*	0.57*	0.57*	0.57*
	(0.028)	(0.027)	(0.028)	(0.028)	(0.027)	(0.028)
A2	0.76*	0.76*	0.76*	0.76*	0.76*	0.76*
	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)
B	0.44*	0.43*	0.43*	0.43*	0.44*	0.45*
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
C	0.46*	0.54*	0.27*	0.48*	0.57*	0.26*
	(0.028)	(0.024)	(0.059)	(0.030)	(0.029)	(0.039)
D1	−0.25*	−0.25*	−0.25*	−0.25*	−0.25*	−0.25*
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
D2	−0.30*	−0.30*	−0.30*	−0.30*	−0.30*	−0.30*
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
E	−0.14*	−0.04	−0.14*	−0.09	−0.21	−0.28*
	(0.049)	(0.051)	(0.061)	(0.055)	(0.056)	(0.052)
F1	0.04	−0.04	0.15	0.06	0.04	0.05
	(0.064)	(0.064)	(0.090)	(0.069)	(0.075)	(0.065)
F2	0.11	0.07	−0.08	−0.04	−0.08	0.03
	(0.062)	(0.064)	(0.083)	(0.074)	(0.070)	(0.065)
D1 ∗ E	0.04*	0.01	0.04*	0.02	0.05*	0.07*
	(0.012)	(0.013)	(0.016)	(0.014)	(0.015)	(0.014)
D2 ∗ E	0.04*	0.01	0.04*	0.03	0.06*	0.08*
	(0.015)	(0.015)	(0.019)	(0.017)	(0.017)	(0.016)
N. observations	752	752	752	752	752	752

Note. Panel models assessing longitudinal mediation as displayed by Figure 3.3 but breaking down by tolerance of violence in each specific scenario, estimated on R's `lavaan` package with weighted least square to handle binary outcomes. $Est.$ = estimates; standard errors reported in parenthesis. $*p < 0.05$.

In comparison with results displayed in Table 3.5 (using the tolerance of violence index), results displayed in Table 3.A14 are fairly similar. Perceptions of overpolicing and underpolicing transmit effects onto tolerance of violence via undermined legitimacy judgements in four of the six scenarios. Only the second (using violence to defend oneself from a robber or burglar) and the fourth scenarios (using violence to punish someone in case the authorities fail) yield non-significant indirect effects – but in those models the estimated coefficients are consistently similar to other models. In every other scenario, perceived overpolicing and underpolicing contribute to increases in tolerance of violence as predicted by hypothesis 2.3.

Bibliography

Adorno, S. (2013). Democracy in progress in contemporary Brazil: Corruption, organized crime, violence and new paths to the rule of law. *International Journal of Criminology and Sociology 2*, 409–425.

Applbaum, A. I. (2019). *Legitimacy*. Harvard University Press.

Bailey, S. R., M. Loveman, and J. O. Muniz (2013). Measures of "race" and the analysis of racial inequality in brazil. *Social Science Research 42*(1), 106–119.

Beetham, D. (1991). *The legitimation of power*. London: Macmillan.

Bell, M. C. (2016). Situational trust: How disadvantaged mothers reconceive legal cynicism. *Law & Society Review 50*(2), 314–347.

Benoit, K., K. Watanabe, H. Wang, P. Nulty, A. Obeng, S. Müller, and A. Matsuo (2018). quanteda: An r package for the quantitative analysis of textual data. *Journal of Open Source Software 3*(30), 774.

Biderman, C., J. M. De Mello, R. S. De Lima, and A. Schneider (2018). *Pax monopolista* and crime: the case of the emergence of the Primeiro Comando da Capital in São Paulo. *Journal of Quantitative Criminology*, 1–33.

Black, D. (1983). Crime as social control. *American Sociological Review 48*(1), 34–45.

Boehme, H. M., D. Cann, and D. A. Isom (2022). Citizens' perceptions of over-and under-policing: A look at race, ethnicity, and community characteristics. *Crime & Delinquency 68*(1), 123–154.

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

Bradford, B. (2014). Policing and social identity: procedural justice, inclusion and cooperation between police and public. *Policing and Society 24*(1), 22–43.

Brinkmann, M. (2020). Legitimacy: The right to rule in a wanton world. *Perspectives on Politics 18*(4), 1203–1204.

Brunton-Smith, I. (2011). Untangling the relationship between fear of crime and perceptions of

disorder: Evidence from a longitudinal study of young people in England and Wales. *The British Journal of Criminology 51* (6), 885–899.

Caldeira, T. P. (2002). The paradox of police violence in democratic brazil. *Ethnography 3* (3), 235–263.

Campeau, H., R. Levi, and T. Foglesong (2020). Policing, recognition, and the bind of legal cynicism. *Social Problems*.

Caprioli, M. and M. A. Boyer (2001). Gender, violence, and international crisis. *Journal of Conflict Resolution 45* (4), 503–518.

Cardia, N. (1997). O medo da polícia e as graves violações dos direitos humanos. *Tempo Social 9* (1), 249–265.

Cardia, N. (2017). Violence in são paulo: Its profile and the responses from the state, the private sector and civil society. In *Public Problems-Private Solutions?*, pp. 279–305. Routledge.

Carr, P. J., L. Napolitano, and J. Keating (2007). We never call the cops and here is why: A qualitative examination of legal cynicism in three Philadelphia neighborhoods. *Criminology 45* (2), 445–480.

Ceratti, R. K., R. F. d. Moraes, et al. (2015). Confiança nas forças armadas brasileiras: uma análise empírica a partir dos dados da pesquisa sips-defesa nacional. *Opinião Pública 21* (1), 132–156.

Christensen, M. M. and P. Albrecht (2020). Urban borderwork: Ethnographies of policing.

Coicaud, J.-M. (2002). *Legitimacy and politics.* Cambridge: Cambridge University Press.

Cooper-Knock, S.-J. (2014). Policing in intimate crowds: Moving beyond 'the mob'in south africa. *African Affairs 113* (453), 563–582.

Dias, C. N. and S. Darke (2016). From dispersed to monopolized violence: Expansion and consolidation of the primeiro comando da capital's hegemony in são paulo's prisons. *Crime, Law and Social Change 65* (3), 213–225.

Epp, C. R., S. Maynard-Moody, and D. P. Haider-Markel (2014). *Pulled over: How police stops define race and citizenship.* University of Chicago Press.

Fagan, J. and T. Tyler (2005). Legal socialization of children and adolescents. *Social Justice Research 18* (3), 217–241.

Filgueiras, F. (2013). Perceptions on justice, the judiciary and democracy. *Brazilian Political Science Review 7* (2), 62–87.

Fine, A. and E. Cauffman (2015). Race and justice system attitude formation during the transition to adulthood. *Journal of Developmental and Life-Course Criminology 1* (4), 325–349.

Gau, J. M. (2015). Procedural justice, police legitimacy, and legal cynicism: A test for mediation effects. *Police Practice and Research 16* (5), 402–415.

Hagan, J., B. McCarthy, and D. Herda (2020). What the study of legal cynicism and crime can tell us about reliability, validity, and versatility in law and social science research. *Annual Review of Law and Social Science 16*, 1–20.

Hagan, J., B. McCarthy, D. Herda, and A. C. Chandrasekher (2018). Dual-process theory of racial isolation, legal cynicism, and reported crime. *Proceedings of the National Academy of Sciences 115* (28), 7190–7199.

Haldipur, J. (2019). *No place on the corner: The costs of aggressive policing.* NYU Press.

Hamaker, E. L., R. M. Kuiper, and R. P. Grasman (2015). A critique of the cross-lagged panel model. *Psychological methods 20* (1), 102.

Hastie, T., R. Tibshirani, and J. Friedman (2009). *The elements of statistical learning: data mining,*

inference, and prediction. Springer Science & Business Media.

Huq, A. Z., J. Jackson, and R. Trinkner (2017). Legitimating practices: revisiting the predicates of police legitimacy. *The British Journal of Criminology 57*, 1101–1122.

Imbens, G. W. and D. B. Rubin (2015). *Causal inference in statistics, social, and biomedical sciences.* Cambridge University Press.

Jackson, J. (2018). Norms, normativity, and the legitimacy of justice institutions: International perspectives. *Annual Review of Law and Social Science 14*(1), 145–165.

Jackson, J. and B. Bradford (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.

Jackson, J., B. Bradford, M. Hough, A. Myhill, P. Quinton, and T. R. Tyler (2012). Why do people comply with the law? Legitimacy and the influence of legal institutions. *British Journal of Criminology 52*(6), 1051–1071.

Jackson, J., I. Brunton-Smith, B. Bradford, T. R. Oliveira, K. Pósch, and P. Sturgis (2020). Police legitimacy and the norm to cooperate: using a mixed effects location-scale model to estimate the strength of social norms at a small spatial scale. *Journal of Quantitative Criminology*, 1–26.

Jackson, J., A. Z. Huq, B. Bradford, and T. R. Tyler (2013). Monopolizing force? police legitimacy and public attitudes toward the acceptability of violence. *Psychology, Public Policy, and Law 19*(4), 479.

Jackson, J., K. Pósch, T. R. Oliveira, B. Bradford, S. M. Mendes, A. L. Natal, and A. Zanetic (2022). Fear and legitimacy in São Paulo, Brazil: Police-citizen relations in a high violence, high fear city. *Law & Society Review 56*(1).

Jauregui, B. (2016). *Provisional authority.* University of Chicago Press.

Kane, R. J. (2005). Compromised police legitimacy as a predictor of violent crime in structurally disadvantaged communities. *Criminology 43*(2), 469–498.

Kirk, D. (2016). Prisoner reentry and the reproduction of legal cynicism. *Social Problems 63*(2), 222–243.

Kirk, D. and M. Matsuda (2011). Legal cynicism, collective efficacy, and the ecology of arrest. *Criminology 49*(2), 443–472.

Kirk, D. and A. Papachristos (2011). Cultural mechanisms and the persistence of neighborhood violence. *American Journal of Sociology 116*(4), 1190–1233.

Kirk, D., A. Papachristos, J. Fagan, and T. R. Tyler (2012). The paradox of law enforcement in immigrant communities: Does tough immigration enforcement undermine public safety? *The Annals of the American Academy of Political and Social Science 641*(1), 79–98.

Komatsu, A. V., R. Theodoro, M. Chies-Santos, and M. C. Alvarez (2020). Contacts with police officers and changes in police legitimacy perceptions among Brazilian adolescents over time. *International Annals of Criminology 58*(2), 237–252.

Kubrin, C. E., S. F. Messner, G. Deane, K. McGeever, and T. D. Stucky (2010). Proactive policing and robbery rates across us cities. *Criminology 48*(1), 57–97.

Kuha, J. (2004). AIC and BIC: Comparisons of assumptions and performance. *Sociological Methods & Research 33*(2), 188–229.

Lessing, B. and G. D. Willis (2019). Legitimacy in criminal governance: Managing a drug empire from behind bars. *American Political Science Review 113*(2), 584–606.

Lind, E. A. and T. R. Tyler (1988). *The social psychology of procedural justice.* Springer Science & Business Media.

Lotufo, P. A. and I. M. Bensenor (2009). Income inequality and male homicide rates: São paulo, brazil, 1996–2007. *The European Journal of Public Health 19*(6), 602–604.

Mackenzie, C. (2020). Procedural justice, relational equality, and self-respect. In *Procedural Justice and Relational Theory*, pp. 194–210. Routledge.

Manso, B. P. (2016). *Homicide in São Paulo: An Examination of Trends from 1960-2010*. Springer.

Manso, B. P. and C. N. Dias (2018). *A guerra: a ascensão do PCC e o mundo do crime no Brasil*. Editora Todavia SA.

Marques, E. C. L. (2016). *São Paulo in the twenty-first century: Spaces, heterogeneities, inequalities*. Routledge.

McCarthy, B., J. Hagan, and D. Herda (2020). Neighborhood climates of legal cynicism and complaints about abuse of police power. *Criminology 58*(3), 510–536.

Morgan, S. and C. Winship (2015). *Counterfactuals and Causal Inference: Methods and Principles for Social Research*. New York: Cambridge University Press.

Moule Jr, R. K., B. H. Fox, and M. M. Parry (2019). The long shadow of ferguson: Legitimacy, legal cynicism, and public perceptions of police militarization. *Crime & Delinquency 65*(2), 151–182.

Muniz, J. d. O. et al. (2001). A crise de identidade das polícia militares brasileiras: dilemas e paradoxos da formação educacional. *Security and Defense Studies Review 1*, 187–198.

Murphy, K., L. Hinds, and J. Fleming (2008). Encouraging public cooperation and support for police. *Policing and Society 18*(2), 136–155.

Nery, M. B., M. F. T. Peres, N. Cardia, D. Vicentin, and S. Adorno (2012). Regimes espaciais: dinâmica dos homicídios dolosos na cidade de são paulo entre 2000 e 2008. *Revista Panamericana de Salud Publica 32*, 405–412.

Nery, M. B., A. A. Souza, and S. Adorno (2019). Os padrões urbano-demográficos da capital paulista. *Estudos Avançados 33*(97), 5–36.

Nivette, A. E., M. Eisner, and D. Ribeaud (2019). Evaluating the shared and unique predictors of legal cynicism and police legitimacy from adolescence into early adulthood. *Criminology 58*(1), 70–100.

Oliveira, T. R. and J. Jackson (2021). Legitimacy, trust and legal cynicism a review of concepts. *Tempo Social 33*, 113–145.

Oliveira, T. R., J. Jackson, K. Murphy, and B. Bradford (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*, 1003–1045.

Oliveira, T. R., A. R. Oliveira, and S. Adorno (2019). Legitimidade policial: um modelo de mensuração. *Revista Brasileira de Ciências Sociais 34*(100).

Oliveira, T. R., A. Zanetic, and A. Natal (2020). Preditores e impactos da legitimidade policial: testando a teoria da justeza procedimental em São Paulo. *Dados – Revista de Ciências Sociais*. in press.

Oliveira Junior, A. (2011). Dá para confiar nas polícias? confiança e percepção social da polícia no Brasil. *Revista Brasileira de Segurança Pública 5*(9).

Papachristos, A., T. Meares, and J. Fagan (2012). Why do criminals obey the law? The influence of legitimacy and social networks on active gun offenders. *The Journal of Criminal Law and Criminology 102*(2), 397–440.

Piccirillo, D., E. García-Sánchez, M. Chies-Santos, and A. Mizutani Gomes (2021). The role of police contact and neighborhood experiences on legal socialization: Longitudinal evidence from adolescents in Brazil. *Journal of Social Issues*.

Pinc, T. (2007). Abordagem policial: um encontro (des) concertante entre a polícia e o público. *Revista Brasileira de Segurança Pública 1*(2).

Piquero, A., J. Fagan, E. Mulvey, L. Steinberg, and C. Odgers (2005). Developmental trajectories of legal socialization among serious adolescent offenders. *Journal of Criminal Law and Criminology 96*(1), 267–298.

Pósch, K. (2021). Prying open the black box of causality: A causal mediation analysis test of procedural justice policing. *Journal of Quantitative Criminology 37*, 217–245.

Preacher, K. J. (2015). Advances in mediation analysis: A survey and synthesis of new developments. *Annual Review of Psychology 66*.

Reisig, M. D., S. E. Wolfe, and K. Holtfreter (2011). Legal cynicism, legitimacy, and criminal offending: The nonconfounding effect of low self-control. *Criminal Justice and Behavior 38*(12), 1265–1279.

Rios, V. M. (2011). *Punished: Policing the lives of Black and Latino boys*. NYU Press.

Rios, V. M., G. Prieto, and J. M. Ibarra (2020). Mano suave–mano dura: Legitimacy policing and latino stop-and-frisk. *American Sociological Review*.

Rizopoulos, D. (2006). ltm: An R package for latent variable modeling and item response theory analyses. *Journal of Statistical Software 17*(5), 1–25.

Sampson, R. J. (2012). *Great American city: Chicago and the enduring neighborhood effect*. University of Chicago Press.

Sampson, R. J. and D. J. Bartusch (1998). Legal cynicism and (subcultural) tolerance of deviance: the neighborhood context of racial difference. *Law & Society Review 32*(4), 777–804.

Sampson, R. J. and W. J. Wilson (1995). Toward a theory of race, crime, and urban inequality. In J. Hagan and R. D. Peterson (Eds.), *Crime and Inequality*, pp. 37–54. Stanford University Press.

Schubert, C. A., E. P. Mulvey, and L. Pitzer (2016). Differentiating serious adolescent offenders who exit the justice system from those who do not. *Criminology 54*(1), 56–85.

Sharkey, P. (2018). *Uneasy peace: The great crime decline, the renewal of city life, and the next war on violence*. WW Norton & Company.

Shedd, C. (2015). *Unequal city: Race, schools, and perceptions of injustice*. Russell Sage Foundation.

Silva, G. F. and C. Beato (2013). Confiança na polícia em Minas Gerais: o efeito da percepção de eficiência e do contato individual. *Opinião Pública 19*(1), 118–153.

Sinhoretto, J., E. Batitucci, F. R. Mota, M. C. Schlittler, G. Silvestre, D. de Souza Morais, L. G. de Souza, R. R. de Sousa, S. S. da Silva, L. A. Ovalle, et al. (2014). A filtragem racial na seleção policial de suspeitos: segurança pública e relações raciais. *Segurança pública e direitos humanos: temas transversais 5*, 121–160.

Sinhoretto, J., M. C. Schlittler, and G. Silvestre (2016). Juventude e violência policial no município de São Paulo. *Revista Brasileira de Segurança Pública 10*, 10–35.

Steinberg, J. (2020). Ethnographies of global policing. *Annual Review of Law and Social Science 16*, 131–145.

Stuart, F. (2016). *Down, out, and under arrest: Policing and everyday life in Skid Row*. University of Chicago Press.

Sunshine, J. and T. Tyler (2003). The role of procedural justice and legitimacy in public support for policing. *Law and Society Review 37*(3), 513–548.

Tankebe, J. (2009). Public cooperation with the police in Ghana: Does procedural fairness matter? *Criminology 47*(4), 1265–1293.

Telles, V. d. S. and D. V. Hirata (2010). Ilegalismos e jogos de poder em são paulo. *Tempo social 22*(2), 39–59.

Terrill, W. and M. D. Reisig (2003). Neighborhood context and police use of force. *Journal of Research in Crime and Delinquency 40*(3), 291–321.

Theodoro de Oliveira, R., D. Piccirillo, A. Gomes, and T. R. Oliveira (2022). Violência como fator socializador na construção da legitimidade da polícia: Um estudo com adolescentes de São Paulo, Brasil. *Forthcoming at Análise Social*.

Tilly, C. et al. (2003). *The politics of collective violence.* Cambridge University Press.

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.

Trinkner, R. and E. Cohn (2014). Putting the "social" back in legal socialization: procedural justice, legitimacy, and cynicism in legal and nonlegal authorities. *Law and Human Behavior 38*(6), 602–617.

Trinkner, R., J. Jackson, and T. R. Tyler (2018). Bounded authority: Expanding "appropriate" police behavior beyond procedural justice. *Law and Human Behavior 42*(3), 280–293.

Tyler, T. (2006). *Why People Obey the Law.* Princeton University Press.

Tyler, T., J. Fagan, and A. Geller (2014). Street stops and police legitimacy: Teachable moments in young urban men's legal socialization. *Journal of Empirical Legal Studies 11*(4), 751–785.

Tyler, T. and Y. Huo (2002). *Trust in the Law: Encouraging Public Cooperation with the Police and the Courts.* New York: Russell Sage Foundation.

Tyler, T. and R. Trinkner (2017). *Why children follow rules: legal socialization and the development of legitimacy.* New York: Oxford University Press.

Tyler, T. R. and J. Jackson (2014). Popular legitimacy and the exercise of legal authority: Motivating compliance, cooperation, and engagement. *Psychology, public policy, and law 20*(1), 78.

Tyler, T. R., J. Jackson, and A. Mentovich (2015). The consequences of being an object of suspicion: Potential pitfalls of proactive police contact. *Journal of Empirical Legal Studies 12*(4), 602–636.

VanderWeele, T. (2015). *Explanation in causal inference: methods for mediation and interaction.* Oxford University Press.

Vargas, R. (2016). *Wounded city: Violent turf wars in a Chicago barrio.* Oxford University Press.

Willis, G. D. (2009). Deadly symbiosis? The PCC, the state, and the institutionalization of violence in São Paulo, Brazil. In *Youth Violence in Latin America*, pp. 167–181. Springer.

Zanetic, A., B. P. Manso, A. L. Natal, and T. R. Oliveira (2016). Legitimidade da polícia: Segurança pública para além da dissuasão. *Civitas – Revista de Ciências Sociais 16*(4), 148–173.

First interlude

In the first paper, I assessed the dynamics and consequences of the overpolicing-underpolicing paradox in the high-crime, high-fear context of São Paulo, Brazil. Using a cross-lagged panel model, I presented evidence that perceptions of police intrusion and cynicism about police protection are mutually dependent, reproducing each other over time. The more over-policed an individual feels, the more unprotected they feel – and vice-versa. This is an important result as it implies that coercive policing strategies, which are often described as ineffective at fighting crime, could increase fear and scepticism about the competence of legal institutions to ensure public safety. While this study was focused on the city of São Paulo, the context resonates other large and highly unequal cities in the US and the Global South where police conduct varies enormously across different neighbourhoods.

Additionally, the findings are consistent with the idea that one of the consequences of increased perceptions of overpolicing and underpolicing is an increase in attitudes towards the acceptability of the use of violence. The mechanism of this relationship involves diminished judgements about the legitimacy of legal institutions. When people experience or perceive repeated police intrusion and feel like the police are failing at ensuring public safety, their views about the appropriateness and the entitlement of ruling power of legal authority are damaged; as a result, they develop more tolerant views about the use of violence for personal matters outside the scope of the State. As previous research suggests, when legal institutions fail to provide people with protection and safety, people might end up seeing violence as the only available strategy to resolve grievances.

The relationship between violence and legal attitudes is important – when people lose faith in legal authority, they may turn to violence. But what about the other side of this relationship; what role does violence play in the development of legal attitudes? Continuing to focus on the high-crime, high-fear context of São Paulo, in the second paper I examine the influence of exposure to neighbourhood and police violence on the development of judgements about the legitimacy of the law among adolescents. This paper draws on the legal socialisation literature and implements growth curve models to estimate individual developmental trajectories of legitimacy judgements between the ages of 11 and 12. Crucially, I show that a violent environment is significantly harmful to legal socialisation, as adolescents who witness a police assault, are exposed to neighbourhood violence, and/or study at a school where most students report being exposed to neighbourhood violence tend to develop undermined perceptions of legal legitimacy.

Chapter 4

SOCIALISATION THROUGH VIOLENCE: EXPOSURE TO NEIGHBOUR-
HOOD AND POLICE VIOLENCE AND THE DEVELOPMENTAL TRAJEC-
TORIES OF LEGAL LEGITIMACY BELIEFS AMONG ADOLESCENTS IN
SÃO PAULO

Thiago R. Oliveira
with Jonathan Jackson, Debora Piccirillo, Renan Theodoro, & Rick Trinkner

Abstract

We examine the influence of exposure to neighbourhood and police violence on the legal sociali-
sation of adolescents aged 11 to 14 years living in the city of São Paulo, Brazil. In a context of
idiosyncratic and violent policing, where the state's ability to control crime is low, we assess the
extent to which being exposed to neighbourhood crime and violence (e.g., listening to gunshots
and witnessing or hearing about citizens carrying guns, being robbed, or selling drugs), aggressive
police behaviour with violent undertones (e.g., certain forcible types of police stops and arrests),
and/or outright violent police behaviour (officers assaulting a member of the public) undermine
the development of adolescents' judgements about the legitimacy of the law. Analysing data from
a cohort-based, four-wave longitudinal survey of 2005-born young people living in São Paulo from
2016 to 2019, we use growth curve models to estimate developmental trajectories of legitimacy
beliefs. Results suggest that individual exposure to police violence can damage the process of legal
socialisation and that, above and beyond this individual effect, adolescents attending schools where
other students are exposed to neighbourhood violence tend to develop more negative views about
the legitimacy of legal authority over time.

Keywords:

Legal socialisation · exposure to violence · legitimacy of the law · police violence · Brazil

Introduction

The upbringing of children and adolescents in some poor neighbourhoods of large metropolitan areas in the United States is often marked by high levels of exposure to violence (Carr et al., 2007; Rios, 2011). Although relatively less studied, urban youth from Global South cities are sometimes heavily exposed to several facets of violence too, including domestic, sexual, school, neighbourhood, and police violence (Caldeira, 2019; Kaminer et al., 2013). For instance, Willis's (2015) ethnographic work in São Paulo, Brazil's largest city, showed how residents of communities dominated by a criminal gang (the 'Primeiro Comando da Capital' – PCC) have to live with a pervasive and tacit threat of violence from both law enforcement agents and PCC members alike, while Caldeira (2002) described how working-class people who were common victims of police abuse in São Paulo paradoxically supported violent policing to tackle serious crime in their communities.

The human cost of individual and collective violence on young people in pain, trauma, and grief is vast and multi-faceted. Violence causes not just physical injury, disability, and death (WHO fact sheet;[1] Hillis et al., 2016), but also psychological harm, impaired brain and nervous system development, poor mental health, unhealthy risk behaviours (e.g., drugs and high-risk sexual activity), and decreased life chances (e.g., higher risk of dropping out of school and difficultly finding and keeping a job). Sharkey's (2018) 'long reach of violence' is also seen in adverse outcomes of spatial proximity to violence. Studies into what Buka et al. (2001) call 'tertiary exposure to violence' have explored the impact of being in the vicinity of a mass shooting on people's daily emotions (Sharkey and Shen, 2021) and the negative relationship between exposure to violence and educational achievement (Lacoe and Sharkey, 2016; Burdick-Will, 2013). Scholars have similarly linked police-related deaths to heightened physiological stress levels of adolescents (Browning et al., 2021) and proximity to aggressive order maintenance policing to adverse academic performance (Legewie and Fagan, 2019).

In this paper we investigate an issue that has received surprisingly little criminological attention: namely, the potential effect of neighbourhood exposure to citizen and police aggression and violence on the legal socialisation of adolescents. Legal socialisation is the

---

[1]https://www.who.int/news-room/fact-sheets/detail/violence-against-children.

process by which individuals come to develop and understand their relationship with the law and the legal institutions tasked with regulating their behaviour and solving collective action problems (Tyler and Trinkner, 2017). Learning about the law means learning about the types of behaviour that the law curtails, the ways in which those behaviours are regulated, and the types of obligations and responsibilities—both on the part of the law and citizens—that characterise their relationship with the legal system. This is crucial because as Tyler and Trinkner (2017, p. 3) argue:

> "The viability of consensual approaches to maintaining social order through the legal system depends upon the orientations that children and adolescents develop toward the law during legal socialization. Legal socialization places attention not only on understanding how values and attitudes about the law and legal system are acquired (Tapp, 1991), but also on how legal institutions can leverage that understanding to promote self-regulation amongst citizens (Tyler, 2009)."

Our study focuses on the relationship between exposure to neighbourhood and police violence and the developmental trajectories of legal legitimacy beliefs of 11-14 year olds in São Paulo, Brazil. Legal socialisation occurs throughout the life course, but a critical phase in the internalisation of legitimacy beliefs is during childhood and adolescence, through relations with parents, experience in school, and observing and hearing about the actions of legal authorities (among other factors, see Trinkner and Reisig, 2021). São Paulo is a city in which violent and aggressive citizen and police behaviour can be a constituent part of sociability. Many adults fear crime and some fear police (Jackson et al., 2022). Levels of violent crime are high and daily crime control strategies are routinely based on aggressive, pro-active policing strategies (Zanetic et al., 2016), with every police officer carrying a firearm (almost half of all involuntary police-initiated between 2015 and 2018 involved officers directly pointing a gun at the citizen; see Oliveira, 2021). Legal authority makes itself present in people's lives in relatively confrontational ways—the ability to use force can be palpable in even the most mundane police–citizen interactions.

Drawing upon data from four waves of data from a cohort-based longitudinal survey of 2005-born students collected from 2016 to 2019 – the *São Paulo Legal Socialization Study* (SPLSS) – we assess the extent to which exposure to citizen and police aggression and violence is negatively associated with their development of beliefs about the legitimacy of legal authority. Adding to a literature that is over-reliant on US data (and mostly from the Pathways to Desistance study, e.g. Augustyn, 2016; Fine and Cauffman, 2015; Fine

et al., 2016, 2017; Kaiser and Reisig, 2019; Schubert et al., 2016), we use growth curve analysis to estimate individual developmental trajectories for each adolescent from 11 to 14 years old, and we assess the association between exposure to neighbourhood and police aggression and violence at each time point and changes in legitimacy judgements. Crucially, we examine both individual exposure to violence and exposure to a violent environment – i.e., we analyse whether attending a school where the average exposure to neighbourhood and police violence among all other students is high or low also shapes the legal socialisation of young adolescents in São Paulo.

Our analysis suggests that adolescents in this major city of the Global South are socialised through exposure to violence. Adolescents who attend a school where other students are exposed to police violence tend to develop over time more negative views about the authority of the law (above and beyond the effect of individual exposure), and while seeing the police stop and question a member of the public does not seem to play a particularly strong role, witnessing an officer using violence and assaulting someone is associated with negative changes that pull down the general developmental trajectory of attitudes towards the law over time. We conclude with the idea that, when adolescents are individually exposed to police violence, and when they collectively adapt to a violent neighbourhood environment, they draw signals from their environment that social order is not strong, that the police are more of a coercive rather than a protective force, that mutual obligations to obey the law are weak and non-binding—that laws do not apply to everybody, that people in power think they are above the law, and that the law is not there to protect everybody.

The rest of the paper proceeds as follows. We first review the literature on legal socialisation, focusing on what we know about the development of beliefs about the legitimacy of the law. We then discuss a topic that has been little studied—the relationship between legal socialisation and exposure to neighbourhood and police aggression and violence. After that, we describe the setting of the study, discussing how violence is a constituent part of sociability in São Paulo. We then present the study's design, hypotheses, data, and analytic strategy. We summarise the results of growth curve models, and we finish with a discussion about the role of violence in the legal socialisation process of adolescents in a major city in the Global South.

Legal socialisation and legitimacy of the law

Legal socialisation is the process by which people develop an understanding of the purpose and function of the law and the institutions that administer justice (Tyler and Trinkner, 2017). At the heart of legal socialisation are several important questions:

> "What obligations does a person owe to law and the directives of legal authorities? How can the legitimacy of a law be determined? What are the limits of legitimate legal authority? These issues are not focused upon the right thing to do to be true to moral principles, but rather on obligations to obey external state authorities (in spite of one's moral principles). Legal socialisation concerns the formation of such perceptions of obligation." (Tyler and Trinkner, 2017, p. 3)

On what bases are authorities legitimated? People learn about societal expectations how the legal system and its agents are supposed to behave (Trinkner and Tyler, 2016). They judge the legitimacy of institutions on the basis of whether officials wield their power appropriately (norms likely to be local to the social, political and legal context, for discussion see Jackson, 2018) and when they believe that legal authorities embody normative expectations, they view the power of the legal system to be rightfully held (Tyler and Jackson, 2014). But when the law and its agents are seen as unfair and oppressive, they will have little motivation to cooperate with its authorities or follow its dictates (Reisig et al., 2011; Augustyn, 2016).

The legitimacy of the law can be defined, from an empirical standpoint (Jackson and Bradford, 2019), as the normative belief that the law is psychologically binding in one's present life, anchored in some general sense that the law and/or its enforcement is morally appropriate (Tyler, 2006; Jackson et al., 2012; Trinkner et al., 2018; Oliveira and Jackson, 2021). From a social psychological perspective, legal legitimacy is a motivation to comply that is rooted in positive self-definition. People glean value and identity from being respectful of rules and authorities—being law-abiding is who they are (Trinkner, 2019). When people collectively internalise a moral obligation to the law, this creates collective obligations that help maintain a mutually beneficial scheme of social cooperation (Rawls, 1964), ameliorating the 'free-riding' problem that is created when citizens avoid obligations or continually disobey rules. Widespread normative self-regulation—rooted in values, habit and legitimacy—reduces the need for costly and minimally efficient modes of policing based on force and deterrence (Tyler, 2006; Tyler and Jackson, 2014; Trinkner

et al., 2018).

If legitimacy is essential to a functional legal system, how can legal authorities foster public beliefs that the law is morally entitled to dictate proper behaviour? A fair amount of criminological research has focused on people's direct and indirect experience with legal authorities (Oliveira et al., 2021). According to Trinkner and Tyler (2016) and Tyler and Trinkner (2017), depending upon the subjective quantity and quality of their direct and indirect contact with the law, people can develop a healthy relationship based on mutual understanding and respect, or an unhealthy relationship characterised by animosity and mistrust. The former is associated with more support for the law and legal compliance, with legitimacy leading people to feel a duty and responsibility to follow dominant standards of appropriate behaviour, independent of the context of rules and codes. This is because procedural justice enacted by police officers during police-citizen encounters communicate group inclusion or exclusion and can help therefore foster positive beliefs about the entitlement and appropriateness of the law (Tyler et al., 2014). The latter is related to cynicism, disobedience, and defiance – procedural injustice serves to exclude, marginalise and alienate. This is costly to the legal system and to society as a whole, because when public-authority relations are characterised by dominance and force, people are more likely to reject the premise of legal authority and condition their compliant behaviour on the likelihood of being caught (Tyler and Trinkner, 2017).

It is crucial, therefore, to understand how legitimacy beliefs develop among adolescents. Yet, only a very few studies have taken a life-course approach to the study of legal socialisation, and what empirical evidence is available comes mostly from the same US sample of youth offenders (the Pathways to Desistance study). Piquero et al. (2005) fitted group-based trajectory models on Pathways data, showing that contact with legal agents undermined the development of legitimacy beliefs and contributed to more cynic views of legal authority. McLean et al. (2019) drew on the same data to examine the development of trust in legal authority over time among 20-26-year-olds who were youth offenders, using nonlinear latent growth curve modelling. Few studies have relied upon other samples to examine legal socialisation; Nivette et al.'s (2019) study leveraging a sample of youths in Zurich, Switzerland, also using latent growth curve modelling, is an important exception. Crucially for the current study, however, longitudinal studies on legal socialisation using a life-course approach in the Global South are scarce, and while recent work has started to analyse data from the São Paulo Legal Socialization Study (see, e.g., Komatsu et al., 2020; Piccirillo et al., 2021; Trinkner et al., 2019), developmental trajectories of legal socialisation have not yet been assessed.

Exposure to violence

We also know little about the influence of exposure to neighbourhood and police violence on the development of judgements about the legitimacy of the law. The one exception is Fagan and Tyler's (2005) cross-sectional community sample study of just over 200 young people aged between 10 and 16 in two New York City neighbourhoods. They fielded Selner-O'Hagan et al.'s (1998) 'My Exposure To Violence' (My ETV) scale of exposure to neighbourhood violence (covering witnessing crimes like sexual assault, shootings, and hearing gunfire, and the experience of being chased, seriously threatened, and being home during a break-in). This is important work, but it did not address police aggression and violence, and it can be built upon using longitudinal designs and larger samples from non-US contexts. Plausibly, in the context of São Paulo, exposure to both neighbourhood and police violence can encourage the sense that one's environment is coercive and antagonistic, that citizens and authorities are willing to betray the rule of law, thereby damaging the developmental trajectories of legitimacy beliefs. Finally, no study has also addressed individual- and context-level (here, school-level) effects on the developmental trajectories of legitimacy beliefs.

Most work on exposure to violence comes from outside of criminology, in fields like public health, epidemiology and community psychology (Buka et al., 2001), none of which focuses on adolescents and legal socialisation. Buka and colleagues (2001, p. 299) define exposure to violence as "...a broad class of events, composed of victimisation from, witnessing of, and hearing about 'real life' (not fictional) violent events" and differentiate between three levels of exposure: "...primary, indicating victimisation; secondary, referring to violence seen or heard; and tertiary, i.e., learning of violent death, serious harm, or threat of death or injury to another person." Studies have shown that people who have recently witnessed violence are more likely to report problems of post-traumatic stress disorder (Giaconia et al., 1995) or aggression (Miller et al., 1999) and engage in problematic behaviours (Kilpatrick et al., 2000; Lynch and Cicchetti, 1998), compared to people who have not witnessed violence in recent times.

While this field of enquiry has generally focused on exposure to neighbourhood violence, some work has looked at the potential impact of exposure to police violence on mental health and other outcomes (DeVylder et al., 2020). Ang (2021) found a negative association between living close to where a police killing happened and young people's educational attainment in California, but only among Black and Hispanic students. The statistical effects were especially strong when officers killed unarmed people. Similarly,

Geller et al. (2014) found the experience of aggressive policing among young men aged 18-26 years was associated with more trauma and anxiety symptoms. Browning et al. (2021) found elevated levels of stress (measured by taking saliva samples for cortisol, cf. Smith Lee and Robinson, 2019) among Black teenagers exposed to a police-related death of a Black person.

Fagan and Tyler (2005) aside, legal socialisation research largely focuses on direct experiences with police officers (typically in law enforcement contexts) and individual antecedents (such as self-control), linking such factors to the development of legal attitudes such as police legitimacy and legal cynicism (e.g., Geller and Fagan, 2019; Nivette et al., 2019). The lack of empirical evidence on exposure to violence is surprising, in part because it is at odds with the history of the field, which has long argued that a constellation of factors drives the legal socialisation process. There is also some influential sociological work that has emphasised the importance of the environment in the development of cultural tools, including cultural dispositions towards the law and the legal institutions (Bell, 2017; Harding, 2009; Kirk and Papachristos, 2011), albeit that has not focused on adolescents and the development of legitimacy beliefs over time.

Exposure to violence and legal socialisation

To fill an important gap in the criminological literature, we test whether being personally exposed to neighbourhood and police violence shapes the developmental trajectories of legitimacy judgements among adolescents in São Paulo. Operationalizing legal legitimacy as the belief that the law is psychologically binding in their everyday lives and that the rule of law applies to all, we focus on (a) individual-level exposure to neighbourhood and police violence and (b) the effect of a violent environment above-and-beyond individual-level exposure.

On the one hand, adolescents who are themselves exposed to violence can develop undermined beliefs about the legitimacy of the law. First, experiencing cases of community violence could signal that legal authority does not provide citizens with security and protection. Neighbourhood violence suggests an under-policed environment, in which agents of the law fail to ensure public safety (Oliveira, 2021). Adolescents frequently exposed to community crime and violence (e.g., listening to gunshots and witnessing or hearing about citizens carrying guns, being robbed, or selling drugs) could interpret this lack of security and protection as messages of neglect and marginalisation (Mackenzie, 2020), which could both contribute to the development of both sentiments of distrust and rejection of values

legal authority represents (Oliveira and Jackson, 2021) and a coercive mode of legal social-isation (Trinkner and Tyler, 2016). By repeatedly listening, witnessing or hearing about citizens engaging in violent behaviour, adolescents can develop a relationship with legal authority based on the ideas of coercion, dominance, and confrontation.

Similarly, we examine the degree to which individual-level exposure to police aggression and violence undermines the development of legitimacy judgements. According to procedural justice theory (PJT), people evaluate whether legal power is being appropriately exercised during (direct and vicarious) contacts with police (Sunshine and Tyler, 2003; Oliveira et al., 2021; Geller and Fagan, 2019). Public-police interactions are teachable moments when values important to legal authority are passed on and people update their beliefs about the legitimacy of the law and the legal institutions (Tyler et al., 2014; Huq et al., 2017), and they are particularly crucial during young ages when people are developing attitudes towards legal authority (Fagan and Tyler, 2005; Tyler and Trinkner, 2017). Accordingly, adolescents who themselves witness law enforcement agents engaging in relatively forcible behaviour (e.g., making an arrest and handcuffing a suspect) or in outright violent behaviour (e.g., assaulting a member of the public) could learn the police officers often exercise their power in aggressive, oppressive and unjust ways (Bell, 2017), thus damaging their legal socialisation process and undermining their beliefs about the legitimacy of the law.

On the other hand, we address the contextual effect of adolescents attending a school in which other students have been exposed to violence in the neighbourhoods in which they live. Sharkey's 2018 review of the literature highlights the limited amount of criminological evidence on the impact of living in a violent environment ("residential environments that have high levels of violence, regardless of whether an individual witnesses it in person or hears about it"), citing the lack of appropriate data on violence at appropriate geographical levels, as well as the scarcity of innovative methodological approaches that shape how people move into and out of violent environments and situations. For instance, if parents have appropriate resources, they can act upon concerns about violence and child safety, whether by moving out of neighbourhoods and schools, or avoiding those neighbourhoods in the first place. We also know little to nothing about how and why violent environments can have an impact on, for example, aggression, depression, peer relations and academic achievement (see, e.g., Margolin and Gordis, 2000; Chan Tack and Small, 2017) that is above and beyond any such effects caused by individual experience of children and young people.

It is important to theoretically motivate why we examine the school-level effect of

exposure, above and beyond that of individual exposure. A student may have not have been personally exposed to community and police violence, but if their fellow students have, then a process of collective adaptation to the environment might occur. According to Kirk and colleagues (e.g., Kirk and Papachristos, 2011; Kirk and Matsuda, 2011), legal cynicism can be framed as an emergent property of neighbourhoods – a shared adaptation to an environment that adults experience to be disadvantaged, violent and under-policed (see also Sampson and Bartusch, 1998; Bell, 2017). Kirk and Papachristos (2011, p. 1191) link legal cynicism to neighbourhood violence, arguing that:

> "...antagonism toward and mistrust of the agents of the law may propel some individuals toward violence simply because they feel they cannot rely upon the police to help them resolve grievances. Under such conditions, violence can serve as an additional form of problem-solving behavior in one's cultural repertoire (Hannerz 1969; Black 1983), augmenting but not necessarily replacing other types of problem-solving behaviors such as calling the police."

In their study of adults across Chicago, three structural neighbourhood characteristics predicted significant between-neighbourhood clustering of legal cynicism: proportion of youth, concentrated disadvantage, and residential stability. Legal cynicism predicted area-level violence both directly and indirectly through collective efficacy ("a measure of neighbourhood social control and social cohesion and trust," Kirk and Papachristos, 2011, p. 1207), with tolerance of violence explaining little variance. They argued that legal cynicism is a shared adaptation to structural characteristics of the neighbourhood ("...individual perceptions of the law are augmented and solidified through communication and social interaction," Kirk and Papachristos, 2011, p. 1192). Because it operates as a cultural frame through which violence is viewed as possible as an option, it is also a potential source of violence, they argue.

In this study, we do not focus on the predictors of violence, but rather on the consequences of *exposure* to violence and to a violent environment; we do not focus on legal cynicism either and instead examine the other side of the coin, the development of beliefs about the legitimacy of the law. We test whether exposure to community and police violence among 11-14 year olds in São Paulo shapes how they begin to develop their orientation towards the law, specifically whether they begin to internalise values and attitudes that are consistent with consensual rather than coercive modes of social control (Tyler and Trinkner, 2017). The majority of the 11-14 year olds in our study are unlikely to be engaged in violent crime in their neighbourhoods, but a fair proportion of young people in São

Paulo may have witnessed and/or heard about crime and violence in their neighbourhood, as well as aggressive and sometimes violent policing on their streets (for example, around one in every five 14-year-olds living in São Paulo have witnessed police beating someone up). And while the students in a given school in our study are unlikely to all share the same neighbourhood, it is reasonable to expect that collective exposure to violence could have an impact on how their classmates will think about the law. A given student does not need to hear about every instance of violence that other students have been exposed to. By talking to, sharing stories, and learning from each other, adolescents may form a somewhat shared understanding of the substance and viability of the law and agents of the law in their everyday lives role of law and law enforcement in their lives. Crucially, we operationalize this not in terms of a violent and under-policed environment within the school itself – i.e. not violence and lack of protection within the school building(s) – but instead in terms of other students' aggregate exposure to violence in their neighbourhood.

We expand upon the aggressive nature of policing in São Paulo in the next section.

Violence and policing in São Paulo

The city of São Paulo is a fascinating context to study the impact on adolescents' legal socialisation of exposure to neighbourhood and police violence. A large metropolitan area with a population of 18 million people, São Paulo is a deeply unequal city, where health, well-being, safety, and the rule of law are very unfairly distributed (Willis, 2015). Residents tend to regularly experience violence and aggression (Oliveira, 2021), as violence is a constituent part of sociability and a fundamental element of various aspects of socialisation (Jackson et al., 2022). Like other large cities in low- and middle-income countries in the Global South, São Paulo faces serious challenges to effectively control several forms of violence. Crime rates in Brazil are high: the country has the largest number of victims of murder and the second highest homicide rate in South America (UNODC, 2013), with a national rate of 27.8 per 100,000 inhabitants (Cerqueira et al., 2020); in São Paulo, while the average homicide rate is considerably lower, at around 10 per 100,000, in some neighbourhoods this rate approaches 20/100,000 (Nery et al., 2012), with previous work suggesting that at least one third of all killings are due to interpersonal conflicts (Theodoro de Oliveira, 2016).

Yet, even the relatively low homicide rate in São Paulo (in relation to national rates) does not indicate actual crime control and decreased violence. Criminal governance is also an important factor in the violent socialisation process that marks residents of some

neighbourhoods. The PCC, a powerful and highly bureaucratised criminal gang, governs extensively, ruling large urban populations across enormous swaths of territory (Lessing and Willis, 2019). The organisation imposes and enforces rules, provides protection to residents, and generally behaves as the main authority figure in some parts of the city (Manso and Dias, 2018). As Willis (2015) described in his ethnographic study, this includes the 'right to kill' (see also Biderman et al., 2018) – even the apparent peace based on relatively low homicide rates could actually reflect the constant threat of violence faced by some citizens.

Aside from pervasive neighbourhood violence, São Paulo residents regularly face aggressive and forcible police practices. Policing is centred around confrontational, proactive methods (Manski and Nagin, 2017), with officers frequently making use of their legal powers to stop and question members of the public (Zanetic et al., 2016). Street-level policing is mostly conducted by the São Paulo Military Police, whose officers receive a highly militarised training and always carry guns (Pinc, 2011). It is not uncommon for law enforcement agents to threat to use force even in relatively mundane interactions with citizens: for instance, Oliveira (2021) showed how around half of all involuntary police stops in São Paulo between 2015 and 2019 involved an officer pointing a gun at the citizen. It is thus plausible that even routine police practices such as stopping and questioning members of the public and making arrests involve some level of aggressive behaviour, especially for young adolescents witnessing them.

On top of aggressive and confrontational police tactics meant to tackle crime, cases of police misconduct – involving excessive and sometimes even lethal use of force – are relatively common. For instance, police killings play a significant role in the overall homicide rates. Nationally in 2020, 12,8% of all 50,033 victims of murder were killed by security forces.[2] Victims of police killings tend to be from particular demographic groups: according to Sinhoretto et al. (2016), in 2015, 79% of the victims of police lethal use of force in São Paulo were Black or mixed-race and 99% were males,[3] with only 14 districts in the city accounting for 50% of all police killings; the authors also showed that the odds of young people being victimised by police forces were 10.5 times larger than those of adults and elders. Even when police use of force is not lethal, it often is excessive, with military officers trained for war-like situations engaging in violent behaviour – e.g., assaulting suspects. Previous work suggests that being exposed to such a level of pervasive neighbourhood and police violence might have harmful consequences for people's relationship with legal authority. Cardia (2003), for example, described how recurrent exposure to violence

---

[2] Anuário Brasileiro de Segurança Pública 2021, available at https://forumseguranca.org.br/wp-content/uploads/2021/07/infografico-2020-ing-v3.pdf.

[3] As opposed to 37% of Black or mixed-race people and 48% of males in the population of São Paulo.

during adolescence functioned as a negative socialisation, contributing to the naturalisation and legitimation of violence—as well as its reproduction. She also showed that young males from disadvantaged communities were most exposed to neighbourhood violence, and viewed legal institutions as disrespectful, ineffective, and corrupt. This could contribute to widespread public perceptions of the police as "just another gang" (Jackson et al., 2022; see also Bell, 2017).

The Brazilian state's ability to use force can thus be experienced and/or framed by many citizens as a concrete threat—police not only can but will often use violence to exert power—and this can be linked to a violent history. After centuries of colonialism, slavery and recent dictatorships (Schwartz et al., 2016), it is plausible that the idea that violence is the only way to exert power has some widespread currency, in what Pinheiro (1991) labels a "socially rooted authoritarianism." Even relatively routine police–citizen encounters can be relatively forcible, and witnessing such episodes may be more unnerving than comforting, especially for young adolescents. In turn, coming to believe that the police are to be feared and avoided may undermine their integration into law-abiding communities, and discourage the internalisation of the values that are a central part of that relationship. So, if exposure to violence shapes legitimacy among adolescents, then the context may not be particularly promising for the development of young people's beliefs that the ruling power of the law is functioning, present and binding in their everyday lives.

Current study

Overall, our study addresses an important research shortfall: namely, the lack of evidence on the association between exposure to violence and how adolescents learn over time about the viability, functioning, and binding nature of the law and its enforcement. We examine whether adolescents' understanding of the role of law and law enforcement in society and their lives is shaped by (a) exposure to aggressive and violent policing, including witnessing officers stopping and questioning a member of the public, making an arrest with handcuffs, or assaulting a suspect, (b) exposure to neighbourhood violence (e.g., listening to gunshots, witnessing or hearing about people carrying guns, selling drugs, and being robbed), and (c) attending a school where other students witness or hear about cases of aggressive police behaviour, police violence, or neighbourhood violence. It is important to note that we do not follow adolescents further into their teenage years and adulthood, testing whether individuals who believe that legal authorities are legitimate and evaluate existing authorities favourably (because they exemplify core values and norms) also tend to abide by rules, the law, and not engage in criminal behaviour in later years, beyond 14 years of age.

But we do drill into a key period of legal socialisation – early teenage years – and we do provide a novel assessment of whether exposure to violence seems to discourage 11 to 14 year olds in São Paulo to be socialised into feeling an obligation to obey the law that is rooted in the belief that 'rule of law' is present and powerful in society. Using latent growth curve analysis on a US sample of juvenile offenders aged 20-26, McLean et al. (2019) demonstrated that the development of trust in legal authority followed a nonlinear upward trajectory as former juvenile offenders became adults. Similarly, Nivette et al. (2019) showed that youths aged 13-20 in Zurich had a downward linear trajectory of evaluations of police performance and a nonlinear (downward) growth of legal cynicism. In this study, building on these previous studies that adopted a life-course approach to study legal socialisation, we first test the type of trajectory that best describes the average development of legal legitimacy judgements among young adolescents in São Paulo.

We then investigate the role of exposure to neighbourhood violence. Ethnographic research in large cities in the US and Brazil shows that young people from disadvantaged communities commonly need to develop strategies to adapt to a violent environment (Bell, 2016; Harding, 2009; Telles and Hirata, 2010), which often involve the development of antagonistic towards legal authority (Bell, 2017; Cardia, 2003; Kirk and Papachristos, 2011). We hypothesise that repeated exposure to neighbourhood violence during early adolescence contributes to an undermined development of legitimacy judgements. Crucially, we also investigate the influence of exposure to a violent *environment* (Sharkey, 2018), which means assessing the degree to which growing up in a context where most other adolescents are exposed to violence is also associated with damages in the development of beliefs about the legitimacy of the law (irrespective of whether the particular research participant witnessed that violence).

- **Hypothesis 1**: Exposure to neighborhood violence contributes to negative changes in the development of judgements about the legitimacy of the law.

We then evaluate the degree to which vicarious police contact is associated with changes in legal legitimacy. We hypothesise that witnessing law enforcement agents making use of stop-and-frisk powers or arresting a member of the public using handcuffs undermines the development of beliefs about the legitimacy of the law. Even though they consist of lawful and routine police activities, in São Paulo such events may be perceived by young adolescents as more aggressive than in other contexts. After all, the threat to actually use violence is salient, even palpable, in authority relations (Jackson et al., 2022), and highly militarised officers tend to engage in confrontational practices even in mundane

127

police-citizen interactions (Oliveira, 2021). Witnessing law enforcement agents stopping and questioning a member of the public and arresting a suspect in São Paulo probably consists of more aggressive situations than in Western contexts, which means that they could harm the development of legal legitimacy judgements.

- **Hypothesis 2**: Witnessing police officers making use of stop-and-frisk powers contributes to negative changes in the development of judgements about the legitimacy of the law.

- **Hypothesis 3**: Witnessing police officers making an arrest using handcuffs contributes to negative changes in the development of judgements about the legitimacy of the law.

Highly publicised cases of police brutality have been shown to influence neighbourhood cultural tools such as legal cynicism (see Desmond et al., 2016), while the experience of intrusive police stops where the police officer communicates suspicion of ongoing or future criminal conduct is associated with undermined views of police legitimacy (Tyler et al., 2015). We expand this perspective by evaluating the influence of exposure to police brutality on the development of legitimacy judgements during adolescence, taking the case of an officer using outright violence and assaulting a member of the public as an example.

- **Hypothesis 4**: Witnessing a police assault contributes to negative changes in the development of judgements about the legitimacy of the law.

Finally, to investigate the degree to which exposure to a violent environment contributes to the legal socialisation of young adolescents in São Paulo, we address parallel school-level effects for each of the above:

- **Hypothesis 5**: Exposure to peers who have themselves been exposed to neighborhood violence contributes to negative changes in the development of judgements about the legitimacy of the law.

- **Hypothesis 6**: Exposure to peers who have themselves witnessed police officers making use of stop-and-frisk powers contributes to negative changes in the development of judgements about the legitimacy of the law.

- **Hypothesis 7**: Exposure to peers who have themselves witnessed officers making an arrest using handcuffs contributes to negative changes in the development of judgements about the legitimacy of the law.

- **Hypothesis 8**: Exposure to peers who have themselves witnessed a police assault contributes to negative changes in the development of judgements about the legitimacy of the law.

Data and methods

The *São Paulo Legal Socialization Study* (SPLSS) is a yearly, four-wave, cohort-based longitudinal survey into the legal socialisation process of early adolescents developed by the Centre for the Study of Violence of the University of São Paulo (NEV-USP). The study surveyed 2005-born students living in the city of São Paulo every year from 2016 to 2019 ($n_1 = 800$, $n_2 = 750$, $n_3 = 724$, $n_4 = 702$).

Sampling procedures involved the selection of 112 public or private schools across all districts in São Paulo based on the Probability Proportional to Size (PPS) approach, which avoided the over-representation of adolescents from any district of the city. Consent and assent forms were then delivered to all eligible students from each school, and a random sample of 800 respondents was selected among those who returned assent and consent forms (approved by the National Ethical Committee). Pencil-based responses were self-recorded at school, as coordinated by a private polling company (*IBOPE*); from the second waves onwards, participants who had since moved to another school responded to the survey from home, and statistical tests have found no significant association between place of interview and variables of substantive interest. Every participant received a gift card equivalent to 12.00 USD. For more information about the study design, see Thomas et al. (2018) and Trinkner et al. (2019).

The sample is broadly representative of the population of 2005-born students living in São Paulo. Some 50% of the sample are males and 59% study at a state school, in line with population data according the 2010 National Population Census. Some 45% are White, 31% are of some Mixed Race, 11% are Black, 3% are Asian, and 3% are Indigenous – these are the five racial groups used by the National Institute of Geography and Statistics (IBGE) (see Bailey et al., 2013). Demographic data are consistent across the four waves, despite slight variations.

All questions were fielded in Portuguese and translated into English by the authors. Measures used in this study were collected in every wave with identical wording, although first wave questions were measured as binary indicators (1 = "yes", 0 = "no"), while in in the remaining waves they measured based on a four-point Likert scale. In order to ensure measurement equivalence, we dichotomised all T2, T3, and T4 measures (≥ 2) so that we

have repeated measures.

Measures

Judgements about the legitimacy of the law

We define legal legitimacy as the perception that the law has a normatively grounded-authority to govern (Tyler, 2006; Trinkner et al., 2018; Gur and Jackson, 2020). To assess the extent to which respondents internalise the law's authority to dictate appropriate behaviour, we fielded questions related to perceptions that (i) the law is entitled to be obeyed, regardless of their own moral position on the content of the law; and (ii) the rule of law applies equally to everyone in society. To measure whether the law is entitled to be obeyed (i.e., i: a normatively grounded duty to obey), adolescents were asked whether "laws should be obeyed even when people do not agree with them" and "some laws can be disobeyed" (reverse coded). To measure perceptions that the law applies equally to everyone in society (i.e., ii: rule of law), adolescents were asked whether "laws are the same for everyone," "there are people who are above the law" (reverse coded), and "laws are meant to protect people." Respondents rated each item with a four-point Likert scale (from 1 = "strongly disagree" to 4 = "strongly agree"), with the exception of responses collected in the first wave, which were measured as a binary scale (0 = "no", 1 = "yes"). To ensure longitudinal consistency, all items were dichotomised: the first two points of the Likert scale were coded as 0 whereas the last two points were coded as 1.[4]

We adopted a formative approach on measurement, which means that we assumed these indicators to constitute the phenomenon (for discussion, see Jackson and Kuha, 2016). A summative index was created using the five survey items, where a score of 0 represents the lack of legitimacy beliefs while a score of 5 represents beliefs that the law has the authority to govern. We interpret this construct as the belief that law applies to all (so is a normative appropriately force in society) and is psychologically binding in one's life. Average levels of legitimacy vary from 3.70 at the age of 11 to 3.83, 3.81, and 3.56 at ages of 12, 13, and 14.

---

[4]Because the five indicators might reflect two distinct sub-constructs – i.e., duty to obey and rule of law – confirmatory factor analysis models for binary indicators were fitted to assess whether a one- or two-factor solution had a better model fit. Eight CFA models were fitted, contrasting the two solutions using data from each wave. At each point in time, the one-factor solution outperformed the two-factor solution, indicating that all five indicators load onto a single construct. The correlation between the two factors was always estimated at $r_t \geq 0.75$ (for $t = 1, \ldots, 4$).

Individual exposure to violence

To measure exposure to citizen violence, adolescents were asked whether they witnessed a number of illegal events happening in their neighbourhood, including "listening to gunshots", "people other than police officers carrying guns", "people being robbed", and "people selling drugs on the streets",[5] The same questions were asked at every time point: at T1, respondents were asked whether they had ever seen each of these scenarios happening in their neighbourhood, whereas at T2, T3, and T4 they were asked whether they had witnessed each event since the previous wave.[6] As with other survey items, response alternatives are slightly different across waves. At T1, measures are all binary (0 = "no"; 1 = "yes"); at T2, items were measured based on a 4-point Likert scale (from 1 = never to 4 = always); and at T3 and T4, items were measured based on the number of times respondents had witnessed each event (0 = never; 1 = once; 2 = a few times; 3 = many times). To ensure longitudinal consistency, we dichotomised all survey items based on whether respondents reported seeing each event at least once (1 = "witnessed the described scenario"; 0 = "did not witness the described scenario").

Once all items were dichotomised, we created summative indexes of exposure to neighbourhood violence at each point in time ranging from zero (i.e., did not witness any of the events) to four (i.e., witnessed all four events). During their lifetime up until 2016, respondents saw an average of 2.9 events – the mode is 4, in a clear reflection of how rooted violence is among adolescents in São Paulo. Respondents saw an average of 0.76 events between the first and the second waves, 1.09 event between the second and the third waves, and 1.12 between the third and the fourth waves.

Exposure to police aggression and violence

Most interactions between adolescents and the police in São Paulo involve teenagers older than 14 years old: only 12% of respondents across all waves were stopped and questioned by

---

[5]We consider witnessing people selling drugs on the streets as an indicator of exposure to neighbourhood violence because of the context of São Paulo, where drug trafficking is the horsepower of several criminal gangs operating in some neighbourhoods, including the PCC (Willis, 2015; Manso and Dias, 2018). Rather than a commercial transaction, people selling drugs on the streets could indicate proximity to highly bureaucratised criminal organisations.

[6]Given that our analytic strategy relies on growth curve modelling, measures of the dependent variable (legal legitimacy) at T2, T3, and T4 are regressed on exposure to neighbourhood violence at T2, T3, and T4, respectively, while trajectory parameters (initial conditions and slope) are regressed on exposure to violence at T1. For this reason, it is crucial that T2, T3, and T4 measures of exposure to violence cover precisely the same period (e.g., the period between waves), while T1 measures are allowed to cover a different period (e.g., lifetime before 11 years old) as they influence the initial conditions and slope of the developmental trajectories.

Table 4.1: **Measures and descriptive statistics**

Survey items	Mean T1	Mean T2	Mean T3	Mean T4
Laws should be obeyed when even when people do not agree	.94	.88	.91	.88
Some laws can be disobeyed (reverse)	.62	.64	.69	.68
Laws are the same for everyone	.80	.90	.85	.75
There are people who are above the law (reverse)	.36	.48	.46	.41
Laws are meant to protect people	.97	.94	.91	.84
People selling drugs on the streets	.74	.25	.34	.38
People being robbed	.67	.21	.30	.30
People other than police officers carrying guns	.85	.09	.15	.15
Listening to gunshots	.67	.20	.30	.29
Seen police stop and frisk someone on the street	.86	.84	.80	.80
Seen police officers handcuffing and arresting someone	.53	.44	.43	.42
Seen police officers beating someone up	.13	.13	.14	.18
Gender (1 = male)	.50			
Race (1 = white)	.47			

police officers once or more. Exposure to police aggression and violence, on the other hand, is more common – for instance, more than 80% of respondents across all waves witnessed officers making use of stop-and-frisk powers against a member of the public. This may have long-term consequences in the development of law-related attitudes and values (Tyler and Trinkner, 2017). In this study, three different aspects of vicarious contact with legal authority were measured at each time point. Importantly, perceived police behaviour was not measured – i.e., respondents were not asked about the procedural fairness or bounded authority of a police-citizen interaction, they were instead asked whether they had seen some police activities that can indicate different levels of police misconduct. All questions were measured as a binary scale (0 = "no"; 1 = "yes").

Respondents were asked whether they had seen police officers "stopping and questioning a member of the public on the street," "arresting a member of the public using handcuffs," and "beating someone up." The first two scenarios involve obviously lawful prerogatives of police work, although they tend to be substantially more aggressive in São Paulo than elsewhere (Oliveira, 2021) – witnessing an arrest with handcuffs, in particular, could be a more traumatic experience for adolescents. The third scenario, on the other hand, refers to a case of outright violence. As predicted by hypotheses two through four, witnessing a aggressive and violent policing practices can be potentially harmful to the development of law-related attitudes.

Time-constant and school-level covariates

As time-constant covariates that could influence the growth parameters of adolescents' developmental trajectories of legal socialisation, we include respondents' gender (1 = "male") and race (1 = "white"), which was dichotomised to distinguish white adolescents from everyone else (see Bailey et al., 2013).

Analytic strategy

We use all four waves of data to fit growth curve models of legal legitimacy, which estimate random intercepts and random slopes reflecting the initial levels and the slopes of the developmental trajectories of legitimacy beliefs among all respondents. Each adolescent has an estimated developmental trajectory of legitimacy judgements and the latent variables reflecting the initial level and the slope of the trajectories are referred to as growth parameters. Equivalent growth curve models can be estimated via the structural equation or the multilevel frameworks (Bollen and Curran, 2006; Curran, 2003).

Our analytic strategy consists of two steps. We first fit five growth curve models with no covariates and compare their model fit to examine which type of trajectory better describes the development of legitimacy beliefs among adolescents in São Paulo. We use a structural equation framework in the first step as it provides greater flexibility when fitting non-linear trajectories. Essentially, latent growth curve models involve creating two latent variables which are reflected by the dependent variable at multiple time points (e.g., legal legitimacy at T1, T2, T3, and T4), each representing random intercepts and random slopes. The former is estimated by fixing all factor loadings to 1, the latter by fixing the factor loadings to the time gap that accurately represents the data collections periods – e.g., 0, 1, 2 and 3, respectively for T1, T2, T3, and T4, where one unit represents one year.

Each growth curve model implies a different average development of legitimacy judgements. For instance, developmental trajectories among respondents could be flat on average, where there is no change over time – adolescents simply maintain their levels of legitimacy throughout the period covered by this study. Trajectories could also be linear on average, where the rate of change over time is constant – adolescents consistently increase or decrease their beliefs of legitimacy from the ages of 11 to 14. Alternatively, the development of legitimacy beliefs could be nonlinear on average, where the rate of change over time is not constant – adolescents could first increase and then decrease their scores of legitimacy, or vice-versa.

We fit five models to examine the average development of legitimacy among adolescents from São Paulo. Model 1A is a no-growth model, where only a random intercept is estimated – the latent variable representing random slopes is not estimated, which would imply that scores of legal legitimacy are constant in time across the four waves. Model 1B estimates a linear growth model, where loadings representing the time gap between waves range linearly from 0 to 3 – this model would imply a linear development of legal legitimacy between 11 and 14 years old. Model 1C estimates a quadratic growth curve model, where a third latent variable is also estimated by fixing loadings to 0, 1, 3, and 9 – this model would imply a curved developmental trajectory, where an upward trajectory turns downward (or vice-versa) at some point. Model 1D estimates a nonlinear growth curve model, where the loadings of the latent variable representing random slopes are freely estimated rather than imposed (e.g., loadings are not fixed at 0, 1, 2, and 3) – this model would also imply a nonlinear trajectory, with potential turning points throughout the four-year period. Finally, Model 1E estimates a latent change score model (McArdle, 2009), where three latent variables representing the change scores from each time point to the next are estimated and random intercepts and slopes are reflected by these latent change scores – this model would imply that the developmental trajectories are nonlinear and heavily defined by previous scores of legitimacy beliefs.

A summary of the five types of developmental trajectories considered can be found in Table 4.2, while graphical representations of the five models can be found in Figure 4.1. We use R's package `lavaan` (Rosseel, 2012) to fit all growth models using diagonally weighted least squares. Contrasting model fit statistics such as the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), and the root mean square error of approximation ($RMSEA$), we select the model that best describes the average developmental trajectory of judgements about the legitimacy of the law to test the hypotheses about the influence of exposure to neighbourhood and police violence on legal socialisation among adolescents from São Paulo.

The second part of our analytic strategy involves testing the hypotheses concerning the influence of exposure to neighbourhood and police violence on legal socialisation. Using the growth curve model that best describes the average developmental trajectory of legal legitimacy among adolescents in São Paulo (in this case, the quadratic growth curve model), we include time-varying and time-constant covariates to investigate the extent to which exposure to neighbourhood and police violence influences changes in judgements about the legitimacy of the law over time. Because the quadratic growth curve model can be equivalently estimated using a structural equation or a multilevel framework, in the second part of the analysis we use a multilevel structure, as it is more straightforward to extend
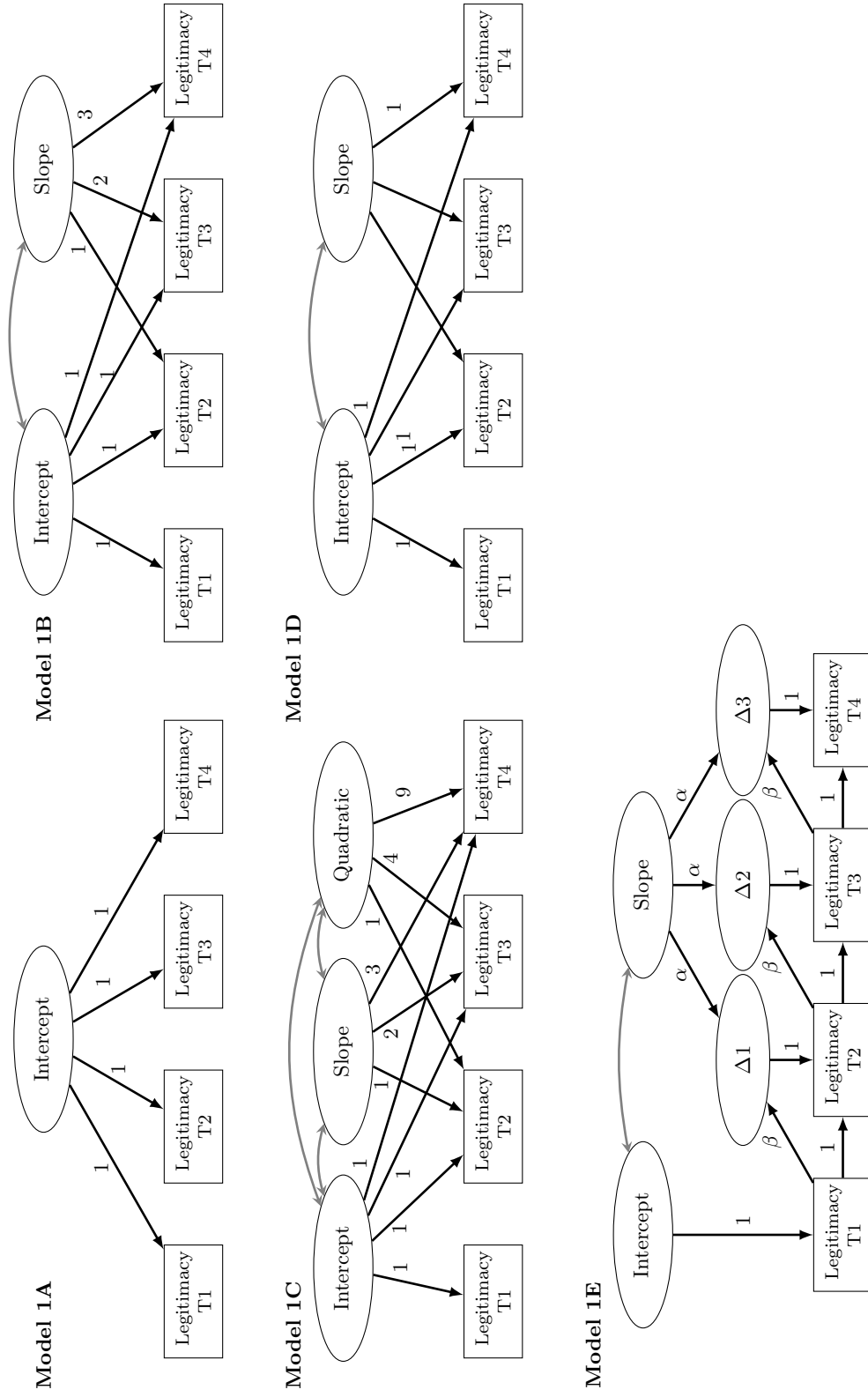
Figure 4.1: **Conceptual diagrams of five latent growth curve models estimating trajectories of legitimacy beliefs**

Table 4.2: **Types of developmental trajectories**

	Model	Estimation strategy	Substantive implications (type of developmental trajectory)
1A	No growth	*Latent Growth Curve Analysis* with no random slopes	*No change over time*: legitimacy beliefs are constant across the four periods
1B	Linear growth	*Latent Growth Curve Analysis* with random slopes linearly defined (period loadings fixed at 0, 1, 2, 3)	*Linear change over time*: trajectories of legitimacy beliefs progress linearly (upward or downward)
1C	Quadratic growth	*Latent Growth Curve Analysis* with random slopes fixed at 0, 1, 2, 3 and and a quadratic term fixed at 0, 1, 4, 9	*Curved change over time*: trajectories of legitimacy beliefs can have one turning point (e.g., they can be U-shaped or inverse U-shaped)
1D	Nonlinear growth	*Latent Growth Curve Analysis* with loadings of the random slopes being freely estimated rather than fixed	*Nonlinear change over time*: trajectories of legitimacy beliefs would progress nonlinearly over time
1E	Change score	*Latent Change Score Model*: one latent variable representing change scores for every change from $t-1$ to t, and random slopes freely estimated based on those latent change scores	*Nonlinear change over time*: trajectories of legitimacy beliefs are heavily based on previous levels of legitimacy beliefs

it to a three-level model including varying intercepts at the school level. As such, we can include school-level covariates to assess the influence of the school environment on the development of legitimacy judgements without incurring in ecological fallacy.

We estimate five growth curve models using a multilevel framework, all including random intercepts, random slopes, and random quadratic terms – these are the growth parameters that define individual developmental trajectories of legal legitimacy. Controlling for growth parameters, gender, and race, model 2A includes the natural logarithm of the summative index of exposure to neighbourhood violence, model 2B includes an indicator of whether respondents witnessed a police stop-and-frisk, model 2C includes witnessing a police arrest, model 2D includes witnessing a police assault, and model 2E includes all four covariates simultaneously.[7] Fitting separate models first allows us to evaluate changes in

---

[7]The reasoning here is that there could be some dependence between the events: there should be a relatively high chance that an arrest follows a stop-and-frisk: 93%, 96%, 93%, and 95% of the respondents who reported seeing an arrest at each time point, respectively from T1 to T4, also reported seeing officers making use of stop-and-frisk powers. Likewise, it is reasonable to assume that most events involving officers assaulting a member of the public follows an arrest: indeed, respectively 80%, 80%, 78%, and 76% of the respondents who reported witnessing a police assault at each time point also reported witnessing an arrest

Table 4.3: **Model fit statistics of five latent growth curve models**

	Model 1A	**Model 1B**	**Model 1C**	**Model 1D**	**Model 1E**
	No growth	*Linear growth*	*Quadratic growth*	*Nonlinear growth*	*Change score*
Chi-square	131.71	62.27	1.06	30.78	89.32
Degrees of freedom	8	5	1	2	8
p-value	< 0.001	< 0.001	0.302	< 0.001	< 0.001
CFI	0.638	0.832	0.999	0.916	0.762
TLI	0.728	0.799	0.999	0.747	0.821
RMSEA	0.157	0.135	0.010	0.152	0.127

magnitude and statistical significance between coefficients of different models.

We then estimate four three-level multilevel models including random intercepts for each school on top of the three growth parameters. The logic here is that observations are nested within respondents (each respondent has up to four observations), while respondents are nested within schools (each school has up to 10 respondents). Model 3A includes both individual-level and the average exposure to neighbourhood violence by school, model 3B includes both individual-level and the average exposure to police stop-and-frisks by school, model 3C includes both individual-level and the average exposure to police arrests by school, and model 3D includes both individual-level and the average exposure to police assaults by school

Results

Average developmental trajectories of legal legitimacy beliefs

Model fit statistics of five latent growth curve models with no covariates can be found in Table 4.3. We assess three fit statistics that focus on the measurement structure of the models. CFI and TLI statistics range from 0 to 1 and indicate good fitness as they get closer to 1, with values greater than 0.90 being commonly adopted as the acceptable threshold. The RMSEA also ranges from 0 to 1, but greater fit is represented by measures close to 0. With CFI and TLI values of 0.999 and an RMSEA of 0.01, it is clear that Model 1C is the one that best describes the average developmental trajectory of legitimacy beliefs.

Results therefore suggest that the development of judgements about the legitimacy

with handcuffs.

Table 4.4: **Latent growth curve model: quadratic growth**

	Model 1C	
	Estimate	*s.e.*
Mean		
Intercept	3.682	0.037
Slope	0.269	0.055
Quadratic term	−0.102	0.017
Variance		
Intercept	0.486	0.123
Slope	0.751	0.174
Quadratic term	0.064	0.015
Covariances		
Intercept & Slope	−0.347	0.137
Intercept & Quadratic term	0.083	0.034
Slope & Quadratic term	−0.202	0.047

of the law among adolescents aged 11 to 14 from São Paulo, on average, has a curved shape. Table 4.4 displays the results of the quadratic growth curve model (Model 1C). Each respondent has their own growth parameters (i.e., their individual initial level, slope, and quadratic term), but according to the estimated means for the growth parameters *on average* legitimacy judgements increase during the first few years of adolescence until they reach a peak at the age of 13, after which the scores decrease as respondents approach the age of 14. Figure 4.2 plots the inverse U-shaped trajectory of legitimacy scores that describes the average development of judgements about the legitimacy of the law.

Exposure to neighbourhood and police violence and the process of legal socialisation

Now that we selected the quadratic growth curve model as the one that best describes the average developmental trajectories of perceptions of legal legitimacy among adolescents in São Paulo, we investigate the role of exposure to neighbourhood and police violence. Results of five conditional quadratic growth curve models examining the influence of individual-level exposure to violence can be found in Table 4.5. Models were estimated using the multilevel framework to ease the comparison with three-level models that allow for the inclusion of school-level covariates (in Table 4.6 below).

All models include random intercepts, slopes, and a quadratic term and control for time-constant demographic covariates (gender and race). Model 2A includes exposure to neighbourhood violence (the natural logarithm of the summative index), model 2B includes an indicator of whether the respondents witnessed law enforcement agents stopping and
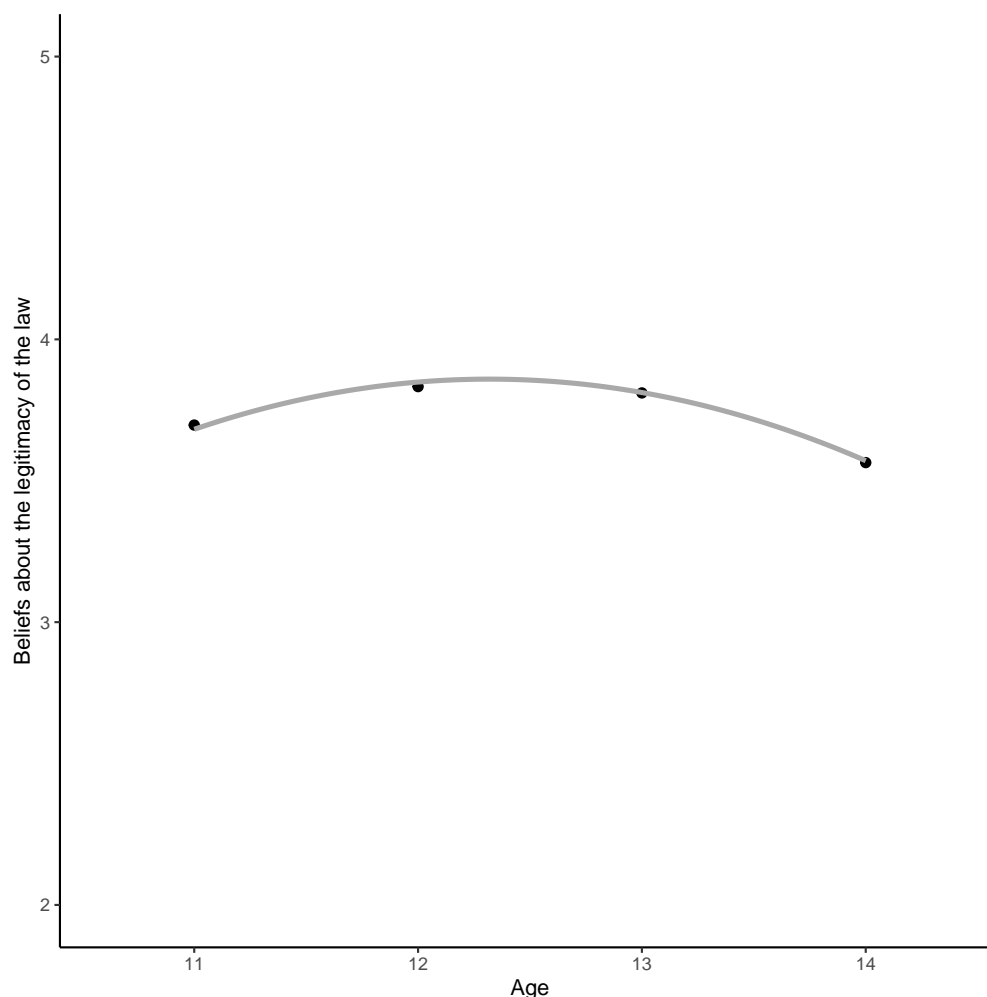
Figure 4.2: **Average trajectory of legitimacy beliefs based on quadratic growth curve model (1C)**

questioning a member of the public, model 2C includes witnessing a police arrest with handcuffs, model 2D includes witnessing a case of police violence (i.e., an officer assaulting a citizen), and model 2E includes exposure to neighbourhood violence and all three types of vicarious police contact simultaneously. Each model is estimated in one step, with time-constant covariates influencing the growth parameters (initial condition, slope, and curve of the trajectories) and time-varying covariates influencing changes in the dependent variable over time – statistical effects of exposure to neighbourhood and police violence and vicarious police contact are constrained to equality to indicate the average effects over time.

Table 4.5: **Conditional growth curve models assessing the influence of time-constant and time-varying covariates on the development of legal legitimacy**

	Model 2A		Model 2B		Model 2C		Model 2D		Model 2E	
	Est.	95% CI	Est.	95% CI	Est.	95% CI	Est.	95% CI	Est.	95% CI
Intercept	3.74*	[3.61; 3.86]	3.72*	[3.59; 3.84]	3.70*	[3.60; 3.80]	3.67*	[3.58; 3.77]	3.80*	[3.65; 3.95]
Year	0.17*	[0.06; 0.29]	0.25*	[0.15; 0.35]	0.24*	[0.14; 0.34]	0.25*	[0.15; 0.35]	0.19*	[0.07; 0.30]
Year (squared)	−0.08*	[−0.11; −0.04]	−0.10*	[−0.13; −0.07]	−0.10*	[−0.13; −0.06]	−0.10*	[−0.13; −0.06]	−0.08*	[−0.12; −0.05]
Time-constant covariates										
Gender (1 = male)	0.05	[−0.04; 0.15]	0.05	[−0.05; 0.15]	0.06	[−0.04; 0.16]	0.07	[−0.03; 0.16]	0.07	[−0.02; 0.17]
Race (1 = White)	0.06	[−0.04; 0.16]	0.06	[−0.04; 0.16]	0.05	[−0.04; 0.15]	0.05	[−0.05; 0.14]	0.05	[−0.05; 0.14]
Time-varying covariates										
Exp. neighb. violence (log)	−0.07*	[−0.14; −0.01]							−0.05	[−0.12; 0.02]
Witnessed a stop-and-frisk			-0.09	[−0.18; 0.01]					−0.03	[−0.13; 0.06]
Witnessed a police arrest					−0.12*	[−0.20; −0.05]			−0.08*	[−0.15; −0.00]
Witnessed a police assault							−0.29*	[−0.39; −0.18]	−0.24*	[−0.35; −0.14]
BIC	8140.4		8184.6		8181.0		8163.4		8127.0	
Variance: Intercept	0.36		0.36		0.36		0.36		0.36	
Variance: Year	0.54		0.56		0.54		0.57		0.55	
Variance: Year (squared)	0.04		0.05		0.04		0.05		0.04	
Variance: residual	0.55		0.54		0.55		0.54		0.55	
Number of observations	2911		2928		2928		2928		2909	
Number of respondents	799		800		800		800		799	

Note: Growth curve models estimated as multilevel models using R's package `lme4`. "*Est.*" = estimates; "*95% CI*" = 95% confidence interval; "BIC" = Bayesian Information Criteria. *$p < 0.05$.

Results indicate that exposure to violence and aggression can influence the process through which adolescents develop law-related attitudes. Respondents who were more exposed to neighbourhood violence (e.g., listening to gunshots, witnessing or hearing about people other than police officers carrying guns, people being robbed, and people selling drugs on the streets) had an undermined development of legal legitimacy beliefs (a log-linear relationship described by the coefficient −0.07 in model 2A). Results also show that different types of vicarious police contact can shape legal socialisation. Results indicate that some types of vicarious police contact can partly influence the process of legal socialisation. Adolescents who did or did not witness a police stop-and-frisk have a non-distinguishable developments of legitimacy judgements over this four-year period, as this coefficient is not statistically different from zero in model 2B. On the other hand, witnessing a police officer arresting someone with a member of the public using handcuffs could apparently damage the legal socialisation process, as adolescents who are exposed to this kind of police conduct practice at each time point, on average, have their scores of legitimacy decreased by 0.12 points (model 2C) – this coefficient remains statistically different from zero even after controlling for other types of vicarious police contact in model 2E. Crucially, exposure to police violence seems to be harmful to the development of legitimacy beliefs. Witnessing a legal agent assaulting a member of the public at each time point is associated with a negative change in the scores of legal legitimacy of 0.29 points (model 2D) – a result that remains virtually unaltered in model 2E.

But above and beyond individual exposure to violence, adolescents might be exposed to a violent *environment* (Sharkey, 2018). Table 4.6 displays results of four new three-level multilevel models assessing the developmental trajectories of legal legitimacy over time, but now adding a third level on top of growth parameters. With intercepts varying by school, school-level covariates can be included. Model 3A includes exposure to neighbourhood violence, model 3B includes witnessing a police stop-and-frisk, model 3C includes witnessing a police arrest, and model 3D includes witnessing a police assault – always juxtaposing individual-level exposure and the average exposure among students attending the same school.

Table 4.6: **Three-level models assessing the influence of school-level covariates on the development of legal legitimacy**

	Model 3A		Model 3B		Model 3C		Model 3D	
	Est.	95% CI	Est.	95% CI	Est.	95% CI	Est.	95% CI
Intercept	4.13*	[3.78; 4.47]	3.78*	[3.30; 4.01]	3.80*	[3.59; 4.01]	3.74*	[3.62; 3.86]
Year	0.18*	[0.07; 0.30]	0.25*	[0.15; 0.35]	0.24*	[0.14; 0.34]	0.25*	[0.15; 0.35]
Year (squared)	−0.08*	[−0.11; −0.05]	−0.10*	[−0.13; −0.06]	−0.10*	[−0.13; −0.06]	−0.10*	[−0.13; −0.06]
Time-constant covariates								
Gender (1 = male)	0.07	[−0.02; 0.17]	0.06	[−0.04; 0.15]	0.07	[−0.03; 0.17]	0.08	[−0.01; 0.18]
Race (1 = White)	0.04	[−0.06; 0.14]	0.05	[−0.04; 0.15]	0.05	[−0.05; 0.14]	0.04	[−0.06; 0.13]
Time-varying covariates								
Exp. Neigh. Violence (log)	−0.07	[−0.13; 0.00]						
Witnessed stop-and-frisk			−0.09	[−0.18; 0.01]				
Witnessed police arrest					−0.12*	[−0.19; −0.04]		
Witnessed police assault							−0.27*	[−0.37; −0.16]
School-level covariates								
Average Exp. Violence (log)	−0.55*	[−0.99; −0.10]						
Average Exp. Police stops			−0.08	[−0.65; 0.49]				
Average Exp. Police arrests					−0.23	[−0.65; 0.18]		
Average Exp. Police assaults							−0.52	[−1.07; 0.02]
BIC	8149.0		8198.6		8193.9		8174.2	
Variance: Intercept (respondents)	0.35		0.35		0.35		0.35	
Variance: Year	0.54		0.56		0.54		0.57	
Variance: Year (squared)	0.04		0.05		0.04		0.05	
Variance: Intercept (school)	0.01		0.01		0.01		0.01	
Variance: residual	0.55		0.54		0.55		0.43	
Number of observations	2911		2928		2928		2928	
Number of respondents	799		800		800		800	
Number of schools	112		112		112		112	

Note: Three-level models estimated using R's package `lme4`. "*Est.*" = estimates; "*95% CI*" = 95% confidence interval; "BIC" = Bayesian Information Criteria. *$p < 0.05$.

There is little variation between schools – which is not surprising, given that legal socialisation is an individual process of internalisation of norms (Tyler and Trinkner, 2017) chiefly shaped by individual antecedents (Nivette et al., 2015, 2019). However, results displayed in Table 4.6 indicate that environmental and cultural mechanisms also play an important role in the legal socialisation of young adolescents. Model 3A shows that respondents who study at schools where most other students reported high levels of exposure to neighbourhood violence, above and beyond their own individual experiences, tend to have damaged developmental trajectories of beliefs about the legitimacy of the law. Interestingly, individual exposure to neighbourhood violence does not seem to influence legal socialisation – the association is mostly shaped by their peers' experience of violence. This suggests that adolescents are culturally adapting to their violent environment (Kirk and Papachristos, 2011) and developing negative judgements about legal authority; while being individually exposed to neighbourhood violence might not harm their development of beliefs about the legitimacy of the law, there could be a collective process through which pervasive violence damages legal socialisation.

Interestingly, Table 6 displays different results when it comes to exposure to police aggression and violence. As in previous models, while witnessing a stop-and-frisk does not influence legal socialisation (model 3B), witnessing police arrests and assaults undermines the development of legitimacy beliefs. Unlike exposure to neighbourhood violence, however, it is the individual experience of seeing a law enforcement agent arresting a member of the public or beating someone up that contributes to negative changes in legal legitimacy (-0.12 and -0.27 points, respectively). According to models 3C and 3D, attending schools where most other students witnessed aggressive or violent policing does not have any influences on respondents' legal socialisation. This suggests that adolescents who individually experience inappropriate police behaviour have an undermined development of judgements about the legitimacy of the law, but that is not necessarily a collective process.

Discussion

We have examined in this paper the process of legal socialisation of adolescents aged 11 to 14 years who live in São Paulo – a city in which there is idiosyncratic and violent policing (Oliveira, 2021), where the state's ability to control crime and maintain order is low (Adorno, 2013), where residents of some neighbourhoods face the threat of violence on a regular basis (Willis, 2015). It is through childhood and adolescence that people start to develop law-related values and attitudes towards legal authority (Tyler and Trinkner, 2017). While it is crucial to understand the processes through which children and adolescents

come to understand the authority of the law, and while previous work has highlighted the importance of several social and individual antecedents (e.g., Fagan and Tyler, 2005; Geller and Fagan, 2019; Nivette et al., 2015, 2019; Piquero et al., 2005; Trinkner and Cohn, 2014), there remain several important gaps in the legal socialisation literature.

An assessment of the legal socialisation process ideally requires longitudinal data and a life-course approach to understand the developmental trajectories of legal attitudes over time. While a few studies have adopted this type of approach (e.g., Kaiser and Reisig, 2019; McLean et al., 2019; Nivette et al., 2019; Piquero et al., 2005), most if not every study that focused on the development of attitudes towards the law and the legal institutions over time are based in Western contexts, and most have drawn on one specific sample of former youth offenders in the US: namely the Pathways to Desistance study (Mulvey, 2016). Life-course studies on the development of legitimacy beliefs over time using a general sample of adolescents are scarce. Nivette et al.'s (2019) examination of the developmental trajectories of legal cynicism and judgements of police performance among youths from Zurich, Switzerland, is an important exception, but they also studied adolescents from a high-income country in the Global North. Life-course research on legal socialisation is scarce in the Global South. Recent work has addressed legal socialisation in Brazil (see Jackson et al., 2022; Komatsu et al., 2020; Trinkner et al., 2019) and highlighted the role of neighbourhood experiences and exposure to violence (Oliveira, 2021; Piccirillo et al., 2021), but it has not focused on the life-course development of legitimacy beliefs.

Previous work has also neglected the study of the role that exposure to neighbourhood and police violence plays on the development of judgements about the legitimacy of the law. The influence of a violent environment on the legal socialisation of early-adolescents has been little studied (see Fagan and Tyler, 2005, for an exception), which is surprising because exposure to violence can have several costs to social life (Sharkey, 2018). Studies have shown that individuals often adapt to a violent environment by developing cultural tools and strategies that allow them to cope (Harding, 2009) – e.g. they develop a cultural frame, in which the law is not binding and legal institutions and agents are viewed as disinterested and incapable of ensuring public safety (Bell, 2017; Kirk and Papachristos, 2011). Yet, the influence of a violent environment on the developmental trajectories of legitimacy beliefs among children and adolescents was not clear.

Additionally, we know little about the influence of exposure to forcible and violent police behaviour on the legal socialisation of children and adolescents. Previous work has addressed the association between police contact and aggressive policing strategies and young people's judgements about the legitimacy of legal authority (e.g., Fagan and Tyler,

2005; Geller and Fagan, 2019; Tyler et al., 2014). Yet, there is little evidence on the influence of exposure to forcible and violent police behaviour on the developmental trajectories of legitimacy beliefs over time. When adolescents are exposed to both neighbourhood and police violence, they may be socialised to think that legal institutions do not provide security and protection to people in their neighbourhood, that law enforcement agents are not interested in ensuring public safety, that social order is generally weak, and as such they may develop a more sceptic view of the law and legal institutions.

In this study, we drew on data from the *São Paulo Legal Socialization Study*, a four-wave longitudinal survey of adolescents aged 11 to 14 years residing in Brazil's largest city between 2016 and 2019, to assess the influence of exposure to neighbourhood and police violence on the process of legal socialisation, specifically the development of beliefs about the legitimacy of the law over time. In many ways, São Paulo is an ideal spot to study this topic. Using a life-course approach on legal socialisation and focusing on one of the largest cities in the Global South, we examined the influence of exposure to violence on the development of legitimacy judgements among adolescents. Legal socialisation of adolescents in contexts where violence is a constituent part of sociability (Cerqueira et al., 2020), where the threat of violence comes regularly from both highly bureaucratised criminal organisations and police officers alike (Willis, 2015), and where the police are viewed by some as "just another gang", to be feared and coercively obeyed, found to be illegitimate, but nevertheless to be complied with (Jackson et al., 2022; Oliveira, 2021), could have specific characteristics that were little explored by previous research.

Like previous research in other contexts (e.g., McLean et al., 2019; Nivette et al., 2019), we showed that the average developmental trajectories of beliefs about the legitimacy of the law followed a nonlinear, inverse U-shaped trajectory, with scores of legal legitimacy reaching their peak as respondents reached the age of 13, and then decreasing slightly. But crucially, we demonstrated that exposure to both neighbourhood and police violence is directly associated with the legal socialisation of young adolescents, undermining the process of internalisation of law-related values. In a context in which the threat of violence from (state and non-state) authority figures is frequent and even palpable (Manso and Dias, 2018; Lessing and Willis, 2019), at least in some neighbourhoods, we showed that growing up in an environment where crime and violence are relatively common and police officers behave aggressively and sometimes violently harms legal socialisation, as adolescents develop beliefs that the law does not have the authority to dictate appropriate public behaviour and that it is not equally applied to all segments of society.

We started with exposure to neighbourhood violence. Using an index based on ado-

lescents' exposure to events such as gunshots, people being robbed, people other than legal officers carrying guns, and people selling drugs on the streets, we showed that the more the respondents were individually exposed to such violent events, the less they would internalise a normatively grounded sense of duty to obey the law and a perception that the rule of law is active in society. However, above and beyond these individual effects, we showed that the more pervasive violence was in their community, the more damaged their legal socialisation would be. Studying in schools in which most other students were exposed to neighbourhood violence was negatively associated with changes in beliefs about the legitimacy of the law – to a greater extent than individual-level exposure. This result suggests important influences from the environment on legal socialisation. Exposure to a violent environment is harmful to legal socialisation, presumably because people – especially young adolescents – develop cultural tools to adapt to their environment (Harding, 2009), and through social interaction with their peers their develop cultural understandings about the functioning of the legal institutions even if they themselves did not witness neighbourhood violence.

We then moved to exposure to aggressive and violent police behaviour. São Paulo Military Police officers are trained for war-like situations, and it is not uncommon for them to threat to use force and draw their guns even in mundane police-citizen interactions (Oliveira, 2021). Still, we used three different measures of vicarious police contact, which indicate increasing levels of forcible police conduct: witnessing a police stop-and-frisk, which is a common task of police work but potentially a relatively aggressive situation in this context; witnessing a police arrest with handcuffs, which is still a basic legal prerogative in policing, but nonetheless a more forcible conduct, especially for young adolescents; and witnessing a police officer assaulting a suspect, a case of outright violence. Across different models, watching a law enforcement agent stop and search a member of the public did not influence the development of beliefs about the legitimacy of the law. Watching a police arrest and, to a much greater extent, watching a police assault did: exposed respondents had undermined developmental trajectories of legitimacy judgements.

Interestingly, however, the influence of police aggression and violence on legal socialisation appears to have a different mechanism than that of neighbourhood violence. While exposure to a violent environment seems to affect most of the damages in the legal socialisation of young adolescents, it is individual exposure to aggressive and violent policing that undermines adolescents' developmental trajectories of legitimacy beliefs. Individually witnessing an officer making an arrest, or more drastically assaulting a member of the public harms the development of judgements about the legitimacy of the law, whereas studying in a school where most other students also witnessed such forcible and violent

police behaviours does not seem to influence their legal socialisation.

Limitations

There are, of course, a number of limitations to your study that must be acknowledged. First, we are not assessing the causal effects of exposure to neighbourhood and police violence on developmental trajectories of legal legitimacy beliefs. While substantively interesting, this was not the goal of this study, as a different research design would be necessary to identify causal effects. Future research should incorporate advancements in causal inference methods in the legal socialisation literature. Second, we rely exclusively upon self-reported survey data, not on objective measures of exposure to neighbourhood and police violence. While individual perceptions are important, future research should incorporate other sources of data to validate some of the results we found in this study. Third, while the school-level effect of neighbourhood violence is consistent with the idea that legal legitimacy is partly a shared cultural frame (students come, to some degree, to collectively adapt to a violent environment outside of the same school), we did not formally test whether legitimacy beliefs also constitute a collective attribute. Respondents were not massively clustered within schools, possibly due to small within-school sample sizes. It is also not clear whether cultural tools are developed at the school level or at some other aggregate level (e.g., neighbourhood). We were limited by sampling characteristics of the SPLSS data, and future research should address cultural issues and collective processes in the legal socialisation literature. Fourth, our results are true for a very specific population of adolescents residing in São Paulo, a city in the Global South where pervasive violence is a constituent part of sociability. The extent to which our results can be generalised to other contexts is not clear, and future research should address this topic in several other contexts – both in the Global North and the Global South.

Final words: where next?

Overall, we have taken a life-course approach to studying the influence of exposure to neighbourhood and police violence on the legal socialisation of adolescents aged 11 to 14 in Brazil's largest city between 2016 and 2019 (Trinkner et al., 2019; Piccirillo et al., 2021). We adopted a life-course approach and examined individual developmental trajectories of adolescents' beliefs in the legitimacy of the law over time. Results indicated that exposure to neighbourhood violence (e.g., listening to gunshots, witnessing or hearing about people being robbed, carrying guns, or selling drugs) undermines the development of le-

gitimacy perceptions, and that while witnessing a police stop-and-frisk does not alter the legal socialisation process, seeing officers using handcuffs to make an arrest and, crucially, seeing an officer assaulting a member of the public also harms developmental trajectories of legitimacy beliefs.

Yet, the influence of exposure to neighbourhood violence and police violence and aggression on legal socialisation seems to have different mechanisms. We demonstrated that it is exposure to a violent environment (Sharkey, 2018) (Sharkey, 2018) that undermines developmental trajectories of legitimacy beliefs – adolescents who study at schools where most other students were exposed to violence, regardless of individual-level exposure, had an undermined development of legitimacy. When it comes to exposure to police behaviour, the opposite is true: it is individual exposure to forcible police conduct (e.g., witnessing a police arrest) or to outright violent police behaviour (e.g., witnessing a police assault) that harms developmental trajectories of judgements about the legitimacy of the law, not studying at a school where most other students also saw officers engaging in such conducts.

The context of the study was the city of São Paulo, a large city in the Global South where confrontational and aggressive policing methods are common and cases of police violence are not rare (Zanetic et al., 2016). Violence is a constituent part of sociability (Jackson et al., 2022), as people are frequently threatened with the use of force by authority figures – both legal and extralegal ones (Willis, 2015). By adopting a life-course approach to examine the influence of exposure to neighbourhood and police violence on the developmental trajectories of beliefs about the legitimacy of the law in Brazil's largest city, this study contributes to a growing international literature. More research on legal socialisation should (i) examine the role of exposure to violence, both citizen and police violence, and (ii) focus on other Global South contexts with weak state systems.

Bibliography

Adorno, S. (2013). Democracy in progress in contemporary Brazil: Corruption, organized crime, violence and new paths to the rule of law. *International Journal of Criminology and Sociology 2*, 409–425.

Ang, D. (2021). The effects of police violence on inner-city students. *The Quarterly Journal of Economics 136*(1), 115–168.

Augustyn, M. B. (2016). Updating perceptions of (in)justice. *Journal of Research in Crime and Delinquency 53*(2), 255–286.

Bailey, S. R., M. Loveman, and J. O. Muniz (2013). Measures of "race" and the analysis of racial inequality in brazil. *Social Science Research 42*(1), 106–119.

Bell, M. C. (2016). Situational trust: How disadvantaged mothers reconceive legal cynicism. *Law & Society Review 50*(2), 314–347.

Bell, M. C. (2017). Police reform and the dismantling of legal estrangement. *The Yale Law Journal*, 2054–2150.

Biderman, C., J. M. De Mello, R. S. De Lima, and A. Schneider (2018). *Pax monopolista* and crime: the case of the emergence of the Primeiro Comando da Capital in São Paulo. *Journal of Quantitative Criminology*, 1–33.

Bollen, K. A. and P. J. Curran (2006). *Latent curve models: A structural equation perspective*, Volume 467. John Wiley & Sons.

Browning, C. R., J. Tarrence, E. LaPlant, B. Boettner, K. K. Schmeer, C. A. Calder, B. M. Way, and J. L. Ford (2021). Exposure to police-related deaths and physiological stress among urban black youth. *Psychoneuroendocrinology 125*.

Buka, S. L., T. L. Stichick, I. Birdthistle, and F. J. Earls (2001). Youth exposure to violence: Prevalence, risks, and consequences. *American Journal of Orthopsychiatry 71*(3), 298–310.

Burdick-Will, J. (2013). School violent crime and academic achievement in chicago. *Sociology of education 86*(4), 343–361.

Caldeira, T. P. (2002). The paradox of police violence in democratic brazil. *Ethnography 3*(3), 235–263.

Caldeira, T. P. (2019). Crime and individual rights: reframing the question of violence in latin america. In *Constructing Democracy*, pp. 197–211. Routledge.

Cardia, N. (2003). ExposiÇão à violência: seus efeitos sobre valores e crenças em relação a violência, polícia e direitos humanos. *Revista Lusotopie*, 299–328.

Carr, P. J., L. Napolitano, and J. Keating (2007). We never call the cops and here is why: A qualitative examination of legal cynicism in three Philadelphia neighborhoods. *Criminology 45*(2), 445–480.

Cerqueira, D. R. d. C. C., S. C. Bueno, P. P. Alves, R. S. d. Lima, E. R. A. d. Silva, H. R. S. Ferreira, A. Pimentel, B. Barros, D. Marques, D. Pacheco, et al. (2020). *Atlas da violência 2020*. Instituto de Pesquisa Econômica Aplicada (Ipea).

Chan Tack, A. M. and M. L. Small (2017). Making friends in violent neighborhoods: strategies among elementary school children. *Sociological science 4*, 224–248.

Curran, P. J. (2003). Have multilevel models been structural equation models all along? *Multivariate Behavioral Research 38*(4), 529–569.

Desmond, M., A. V. Papachristos, and D. S. Kirk (2016). Police violence and citizen crime reporting in the black community. *American Sociological Review 81*(5), 857–876.

DeVylder, J., L. Fedina, and B. Link (2020). Impact of police violence on mental health: a theoretical framework. *American Journal of Public Health 110*(11), 1704–1710.

Fagan, J. and T. Tyler (2005). Legal socialization of children and adolescents. *Social Justice Research 18*(3), 217–241.

Fine, A. and E. Cauffman (2015). Race and justice system attitude formation during the transition to adulthood. *Journal of Developmental and Life-Course Criminology 1*(4), 325–349.

Fine, A., C. Cavanagh, S. Donley, P. J. Frick, L. Steinberg, and E. Cauffman (2017). Is the effect of justice system attitudes on recidivism stable after youths' first arrest? Race and legal socialization among first-time youth offenders. *Law and human behavior 41*(2), 146–158.

Fine, A., C. Cavanagh, S. Donley, L. Steinberg, P. J. Frick, and E. Cauffman (2016). The role of peer arrests on the development of youths' attitudes towards the justice system. *Law and Human Behavior 40*(2), 211–218.

Geller, A. and J. Fagan (2019). Police contact and the legal socialization of urban teens. *RSF: The Russell Sage Foundation Journal of the Social Sciences 5*(1), 26–49.

Geller, A., J. Fagan, T. Tyler, and B. G. Link (2014). Aggressive policing and the mental health of young urban men. *American Journal of Public Health 104*(12), 2321–2327.

Giaconia, R. M., H. Z. Reinherz, A. B. Silverman, B. Pakiz, A. K. Frost, and E. Cohen (1995). Traumas and posttraumatic stress disorder in a community population of older adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry 34*(10), 1369–1380.

Gur, N. and J. Jackson (2020). Procedure-content interaction in attitudes to law and in the value of the rule of law. *Procedural Justice and Relational Theory: Empirical, Philosophical, and Legal Perspectives*, 111.

Harding, D. J. (2009). Violence, older peers, and the socialization of adolescent boys in disadvantaged neighborhoods. *American sociological review 74*(3), 445–464.

Hillis, S., J. Mercy, A. Amobi, and H. Kress (2016). Global prevalence of past-year violence against children: a systematic review and minimum estimates. *Pediatrics 137*(3).

Huq, A. Z., J. Jackson, and R. Trinkner (2017). Legitimating practices: revisiting the predicates of police legitimacy. *The British Journal of Criminology 57*, 1101–1122.

Jackson, J. (2018). Norms, normativity, and the legitimacy of justice institutions: International perspectives. *Annual Review of Law and Social Science 14*(1), 145–165.

Jackson, J. and B. Bradford (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.

Jackson, J., B. Bradford, M. Hough, A. Myhill, P. Quinton, and T. R. Tyler (2012). Why do people comply with the law? Legitimacy and the influence of legal institutions. *British Journal of Criminology 52*(6), 1051–1071.

Jackson, J. and J. Kuha (2016). How theory guides measurement: Examples from the study of public attitudes toward crime and policing. In T. S. Bynum and B. M. Huebner (Eds.), *Handbook on Measurement Issues in Criminology and Criminal Justice*. John Wylie.

Jackson, J., K. Pósch, T. R. Oliveira, B. Bradford, S. M. Mendes, A. L. Natal, and A. Zanetic (2022). Fear and legitimacy in São Paulo, Brazil: Police-citizen relations in a high violence, high fear city. *Law & Society Review 56*(1).

Kaiser, K. and M. D. Reisig (2019). Legal socialization and self-reported criminal offending: The role of procedural justice and legal orientations. *Journal of Quantitative Criminology 35*(1), 135–154.

Kaminer, D., B. Du Plessis, A. Hardy, and A. Benjamin (2013). Exposure to violence across multiple sites among young south african adolescents. *Peace and Conflict: Journal of Peace Psychology 19*(2), 112.

Kilpatrick, D. G., R. Acierno, B. Saunders, H. S. Resnick, C. L. Best, and P. P. Schnurr (2000). Risk factors for adolescent substance abuse and dependence: data from a national sample. *Journal of Consulting and Clinical Psychology 68*(1), 19.

Kirk, D. and M. Matsuda (2011). Legal cynicism, collective efficacy, and the ecology of arrest. *Criminology 49*(2), 443–472.

Kirk, D. and A. Papachristos (2011). Cultural mechanisms and the persistence of neighborhood

violence. *American Journal of Sociology 116*(4), 1190–1233.

Komatsu, A. V., R. Theodoro, M. Chies-Santos, and M. C. Alvarez (2020). Contacts with police officers and changes in police legitimacy perceptions among Brazilian adolescents over time. *International Annals of Criminology 58*(2), 237–252.

Lacoe, J. and P. Sharkey (2016). Life in a crime scene: Stop, question, and frisk activity in new york city neighborhoods in the aftermath of homicides. *Sociological Science 3*, 116.

Legewie, J. and J. Fagan (2019). Aggressive policing and the educational performance of minority youth. *American Sociological Review 84*(2), 220–247.

Lessing, B. and G. D. Willis (2019). Legitimacy in criminal governance: Managing a drug empire from behind bars. *American Political Science Review 113*(2), 584–606.

Lynch, M. and D. Cicchetti (1998). An ecological-transactional analysis of children and contexts: The longitudinal interplay among child maltreatment, community violence, and children's symptomatology. *Development and Psychopathology 10*(2), 235–257.

Mackenzie, C. (2020). Procedural justice, relational equality, and self-respect. In *Procedural Justice and Relational Theory*, pp. 194–210. Routledge.

Manski, C. F. and D. S. Nagin (2017). Assessing benefits, costs, and disparate racial impacts of confrontational proactive policing. *Proceedings of the National Academy of Sciences 114*(35), 9308–9313.

Manso, B. P. and C. N. Dias (2018). *A guerra: a ascensão do PCC e o mundo do crime no Brasil.* Editora Todavia SA.

Margolin, G. and E. B. Gordis (2000). The effects of family and community violence on children. *Annual review of psychology 51*(1), 445–479.

McArdle, J. J. (2009). Latent variable modeling of differences and changes with longitudinal data. *Annual Review of Psychology 60*, 577–605.

McLean, K., S. E. Wolfe, and T. C. Pratt (2019). Legitimacy and the life course: An age-graded examination of changes in legitimacy attitudes over time. *Journal of Research in Crime and Delinquency 56*(1), 42–83.

Miller, L. S., G. A. Wasserman, R. Neugebauer, D. Gorman-Smith, and D. Kamboukos (1999). Witnessed community violence and antisocial behavior in high-risk, urban boys. *Journal of Clinical Child Psychology 28*(1), 2–11.

Mulvey, E. P. (2016). Research on Pathways to Desistance [Maricopa County, AZ and Philadelphia County, PA]: Subject Measures, 2000-2010. *MI: Inter-university Consortium for Political and Social Research [distributor].* https://doi.org/10.3886/ICPSR29961.v2.

Nery, M. B., M. F. T. Peres, N. Cardia, D. Vicentin, and S. Adorno (2012). Regimes espaciais: dinâmica dos homicídios dolosos na cidade de são paulo entre 2000 e 2008. *Revista Panamericana de Salud Publica 32*, 405–412.

Nivette, A. E., M. Eisner, T. Malti, and D. Ribeaud (2015). The social and developmental antecedents of legal cynicism. *Journal of Research in Crime and Delinquency 52*(2), 270–298.

Nivette, A. E., M. Eisner, and D. Ribeaud (2019). Evaluating the shared and unique predictors of legal cynicism and police legitimacy from adolescence into early adulthood. *Criminology 58*(1), 70–100.

Oliveira, T. R. (2021). Violence and coercive policing: Dynamics and consequences of the overpolicing-underpolicing paradox in Brazil's largest city. Working paper. Available at https://osf.io/preprints/socarxiv/89jkv/.

Oliveira, T. R. and J. Jackson (2021). Legitimacy, trust and legal cynicism a review of concepts.

Tempo Social 33, 113–145.

Oliveira, T. R., J. Jackson, K. Murphy, and B. Bradford (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*, 1003–1045.

Piccirillo, D., E. García-Sánchez, M. Chies-Santos, and A. Mizutani Gomes (2021). The role of police contact and neighborhood experiences on legal socialization: Longitudinal evidence from adolescents in Brazil. *Journal of Social Issues*.

Pinc, T. M. (2011). *Treinamento policial: um meio de difusão de políticas públicas que incidem na conduta indivudual do policial de rua*. Ph. D. thesis, Universidade de São Paulo.

Pinheiro, P. S. (1991). Autoritarismo e transição. *Revista USP 9*, 45–56.

Piquero, A., J. Fagan, E. Mulvey, L. Steinberg, and C. Odgers (2005). Developmental trajectories of legal socialization among serious adolescent offenders. *Journal of Criminal Law and Criminology 96*(1), 267–298.

Rawls, J. (1964). Legal obligation and the duty of fair play.

Reisig, M. D., S. E. Wolfe, and K. Holtfreter (2011). Legal cynicism, legitimacy, and criminal offending: The nonconfounding effect of low self-control. *Criminal Justice and Behavior 38*(12), 1265–1279.

Rios, V. M. (2011). *Punished: Policing the lives of Black and Latino boys*. NYU Press.

Rosseel, Y. (2012). Lavaan: An r package for structural equation modeling and more. version 0.5–12 (beta). *Journal of statistical software 48*(2), 1–36.

Sampson, R. J. and D. J. Bartusch (1998). Legal cynicism and (subcultural) tolerance of deviance: the neighborhood context of racial difference. *Law & Society Review 32*(4), 777–804.

Schubert, C. A., E. P. Mulvey, and L. Pitzer (2016). Differentiating serious adolescent offenders who exit the justice system from those who do not. *Criminology 54*(1), 56–85.

Schwartz, A. E., A. Laurito, J. Lacoe, P. Sharkey, and I. G. Ellen (2016). The academic effects of chronic exposure to neighborhood violence.

Selner-O'Hagan, M. B., D. J. Kindlon, S. L. Buka, S. W. Raudenbush, and F. J. Earls (1998). Assessing exposure to violence in urban youth. *The Journal of Child Psychology and Psychiatry and Allied Disciplines 39*(2), 215–224.

Sharkey, P. (2018). The long reach of violence: A broader perspective on data, theory, and evidence on the prevalence and consequences of exposure to violence. *Annual Review of Criminology 1*, 85–102.

Sharkey, P. and Y. Shen (2021). The effect of mass shootings on daily emotions is limited by time, geographic proximity, and political affiliation. *Proceedings of the National Academy of Sciences 118*(23).

Sinhoretto, J., M. C. Schlittler, and G. Silvestre (2016). Juventude e violência policial no município de São Paulo. *Revista Brasileira de Segurança Pública 10*, 10–35.

Smith Lee, J. R. and M. A. Robinson (2019). "that's my number one fear in life. it's the police": Examining young black men's exposures to trauma and loss resulting from police violence and police killings. *Journal of Black Psychology 45*(3), 143–184.

Sunshine, J. and T. Tyler (2003). The role of procedural justice and legitimacy in public support for policing. *Law and Society Review 37*(3), 513–548.

Telles, V. d. S. and D. V. Hirata (2010). Ilegalismos e jogos de poder em são paulo. *Tempo social 22*(2), 39–59.

Theodoro de Oliveira, R. (2016). *Banalidades e brigas de bar: estudo sobre conflitos interpessoais*

com desfechos fatais (São Paulo: 1991-1997). Ph. D. thesis, Universidade de São Paulo.

Thomas, K., H. Rodrigues, A. M. M. Gomes, R. T. de Oliveira, D. Piccirillo, and R. C. de Brito (2018). Parental legitimacy, procedural justice, and compliance with parental rules among brazilian preadolescents. *International Journal of Child, Youth and Family Studies 9*(3), 21–46.

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.

Trinkner, R. and E. Cohn (2014). Putting the "social" back in legal socialization: procedural justice, legitimacy, and cynicism in legal and nonlegal authorities. *Law and Human Behavior 38*(6), 602–617.

Trinkner, R., J. Jackson, and T. R. Tyler (2018). Bounded authority: Expanding "appropriate" police behavior beyond procedural justice. *Law and Human Behavior 42*(3), 280–293.

Trinkner, R. and M. D. Reisig (2021). Celebrating 50 years of legal socialization. *Journal of Social Issues*.

Trinkner, R., H. Rodrigues, D. Piccirillo, F. E. Gifford, and A. M. M. Gomes (2019). Legal socialisation in Brazil: examining the generalisability of the procedural justice model. *International Journal of Comparative and Applied Criminal Justice 44*(1), 7–27.

Trinkner, R. and T. Tyler (2016). Legal socialization: Coercion versus consent in an era of mistrust. *Annual Review of Law and Social Science 12*, 417–439.

Tyler, T. (2006). *Why People Obey the Law*. Princeton University Press.

Tyler, T., J. Fagan, and A. Geller (2014). Street stops and police legitimacy: Teachable moments in young urban men's legal socialization. *Journal of Empirical Legal Studies 11*(4), 751–785.

Tyler, T. and R. Trinkner (2017). *Why children follow rules: legal socialization and the development of legitimacy*. New York: Oxford University Press.

Tyler, T. R. and J. Jackson (2014). Popular legitimacy and the exercise of legal authority: Motivating compliance, cooperation, and engagement. *Psychology, public policy, and law 20*(1), 78.

Tyler, T. R., J. Jackson, and A. Mentovich (2015). The consequences of being an object of suspicion: Potential pitfalls of proactive police contact. *Journal of Empirical Legal Studies 12*(4), 602–636.

Willis, G. D. (2015). *The killing consensus*. University of California Press.

Zanetic, A., B. P. Manso, A. L. Natal, and T. R. Oliveira (2016). Legitimidade da polícia: Segurança pública para além da dissuasão. *Civitas – Revista de Ciências Sociais 16*(4), 148–173.

Second interlude

In the second paper, I focused on legal socialisation and assessed the influence of exposure to neighbourhood and police violence on the development of legitimacy judgements among adolescents in São Paulo. Using growth curve models and four waves of data, I estimated individual trajectories depicting the evolution of legitimacy beliefs between the ages of 11 and 14. Results suggest that the average developmental trajectory is non-linear, with perceptions of legal legitimacy reaching a peak at age 13 and then decreasing slightly. As predicted, exposure to neighbourhood and police violence may be potentially harmful to the process of legal socialisation, as the more exposed to acts of violence adolescents are, the more undermined their views of the law. Crucially, results also show that a violent environment is associated with trajectories of legal socialisation, as the average exposure of violence at the school level is also negatively associated with legitimacy beliefs.

One of the findings highlighted by this paper is the role of vicarious police contact. While witnessing a police stop does not seem to have any impact, the experience of watching an arrest where law enforcement agents handcuff the suspect is damaging to legal socialisation, as it seems to lead adolescents to a slightly weaker recognition of the ruling power of the law. More importantly, witnessing a police brutality event may be distinctively harmful to adolescents' understanding of the law. Vicarious police contact, in particular those involving violence, is associated with changes in the development of legitimacy. Police contact seems to be an important socialising experience, particularly during childhood and adolescence.

But what about adults? If the second paper emphasises the development of legitimacy judgements during early ages, does this imply that attitudes towards legal institutions among adults are already-formed constructs with no room for change, or can people update their attitudes after encounters with legal agents? This is the focus of the third paper. Considering a two-wave nationally representative sample of adults residing in Australia, I investigate the extent to which police contact – and the evaluations of those encounters – is associated with changes in police trustworthiness and legitimacy. Using autoregressive structural equation modelling to properly address the matter of time, I demonstrate that people update their views about legal institutions depending on their evaluation of officers' behaviour. The third paper suggests that even though public attitudes towards legal authority are mostly formed during childhood and adolescence, police-citizen encounters indeed seem to be teachable moments that are associated attitudinal change.

Chapter 5

ARE TRUSTWORTHINESS AND LEGITIMACY 'HARD TO WIN, EASY TO LOSE'? A LONGITUDINAL TEST OF THE ASYMMETRY THESIS OF POLICE-CITIZEN CONTACT

Thiago R. Oliveira
with Jonathan Jackson, Kristina Murphy, and Ben Bradford

Abstract

Objectives: Test the asymmetry thesis of police-citizen contact that police trustworthiness and legitimacy are affected more by negative than by positive experiences of interactions with legal agents by analysing changes in attitudes towards the police after an encounter with the police. Test whether prior attitudes moderate the impact of contact on changes in attitudes towards the police.
Methods: A two-wave panel survey of a nationally representative sample of Australian adults measured people's beliefs about police trustworthiness (procedural fairness and effectiveness), their duty to obey the police, their contact with the police between the two waves, and their evaluation of those encounters in terms of process and outcome. Analysis is carried out using autoregressive structural equation modelling and latent moderated structural models.
Results: The association between both process and outcome evaluation of police-citizen encounters and changes in attitudes towards the police is asymmetrical for trust in police effectiveness, symmetrical for trust in procedural fairness, and asymmetrical (in the opposite direction expected) for duty to obey the police. Little evidence of heterogeneity in the association between encounters and trust in procedural fairness and duty to obey, but prior levels of perceived effectiveness moderate the association between outcome evaluation and changes in trust in police effectiveness.
Conclusions: The association between police-citizen encounters and attitudes towards the police may not be as asymmetrical as previously thought, particularly for changes in trust in procedu-

ral fairness and legitimacy. Policy implications include considering public-police interactions as 'teachable moments' and potential sources for enhancing police trustworthiness and legitimacy.

Introduction

People come into contact with the police in different ways and for different reasons. There are regulatory encounters, e.g. someone might be stopped by an officer on foot or in a vehicle for investigatory purposes. There are service-style encounters, e.g. someone might report having been a victim of crime to the police or come forward with information vital to police intelligence. There are indirect encounters, e.g. someone might see officers patrolling their streets and interacting with residents. Whatever the context, moments of police-citizen contact are numerous and often important for both parties – sometimes extremely so. There is a good deal of evidence that police-citizen encounters are 'teachable moments', where people update their attitudes towards the trustworthiness (can officers be trusted to do what they supposed to do?) and legitimacy of legal institutions (does the institution of police have the right to power and authority to govern?) based on their experience of officer behavior (e.g. Tyler et al. 2014). On this account, individuals infer from such experiences whether police can generally be trusted to behave in a fair manner, be effective at fighting crime, and abide by the rules—and whether officers direct their power towards the right ends, seek to achieve these via normatively justifiable means, and are, therefore, entitled to be obeyed (Pósch et al., 2020).

Crucially for policing policy and practice, perceived police trustworthiness and legitimacy (or their absence) can have significant consequences for people's law-related behaviour, such as reporting crimes, coming forward with intelligence, complying with police orders, accepting police decisions, and even abiding by the law (Murphy et al., 2008; Slocum et al., 2016; Trinkner et al., 2018; Tyler and Jackson, 2014; Wiley and Esbensen, 2016). It is vital that police handle their encounters with citizens properly – as Skogan (2006, p. 118) put it: 'Popular opinion matters in part because widespread confidence in the police makes their work easier and more effective.' Yet, in the same paper, Skogan argues that encounters experienced negatively by citizens are associated with a decrease in perceived trustworthiness in the police, while encounters experienced positively are not associated with any increase. If police-citizen contact has such an asymmetrical effect, then there are

significant implications for policing policy and practice, particularly in terms of the ability of the police to improve public trust rather than 'merely' avoiding damage to it. This would also be a significant challenge to procedural justice theory, which posits, in part, that positive police-citizen encounters can help to enhance perceived trustworthiness and legitimacy and therefore increase compliance and cooperation.

There is, indeed, important empirical evidence that poor quality contact can have a strong negative effect on perceived trustworthiness, while good contact can at best have only a weak positive effect (Bradford et al., 2009; Myhill and Bradford, 2012; Skogan, 2006). At the heart of the 'asymmetry thesis' is the idea that police have greater scope to reduce public trust through badly-handled interactions than they have to increase perceived trustworthiness through well-handled interactions. Evidence that trustworthiness is easy to lose and hard to win has come from a number of cross-sectional surveys conducted in the US and UK. Prior studies testing the asymmetry thesis have relied on cross-sectional survey data to draw their conclusions. Yet, the asymmetry thesis is a theory of change and cross-sectional surveys cannot speak to the question of whether positive and negative experience are associated with changes in public opinion as they cannot not take into account within-individual variation before and after an encounter (cf. Jackson and Pósch, 2019; Nagin and Telep, 2017). Without longitudinal data, one's prior attitudes about police (before an encounter takes place) are not taken into account.

Only a handful of panel studies have estimated change over time, comparing before and after perceptions of an encounter to explain change in trust and/or legitimacy (see Bradford et al., 2014; Gau, 2014; Myhill and Bradford, 2012; Rosenbaum et al., 2005; Slocum et al., 2016; Slocum, 2018; Tyler, 2017; Tyler and Fagan, 2008). But even these studies either excluded people without recent experience with police from the analysis or excluded such individuals from the design itself (surveying only people with recent experience with the police). As a result, they could not compare attitudinal changes among individuals influenced by well- and poorly-handled encounters with the police with individuals who had had no contact whatsoever. Given the centrality of police-citizen contact to policing policy and research, this is a surprising gap in the literature that needs to be filled.

In this paper we present the first longitudinal test of the asymmetry thesis of police-citizen contact. Drawing on data from a two-wave panel study of Australian citizens,Footnote 1 we provide the most complete empirical assessment of the asymmetry thesis that has hitherto been attempted. On the one hand, we break down key constructs into a number of dimensions related to perceived police trustworthiness (differentiating between trust in po-

lice procedural fairness and trust in police effectiveness) and normatively grounded sense of duty to obey (legitimacy). On the other hand, we fit two complementary statistical models to (a) test the asymmetry thesis of police-citizen contact using longitudinal data and (b) assess whether prior levels of attitudes towards legal authorities moderate the impact of contact on changes in trustworthiness and legitimacy.

The remainder of the paper proceeds as follows. First, we clarify the concepts of trustworthiness and legitimacy in the context of public attitudes towards legal authority. This is an important preliminary step, because there has been a good deal of recent debate over these concepts and how they should be measured (Bottoms and Tankebe, 2012; Hamm et al., 2017; Jackson, 2018; Jackson and Bradford, 2019; Jackson and Gau, 2015; Trinkner, 2019; Tyler and Jackson, 2014). Second, we review evidence from cross-sectional surveys that assessed the impact of police-citizen encounters on attitudes towards the police. Third, we review evidence from panel studies. Fourth, we identify the gaps in the literature and how our study extends research in the field. Fifth, we present the methods and results of our study. Finally, our conclusions focus on the implications of our findings as well as future directions for research in this important area of criminological debate.

Clarifying Concepts: Trustworthiness and Legitimacy in Police-Citizen Relations

Studies of public attitudes towards the police often employ concepts loosely related to police effectiveness and procedural fairness. Previous studies have called them (1) perceived fairness and perceived effectiveness, (2) public confidence in policing, (3) trust in the police, (4) trust in procedural justice and trust in police effectiveness, and (5) legitimacy (differentiating between procedural justice, distributive justice, effectiveness and lawfulness). For example, procedural justice theory specifies that perceived fairness and perceived effectiveness are potential sources of legitimacy (Sunshine and Tyler, 2003), while Tankebe (2013) assumes that they are constituent components of legitimacy (for discussion, see Jackson and Bradford, 2019; Trinkner, 2019; Sun et al., 2019). In our view, the most important conceptual distinction is between (a) task-specific public evaluations and expectations of police conduct (e.g., people's perceptions of the effectiveness and fairness of officers) that we call 'perceived trustworthiness', ascribed states and qualities that mean that they can be trusted to do what they are expected to do (cf. Hardin, 1996) and (b) judgements about the legitimacy of the police (the belief that police have a valid claim to exercise power and therefore have the authority to enforce the law and dictate appropriate behaviour).

Perceived trustworthiness relates to the core characteristics and actions of the police that lead them to be more or less trusted to do the things that they are tasked to do (under conditions of uncertainty). Two key dimensions of police conduct are fairness (particularly in relation to process) and effectiveness (particularly in relation to the outcomes police produce). When citizens have positive evaluations and expectations that officers treat people with respect and dignity, make neutral, transparent and accountable decisions; and when citizens have positive evaluations and expectations that officers turn up quickly in emergencies, deter crime, and catch criminals, those citizens will be more likely to act in ways that manifest a willingness to assume risk and be vulnerable. While prior studies might have employed concepts such as confidence, trust, and perceived police fairness and effectiveness, we premise that they are all referring to the perceived trustworthiness of police.[1] That being said, we will use expressions such as 'trust in procedural fairness' and 'trust in police effectiveness' throughout the paper to keep the prose crisp – the reader should be clear that we are referring to the perceived trustworthiness of police here.

We test the asymmetry thesis using panel data in regard not only to trust in police fairness and effectiveness, but also to perceptions of police legitimacy. Legitimacy is the over-arching judgement regarding the institution's credible, or otherwise, claim to exercise power (appropriateness) and govern citizen behaviour (entitlement). So while public assessments of police fairness and effectiveness relate to positive and negative evaluations and expectations regarding whether officers can be trusted to do what they are tasked to do—where one or both of these might be important sources of legitimacy—legitimacy relates to the ascription of appropriateness and entitlement by citizens to the institution that officers represent. Appropriateness judgements (perceived right to power) are sometimes operationalised as institutional trust, or confidence, or normative alignment, while entitlement judgements (perceived right to dictate appropriate behaviour) are invariably operationalised as felt obligation to obey. We focus in the current study on obligation to obey police, since the survey did not measure the other constituent component of legitimacy, namely appropriateness judgements.

---

[1]We are not implying that perceived trustworthiness of police is a second-order latent construct reflected by constructs such as trust in procedural fairness and trust in police effectiveness. These are separate constructs, both theoretically and empirically — as we demonstrate in Appendix 5.1. We use 'trustworthiness' as an alternative label to 'perception', i.e. rather than call people's attitudes towards the procedural fairness and effectiveness of the police as 'perceived procedural fairness' and 'perceived effectiveness', we treat them as the extent to which police are seemed as trustworthy in the context of acting in procedurally just and effective ways.

Evidence from Cross-Sectional Surveys

It was Skogan (2006) who first popularised the idea of asymmetry in the impact of police-citizen encounters on public attitudes.[2] On the one hand, people who have had a 'bad' recent police-citizen encounter tend to have more negative attitudes towards the police, compared to people with no recent experience. On the other hand, people who have had a 'good' recent police-citizen encounter are either no different in their attitudes, or only slightly more positive, compared to people with no recent experience. Skogan (2012) speculated that negativity bias may be at play here (for reviews of the psychological literature, see Baumeister et al., 2001; Rosin and Royzman, 2001). People may more readily attend to – and learn more powerful lessons from – negative experiences, either dismissing good experiences as exceptions to the norm, or treating good service as a given. Whether or not this is correct, if teachable moments only count when they go against the police, then the implications for policing policy are not very optimistic – as (Skogan, 2006, p. 119) says: "The empirical message is unfortunately: 'You can't win, you can just cut your losses'." Yet, according to procedural justice theory police can improve matters by acting in fair and respectful ways, making neutral, accountable and transparent decisions, conveying trustworthy motives, and allowing citizens a voice in their interactions with officers. If it is only procedural injustice that counts, then this is a major challenge to the theory.

In the first test of the asymmetry thesis, Skogan (2006) drew on data from eight cross-sectional surveys—telephone surveys in Chicago (2003), City of Indianapolis (1996), New York City (2002), St Petersburg, Florida (1997), Seattle (2003) and Washington DC (1999 and 2000), and face-to-face surveys in England and Wales (1992) and St Petersburg, Russian Federation (2003). Skogan fitted a series of linear models to estimate the partial association between contact (whether people had come into contact with the police recently and if they did, whether they were satisfied or dissatisfied with the officer or officers) and confidence in police (attitudes towards the effectiveness and public engagement of the police).[3] Conceptualising evaluations of the police along a single dimension, public opinion was measured as a uni-dimensional construct, ranging from negative views to positive views towards the police.

---

[2]Though similar results can be found before that (see, for instance Brown and Benedict, 2002), Skogan's (2006) study was the first to explicitly formulate the idea that encounters with the police are asymmetrically associated with public confidence in policing.

[3]The single-factored construct was based on six questions, all using four-point scales. Three of them asked "how good a job" police were doing in preventing crime, keeping order, and helping victims. The other three tracked perceived police responsiveness to community concerns and whether police were dealing with problems that really concerned residents (Skogan, 2006, p.107).

Distinguishing between police-initiated encounters and citizen-initiated encounters – and controlling for various socio-demographic factors in the modelling – Skogan found that people with a negatively-received recent contact were, on average, much less confident in the police (i.e. they tended to believe that officers were ineffective and did not engage properly with their community) compared to people without any recent contact. Strikingly, however, people with a positively-received recent contact were only slightly more confident in the police (on average) compared to people without recent contact. While the statistical effect of police-initiated contact was a little more asymmetric than citizen-initiated contact (i.e., the difference between positively- and negatively-received contact was a little bigger for citizen-initiated contact), Skogan inferred from the analysis of the eight surveys that negatively experienced contact may reduce confidence, while positively experienced contact may at best only weakly improve confidence.[4]

An alternative approach is to break public attitudes down into a number of core constituent parts. Bradford et al.'s (2009) face-to-face survey of Londoners (fielded in 2005 and 2006) focused on perceived police trustworthiness and differentiated between: (a) perceived effectiveness at fighting crime and meeting the needs of victims; (b) perceived fairness when interacting with citizens (procedural and distributive fairness); and (c) perceived engagement with the community. They found that asymmetry was present in the statistical effect of contact on perceptions of police effectiveness, but the statistical effects were more symmetrical for perceptions of police fairness and community engagement.[5] Considering that Skogan's measures focused on effectiveness rather than fairness, this may partly explain the difference in findings (although both studies included measures of community engagement). Like Skogan (2006), Bradford et al. (2009) found greater asymmetry in police-initiated contact compared to citizen-initiated contact.

Overall, similar results have been found in a number of different studies in the US and UK (Bradford, 2017; Bradford et al., 2009; Jackson et al., 2012, 2013; Rengifo et al., 2019; Skogan, 2006; Slocum, 2018; Trinkner et al., 2018). People who have had unsatisfactory interactions with legal officials tend to have less positive attitudes towards the police than

---

[4]Bradford (2010) built on Skogan's (2006) findings from 1992 British Crime Survey (BCS) by analysing data from the 1992, 1996, 2000 and 2003/2004 waves of the BCS. He found that over time the positive effect of satisfactory contact on confidence grew (using the survey question 'How good a job are the local police doing? Very good, fairly good, fairly bad or very bad').

[5]In the main analysis, the quality of contact was measured by asking people how satisfied or dissatisfied they were with the 'service provided by/contact with the officer or officers', i.e. there was no differentiation between the quality of process and the quality of outcome. However, follow-up analysis of the experience of victims allowed a breakdown in people's perceptions, suggesting that it was the processes with which police interact with people that was more important than the outcomes that the police can offer (for similar findings showing process matters more than outcome to victims of crime see Murphy and Barkworth, 2014).

people with satisfactory interactions. There are two slight complications. First, the distinction between police- and public-initiated encounters seems to be important. When the focus is on police stops or invasive and involuntary interactions, the relationship between contact and attitudes seems to be strongly asymmetrical, but when the focus is on voluntary citizen-initiated interactions, the relationship seems more symmetrical. When citizens initiate an interaction, police behaviour could at least slightly boost perceived trustworthiness and legitimacy. Second, unpacking the concept of perceived trustworthiness seems to make some difference. While police-citizen encounters appear to have a strong asymmetrical relationship with trust in police effectiveness, slightly more symmetrical relations are found in terms of trust in police fairness (Bradford, 2017; Bradford et al., 2009; Jackson et al., 2012, 2013).

Yet, and this is the launch-pad for the current study, cross-sectional studies do not take the all-important temporal ordering into account. The asymmetry thesis is a theory of change, in that it predicts shifts in people's attitudes caused by positively-received and/or negatively-received police-citizen contact. People's prior levels of perceived police trustworthiness and legitimacy could play a key role, but cross-sectional surveys cannot take into account people's previous attitudes into account. They cannot assess whether encounters are indeed associated with change. Skogan (2012) suggests that people might have already formed ideas about the police before they come into contact with them, thus bringing 'priors' into any interactions, and that the "path towards untangling the impact of prior expectations would be to gather over-time or panel data" (2012, p. 276). It could, for example, be the case that respondents with more negative views of the police prior to the encounter tend to be more dissatisfied with the experience, while respondents with more positive views of the police prior to the encounter might expect the encounter to be positive and therefore discount such experience. What, we believe, is actually at stake in the debate regarding contact and public attitudes towards the police is the extent to which there is an association between interactions with legal officials and changes in public opinion. In order to assess whether police-citizen encounters are associated with changes in attitudes towards the police, panel studies are necessary.

Evidence from Panel Studies

A number of panel studies have in fact addressed the link between contact and attitudes towards the police. But, crucially, not a single study has assessed whether the impact of perceived quality of police behaviour during police-citizen encounters on changes in trustworthiness and legitimacy is the same for satisfactory and unsatisfactory interactions

in comparison with no contact.

There are two groups of panel studies that focused on the relationship between perceived police behaviour and public opinion about legal institutions[6]: (a) those that model change in public opinion but exclude from the analysis respondents with no contact with police, so they did not test the asymmetry thesis because they could not compare positive and negative encounters with no contact (Bradford et al., 2014; Gau, 2010; Rosenbaum et al., 2005; Sargeant et al., 2018; Tyler, 2017; Tyler and Fagan, 2008); and (b) those that included all respondents in the analysis, thus providing some basis for the assessment of the asymmetry thesis, but did not model change in opinion (Slocum et al., 2016; Slocum and Wiley, 2018; Tyler and Fagan, 2008).

Among studies in the first group, the most common empirical strategy involves drawing on data from two-wave panel surveys, with researchers analysing only respondents who had contact with police between waves 1 and 2. Often fitting autoregressive models (wherein one includes a lagged dependent variable as one of the covariates), such studies account for changes in attitudes towards legal institutions. However, by excluding respondents with no contact, they are not able to assess whether the impact of encounters is asymmetrical. One of the first studies to rely on panel data, Rosenbaum et al. (2005) rely on the high coefficients of lagged response variables to suggest that public attitudes towards the police are highly stable over time. The authors also speculate that a negative predisposition may simply cause someone to selectively interpret encounters with the police as more negative (Rosenbaum et al., 2005, p. 359). A similar conclusion was reached by Sargeant et al. (2018) using a similar analytic strategy. Drawing on panel data, the authors assessed whether pre-existing defiant attitudes shaped citizens' satisfaction with police-citizen encounters in Australia and concluded that respondents who were more defiant toward police before their contact with police were less likely to be satisfied with the process of their police interaction.

Another two-wave study that modelled changes in attitudes towards the police after dropping respondents with no contact with police between waves 1 and 2 was Tyler and

---

[6]There are of course a number of longitudinal studies that focused on the development of attitudes towards the police and the law over time, especially drawing on data from the Pathways to Desistance (Mulvey, 2016). However, these studies do not focus on the link between perceived quality of police behaviour during contact and changes in attitudes towards the police. Some studies focused on changes in legal attitudes over time and did not include information regarding police-citizen encounters (Kaiser and Reisig, 2019; Piquero et al., 2005; Schubert et al., 2016), whereas others investigated the legal socialisation process while taking into account previous arrests (Augustyn, 2016; Fine et al., 2016, 2017) and whether respondents had been picked up by the police (Fine and Cauffman, 2015; McLean et al., 2019) – but none of them engaged in comparisons of expected changes in attitudes between respondents who satisfactory, unsatisfactory, and no police contact.

Fagan's (2008) panel survey of New York City residents. The authors sought to disentangle the effect of process (specifically, citizen perceptions of the fairness of treatment and decision-making) from the effect of outcome (specifically, citizen perceptions of the favourability of the outcome) on perceived police legitimacy (measured using indicators of obligation, trust and confidence, and identification with the police). While their findings suggest that satisfaction with process is far more important than outcome favourability in shaping changes in perceived legitimacy, they do not speak to a potential symmetry in the impact of contact.

As examples of the second group of studies, Tyler and Fagan's (2008) second set of analyses included all respondents and attempted to test the asymmetry thesis by comparing levels of perceived legitimacy at Time 2 with quality of contact, but did not include respondents' prior levels of legitimacy. Comparing levels of trustworthiness or perceived legitimacy between people who had positive and negative contact with people with no contact, but without taking into account people's prior attitudes towards the police, was also the strategy employed by Slocum et al. (2016) and Slocum and Wiley (2018). While their goal was not to assess asymmetry in the impact of police-citizen encounters, they grouped respondents based on their satisfaction with contact and used respondents with no police-initiated contact as the reference group – but the focus was not on change in public opinion from before to after the encounter.

To our knowledge, only one study has modelled changes in public opinion and compared perceived quality of police contact with a group of people with no contact. Drawing on data from a two-wave panel using a sample of 16 neighbourhoods in England, Myhill and Bradford (2012) grouped respondents on the basis of 'type of contact' they had between wave 1 and wave 2. They then modelled changes in trust in police effectiveness by fitting autoregressive linear regression models. Results indicate a somewhat symmetrical relationship between citizen-initiated contact and trustworthiness, but a strong asymmetrical relationship both in terms of satisfaction with police stops and contact after being a victim of a crime. Unfortunately, Myhill and Bradford only had measures related to perceived police effectiveness. So they could not model changes in other psychological constructs such as trust in procedural fairness and judgements about the legitimacy of the police.

Summary and Literature Gap

It seems on the basis of extant evidence that: (a) the association between trust in police effectiveness and satisfaction with the encounter is more asymmetrical than it would be

for police fairness (Bradford et al., 2009); (b) people evaluate their encounters with legal officials in terms of process and outcome as two distinct dimensions (Bradford et al., 2014; Tyler and Fagan, 2008); and (c) the impact of involuntary police-initiated contact is more asymmetrical than self-initiated contact (Jackson et al., 2012; Myhill and Bradford, 2012). In this study, we extend the literature by presenting what is, to our knowledge, the first longitudinal test of the asymmetry thesis using a relatively comprehensive set of trust-worthiness and legitimacy measures—i.e. we analyse whether police-citizen encounters are associated with changes in satisfaction with police when compared to respondents who did not experience contact between two waves of data.

The current study advances previous work in a number of ways. We model no contact, good contact, neutral contact, and bad contact as predictors of change in public attitudes towards the police (considering two waves of data, lagged dependent variable models are fitted considering police-citizen encounters that happened between wave 1 and wave 2). Public attitudes are measured as perceived police trustworthiness (which is disaggregated into effectiveness and procedural fairness) and judgements about police legitimacy (as represented by respondents' normatively grounded duty to obey the police). Perceived quality of police-citizen encounters ('good', 'neutral', or 'bad') is measured as evaluations of both the procedural fairness enacted by the officer and the outcome favourability. We rely on two complementary statistical models to: (a) test the asymmetry thesis; and (b) assess the extent to which previous levels of police trustworthiness and legitimacy moderate the impact of different police-citizen encounters on changes in attitudes.

The asymmetry thesis posits that the impact of unsatisfactory encounters is stronger in magnitude than the impact of satisfactory encounters on attitudes towards the police. If this is true, when 'no contact' is the reference group the absolute value of the (expectedly negative) coefficient of 'negative' contact will be greater than the absolute value of the (expectedly positive) coefficient of 'positive' contact. We test this hypothesis in relation to (1) trust in procedural fairness, (2) trust in police effectiveness, and (3) duty to obey the police, while disentangling contact evaluation between process (A) and outcome (B). A diagram displaying all the theorised relations being tested can be found in 5.1. For each response and explanatory variable, we examine the predicted values of attitudes controlling for prior attitudes and in comparison with people with no contact with police during the relevant period.

- *Hypothesis 1A*: the association between process evaluation and trust in procedural fairness is asymmetrical.
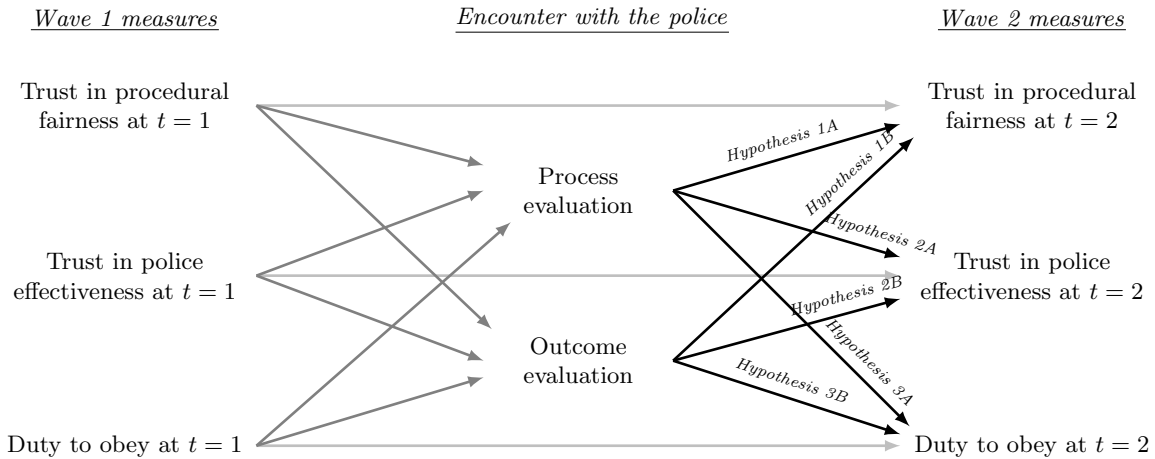
Figure 5.1: **Theorised diagram: police-citizen contact and public attitudes towards the police**

Note: Two models were fitted based on this theorised diagram, one assessing the influence of process evaluation (hypotheses 1A, 2A, 3A) and another assessing the influence of outcome evaluation (hypotheses 1B, 2B, 3B)

- *Hypothesis 1B*: the association between outcome evaluation and trust in procedural fairness is asymmetrical.

- *Hypothesis 2A*: the association between process evaluation and trust in police effectiveness is asymmetrical.

- *Hypothesis 2B*: the association between outcome evaluation and trust in police effectiveness is asymmetrical.

- *Hypothesis 3A*: the association between process evaluation and duty to obey the police is asymmetrical.

- *Hypothesis 3B*: the association between outcome evaluation and duty to obey the police is asymmetrical.

Additionally, we draw on Skogan's (2012) discussion that people might bring 'priors' that could influence how they perceive an encounter. If people perceive the quality of police behaviour during an encounter differently, based on expectations formed from prior attitudes (Sargeant et al., 2018), then the impact of police-citizen encounters could vary conditional on those prior attitudes. Based on procedural justice theory, however, we would expect that the impact of perceived quality of police behaviour during encounters on changes in public opinion would be broadly the same regardless of one's prior levels of perceived police trustworthiness and legitimacy. If this were not the case then the change in
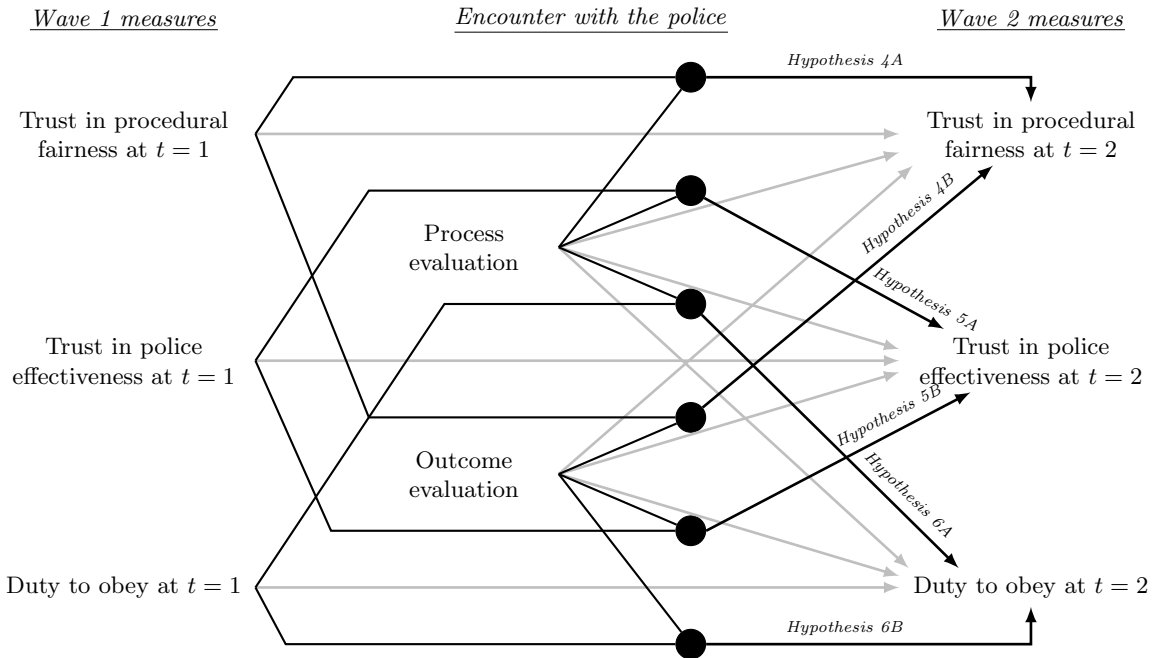
Figure 5.2: **Theorised diagram: is the impact of police-citizen contact moderated by prior attitudes?**
Note: Three models were fitted based on this theorised diagram, one checking for heterogeneity effects on changes in trust in procedural fairness (hypotheses 4A and 4B), one for changes in trust in police effectiveness (hypotheses 5A and 5B), and one for changes in duty to obey (hypotheses 6A and 6B)

attitudes predicted by theory – based on evaluations of process fairness which vary across encounters – would be much less likely to occur.

In order to assess this further, a second group of hypotheses was established. A second theorised diagram can be found in 5.2. Each hypothesis relates to a potential interaction effect between perceived quality of police contact and attitudes towards the police before such encounter took place while predicting changes in attitudes after the encounter. If the interaction effect is different from zero, that means that prior levels of perceived police trustworthiness and/or legitimacy moderate the impact of contact on changes in public opinion – the effect would thus be heterogeneous, i.e. different for people with different levels of prior attitudes. Again, we test this hypothesis in relation to trust in procedural fairness (4), trust in police effectiveness (5), and duty to obey the police (6) while disentangling contact evaluation between process (A) and outcome (B).

- *Hypothesis 4A*: homogeneous effect of process evaluation on changes in trust in procedural fairness (i.e., interaction term is zero).

- *Hypothesis 4B*: homogeneous effect of outcome evaluation on changes in trust in procedural fairness (i.e., interaction term is zero).

- *Hypothesis 5A*: homogeneous effect of process evaluation on changes in trust in police effectiveness (i.e., interaction term is zero).

- *Hypothesis 5B*: homogeneous effect of outcome evaluation on changes in trust in police effectiveness (i.e., interaction term is zero).

- *Hypothesis 6A*: homogeneous effect of process evaluation on changes in duty to obey the police (i.e., interaction term is zero).

- *Hypothesis 6B*: homogeneous effect of outcome evaluation on changes in duty to obey the police (i.e., interaction term is zero).

This Study

Data

To assess the linkages between public encounters with the police and attitudes towards legal authorities, we draw on both waves of data from *The Crime, Safety and Policing in Australia Survey* (Murphy et al., 2010a,b). In 2007, a nationally representative mail survey of adults in Australia was conducted on the extent of respondents' experiences and beliefs about crime and policing in their community. Participants were drawn from Australia's publicly available electoral roll. All electors aged 18+ in Australia are required by law to register their name and home address on the roll; the roll thus consists of a representative subject pool. Selection was stratified by State and Territory jurisdiction. 5700 residents were sent a survey booklet by mail—after several reminders and weeks, an adjusted response rate of 40% was achieved ($n = 2120$). Two years later, a follow-up panel survey was undertaken in 2009 aiming to examine whether attitudes and experiences of crime and policing had changed over the two-year intervening period. After a series of reminders, a total of 1190 usable responses were returned. Considering the adjusted response rate (for respondents who had died or moved address between waves 1 and 2), an attrition rate of 35% was achieved.[7]

---

[7]We are assuming the dropouts to be missing approximately at random. An analysis of the dropouts including gender, age, ethnicity, income, all four indicators of perceived police fairness, all three indicators of perceived police effectiveness, and both indicators of duty to obey the police revealed no substantive attrition bias. Age is marginally associated with dropping out (every year-increase in age multiplies the odds of dropping out by about 2%), so is perceived police effectiveness (every point increase in the five-point

Some 46% of the respondents in the final sample were male, 52% had post-secondary education; respondents were on average 54 years of age in 2007 and had an average self-reported household income of approximately AUD$80,000. Using the 2006 Australian Census data as a benchmark, we conclude that older and more educated respondents in the sample were slightly over-represented, but overall the sample was largely representative of the Australian population. For instance, 49% of the population are male, 46% had post-secondary education, and the average household income is approximately AUD$54,000.

Measures and Measurement Model

Following previous work (Bradford et al., 2009; Jackson et al., 2012) we unpack perceived trustworthiness into trust in procedural fairness and trust in police effectiveness. We also consider one part of people's judgements about the legitimacy of the police: namely, a normatively grounded sense of duty to obey the police. All questions were measured on a five-point Likert scale ranging from "strongly disagree" to "strongly agree" (except the indicator of perceived police effectiveness, which ranges from "very poor job" to "very good job"). The exact wording for each question asked, their assigned latent construct, and their descriptive statistics can be found in 5.1.

Unless otherwise mentioned, all measures were coded in such way that higher values indicate more positive evaluations of the construct measured. In order to assess the scaling properties and empirical distinctiveness of our measures, we use confirmatory factor analysis (CFA) with categorical (ordinal) indicators, focusing on the two components of trust and felt duty to obey the police commands. As expected, questions tap into the three theorised constructs sensibly, indicating that our empirical indicators can be empirically distinguished in the three premised dimensions. A full analysis of the empirical distinctiveness of the three latent constructs and their equivalence across waves can be found in the Appendix (5.1 and 5.2, respectively).

Measuring Attitudes Towards Encounters with the Police

Most previous work on the impact of police contact on perceived trustworthiness assumed a single dimension of satisfaction with the encounter. Skogan (2006), for instance, used six questions evaluating respondents' perceived politeness, helpfulness, and fairness of police officers to create an indicator of positive versus negative encounter. In the same vein,

---

Likert scale multiplies the odds of dropping out by approximately 20%). If anything, respondents at wave 2 were more critical about the police than respondents at wave 1.

Table 5.1: **Measures, constructs, and descriptive statistics at Waves 1 and 2**

Latent construct	Survey question	Strongly disagree (1) → Strongly agree (5) *or* Very poor job (1) → Very good job (5)	
		"Mean" at $t = 1$	"Mean" at $t = 2$
Trust in procedural fairness	*To what extent do you agree that the police...*		
	...Treat people with dignity and respect?	3.56	3.52
	...Give people opportunity to express views before decisions are made?	3.38	3.32
	...Listen to people before making decisions?	3.45	3.38
	...Make decisions based upon facts, no their personal biases or opinions?	3.41	3.39
Trust in police effectiveness	*How good a job the police are doing at...*		
	...Solving crime?	3.35	3.48
	...Preventing crime?	3.27	3.40
	...Keeping order?	3.46	3.63
Duty to obey	*To what extent do you agree that you...*		
	...Feel a moral obligation to obey the police?	4.25	4.10
	...Overall obey the police with good will?	4.36	4.32
Police-citizen encounter: process evaluation ($n = 440$)	*To what extent do you feel...*		
	...You were fiven the opportunities to express your views before decisions were made		3.45
	...Your views were considered when a decision was made?		3.16
	...You were given an honest explanation for why a certain decision was made?		3.50
	...You understood why the police took the action they did?		3.67
	...You were able to influence the decision made by the police?		2.73
Police-citizen encounter: process evaluation ($n = 440$)	*To what extent...*		
	...Were you satisfied with the outcome?		3.56
	...Was the outcome fair?		3.64
	...Was the outcome expected?		3.71
	...Was the outcome deserved?		3.43

Slocum et al. (2016) asked respondents the extent to which they were satisfied with the encounter and created an indicator with three groups—dissatisfied, neutral, or satisfied with the encounter. However, there might be more than one underlying dimension of contact evaluation, and we distinguish between respondents' perceived fairness in the procedures used in the contact and their satisfaction with the outcome's favourability (Bradford et al., 2014; Tyler and Fagan, 2008).

In the wave 2 survey, respondents were asked how many times they had contact with police in the previous 12 months. Some 38% ($n = 440$) of wave 2 respondents had at least one encounter (i.e., encounters that happened at some point in between the first and the second waves of data collection) – 57% of those contacts were citizen-initiated, while 43% were police-initiated (mostly involving some type of police stop). The sub-sample of respondents who did experience an encounter with the legal officials at some point in

between waves 1 and 2 were further asked five follow-up questions evaluating the process and four follow-up questions evaluating the outcome favourability of such encounter – these questions can be found in 5.1.

In order to confirm that process and outcome evaluations are indeed empirically distinguishable as suggested in the procedural justice literature, we first use CFA to assess the scaling properties of the nine indicators simultaneously. Considering only the 440 respondents who experienced at least one encounter with the police between waves 1 and 2, we fit two models with one and two factors and all indicators set as categorical. Despite being correlated ($r = 0.66$), the two theorised dimensions – process and outcome evaluations – seem to be empirically distinguishable given that the two-factor solution has the best model fit. We then fit a third two-factor CFA model after dropping one of the questions measuring process evaluation as it was weakly correlated with the latent construct[8] – we thus use four questions to measure process evaluation and four questions to measure outcome evaluation in all subsequent analyses. Standardised factor loadings, model fit statistics, and a full account of the measurement models can be found in the Appendix 5.3.

After confirming that we can treat process and outcome evaluations as two distinct constructs, for each dimension we need to somehow classify respondents' most recent encounter with the police as positive or negative, so that their scores for trustworthiness and legitimacy can be compared with the scores of the respondents who did not have any recent contact with police. One solution for that is handpicking the 'positive' and 'negative' categories based on responses on the Likert scale. However, cutoff decisions for this formative approach are arbitrary. Instead, we adopt a data-driven approach and fit latent class models on items concerning respondents' evaluation of their most recent encounter regarding both process and outcome. This approach is preferable as it permits the modelling of unobserved heterogeneity underlying the two dimensions of contact evaluation (see Na et al., 2015; Nylund et al., 2007).

For each process evaluation and outcome evaluation, we fit three models with two, three, and four latent classes. In both cases, the three-class solution emerged as the preferred solution—see details on deciding the number of classes in the Appendix 5.4. Roughly, the three classes indicate negative, neutral, and positively experienced contact with police. Our interpretation is that these classes represent encounters that went 'worse than expected' (negative), 'as expected' (neutral—note that this category includes encounters rated 'OK'), or 'better than expected' (positive). It is important to be clear what we mean

---

[8]We dropped the fifth indicator of process evaluation, which asked respondents the extent to which they felt they "were able to influence the decision made by the police."

here. Considering that Australia is by and large a high-trust country (see Table 5.1; see also Hinds and Murphy, 2007), we assume that expectations of the behaviour of officials who represent key institutions in society are broadly positive. Most people expect to be treated relatively well by police officers, and for police to achieve positive outcomes more often than not. Encounters that go 'OK' are therefore experienced as 'neutral', since that is what is expected. It is only when they are better than expected that the experience shifts into the positive. Given this assumption, it is not surprising that the second class—the 'neutral' group, when encounters go as expected—is composed of respondents who mostly answered "agree" with the statements (as opposed most pertinently to "strongly agree" to every question posed to them). By contrast, an encounter with police wherein respondents classify most of the indicators as anything lower than the fourth point in the Likert scale (e.g., "neither agree nor disagree" with a given statement, or worse) we assume to indicate a negative (i.e., worse than expected) contact, since 'neither/nor' indicates at best uncertainty about whether police behaved in line with expectation. Mostly ticking the fifth point to answer the questions (i.e., "strongly agree") would indicate an encounter that went better than expected (i.e., positive) – see results in probability scale in Figs. 5.3 and 5.4.[9]

Looking at the derived classes, in relation to process evaluation, 54% of the sub-sample of respondents who did have recent contact with police had 'negative' experiences, 37% had 'neutral' experiences, and 9% had 'positive' experiences. Regarding outcome favourability, 34% had 'negative' experiences, 50% had 'neutral' experiences, and 16% had 'positive' experiences (Figs. 5.3 and 5.4).

Analytical Strategy

In order to assess the relationship between police-citizen encounters and public attitudes toward the police, we use a similar strategy as the one commonly found in the literature –

---

[9]Encounters classified as 'positive' are the ones wherein one tends to 'strongly agree' with statements; 'neutral,' the ones wherein one tends to 'agree;' and 'negative,' the ones wherein one tends to either strongly disagree, disagree, or neither agree nor disagree. It would be possible to argue that what we are classifying as 'neutral' encounters are actually positive ones, and what what we label 'positive' are the exceedingly positive ones. This is not wrong. However, it is important to take the logic of the latent class analysis into account. Three classes emerged, which are clearly following an ascending pattern. So, labelling the latent classes following an ordered rationale is reasonable. The labels themselves are up for debate, and one could potentially label them 'exceptionally satisfactory encounters,' 'satisfactory encounters,' and 'all other encounters.' We decided to label them considering Australians' prior levels of police trustworthiness. Australians generally expect police officers to treat them well; it makes sense then that the label of the ordered latent classes emerged references such prior attitudes: encounters can be worse than expected, as expected (which is generally satisfactory, given that Australians expect officers to treat them positively), and better than expected. This is our rationale for labelling the three latent classes as 'positive,' 'neutral,' and 'good.'
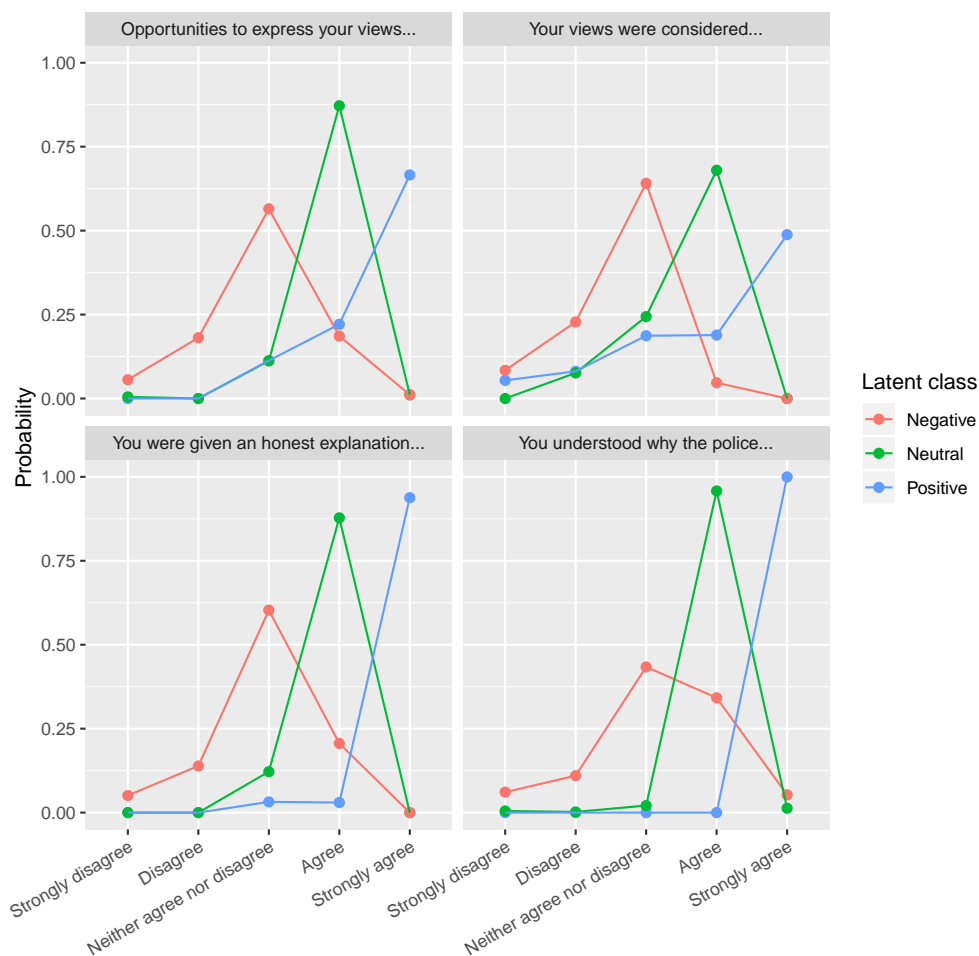
Figure 5.3: **Latent classes of process evaluation**

Note: Model estimated on `mPlus` using maximum likelihood with robust standard errors. $n = 427$.

i.e. we compare positive, neutral, and negative encounters with the group of respondents who did not experience contact with police as the baseline category. Unlike almost all previous studies, however, we now focus on changes in attitudes towards the police over time, and distinguish perceived quality of police behaviour in encounters in terms of process and outcome. We thus fit two autoregressive structural equation models (SEM), one assessing the association between process evaluation and changes in trustworthiness and legitimacy and the other between outcome evaluation and changes in trustworthiness and legitimacy.[10]

---

[10]A single model including both process evaluation and outcome evaluation was too computationally intense (e.g. it did not converge). Considering that the two evaluation variables are also regressed on T1 constructs, a single model including both process evaluation and outcome evaluation would entail two multinomial logistic regressions being estimated simultaneously. For the sake of simplicity and clarity, we
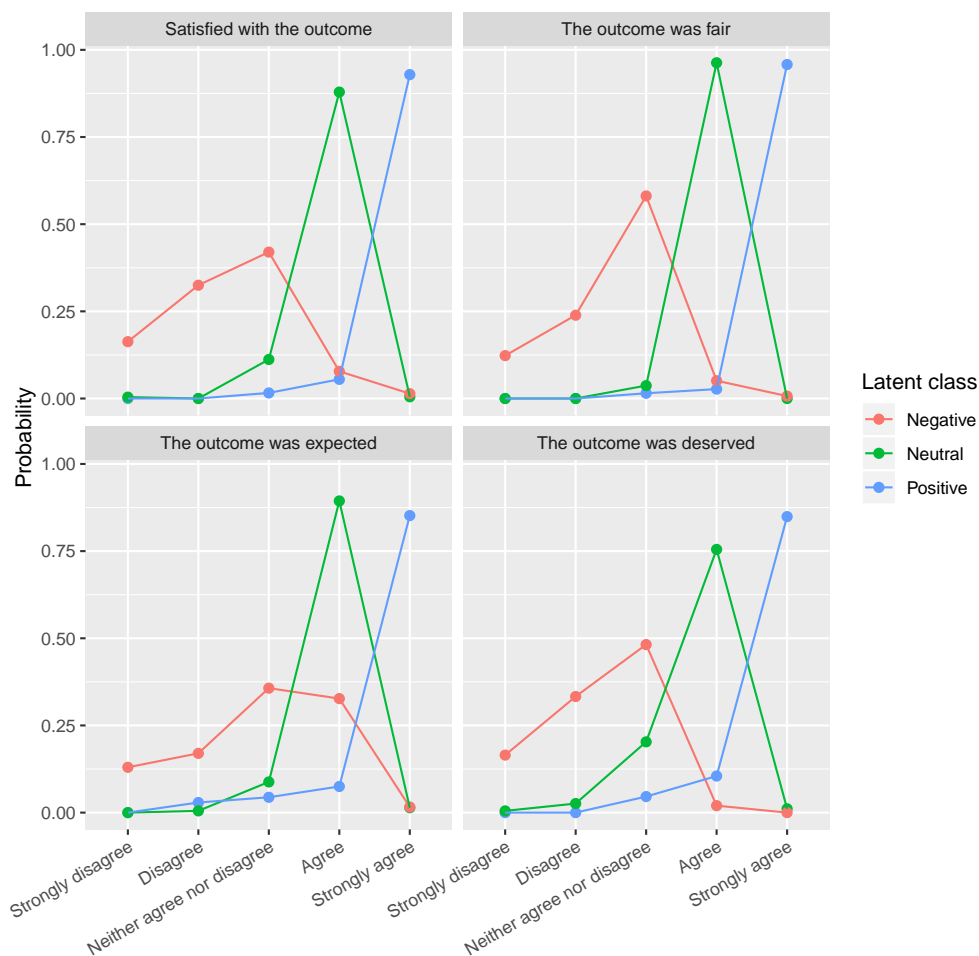
Figure 5.4: **Latent classes of outcome evaluation**

Note: Model estimated on `mPlus` using maximum likelihood with robust standard errors. $n = 427$.

This dynamic panel model permits the modelling of change in attitudes towards the police because of the inclusion of lagged dependent variables as covariates.[11] It also allows us to investigate the extent to which prior attitudes are associated with positive or negative perceptions of contact with legal officials.

---

estimated the two models separately.

[11] The inclusion of a lagged dependent variable as a covariate allows for the modelling of change without confounding with regression towards the mean provided that the treatment is applied at some point between $t = 1$ and $t = 2$ (Allison, 1990). Even though it was not randomly assigned, the intervention we are modelling (i.e., an encounter with the police) happened between waves 1 and 2. Additionally, we follow (Keele and Kelly, 2006, p. 203) advise in that, in this case, it is reasonable to theoretically assume that past levels of perceived police trustworthiness and legitimacy affect current levels of perceived police trustworthiness and legitimacy – and therefore lagged dependent variable models are a good choice.

Based on the theorized diagram shown in 5.1, we fit two autoregressive SEMs: (a) one with the four 'contact' groups (i.e., no contact; negative contact; neutral contact; positive contact) indicating process evaluation (testing the hypotheses 1A, 1B, and 1C) and (b) another with the four 'contact' groups indicating outcome evaluation (testing the hypotheses 2A, 2B, and 2C). In both models, all hypotheses are tested keeping the group of respondents who had no encounter with the police between waves 1 and 2 as the reference group – i.e. three dummy variables indicating negative, neutral, and positive contact are displayed. All coefficients are standardised, which allows for comparisons.

Each model includes three aspects of interest. First and foremost, arrows departing from each of three dummies indicating negative, neutral, and positive contact reflect expected changes in attitudes depending on the type of contact with police in relation to people with no contact. This is the crucial aspect of the models and is used to test hypotheses 1A, 2A, 3A, 1B, 2B, and 3B. Second, both models include a set of autoregressive parameters – the arrows departing from attitudes towards the police before an encounter to attitudes after an encounter. Those parameters speak to the stability of the variables – as psychological constructs, perceived police trustworthiness and legitimacy are expected to be highly stable over time. Finally, both models include multinomial logistic paths regressing contact evaluation on T1 measures of trustworthiness and legitimacy. This aspect of the models account for different odds of having an (un)satisfactory contact with police given different prior attitudes. For the multinomial logistic paths only, we use the 'neutral contact' group as the reference category – we are thus estimating the association between prior attitudes and the odds of having a positive or a negative encounter in comparison with a neutral encounter.[12] Both models include age at T1 (difference between 2007 and year of birth), gender (1 =*male*), and national identity (1 =*Australian non-Aboriginal*) as control variables.

Results

Estimated parameters of the panel model considering respondents' process evaluation can be found in Fig. 5.5. The model was estimated on Mplus 7.11 using maximum likelihood with robust standard errors to handle non-normal indicators and full information maximum likelihood to handle missing data. For visual ease, measurement models and covariates are not displayed, and only paths significant at the 5% level are displayed. All displayed

---

[12]Odds of no encounter in relation to a neutral contact were also estimated as part of the model, but these are not discussed as they make no substantive sense. A table displaying all estimated coefficients can be found in Appendix 5.5.

Figure 5.5: **Process evaluation and changes in trustworthiness and legitimacy: autoregressive structural equation model**

Note: Estimation method (`mPlus` 7.11): maximum likelihood with robust standard errors. Standardised coefficients displayed. Measurement models not displayed for visual ease. All T2 latent constructs were regressed on gender, age, and national identity. Only significant paths ($p < 0.05$) displayed for visual ease. $n = 1099$. Full model available in the Appendix (5.5).

coefficients are standardised and therefore comparable.

As expected, all lagged values are statistically significant and yield relatively large coefficients, which speaks to the stability of such psychological constructs over time, as noted by Rosenbaum et al. (2005). Every unit increase in trust in police fairness at T1 is associated with an increase of 0.45 standard deviations in trust in police fairness at T2. Similarly, every unit increase in trust in police effectiveness at T1 is associated with an increase of 0.40 standard deviations in perceived police effectiveness at T2, and the analogous increase in duty to obey yields an increase of 0.35 at T2. This is not surprising: it means that respondents with high levels of trustworthiness and legitimacy at T1 tend to have high levels of trustworthiness and legitimacy at T2 – although T2 scores are by no means determined by T1 scores. There was change over time.

Results also show that the experience of an encounter with the police is associated with changes in attitudes towards legal authority. Controlling for previous levels of trustworthiness, respondents who had a positive contact experience in terms of process have scores in trust in procedural fairness 0.52 standard deviations higher on average than respondents with no contact; likewise, respondents who had a negative experience of process

Table 5.2: **Assessing asymmetry: 95% confidence intervals of standardised coefficients**

	Trust in procedural fairness at $T2$	Trust in police effectiveness at $T2$	Duty to obey the police at $T2$
Process: positive	$[0.28; 0.76]$	$[-0.04; 0.63]$	$[0.47; 0.97]$
Process: neutral	$[-0.03; 0.26]$	$[-0.13; 0.15]$	$[-0.29; 0.02]$
Process: negative	$[-0.40; -0.11]$	$[-0.46; -0.18]$	$[-0.35; -0.04]$
Outcome: positive	$[0.08; 0.47]$	$[-0.02; 0.46]$	$[0.35; 0.81]$
Outcome: neutral	$[-0.06; 0.20]$	$[-0.11; 0.14]$	$[-0.30; -0.01]$
Outcome: negative	$[-0.55; -0.18]$	$[-0.70; -0.37]$	$[-0.47; -0.09]$

Note: 95% confidence intervals of selected coefficients displayed in Figures 5.5 (process) and 5.6 (outcome).

have scores of 0.26 lower on average. In contrast to the prediction of the asymmetry thesis, contact perceived as better than expected does more than just "cut the losses" – it is associated with an increase in trust in police fairness of a similar magnitude to the association between unsatisfactory contact and (a decrease in) trustworthiness. Table 5.2 below displays 95% confidence intervals of standardised coefficients, which can be helpful for comparing effect sizes and assessing the asymmetry hypothesis. Not only are both standardised coefficients significantly different from zero, but – in terms of absolute values – there is an overlap between the two confidence intervals, which indeed suggests a similar effect size albeit in opposite directions. In contrast to the prediction of hypothesis 1A, the association between process evaluation and changes in trust in procedural fairness seems to be symmetrical.

Similarly, experiencing procedurally fair encounters is associated with somewhat symmetrical changes in perceived police legitimacy. Respondents who had a positive contact encounter have an average change in duty to obey 0.72 standard deviations higher than respondents with no contact, while respondents who had a negative encounter have an average change of 0.20 standard deviations lower than those with no contact. The absolute values in both confidence intervals do not overlap, meaning that the effect size of satisfactory encounters is greater than the effect size of unsatisfactory encounters. In terms of changes in judgements about the legitimacy of the police, the impact of police-citizen encounters resembles hypothesis 3A as it appears to be asymmetrical—but in the opposite direction as originally suggested by the asymmetry thesis: positive contact is more strongly associated with changes in one's normative duty to obey the police than negative contact.

Finally, changes in trust in police effectiveness are the closest to Skogan's (2006) original results, though not as asymmetrical as originally expected. While respondents

who experienced a negative encounter with the police process-wise have predicted scores of trust in police effectiveness 0.32 lower than those with no contact, having experienced a positive encounter is not associated with positive changes in trust in police effectiveness. As predicted by hypothesis 2A, the impact of police-citizen encounters is somewhat asymmetrical when it comes to changes in trust in police effectiveness. The asymmetry thesis seems to be true for changes in people's sense of trust that the police are doing a good job in solving and preventing crime and keeping order.

When it comes to process evaluation of public interactions with the police, then, the relationship between contact and trustworthiness seems very *symmetrical* when it comes to trust in procedural fairness and *asymmetrical* when it comes to trust in police effectiveness. In terms of judgements about the legitimacy of the police, the relationship seems asymmetrical, but in the opposite direction to that predicted by the asymmetry thesis: positive encounters process-wise are more strongly associated with increases in duty to obey than negative encounters are associated with decreases.

Finally, previous levels of trustworthiness and legitimacy are partly associated with the perception of fairness of an encounter. Every unit increase in trust in procedural fairness at T1 is associated with a decrease in the odds of having a negative rather than a neutral encounter by 39% ($\hat{\beta} = -0.49$, thus an odds ratio of 0.61). Similarly, every unit increase of duty to obey at T1 multiplies the odds of having a positive rather than neutral encounter by 86% ($\hat{\beta} = 0.62$, thus an odds ratio of 1.86). Finally, every unit-increase of trust in police effectiveness at T1 multiplies the odds of having a positive rather neutral encounter by 61% ($\hat{\beta} = 0.48$, thus an odds ratio of 1.61).

Figure 5.6 shows the results of the second panel model, now focusing on outcome evaluation. As expected, some of the relationships remain virtually unaltered. All three attitude constructs (i.e. procedural fairness, police effectiveness, and duty to obey the police) are quite stable over time, with regression coefficients for the lagged dependent variables being relatively high. Previous attitudes towards the police are also partly associated with how respondents perceive an encounter in terms of its outcome. The more people feel a sense of duty to obey the police, the more likely it is that they perceive the outcome of an encounter as positive rather than neutral ($\hat{\beta} = +0.55$, thus an odds ratio of 1.73); and every unit increase in trust in police effectiveness at T1 is associated with a decrease in the odds of having a negative rather than a neutral encounter by 39% ($\hat{\beta} = -0.49$, thus an odds ratio of 0.61).

Turning to the association between contact and changes in trustworthiness and legitimacy, results indicate similarities in comparison with the first model in Figure 5.5. Not only
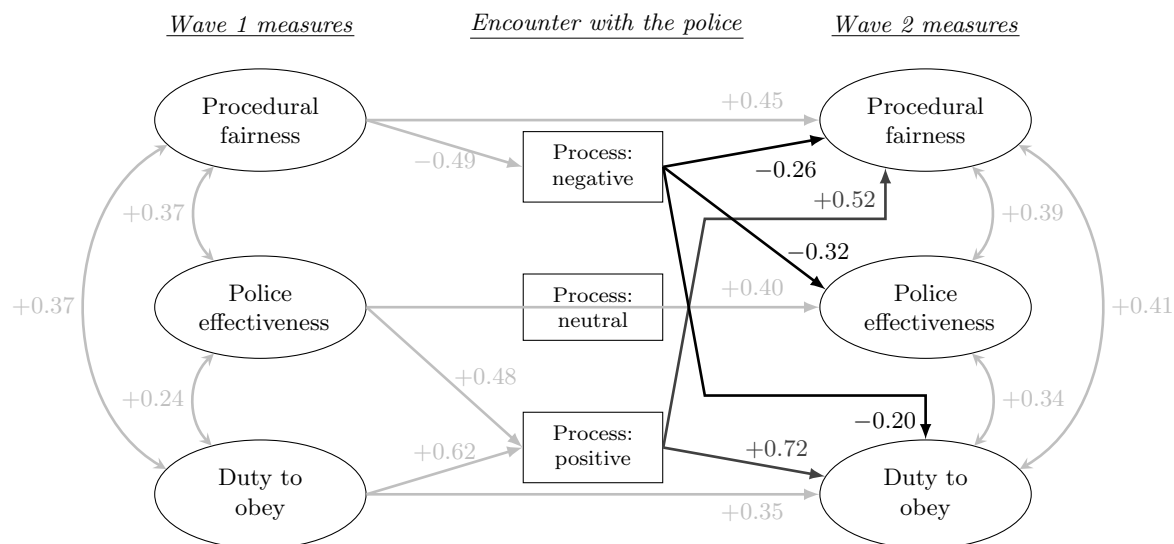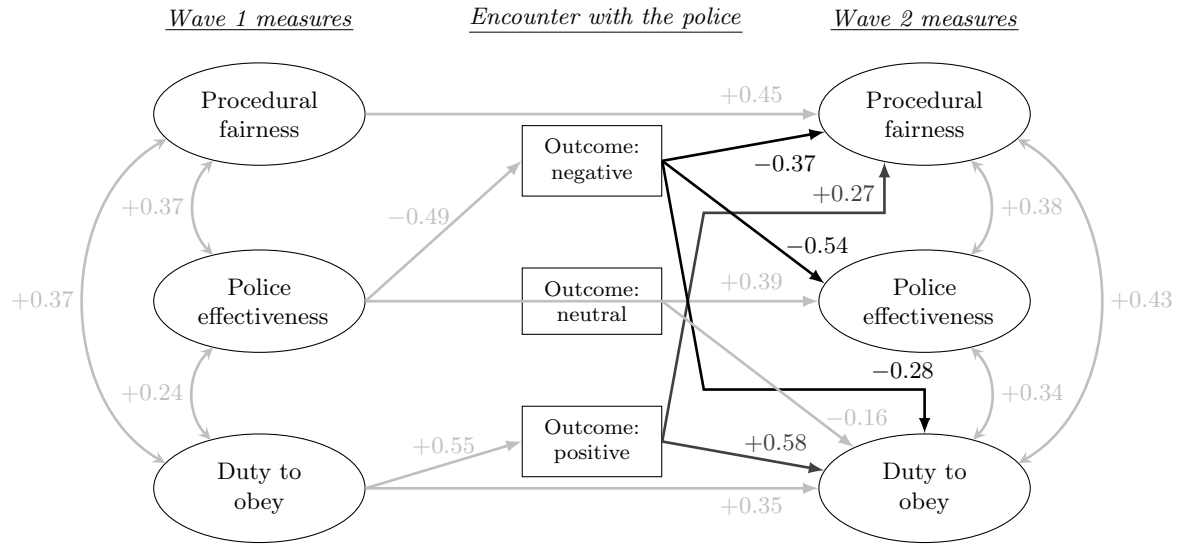
Figure 5.6: **Outcome evaluation and changes in trustworthiness and legitimacy: autoregressive structural equation model**

Note: Estimation method (`mPlus` 7.11): maximum likelihood with robust standard errors. Standardised coefficients displayed. Measurement models not displayed for visual ease. All T2 latent constructs were regressed on gender, age, and national identity. Only significant paths ($p < 0.05$) displayed for visual ease. $n = 1102$. Full model available in the Appendix (5.5).

is negative contact associated with decreases in trust in procedural fairness ($\hat{\beta} = -0.37$), but positive contact is also associated with increases ($\hat{\beta} = +0.27$). The comparison of effect sizes based on the overlap of absolute values in confidence intervals suggests similar influences from negative and positive contact. *Contra* hypothesis 1B, the impact of outcome evaluation on changes in trust in procedural fairness seems to be symmetrical.

In terms of changes in trust in police effectiveness, the relationship is as asymmetrical as expected (as per hypothesis 2B): while experiencing a 'bad' contact is associated with a decrease in trust of 0.54 standard deviations, experiencing positive contact is not associated with changes in trust in police effectiveness. Again, in terms of expected effectiveness of the police the relationship between outcome favourability of encounters and trustworthiness is as asymmetrical as Skogan's (2006) original study.

Finally, results indicate outcome favourability is strongly associated with changes in judgements about the legitimacy of the police: respondents who experienced an encounter that went better than expected have an average increase in their scores of duty to obey of 0.58 standard deviations, while those who experienced contact that went 'as expected' (i.e., neutral) have an average decrease in their scores of duty to obey of 0.16 standard

deviations. Finally, those who experienced contact that went worse than expected have an average decrease of 0.28. As hypothesis 3B predicted, the relationship between outcome evaluation and changes in perceived police legitimacy is asymmetrical, however in the opposite direction expected—positive contact is more strongly associated with positive changes than negative contact is associated with negative changes.

Together these results show that contact matters. Even considering how stable in time psychological constructs such as trustworthiness and legitimacy are, and taking prior attitudes into account, people's perception of how the police handle an interaction is associated with attitudinal changes. Experiencing procedural fairness is associated with higher values of trustworthiness and legitimacy over time, while experiencing unfairness is associated with lower values. Hence, by: (a) analysing panel data to account for changes in attitudes as suggested by Skogan (2012) and Tyler and Fagan (2008); (b) unpacking police trustworthiness into different dimensions of trust in procedural fairness and police effectiveness and including measures of police legitimacy as suggested by Bradford et al. (2009) and Jackson et al. (2012); (c) considering process and outcome as two different dimensions of contact evaluation as suggested by Tyler and Fagan (2008) and Bradford et al. (2014); and (d) adopting a more appropriate measurement model to account for an unobserved heterogeneity of contact evaluation wherein three rather than two categories emerge – we find some quite strongly *symmetrical* relationships between police-citizen contact and attitudes towards the police.

Interestingly, prior levels of trust in procedural fairness are associated with how one experiences the process of an interaction with the police, whereas prior levels of trust in police effectiveness and duty to obey the police are associated with how one assesses both the outcome and the process of an interaction. Such associations could challenge our claims that there could be an impact of police-citizen encounters on changes in trustworthiness and legitimacy. In order to investigate this more deeply, we estimated three further statistical models assessing the extent to which prior attitudes towards the police moderate the association between police-citizen encounters and changes in trustworthiness and legitimacy.

Prior Attitudes and the Impact of Police-Citizen Encounters

Skogan (2012) says that people bring 'priors' to bear when they experience contact with the police which "could independently color how they view specific features of an encounter" (p.276; see also Jackson and Pósch, 2019; Rosenbaum et al., 2005; Sargeant et al., 2018).

Although controlling for prior levels of trustworthiness and legitimacy, results displayed in Figures 5.5 and 5.6 do not rule out the possibility that the impact of encounters is different for citizens with different levels of trust and legitimacy before the interaction. Prior attitudes towards legal authority might play an important role in conditioning how fairness is perceived. It could be the case, for instance, that the impact of police-citizen encounters on changes in trustworthiness and legitimacy are actually *moderated* by citizens' prior attitudes.

To properly assess the extent to which prior attitudes moderate the association between contact and attitudinal changes and test the hypotheses displayed in Figure 5.2, we concentrate on the sub-sample of respondents who experienced contact with police between waves 1 and 2. An appropriate strategy for this assessment involves fitting statistical models with an interaction term between constructs at T1 and contact evaluation. The empirical strategy of interacting lagged outcome with a treatment variable is particularly common in the context of lagged dependent variable models (Vickers and Altman, 2001). Given that we are dealing with latent constructs, we use latent moderated structural modelling (LMS) to analyse how 'priors' that individuals bring when interacting with the police condition the association between encounters and changes in trustworthiness and legitimacy – LMS models allow for interactions between two latent variables. Our analytic strategy involves fitting three separate models: we first interact respondents' scores of trust in procedural fairness at T1 with evaluations regarding both process and outcome concerns (hypotheses 3A and 3B); we then do the same with trust in police effectiveness at T1 (hypotheses 4A and 4B); and finally with duty to obey at T1 (hypotheses 5A and 5B). We can thus evaluate the impact of police-citizen contact on changes in trustworthiness and legitimacy across different levels of prior attitudes and assess whether the association is independent of the 'priors' people bring when interacting with police.

Estimation Strategy

We use LMS to estimate interaction effects between latent variables in one step using maximum likelihood (Klein and Moosbrugger, 2000; Muthén and Asparouhov, 2012). By design, the means of all latent variables are constrained to be zero. Therefore, for an interaction term between η and ξ, the main effect of η should be interpreted as the statistical effect of η at an average value of ξ. To make sure that all latent constructs reflect what they are supposed to reflect, we use a two-step approach whereby we first estimate the measurement model and then plug-in the estimated factor loadings in an LMS estimation (this procedure is similar in spirit to what is suggest by Bakk and Kuha, 2018 in the context
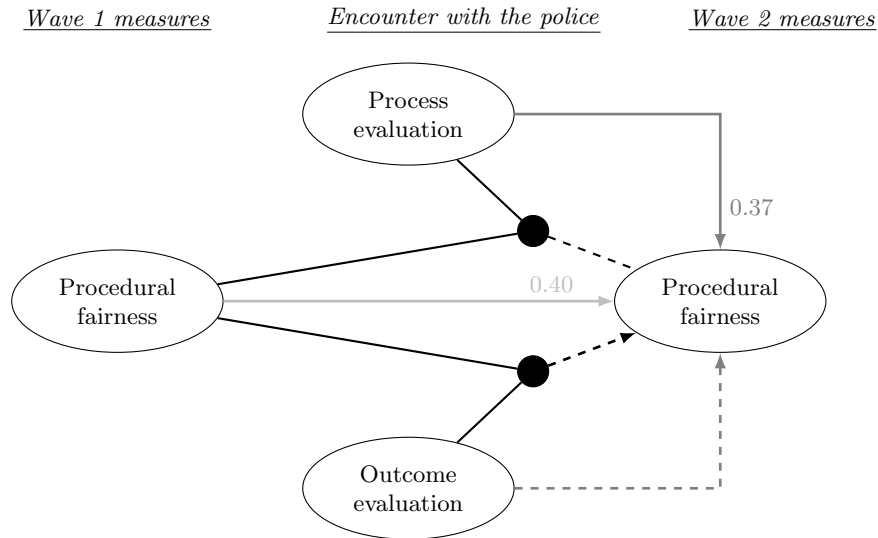
Figure 5.7: **Heterogeneity effects based on prior levels of trust in procedural fairness: latent moderated structural model**

Note: Estimation method (`mPlus` 7.11): maximum likelihood with robust standard errors. Gender, age, and national identity included as covariates. Measurement models and covariates not displayed for visual ease. All represented paths statistically significant ($p < 0.05$). Non-significant paths represented by dashed arrows. $n = 429$. Covariance between process and outcome evaluations is $côv = 0.68$. Full model available in the Appendix (5.6).

of latent class analysis). We fit three two-step LMS models with full information maximum likelihood to handle missing data assessing the moderating role of prior attitudes: model 1 focuses on trust in procedural fairness, model 2 on changes in trust in police effectiveness, and model 3 on changes in duty to obey.

Results

Results of three LMS models fitted on `mPlus` 7.11 can be found in Figures 5.7, 5.8, and 5.9. For visual ease, only the structural part of the model was included in the figures; all models control for age, gender, and national identity, but likewise these paths are not displayed. Non-significant coefficients at the 5% level are represented by dashed arrows.

Figure 5.7 shows the results of the first model, testing whether prior levels of trust in procedural fairness moderate the association between process and outcome evaluations and changes in trust in procedural fairness. At an average level of trust in procedural fairness at T1, it is noticeable that while process evaluation is associated with changes in trust in procedural fairness ($\hat{\beta} = 0.37$), outcome evaluation has no statistical effect – most likely due to the fact that we are now solely analysing respondents who did experience contact
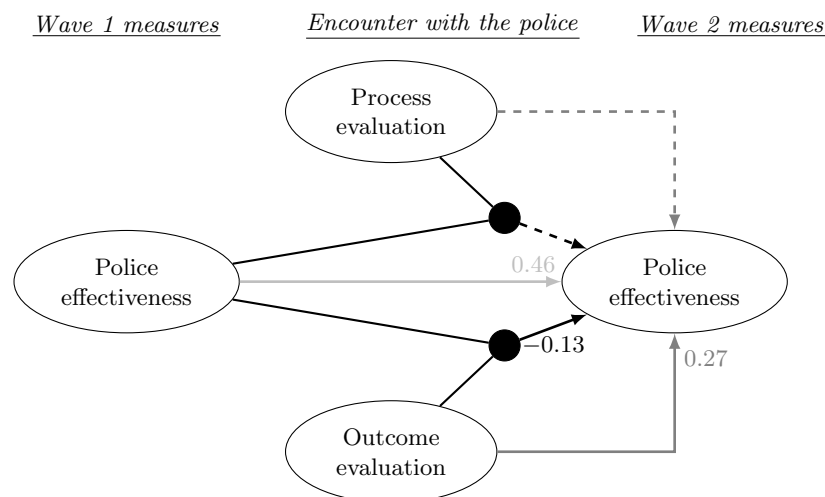
Figure 5.8: **Heterogeneity effects based on prior levels of trust in police effectiveness: latent moderated structural model**

Note: Estimation method (`mPlus` 7.11): maximum likelihood with robust standard errors. Gender, age, and national identity included as covariates. Measurement models and covariates not displayed for visual ease. All represented paths statistically significant ($p < 0.05$). Non-significant paths represented by dashed arrows. $n = 429$. Covariance between process and outcome evaluations is $\hat{cov} = 0.68$. Full model available in the Appendix (5.6).

with police rather than comparing with respondents with no contact.

The focus, however, should be on the interaction terms. The most important finding is their lack of significance, which suggests that the statistical effect of process evaluation on trust in procedural fairness at T2 does not vary by levels of trust in procedural fairness at T1. As predicted by hypothesis 4A, this statistical effect is homogeneous. The association is on average the same for all respondents regardless of their previous levels of trust in police fairness. Inasmuch as previous attitudes towards the police potentially influence people's experiences when interacting with the police, the subsequent impact of such contact – in terms of fairness in the procedures – is homogeneous.

The same conclusion is true for outcome evaluation, as per hypothesis 4B. This is unsurprising given that, in this subgroup analysis, we found no evidence even of a main effect: considering only the sub-sample of respondents who did experience contact with police, the statistical effect of outcome evaluation on changes in trust in procedural fairness (at an average level of trust in procedural fairness at T1) is homogeneously zero. However, outcome evaluation is particularly central when the focus of the analysis is on changes in trust in police effectiveness – Figure 5.8 shows the results of the second LMS model.

First, note that the exact opposite associations are found now – in this subgroup
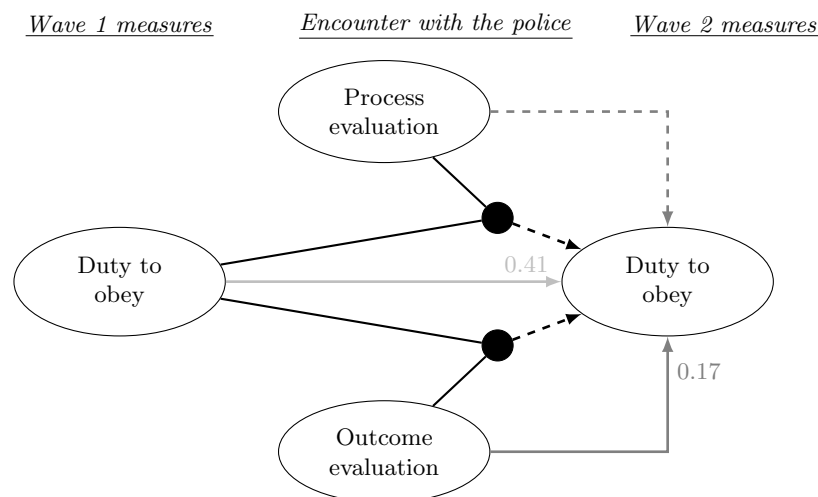
Figure 5.9: **Heterogeneity effects based on prior levels of duty to obey: latent moderated structural model**

Note: Estimation method (`mPlus` 7.11): maximum likelihood with robust standard errors. Gender, age, and national identity included as covariates. Measurement models and covariates not displayed for visual ease. All represented paths statistically significant ($p < 0.05$). Non-significant paths represented by dashed arrows. $n = 429$. Covariance between process and outcome evaluations is $\hat{cov} = 0.68$. Full model available in the Appendix (5.6).

analysis we find no evidence of an association with process evaluation, but at an average level of trust in police effectiveness at T1 outcome evaluation does have an association with changes in attitudes ($\hat{\beta} = 0.27$). The most important aspect of Figure 5.8, however, is that it provides evidence for an interaction effect. In terms of outcome evaluation, the impact of police-citizen encounters does not seem to be homogeneous: the statistical effect is different depending on previous levels of trust in police effectiveness (at T1). Unlike our prediction in hypothesis 5B, the interaction term is negative ($\hat{\beta} = -0.13$), which means that the impact of police-citizen contact on trust in police effectiveness is lower among respondents with higher prior levels of trust in police effectiveness. The more one expects the police to be effective, the less outcome evaluation seems to make a difference – alternatively, the impact of contact is stronger among respondents with lower levels of trust in police effectiveness.

Finally, Figure 5.9 shows the results of the third LMS model. In terms of perceived police legitimacy, only outcome evaluation is associated with changes in duty to obey ($\hat{\beta} = 0.17$) at an average level of duty to obey the police at T1. Crucially, the model indicates little evidence of heterogeneity in the association. The fact that both interaction terms are virtually zero suggests that the impacts of both process and outcome evaluations on changes in one's normative duty to obey the police are the same regardless of people's

prior levels of perceived police legitimacy, as predicted by hypotheses 6A and 6B.

Discussion

Criminologists have long studied the link between police-citizen encounters and attitudes towards the police. People want decisions to be made in fair ways, especially for invasive police stops where one potential outcome is arrest and entry into the criminal justice system. People also want their concerns to be taken seriously and they want information to be provided when and where relevant. Contact can also be status-challenging and status-reinforcing: the police protect the boundaries of inclusion and exclusion (Waddington, 1999) and officer contact contains status-relevant information concerning the citizen – about the moral worth that the officer assigns to them, as well as their position within the social groups the police both represent and partially define. Positive encounters may help to confirm an individual's social standing, while negative encounters may help to undermine this status, resulting in resentment and consequently damaging opinions of the police.

In this paper we considered the idea that the police cannot enhance public trustworthiness and legitimacy through their interactions with the public, they can only damage public opinion. Skogan's (2006) asymmetry thesis posits that people who experience a negative encounter with the police will have lower, on average, opinions of police compared to people who did not experience an encounter, while those who experience a positive encounter with the police will at best have only slightly higher opinions, on average, compared to people who did not experience an encounter. We approached the issue using two-wave panel data and an empirical strategy that models change over time. This involved comparisons between four groups: (a) no contact between waves 1 and 2; (b) contact that went worse than expected (i.e., negative); (c) contact that went as expected (i.e., neutral); and (d) contact that went better than expected (i.e., positive). Autoregressive SEM allowed us to perform what is, to our knowledge, the first panel analysis test of the asymmetry thesis that has considered both trust, as a multi-dimensional construct, and legitimacy. As well as drawing on longitudinal data to empirically test the asymmetry thesis of police-citizen contact, we built on recent advances in the literature and unpacked attitudes towards the police in terms of legitimacy and trustworthiness as separate constructs (Jackson and Gau, 2015) – we also distinguished between trustworthiness as perceived police fairness and perceived police effectiveness (Bradford et al., 2009). Moreover, we built on previous work and differentiated between process and outcome evaluations in encounters with the police (Tyler and Fagan, 2008). Finally, we extended prior research and developed a new mea-

surement model of contact evaluation that took into account people's expectations about the encounter to consider 'positive' and 'negative' contact in relation to what is expected.

This set of methodological and substantive advances may have made a difference. On the one hand, the results are relatively close to Skogan's (2006) original thesis when it comes it changes in trust in police *effectiveness*. While we found some symmetry in the association between police-citizen encounters and changes in expectations that the police are effective in delivering their job, negative experiences during contact with police – both in terms of process and outcome – seem to damage trust in police effectiveness to a greater extent than positive experiences seem to boost it. While policing policy might aim for more than just 'cutting losses,' in terms of trust in police effectiveness the relationship between contact and trust does seem to be asymmetrical.

On the other hand, the relationship between police-citizen encounters and changes in trust in *procedural fairness* does *not* appear to be as asymmetrical as previously thought. Indeed our results indicate a very symmetrical relationship. Our study suggests that satisfactory encounters could do more than just prevent damages in public trustworthiness in policing: they could potentially improve trust in police. Results are even more striking in terms of changes in duty to obey the police. If anything, the relationship is asymmetrical in the opposite direction: positive contact boosts changes in perceived police legitimacy to a much greater extent than negative contact damages it.

Our findings are therefore significant for the procedural justice field. Procedural justice research was from the beginning based on a symmetry model, whereby authorities could rely on good practice to build their legitimacy (Tyler, 2006). Findings from studies testing the 'asymmetry thesis' seemed to imply that good practice would be pointless; concerns were raised that good practice would make little to no difference in gains to legitimacy. Our findings stand in contrast to such concerns and once again highlight the importance of police being both fair and effective. Policing policy should consider that police-citizen encounters do seem to be teachable moments where citizens infer from the behaviour of individual police officers the behaviour of police in general and update their recognition of legal authority as a rightful authority. Instead of 'cutting their losses', police-citizen interactions could be the base for policy aiming for enhancing perceived police legitimacy.

In order to investigate the relations between police-citizen encounters and changes in trustworthiness and legitimacy more deeply, a second set of analyses was employed. Drawing on the hypothesis that prior attitudes towards legal institutions might influence one's perception of contact with legal authorities, we removed from the analysis respondents

who had had no contact with the police between waves 1 and 2 and focused on estimating change over time using a statistical model that allows for the test of heterogeneity in the effects of police-citizen contact (latent moderated structural modelling) – it was possible to assess the extent to which prior attitudes moderate the association between police-citizen encounters and changes in trustworthiness and legitimacy.

This set of analyses included interaction terms between each psychological construct at T1 (i.e., trust in procedural fairness, trust in police effectiveness, and duty to obey the police) and evaluations about the most recent encounter (both for process and outcome) as predictors of the relevant T2 constructs. In terms of trust in police fairness, only process evaluation is associated with change, and there is no evidence of heterogeneity. The statistical effects of contact on changes in trust in police procedural fairness are the same regardless of previous levels of trustworthiness. Contrariwise, in terms of trust in police effectiveness, only outcome evaluation is associated with change. However, we found evidence for heterogeneity—in the opposite direction as originally expected: outcome evaluation is most associated with changes in trust in police effectiveness for people with *lower* prior levels of trust in police effectiveness. Finally, in terms of perceived police legitimacy, satisfaction with both process and outcome are associated with changes in duty to obey, but we found little evidence of heterogeneity here: police-citizen encounters seem to enhance perceived police legitimacy regardless of people's prior attitudes towards legal authority.

Overall, our results indicate that the influence of police-citizen encounters on attitudes towards the police can be distinguished between the assessments of process fairness and outcome favourability. It seems that when citizens perceive an encounter to be procedurally fair, they will increase their levels of trust in police fairness and duty to obey. When they perceive an encounter to end favourably, they may increase their levels of trust in police effectiveness – depending on the extent to which they believed the police to be trustworthy in fighting crime before contact—and duty to obey.

Limitations should, of course, be acknowledged. First, there could be omitted variable bias, and we are not engaging in causal inference as we did not randomly assign respondents to satisfactory and unsatisfactory encounters. Nor are we claiming any particular identification strategy. More field and laboratory experiments and other quasi-experimental designs that permit the identification of causal effects are needed in this area. Second, it would have been helpful to have more than two waves of data. With three waves of data, for instance, we could test whether the statistical impact of police-citizen encounters is the same at different moments in time, which would clarify the mechanisms of such

impact, as well as include random intercepts to properly account for within- and between-individual changes (Hamaker et al., 2015). Third, the findings only pertain to Australia, which can be considered a somewhat specific context. Both attitudes towards the police and perceptions of police-citizen encounters are overall very positive in Australia, which could partly explain the results we found. Perhaps the impact of contact on changes in trustworthiness and legitimacy is as asymmetrical as previously thought in contexts where police confrontations with the public are more common; we would welcome panel studies in other contexts so as to evaluate the dynamics of the relationship between police-citizen encounters and public attitudes towards the police.

Conclusion

To close, our findings have positive implications for policing policy and practice. While we cannot engage in causal inference, it seems there is a robust relationship between positively experienced police-citizen contact and positive changes in public opinion. When citizens perceive police officers to be treating them with dignity and respect, making clear and fair decisions, explaining the reasons for every decision, listening to what they have to say, both the belief that the police are trustworthy and public judgements about the legitimacy of the police increase.

Public support is essential for the good functioning of the criminal justice system – the police, in particular, rely on public confidence to function effectively (Jackson et al., 2020). Without public support, police work is costly, difficult, and to some extent ineffective. Boosting positive attitudes towards legal institutions is therefore crucial for policy and practice. What we show in this paper is that interactions between citizens and legal officials do seem to be an important source both for boosting and damaging public attitudes towards legal authorities in a symmetrical fashion.

Consistent with Skogan's (2006) asymmetry thesis, it seems like the positive statistical effect of 'good' contact is slightly weaker in magnitude than the equivalent negative statistical effect of 'bad' contact – but only when it comes to changes in trust in police effectiveness. In terms of changes in trust in police fairness and duty to obey, our findings paint a 'good news' story, at least in terms of the police's ability to improve public trust through their interactions with citizens. It seems that procedural fairness during interactions with the public really can enhance trustworthiness and legitimacy.

Appendices

Appendix 5.1: Measuring Public Attitudes Towards the Police: Empirical Distinctiveness Between Latent Constructs

We use confirmatory factor analysis (CFA) to assess the scaling properties of our measures, focusing on the two components of perceived police trustworthiness (trust in procedural fairness and trust in police effectiveness) and one of the components of police legitimacy (a normative duty to obey the police). All indicators are set as categorical (ordinal) and the models are estimated using diagonally weighted least squares. In order to assess the empirical distinctiveness of the three theorised constructs, we estimate three models with one, two, and three factors using only first wave data and compare their fit statistics.

Model fit statistics for the three estimated models can be found in Table 5.A1. The one-factor model tests whether all these indicators could actually be reflecting one overall construct representing some sort of normative compass of attitudes towards the police. The two-factor model tests whether legitimacy and trustworthiness are distinguished from one another, but with no further empirical distinction between trust in procedural fairness and trust in police effectiveness within the trustworthiness construct. Finally, the three-factor model tests whether items tapping into the latent constructs that we name 'trust in procedural fairness', 'trust in police effectiveness', and 'duty to obey the police' are empirically distinguishable as theoretically predicted.

Table 5.A1: **Fit statistics for CFA models with one, two, and three factors**

Model fit statistics	One-factor	Two-factor	Three-factor
χ^2 (df)	3031.95 (27)	2695.56 (26)	143.98 (24)
$p-value$	$p < 0.001$	$p < 0.001$	$p < 0.001$
$RMSEA$	$0.326[0.317; 0.336]$	$0.248[0.238; 0.258]$	$0.069[0.058; 0.080]$
CFI	0.906	0.948	0.996
TLI	0.875	0.928	0.994

Note: CFA models estimated on R's package `lavaan` using diagonally weighted least squares. All indicators set as categorical (ordinal). All factors were allowed to correlate. Estimation method: weighted least squares. $n = 1045$.

Multivariate models like this do not signal whether indicators actually measure constructs as this is a purely theoretical claim (Jackson and Kuha, 2016), but they can suggest how well each indicator taps into the theorised constructs. Accordingly, results of Table 5.A1 clearly show that a three-factor model is preferred over the one- and two-factor solutions. The three-factor model is the only one with acceptable fit ($RMSEA = [0.058; 0.080]$, $CFI = 0.996$, $TLI = 0.994$; the χ^2 test tends to be sensitive to sample size). Results speak

Table 5.A2: **Standardised factor loadings for three-factor CFA model**

Latent variable/indicators	Estimates	SE	*p-value*
Trust in procedural fairness			
Police treat people with dignity and respect	0.773	0.016	< 0.001
Police give people opportunity to express views	0.892	0.010	< 0.001
Police listen before making decisions	0.914	0.010	< 0.001
Police make decisions upon facts	0.730	0.018	< 0.001
Trust in police effectiveness			
Police are good at solving crime	0.836	0.013	< 0.001
Police are good at preventing crime	0.914	0.010	< 0.001
Police are good at keeping order	0.912	0.010	< 0.001
Duty to obey the police			
Feel a moral obligation to obey the police	0.916	0.029	< 0.001
Obey the police with good will	0.877	0.027	< 0.001
Covariance Procedural Justice & Effectiveness	0.490	0.026	< 0.001
Covariance Procedural Justice & Duty to obey	0.469	0.030	< 0.001
Covariance Duty to obey & Effectiveness	0.306	0.035	< 0.001

Note: CFA models estimated on R's package `lavaan` using weighted least squares. All indicators set as categorical (ordinal). Estimation method: weighted least squares. $n = 1045$.

to the empirical distinctiveness between items loading onto trust in procedural fairness, trust in police effectiveness, and duty to obey the police. Standardised factor loadings of the three-factor solution can be found in Table 5.A2.

Appendix 5.2: Measuring Public Attitudes Towards the Police: Measurement Equivalence of Latent Constructs

In order to establish measurement equivalence of latent constructs over time, for each latent construct we fit four two-factor confirmatory factor analysis (considering the latent construct at T1 and T2). The first model (configural equivalence) freely estimates all parameters, with residuals of the same indicators at different time points being allowed to correlate. The second model (weak equivalence) constrains the factor loadings to be the same across time, with residuals of the same indicators at different time points being allowed to correlate. The third model (strong equivalence) constrains both the factor loadings and the intercepts to be the same across time, with residuals of the same indicators at different time points being allowed to correlate. The fourth model (strict equivalence) constraints the factor loadings, the intercepts, and the residuals to be the same across time. We then compare the model fit statistics and perform three likelihood ratio tests to assess whether each further constraint improves upon the less restrictive model.

Table 5.A3: **Assessing the measurement equivalence of latent constructs**

	Configural	Weak	Strong	Strict
Trust in procedural fairness				
χ^2	237.948	240.870	242.730	242.730
LR Test	–	$p = 0.404$	$p = 0.761$	$p < 0.001$
RMSEA	0.112	0.102	0.092	0.092
CFI	0.952	0.952	0.952	0.952
TLI	0.910	0.925	0.940	0.940
AIC	16,952.981	16,949.903	16,943.763	16,943.763
BIC	17,100.277	17,081.962	17,055.505	17,055.505
Trust in police effectiveness				
χ^2	16.442	33.404	42.698	46.345
LR Test	–	$p < 0.001$	$p = 0.025$	$p = 0.302$
RMSEA	0.044	0.056	0.052	0.046
CFI	0.997	0.993	0.991	0.991
TLI	0.990	0.984	0.986	0.989
AIC	10,858.698	10,871.659	10,874.953	10,872.600
BIC	10,970.548	10,973.260	10,961.314	10,943.721

Note: CFA models estimated on R's package `lavaan` using full information maximum likelihood. $n = 1190$.

We perform this test separately for trust in procedural fairness and trust in police effectiveness. Given that there are only two indicators of duty to obey, it is not possible to assess the measurement equivalence for this construct. Results of the tests can be found in Table 5.A3.

Appendix 5.3: Measuring Evaluations of Encounters with the Police: Empirical Distinctiveness Between Latent Constructs

In terms of citizens' evaluations of their most recent encounter with the police that happened at some point between the wave 1 and 2 surveys, nine questions were asked – five tapping into process concerns and four tapping into outcome concerns. Standardised factor loadings and model fit statistics of three CFA models with one, two, and two factors can be found in Table 5.A4. The first model assumes that all nine indicators tap into one single latent construct – something like a general index of satisfaction with contact. The second model assumes that process evaluation and outcome evaluation are two, albeit correlated, separate dimensions of one's attitudes towards their most recent encounter with the police. Finally, the third model has the same assumptions as in the second model but removes one of the indicators which has a low factor loading in the first and second models.

Table 5.A4: **CFA models: satisfaction with most recent encounter with the police**

Survey indicators	One-factor	Two-factor	Two-factor
Process evaluation	(Standardised factor loadings)		
Given the opportunities to express your views...	0.692	0.764	0.775
Views were considered when a decision was made...	0.723	0.802	0.706
Given an honest explanation...	0.758	0.819	0.841
Understood why the police took the action they did...	0.771	0.858	0.887
Able to influence the decision made by the police...	0.586	0.662	–
Outcome evaluation			
Satisfied with the outcome	0.924	0.938	0.936
The outcome was fair	0.959	0.970	0.970
The outcome was expected	0.745	0.782	0.785
The outcome was deserved	0.896	0.913	0.915
Covariance Process & Outcome	–	0.641	0.659
Model fit statistics			
χ^2 (df)	997.99 (27)	360.52 (26)	150.14 (19)
p-value	$p < 0.001$	$p < 0.001$	$p < 0.001$
RMSEA	0.297	0.178	0.130
RMSEA CI	$[0.281; 0.313]$	$[0.162; 0.194]$	$[0.111; 0.145]$
CFI	0.970	0.989	0.996
TLI	0.960	0.986	0.994

Note: CFA models estimated on R's package `lavaan` using weighted least squares. $n = 410$.

Model fit statistics indicate the two-factor solution as a better-fitted model,[13] signalling that the indicators do seem to be empirically distinguishable as the two theorised dimensions of evaluations about the encounter. Interestingly, albeit demonstrating some empirical distinctiveness between satisfaction with process and satisfaction with outcome, these dimensions are strongly correlated with each other ($cov(\eta_1, \eta_2 0.64)$. The fifth indicator of perceived fairness ("You feel you were able to influence the decision made by the police") is poorly correlated with its relevant latent construct ($\lambda^*_{51} = 0.662$), so a third model was fitted without this question. While all parameters remained virtually unaltered, model fit statistics demonstrate an improvement. The two separate dimensions of satisfaction with contact with four empirical indicators each were used in subsequent models.

---

[13]The relatively high RMSEA is due to small degrees of freedom (df), when the RMSEA often falsely indicates a poor fitting model (Kenny et al., 2015). We accept the model fit based on the CFI and TLI values.

Table 5.A5: **LCA models for satisfaction with process and outcome**

Model	BIC	AIC	Entropy
Process evaluation			
Two-class	3935.60	3801.73	0.796
Three-class	3724.07	3521.23	0.879
Four-class	3637.67	3365.87	0.876
Outcome evaluation			
Two-class	4004.40	3866.30	0.920
Three-class	3466.60	3262.32	0.953
Four-class	3569.60	3297.32	0.714

Note: Latent Class models estimated on `mPlus` 7.11. $n = 427; n = 430$.

Appendix 5.4: Measuring Evaluations of Encounters with the Police: Latent Class Analysis

With the goal of classifying respondents' encounters with the police as positive or negative but without handpicking how to define the categories 'positive' and 'negative', we use latent class analysis to assess the underlying structure of people's contact evaluation. For each dimension – process and outcome – we fit latent class models with two, three, and four latent classes and compare their fit statistics. Results of such model fit comparison can be found in Table 5.A5. Considering that the number of classes is usually decided in terms of their information criteria, entropy, and substantive contribution (Nylund et al., 2007), a three-class solution is the one with the best performance both for process and outcome evaluations.

Originally, we were hoping to find two latent classes for each process and outcome – roughly, a group of respondents who thought the encounter was positive and another who thought the encounter was negative. However, information shown in Table 5.A5 makes it clear that the two-class solution does not have an appropriate fit: in both cases, it has the highest BIC and AIC and lowest entropy levels. For satisfaction with outcome favourability, the three-class solution clearly has the best fit (lowest AIC and BIC, highest entropy). When it comes to process evaluation, there are some mixed signals: the three-class solution has a higher entropy, but the four-class solution has lower BIC and AIC levels.

Nylund et al. (2007) suggest that substantive contributions are equally, if not more important when deciding on the number of latent classes. Despite some mixed signals from the model fit comparison, from a substantive perspective a three-class solution is more appropriate than a four-class. We therefore adopt three latent classes both for process

evaluation and outcome evaluation – which indicate encounters that went negative (i.e., worse than expected), neutral (i.e., as expected), or positive (i.e., better than expected).

Appendix 5.5: Autoregressive Structural Equation Modelling: Full Models

Table 5.A6: **Autoregressive SEMs as presented in Figures 5.5 and 5.6**

	Model 1 (process)				Model 2 (outcome)			
	Est.	SE	p	Std.	Est.	SE	p	Std.
Measurement models								
Trust in procedural fairness T1								
Dignity and respect	0.428	0.019	< 0.001	0.428	0.430	0.018	< 0.001	0.430
Opportunity to express views	0.598	0.017	< 0.001	0.598	0.598	0.018	< 0.001	0.598
Listen before making decisions	0.620	0.017	< 0.001	0.620	0.620	0.018	< 0.001	0.620
Decisions upon facts	0.448	0.020	< 0.001	0.448	0.451	0.019	< 0.001	0.451
Trust in procedural fairness T2								
Dignity and respect	0.428	0.019	< 0.001	0.487	0.430	0.018	< 0.001	0.490
Opportunity to express views	0.598	0.017	< 0.001	0.680	0.598	0.018	< 0.001	0.682
Listen before making decisions	0.620	0.017	< 0.001	0.705	0.620	0.018	< 0.001	0.707
Decisions upon facts	0.448	0.020	< 0.001	0.510	0.451	0.019	< 0.001	0.514
Trust in police effectiveness T1								
Solving crime	0.464	0.015	< 0.001	0.464	0.462	0.015	< 0.001	0.462
Preventing crime	0.599	0.016	< 0.001	0.599	0.596	0.016	< 0.001	0.596
Keeping order	0.530	0.016	< 0.001	0.530	0.526	0.017	< 0.001	0.526
Trust in police effectiveness T2								
Solving crime	0.464	0.015	< 0.001	0.518	0.462	0.015	< 0.001	0.519
Preventing crime	0.599	0.016	< 0.001	0.668	0.596	0.016	< 0.001	0.669
Keeping order	0.530	0.016	< 0.001	0.591	0.526	0.017	< 0.001	0.590
Duty to obey T1								
Moral obligation	0.545	0.025	< 0.001	0.545	0.548	0.025	< 0.001	0.548
Obey with good will	0.426	0.020	< 0.001	0.426	0.419	0.019	< 0.001	0.419
Duty to obey T2								
Moral obligation	0.545	0.025	< 0.001	0.593	0.548	0.025	< 0.001	0.599
Obey with good will	0.426	0.020	< 0.001	0.463	0.419	0.019	< 0.001	0.457
Structural models								
Trust in procedural fairness T2								
Trust in procedural fairness T1	0.507	0.035	< 0.001	0.446	0.514	0.034	< 0.001	0.451
Process: positive	0.587	0.140	< 0.001	0.517				
Process: neutral	0.130	0.084	0.121	0.114				
Process: negative	−0.292	0.085	0.001	−0.256				
Outcome: positive					0.309	0.113	0.006	0.271
Outcome: neutral					0.078	0.075	0.297	0.069
Outcome: negative					−0.416	0.110	< 0.001	−0.365
Gender (1 = *male*)	−0.030	0.060	0.611	−0.027	−0.029	0.060	0.632	−0.025
Age	0.004	0.002	0.085	0.003	0.004	0.002	0.048	0.004
National id. (1 = *Australian*)	0.028	0.070	0.691	0.024	0.031	0.069	0.658	0.027
Trust in police effectiveness T2								
Trust in police effectiveness T1	0.450	0.035	< 0.001	0.403	0.439	0.034	< 0.001	0.392
Process: positive	0.327	0.192	0.089	0.293				
Process: neutral	0.011	0.080	0.085	0.010				
Process: negative	−0.358	0.080	< 0.001	−0.321				
Outcome: positive					0.245	0.139	0.078	0.219
Outcome: neutral					0.013	0.071	0.859	0.011

Continued on next page

Table 5.A6 – *Continued from previous page*

	Model 1 (process)				Model 2 (outcome)			
	Est.	SE	p	Std.	Est.	SE	p	Std.
Outcome: negative					−0.601	0.098	< 0.001	−0.536
Gender (1 = *male*)	−0.103	0.060	0.085	−0.093	−0.095	0.060	0.115	−0.084
Age	0.004	0.002	0.001	0.006	0.007	0.002	< 0.001	0.006
National id. (1 = *Australian*)	0.006	0.067	0.924	0.006	−0.005	0.067	0.943	−0.004
Duty to obey T2								
Duty to obey T1	0.381	0.032	< 0.001	0.350	0.378	0.033	< 0.001	0.346
Process: positive	0.785	0.139	< 0.001	0.721				
Process: neutral	−0.146	0.087	0.012	−0.134				
Process: negative	−0.217	0.086	0.095	−0.199				
Outcome: positive					0.630	0.130	< 0.001	0.577
Outcome: neutral					−0.172	0.081	0.033	−0.158
Outcome: negative					−0.306	0.105	0.003	−0.280
Gender (1 = *male*)	−0.155	0.062	0.013	−0.142	−0.144	0.062	0.020	−0.132
Age	−0.001	0.002	0.605	−0.001	−0.001	0.002	0.816	0.000
National id. (1 = *Australian*)	0.036	0.069	0.599	0.033	0.048	0.069	0.481	0.044
Process: positive (ref: neutral)								
Trust in procedural fairness T1	−0.162	0.318	0.611	−0.162				
Trust in police effectiveness T1	0.475	0.214	0.026	0.475				
Duty to obey T1	0.622	0.287	0.030	0.622				
Process: negative (ref: neutral)								
Trust in procedural fairness T1	−0.491	0.128	< 0.001	−0.491				
Trust in police effectiveness T1	−0.042	0.116	0.717	−0.042				
Duty to obey T1	0.022	0.122	0.859	0.022				
Process: no contact (ref: neutral)								
Trust in procedural fairness T1	−0.208	0.112	0.062	−0.208				
Trust in police effectiveness T1	0.254	0.099	0.010	0.254				
Duty to obey T1	0.112	0.107	0.296	0.112				
Outcome: positive (ref: neutral)								
Trust in procedural fairness T1					0.111	0.180	0.538	0.111
Trust in police effectiveness T1					−0.019	0.169	0.909	−0.019
Duty to obey T1					0.546	0.175	0.002	0.546
Outcome: negative (ref: neutral)								
Trust in procedural fairness T1					−0.229	0.135	0.089	−0.229
Trust in police effectiveness T1					−0.494	0.120	< 0.001	−0.494
Duty to obey T1					0.112	0.127	0.333	0.123
Outcome: no contact (ref: neutral)								
Trust in procedural fairness T1					0.025	0.102	0.809	0.025
Trust in police effectiveness T1					0.050	0.091	0.578	0.050
Duty to obey T1					0.185	0.096	0.055	0.185
Cov. TPF & TPE T1	0.372	0.033	< 0.001	0.372	0.367	0.033	< 0.001	0.367
Cov. TPF & Duty T1	0.371	0.035	< 0.001	0.371	0.374	0.035	< 0.001	0.374
Cov. TPE & Duty T1	0.244	0.031	< 0.001	0.244	0.243	0.031	< 0.001	0.243
Cov. TPF & TPE T2	0.387	0.043	< 0.001	0.387	0.383	0.043	< 0.001	0.383
Cov. TPF & Duty T2	0.415	0.056	< 0.001	0.415	0.429	0.055	< 0.001	0.429
Cov. TPE & Duty T2	0.340	0.055	< 0.001	0.340	0.339	0.057	< 0.001	0.339
Loglikelihood	−17,357.108				−17,455.219			
BIC	35,365.417				35,561.892			
Estimation method	Maximum likelihood with robust SE				Maximum likelihood with robust SE			

Continued on next page

Table 5.A6 – *Continued from previous page*

	Model 1 (process)				Model 2 (outcome)			
	Est.	SE	*p*	Std.	Est.	SE	*p*	Std.
N	1099				1099			

Appendix 5.6: Latent Moderated Structural Modeling: Full Models

Table 5.A7: **Latent moderated structural models as presented in Figures 5.7 and 5.8, and 5.9**

	Model 3 (fairness)			Model 4 (effectiveness)			Model 5 (duty)		
	Est.	SE	*p*	Est.	SE	*p*	Est.	SE	*p*
Measurement models									
Trust in procedural fairness T1									
Dignity and respect	.485	–	–						
Opportunity to express views	.663	–	–						
Listen before making decisions	.710	–	–						
Decisions upon facts	.525	–	–						
Trust in procedural fairness T2									
Dignity and respect	.485	–	–						
Opportunity to express views	.663	–	–						
Listen before making decisions	.710	–	–						
Decisions upon facts	.525	–	–						
Trust in police effectiveness T1									
Solving crime				.495	–	–			
Preventing crime				.636	–	–			
Keeping order				.560	–	–			
Trust in police effectiveness T2									
Solving crime				.495	–	–			
Preventing crime				.636	–	–			
Keeping order				.560	–	–			
Duty to obey T1									
Moral obligation							.614	–	–
Obey with good will							.456	–	–
Duty to obey T2									
Moral obligation							.614	–	–
Obey with good will							.456	–	–
Process evaluation									
Opportunities to express	.591	–	–	.591	–	–	.591	–	–
Views were considered	.584	–	–	.584	–	–	.584	–	–
Given an honest explanation	.690	–	–	.690	–	–	.690	–	–
Understood police action	.695	–	–	.695	–	–	.695	–	–
Outcome evaluation									
Satisfied with the outcome	.970	–	–	.970	–	–	.970	–	–
Outcome was fair	.929	–	–	.929	–	–	.929	–	–
Outcome was expected	.693	–	–	.693	–	–	.693	–	–
Outcome was deserved	.928	–	–	.928	–	–	.928	–	–
Structural models									
Trust in procedural fairness T2									

Continued on next page

Table 5.A7 – *Continued from previous page*

	Model 3 (fairness)			Model 4 (effectiveness)			Model 5 (duty)		
	Est.	SE	*p*	Est.	SE	*p*	Est.	SE	*p*
Trust in procedural fairness *T*1	.397	.051	< 0.001						
Satisfaction with process	.373	.064	< 0.001						
Satisfaction with process X TPF *T*1	−.107	.058	.064						
Satisfaction with outcome	.051	.059	.383						
Satisfaction with outcome X TPF *T*1	.074	.072	0.305						
Gender (1 = *male*)	.005	.082	.948						
Age	.001	.002	.721						
National id. (1 = *Australian*)	.127	.104	.224						
Trust in police effectiveness T2									
Trust in police effectiveness *T*1				.462	.049	< 0.001			
Satisfaction with process				.049	.063	.437			
Satisfaction with process X TPE *T*1				.060	.059	.310			
Satisfaction with outcome				.274	.070	< 0.001			
Satisfaction with outcome X TPE *T*1				−.132	.063	.036			
Gender (1 = *male*)				−.096	.089	.277			
Age				.010	.003	< 0.001			
National id. (1 = *Australian*)				.108	.105	.300			
Duty to obey T2									
Duty to obey *T*1							.409	.047	< 0.001
Satisfaction with process							.118	.063	.060
Satisfaction with process X Duty T1							.070	.060	.250
Satisfaction with outcome							.165	.071	.020
Satisfaction with outcome X Duty T1							−.060	.078	.446
Gender (1 = *male*)							−.121	.096	.205
Age							.003	.003	.347
National id. (1 = *Australian*)							.063	.114	.575
Cov. process & outcome	.676	.033	< 0.001	.679	.033	< 0.001	.679	.033	< 0.001
Cov. process & TPF *T*1	.398	.053	< 0.001						
Cov. outcome & TPF *T*1	.271	.046	< 0.001						
Cov. process & TPE *T*1				.307	.056	< 0.001			
Cov. outcome & TPE *T*1				.293	.053	< 0.001			
Cov. process & Duty *T*1							.232	.064	< 0.001
Cov. outcome & Duty *T*1							.190	.055	< 0.001
Loglikelihood	−6604.70			−5465.02			−5010.85		
BIC	13, 494.28			11, 184.62			10, 245.97		
Estimation method	Maximum likelihood with robust SE			Maximum likelihood with robust SE			Maximum likelihood with robust SE		
N	429			429			429		

Bibliography

Allison, P. D. (1990). Change scores as dependent variables in regression analysis. *Sociological Methodology 20*, 93–114.

Augustyn, M. B. (2016). Updating perceptions of (in)justice. *Journal of Research in Crime and Delinquency 53*(2), 255–286.

Bakk, Z. and J. Kuha (2018). Two-step estimation of models between latent classes and external variables. *Psychometrika 83*(4), 871–892.

Baumeister, R. F., E. Bratslavsky, C. Finkenauer, and K. D. Vohs (2001). Bad is stronger than good. *Review of general psychology 5*(4), 323–370.

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

Bradford, B. (2010). Convergence, not divergence?: Trends and trajectories in public contact and confidence in the police. *The British Journal of Criminology 51*(1), 179–200.

Bradford, B. (2017). *Stop and search and police legitimacy*, Volume 42. Taylor & Francis.

Bradford, B., J. Jackson, and E. A. Stanko (2009). Contact and confidence: Revisiting the impact of public encounters with the police. *Policing & society 19*(1), 20–46.

Bradford, B., K. Murphy, and J. Jackson (2014). Officers as mirrors: policing, procedural justice and the (re)production of social identity. *The British Journal of Criminology 54*, 527–550.

Brown, B. and W. R. Benedict (2002). Perceptions of the police: Past findings, methodological issues, conceptual issues and policy implications. *Policing: An International Journal 25*(3), 543–580.

Fine, A. and E. Cauffman (2015). Race and justice system attitude formation during the transition to adulthood. *Journal of Developmental and Life-Course Criminology 1*(4), 325–349.

Fine, A., C. Cavanagh, S. Donley, P. J. Frick, L. Steinberg, and E. Cauffman (2017). Is the effect of justice system attitudes on recidivism stable after youths' first arrest? Race and legal socialization among first-time youth offenders. *Law and human behavior 41*(2), 146–158.

Fine, A., C. Cavanagh, S. Donley, L. Steinberg, P. J. Frick, and E. Cauffman (2016). The role of peer arrests on the development of youths' attitudes towards the justice system. *Law and Human Behavior 40*(2), 211–218.

Gau, J. (2014). Procedural justice and police legitimacy: A test of measurement and structure. *American Journal of Criminal Justice 39*(2), 187–205.

Gau, J. M. (2010). A longitudinal analysis of citizens' attitudes about police. *Policing: An International Journal of Police Strategies & Management 33*(2), 236–252.

Hamaker, E. L., R. M. Kuiper, and R. P. Grasman (2015). A critique of the cross-lagged panel model. *Psychological methods 20*(1), 102.

Hamm, J. A., R. Trinkner, and J. D. Carr (2017). Fair process, trust, and cooperation: moving toward an integrated framework of police legitimacy. *Criminal justice and behavior 44*(9), 1183–1212.

Hardin, R. (1996). Trustworthiness. *Ethics 107*(1), 26–42.

Hinds, L. and K. Murphy (2007). Public satisfaction with police: Using procedural justice to

improve police legitimacy. *Australian & New Zealand Journal of Criminology 40*, 27–42.

Jackson, J. (2018). Norms, normativity, and the legitimacy of justice institutions: International perspectives. *Annual Review of Law and Social Science 14*(1), 145–165.

Jackson, J. and B. Bradford (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.

Jackson, J., B. Bradford, M. Hough, A. Myhill, P. Quinton, and T. R. Tyler (2012). Why do people comply with the law? Legitimacy and the influence of legal institutions. *British Journal of Criminology 52*(6), 1051–1071.

Jackson, J., B. Bradford, B. Stanko, and K. Hohl (2013). *Just authority?: Trust in the police in England and Wales*. Willan.

Jackson, J., I. Brunton-Smith, B. Bradford, T. R. Oliveira, K. Pósch, and P. Sturgis (2020). Police legitimacy and the norm to cooperate: using a mixed effects location-scale model to estimate the strength of social norms at a small spatial scale. *Journal of Quantitative Criminology*, 1–26.

Jackson, J. and J. Gau (2015). Carving up concepts? Differentiating between trust and legitimacy in public attitudes towards legal authority. In E. Shockley, T. Neal, L. PytlikZillig, and B. Bornstein (Eds.), *Interdisciplinary Perspectives on Trust: Towards Theoretical and Methodological Integration*. New York: Springer.

Jackson, J. and J. Kuha (2016). How theory guides measurement: Examples from the study of public attitudes toward crime and policing. In T. S. Bynum and B. M. Huebner (Eds.), *Handbook on Measurement Issues in Criminology and Criminal Justice*. John Wylie.

Jackson, J. and K. Pósch (2019). New directions of research in fairness and legal authority. In A. Lind (Ed.), *Social Psychology and Justice (Frontiers of Social Psychology Series*, Chapter 9. Routledge.

Kaiser, K. and M. D. Reisig (2019). Legal socialization and self-reported criminal offending: The role of procedural justice and legal orientations. *Journal of Quantitative Criminology 35*(1), 135–154.

Keele, L. and N. J. Kelly (2006). Dynamic models for dynamic theories: The ins and outs of lagged dependent variables. *Political Analysis 14*(2), 186–205.

Kenny, D. A., B. Kaniskan, and D. B. McCoach (2015). The performance of RMSEA in models with small degrees of freedom. *Sociological Methods & Research 44*(3), 486–507.

Klein, A. and H. Moosbrugger (2000). Maximum likelihood estimation of latent interaction effects with the LMS method. *Psychometrika 65*(4), 457–474.

McLean, K., S. E. Wolfe, and T. C. Pratt (2019). Legitimacy and the life course: An age-graded examination of changes in legitimacy attitudes over time. *Journal of Research in Crime and Delinquency 56*(1), 42–83.

Mulvey, E. P. (2016). Research on Pathways to Desistance [Maricopa County, AZ and Philadelphia County, PA]: Subject Measures, 2000-2010. *MI: Inter-university Consortium for Political and Social Research [distributor]*. https://doi.org/10.3886/ICPSR29961.v2.

Murphy, K. and J. Barkworth (2014). Victim willingness to report crime to police: Does procedural justice or outcome matter most? *Victims & offenders 9*(2), 178–204.

Murphy, K., L. Hinds, and J. Fleming (2008). Encouraging public cooperation and support for police. *Policing and Society 18*(2), 136–155.

Murphy, K., B. Murphy, and M. Mearns (2010a). *The 2007 public safety and security in Australia survey: Survey methodology and preliminary findings*. Citeseer.

Murphy, K., B. Murphy, and M. Mearns (2010b). *'The 2009 Crime, Safety and Policing in Australia Survey': Survey Methodology and Preliminary Findings*. Citeseer.

Muthén, B. and T. Asparouhov (2012). Latent variable interactions. *Unpublished manuscript. Retrieved. http://statmodel2. com/download/Latent% 20variable% 20interactions. pdf*.

Myhill, A. and B. Bradford (2012). Can police enhance public confidence by improving quality of service? Results from two surveys in england and wales. *Policing and Society 22*(4), 397–425.

Na, C., T. Loughran, and R. Paternoster (2015). On the importance of treatment effect heterogeneity in experimentally-evaluated criminal justice interventions. *Journal of Quantitative Criminology 31*(2), 289–310.

Nagin, D. and C. Telep (2017). Procedural justice and legal compliance. *Annual Review of Law and Social Science 13*, 5–28.

Nylund, K. L., T. Asparouhov, and B. O. Muthén (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A monte carlo simulation study. *Structural Equation Modeling: A Multidisciplinary Journal 14*(4), 535–569.

Piquero, A., J. Fagan, E. Mulvey, L. Steinberg, and C. Odgers (2005). Developmental trajectories of legal socialization among serious adolescent offenders. *Journal of Criminal Law and Criminology 96*(1), 267–298.

Pósch, K., J. Jackson, B. Bradford, and S. Macqueen (2020). Truly free consent? Clarifying the nature of police legitimacy using causal mediation analysis. *Journal of Experimental Criminology*.

Rengifo, A. F., L. A. Slocum, and V. Chillar (2019). From impressions to intentions: Direct and indirect effects of police contact on willingness to report crimes to law enforcement. *Journal of Research in Crime and Delinquency 56*(3), 412–450.

Rosenbaum, D. P., A. M. Schuck, S. K. Costello, D. F. Hawkins, and M. K. Ring (2005). Attitudes toward the police: The effects of direct and vicarious experience. *Police Quarterly 8*(3), 343–365.

Rosin, P. and E. Royzman (2001). Negativity bias, negativity dominance, and cognition. *Personality and Social Psychology Review 5*, 296–320.

Sargeant, E., K. Murphy, and N. S. Madon (2018). Is dissatisfaction with police inevitable? Testing an integrated model of motivational postures and procedural justice in police-citizen contacts. *Police Practice and Research 19*(2), 125–137.

Schubert, C. A., E. P. Mulvey, and L. Pitzer (2016). Differentiating serious adolescent offenders who exit the justice system from those who do not. *Criminology 54*(1), 56–85.

Skogan, W. (2006). Asymmetry in the impact of encounters with the police. *Policing and Society 16*, 99–126.

Skogan, W. G. (2012). Assessing asymmetry: the life course of a research project. *Policing and Society 22*(3), 270–279.

Slocum, L. A. (2018). The effect of prior police contact on victimization reporting: Results from the police–public contact and national crime victimization surveys. *Journal of Quantitative Criminology 34*(2), 535–589.

Slocum, L. A., S. Ann Wiley, and F.-A. Esbensen (2016). The importance of being satisfied: A longitudinal exploration of police contact, procedural injustice, and subsequent delinquency. *Criminal Justice and Behavior 43*(1), 7–26.

Slocum, L. A. and S. A. Wiley (2018). "Experience of the expected": Race and ethnicity differences in the effects of police contact on youth. *Criminology 56*(2), 402–432.

Sun, I. Y., Y. Wu, and L. Li (2019). Response to criticism: Understanding the conceptual and measurement models of legitimacy. *Asian Journal of Criminology 14*(4), 305–308.

Sunshine, J. and T. Tyler (2003). The role of procedural justice and legitimacy in public support for policing. *Law and Society Review 37*(3), 513–548.

Tankebe, J. (2013). Viewing things differently: The dimensions of public perceptions of legitimacy. *Criminology 51*(1), 103–135.

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.

Trinkner, R., J. Jackson, and T. R. Tyler (2018). Bounded authority: Expanding "appropriate" police behavior beyond procedural justice. *Law and Human Behavior 42*(3), 280–293.

Tyler, T. (2006). Psychological perspectives on legitimacy and legitimation. *Annual Review of Psychology 57*, 375–400.

Tyler, T. and J. Fagan (2008). Legitimacy and cooperation: why do people help the police fight crime in their communities? *Ohio State Journal of Criminal Law 6*(1), 231–275.

Tyler, T., J. Fagan, and A. Geller (2014). Street stops and police legitimacy: Teachable moments in young urban men's legal socialization. *Journal of Empirical Legal Studies 11*(4), 751–785.

Tyler, T. R. (2017). Can the police enhance their popular legitimacy through their conduct: using empirical research to inform law. *U. Ill. L. Rev.*, 1971.

Tyler, T. R. and J. Jackson (2014). Popular legitimacy and the exercise of legal authority: Motivating compliance, cooperation, and engagement. *Psychology, public policy, and law 20*(1), 78.

Vickers, A. J. and D. G. Altman (2001). Analysing controlled trials with baseline and follow up measurements. *Bmj 323*(7321), 1123–1124.

Waddington, P. A. (1999). Police (canteen) sub-culture. An appreciation. *The British Journal of Criminology 39*(2), 287–309.

Wiley, S. A. and F.-A. Esbensen (2016). The effect of police contact: Does official intervention result in deviance amplification? *Crime & Delinquency 62*(3), 283–307.

Third interlude

In the third paper, I focused on the relationship between police-citizen contact and changes in attitudes towards the police. Previous research suggested an asymmetrical relationship between contact and confidence, where poorly-handled interactions between law enforcement agents and members of the public could potentially undermine trust in legal authority, whereas well-handled encounters could at best only slightly improve people's views of the legal institutions. Yet, the asymmetry thesis is a theory of change, and as such requires longitudinal data to appropriately model attitudinal change after an encounter with the police. Drawing on two waves of data from a nationally representative survey of adults residing in Australia, I used autoregressive models to compare change scores of police trustworthiness and legitimacy between respondents who had a positive, neutral, or negative police encounter between the waves and respondents with no contact.

The relationship between contact and attitudinal change does indeed seem to be asymmetrical, with unsatisfactory interactions leading to a larger negative change than satisfactory encounters lead to positive change – however, only in terms of trust in police effectiveness. In terms of trust in procedural fairness, the relationship appears to be symmetric, with positive and negative contact leading to a similar degree of positive and negative changes. In terms of duty to obey, the relationship seems to be asymmetrical but in the opposite direction: satisfactory experiences with law enforcement agents are associated with a larger boost than unsatisfactory experiences are associated with damages. As predicted by procedural justice theory, police-citizen encounters seem to be teachable moments about values where people update their attitudes towards legal authority.

Yet, results shown in the third paper are only correlational. The degree to which the experience of police contact has a *causal effect* on public attitudes towards legal authority is not clear. Panel data can be powerful to model attitudinal change, but drawing causal inference requires an explicit comparison between potential outcomes. The matter of time needs to be appropriately addressed as the effects of contact on change could have different patterns of decay. In the fourth paper, I address this issue using a multi-period difference-in-differences design. I use three waves of survey data from São Paulo and assess the impact of being stopped by the police, including at gunpoint, on three aspects of police trustworthiness: perceptions of police fairness, overpolicing, and underpolicing. Results suggest a causal relationship between aggressive police stops and attitudinal change, although different aspects of trustworthiness are distinctively affected.

Chapter 6

AGGRESSIVE POLICING AND UNDERMINED TRUST IN A VIOLENT
CITY: ASSESSING THE IMPACT OF POLICE STOPS AT GUNPOINT
ON POLICE TRUSTWORTHINESS IN SÃO PAULO, BRAZIL

Thiago R. Oliveira

Abstract

Objectives: Test the effects of being stopped by the police and being stopped by the police at gunpoint on three aspects of police trustworthiness (e.g., attitudinal change in perceptions of police fairness, overpolicing, and underpolicing). Disentangle between short-term effects of a recent stop and long-term effects of a first experience of being stopped by the police in several years.
Methods: A three-wave longitudinal survey of residents of São Paulo, Brazil (2015-2019), measured people's perceptions that officers tend to act with procedural fairness, repeatedly intrude upon the lives of community residents (overpolicing), and fail to ensure public safety (underpolicing), whether they were recently stopped by the police, and whether officers had pointed a gun at them during that stop. Analysis is carried out using a multi-period difference-in-differences design. Two-way fixed effects linear regression, matching for panel data, and doubly robust estimators were used to estimate slightly different causal estimands.
Results: It seems unlikely that police stops damage police trustworthiness over time among São Paulo residents. A recent police stop at gunpoint seems to have a negative short-term effect on perceived police fairness. The first experience of a police stop at gunpoint in several years seems to have a positive long-term effect on perceived overpolicing.
Conclusions: While police stops do not necessarily affect police trustworthiness, police stops at gunpoint seem to affect perceptions of fairness and overpolicing. This study provides causal

evidence on the relationship between police contact and attitudinal change and contributes to a growing international literature describing the social costs of aggressive policing strategies.

Introduction

Strategies of crime control in countries like the United States and Brazil often rely on the extensive use of police stops (Fagan et al., 2016; Zanetic et al., 2016). It is important to assess the impact on crime of such proactive, aggressive approaches to policing, but it is also important to assess whether there are a range of different negative consequences. In New York City, for instance, Legewie and Fagan (2019) found that increased police presence led to worse educational performance among African American boys and Geller et al. (2014) showed that young men who reported being repeatedly stopped by the police also tended to report more trauma and anxiety symptoms.

The question of whether the experience of aggressive policing has various outcomes is, of course, a causal one. Yet, few studies in this area of research have employed plausible causal identification strategies. Drawing causal inference involves comparing potential outcomes that cannot be simultaneously observed (see Morgan and Winship, 2015), which is not trivial when experimental designs are impractical. An instructive exception is Legewie and Fagan (2019), who estimated the effect of aggressive policing on educational performance among public-school students in New York City from 2003 to 2012. They employed a difference-in-differences design which compared changes in test scores before and after a policing program that increased the number of officers in selected high-crime areas to the same changes over time for areas where the program was not yet implemented, and concluded that the increased intensity of aggressive policing lowered the educational performance of African American boys.

In this paper, I focus on the causal effect of police stops and police stops at gunpoint on people's beliefs about police trustworthiness. A large body of evidence suggests a link between perceived police conduct and legal attitudes (see, e.g., Bradford et al., 2009; Tyler et al., 2014; Geller and Fagan, 2019). For instance, cross-sectional survey studies from Western contexts have shown that negatively experienced police-initiated interactions are

associated with lower levels of public confidence and trust in the police (Skogan, 2006; Bradford, 2017). This association is also backed by some studies which have drawn on panel data to model attitudinal change before and after an encounter with law enforcement agents (see, e.g., Slocum and Wiley, 2018; Tyler and Fagan, 2008; Oliveira et al., 2021).

However, as correctly noted by Nagin and Telep (2017, 2020), what has not been established is whether this correlation reflects a causal link. The frequently found association between perceptions of police behaviour and trust and legitimacy of legal authority could be due to reverse causality issues (whereby people with more positive views about the legal institutions would evaluate encounters with the law more positively) or third common causes (e.g., confounders mutually influencing people's views about legal authority and judgements of specific interactions with legal agents) (Nagin and Telep, 2017, 2020). Relying upon panel data could be a powerful strategy to overcome these threats. Yet the assumptions and modelling strategies necessary to make causal conclusions with longitudinal data (e.g., parallel trends and the correct specification of treatment dynamics) are generally under-appreciated (An and Winship, 2017; Vaisey and Miles, 2017), and in the study of public attitudes towards legal authority, they are never directly addressed (Nagin and Telep, 2017).

In this study, I make use of three waves of longitudinal survey data representative of the adult population residing in selected neighbourhoods in São Paulo, Brazil (2015–2019), to partly address the gap in the literature identified by Nagin and Telep (2017, 2020). Using a multi-period difference-in-differences design, I estimate the causal effects of being stopped by the police and being stopped by the police at gunpoint on changes in three aspects of police trustworthiness: perceptions of police fairness (do people expect officers to act with procedural fairness?), overpolicing (do people expect officers to repeatedly intrude upon their lives?), and underpolicing (do people expect officers to fail to ensure public safety?). I examine both short-term effects of a recent police stop (at gunpoint) and long-term effects of a first experience of being stopped by the police (at gunpoint) in several years on attitudinal change. To estimate these slightly different causal effects, I rely upon two recently-developed estimators (Imai et al., 2020; Callaway and Sant'Anna, 2020) and discuss the appropriateness of their assumptions in this context (e.g., assuming a dynamic or a staggered treatment adoption).

This paper makes two contributions to studies on police-citizen relations. Methodologically, I argue that any posited relationship between the experience of aggressive policing and people's attitudes towards the police is best viewed as a causal account about *dynamic change over time*. While panel data can be powerful to model change, it is impor-

tant to draw on the potential outcomes framework (Imbens and Rubin, 2015) and/or causal graphs depicted by directed acyclic graphs (DAGs) (Pearl, 2009) to explicitly define causal parameters. Substantively, this paper partly addresses the gap in the literature identified by Nagin and Telep (2017, 2020) and discusses the extent to which police stops – and police stops at gunpoint, in particular – lead to attitudinal change, with focus on changes in perceptions of police fairness, overpolicing, and underpolicing among adults from São Paulo between 2015 and 2019. Crucially, this study addresses the issue of temporality as it assesses the degree to which it is possible to disentangle short-term from long-term effects of police stops.

The rest of the paper proceeds as follows. In the next section, I review the literature on police stops and attitudes towards the police, with focus on the theoretical link between police contact and attitudinal change. I then discuss causal inference with longitudinal data, emphasising the definitions of the causal effects of interest, the logic of the difference-in-differences design, and the implication of these effects in the context of aggressive policing and trustworthiness. The next section highlights the hypotheses, presents the data and measures, and displays some descriptive statistics. This is followed by the presentation of the estimation strategies, focusing on the assumptions and implications of three different estimators. The following section presents the results, highlighting the short-term and long-term effects of police stops and police stops at gunpoint on changes in perceptions of police fairness, overpolicing, and underpolicing. I conclude with a discussion on the social costs of aggressive policing and its implications to people's relationship with the law, some limitations of this study, and some potential avenues for future research.

Police stops and attitudes towards the police

Does the experience of regulatory police stops (like stop-and-frisk) have an impact on public attitudes towards the police? This is a causal question of significant importance to policing policy and practice. Over the past decades, countries like the United States and Brazil have increasingly adopted aggressive policing strategies that focus on deterrence-based measures such as the extensive use of police stops and the strict enforcement of low-level crimes (Kubrin et al., 2010; Tyler et al., 2014; Lima et al., 2016). Previous work suggests that some of those strategies, such as focused deterrence and hot spots policing, indeed seem to have some impact on crime (see, e.g., Braga et al., 2014, 2018; MacDonald et al., 2016). However, the widespread use of stop-and-frisk powers by police officers against members of the public deemed suspicious or not appears to be ineffective at fighting most types of crime (Tiratelli et al., 2018) and disproportionately applied against

certain ethnic minorities (Gelman et al., 2007). Crucially, a large body of research also shows that poorly-handled involuntary encounters with police officers are associated with negative attitudes towards legal authority (Skogan, 2006; Bradford, 2017; Geller and Fagan, 2019). The suggestion from this work is that aggressive and coercive policing approaches that communicate suspicion of ongoing or future criminal conduct can undermine the relationship between the public and legal institutions (Tyler et al., 2015), although the literature is yet to demonstrate evidence of a causal relationship (Nagin and Telep, 2017, 2020).

Previous work indicates several potential negative consequences of increased involuntary police contact. For instance, Geller et al. (2014) analysed data from a sample of young men in New York City and showed that respondents who reported more police contact also to tended to report more trauma and anxiety symptoms, suggesting a potential link between the experience of aggressive policing and damages in mental health. Similarly, Hagan and colleagues analysed data from thousands of Chicago public school students and concluded that adolescents who had had more police contact were more likely to agreeing with statements such as "people from my racial group are more likely to be unfairly stopped and questioned by the police" and "police treat rich people better than poor people" (Hagan et al., 2005, p. 388), suggesting a a potential link between increased police contact and perceptions of criminal injustice (see also Shedd, 2015; MacDonald et al., 2007; Augustyn, 2016).

Neighbourhood-based qualitative studies tend to be particularly insightful and suggest some potential public costs of aggressive policing strategies, specially with regards to damages in legal attitudes. For instance, based on in-depth interviews with young men and women from three high-crime neighbourhoods in Philadelphia, Carr et al. (2007) argued that most respondents had a negative disposition towards legal institutions mainly because of their experiences with law enforcement and because of a general sense of cynicism about police protection despite the huge number of police stops, even though they generally had pro-criminal justice attitudes. Comparably, based on his ethnographic account of Los Angeles's Skid Row, Stuart (2016) suggested that residents of this over-policed area acquired specific wisdom through which they understood and predicted police conduct and would engage in public behaviours in such a way so as to avoid police scrutiny – i.e., police stops were so frequent that people developed specific cultural tools in an attempt to reduce the experience of aggressive policing (see also Bell, 2016; Epp et al., 2014; Rios, 2011).

Procedural justice theory and legal cynicism

The potential impact of police stops on public attitudes towards legal authority is grounded on two distinct but related theoretical frameworks: procedural justice theory (PJT) and legal cynicism (Sunshine and Tyler, 2003; Kirk and Papachristos, 2011). PJT posits that every police-citizen encounter – including police stops – is a potential teachable moment where values about how police power is usually exercised are passed on (Tyler et al., 2014), as people evaluate the normative appropriateness of power and update their views about legal institutions' authority to govern. The idea is that people have normative expectations about how legal power should be exercised. When people's judgements about the exercise of power correspond to their normative expectations, their connections with the values that legal institutions represent are enhanced, leading to a stronger recognition of legal authority as the rightful authority – i.e., police-citizen encounters in which the police are perceived to exercise power appropriately could potentially boost judgements about the *legitimacy of the police* (Huq et al., 2017).

What exact criteria people use to judge the appropriateness of police power is an empirical question. PJT hypothesises that most people would normatively expect power to be exercised with fairness in the procedures (Tyler, 2006): respect and dignity in treatment, open and transparent decisions, and respect for normative boundaries of authority (Trinkner et al., 2018). As such, perceptions of officers' procedural fairness would enhance legitimacy judgements; likewise, when legal agents fail to exercise their authority with fair process, citizens would start to question their legitimacy (Oliveira et al., 2021). This is important because, even though police stops could theoretically either boost or undermine legitimacy judgements depending on the procedural justice communicated during the interaction (Tyler et al., 2015), empirically they tend to do more damages in attitudes towards legal institutions (Bradford, 2017) – presumably because some amount of unfairness is perceived by the involuntary nature of such stops (Bradford et al., 2009).

Reaching similar conclusions, Kirk and Papachristos argue that legal cynicism is the product of two related influences: structural neighbourhood conditions and neighbourhood variation in police practices and resident interaction with the police (2011, p. 1198). Legal cynicism – a cultural orientation in which the law and the legal institutions are viewed as illegitimate, unresponsive, and ill equipped to ensure public safety[1] – would then be

---

[1] The concept of legal cynicism was originally proposed by Sampson and Bartusch (1998) and defined as "a state of normlessness in which the rules of the dominant society (and hence the legal system) are no longer biding in a community" (p. 782). Kirk and Papachristos (2011) suggested a new definition that built on, but departed from Sampson and Bartusch's (1998) remarks: they conceived of legal cynicism as a cultural frame through which people view the law and the legal institutions as illegitimate, unresponsive,

produced as a consequence of police misconduct, particularly harassing behaviour by police officers. Empirical studies often show that tough law enforcement is associated with higher levels of cynicism toward legal authority (Hagan et al., 2018; Kirk et al., 2012).

Police trustworthiness as task-specific assessments of police conduct

The mediating mechanism linking police-resident encounters to shifts in judgements about the legitimacy of the police is police trustworthiness. An umbrella concept that embodies several specific measures related to public expectations that officers tend to behave as people expect them to behave, police trustworthiness refers to task-specific perceptions of police behaviour (Oliveira et al., 2021). For instance, the degree to which the police are seen as trustworthy to generally act with procedural fairness (i.e., expectations that officers are, and will be in the future, procedurally fair) can be framed as "perceived police fairness" (or "trust in police fairness"), one among many aspects of police trustworthiness.

According to PJT, one's experience during encounters with the police lead to broader perceptions about how officers tend to behave, which in turn shape their judgements about the legitimacy of the police (Sunshine and Tyler, 2003). As such, the effect of police contact on legitimacy would be mediated by specific beliefs of police trustworthiness (Pósch, 2021). The idea is that people's experience in relation to how power is being exercised will shape their beliefs about how power is usually exercised, which in turn – to the extent that their normative expectations about power appropriateness are met – will boost their beliefs that the police have the right to rule and the authority to govern (Gur and Jackson, 2020).

As mentioned earlier, which specific criteria people use to judge power appropriateness is an empirical question, and PJT suggests that fair process is an important element. Therefore, it is fundamental to assess the impact of police stops, including police stops at gunpoint, on perceptions of police fairness, as well as its effect on legitimacy. But other aspects of police trustworthiness could be important as well, as people could have other normative expectations about police conduct. For instance, in some Global South contexts where some people might not identify with the superordinate group legal authority represents, perceived police effectiveness (i.e., the extent to which the police are seen as trustworthy to effectively fight crime) are also important elements (Tankebe, 2009; Bradford, 2014; Jackson et al., 2014).

Other aspects of police trustworthiness that could be central to citizen-authority relations are perceptions of overpolicing and underpolicing. In a recent study, Oliveira (2021)

---

and ill-equipped to ensure public safety (Kirk and Matsuda, 2011, p. 447; Kirk et al., 2012, p. 83).

showed that perceptions of overpolicing (i.e., the extent to which the police are seen as not trustworthy to refrain from repeatedly intruding upon the lives of community residents) and underpolicing (i.e., the extent to which the police are seen as not trustworthy to ensure public safety) are also important aspects of police trustworthiness that are associated with undermined police legitimacy judgements – even after controlling for the degree to which officers are seen as trustworthy to act with fairness in the procedures. Yet, it is not yet clear whether the experience of being stopped by the police, including at gunpoint, shapes changes in those aspects of police trustworthiness.

Impact of police stops on three aspects of police trustworthiness

In this study, I focus on the impact of the experience of being stopped by police officers, including being stopped at gunpoint, on attitudinal change considering three different aspects of police trustworthiness: perceived police fairness, i.e., the extent to which the police are seen as trustworthy to act with procedural fairness; perceived police overpolicing, i.e., the extent to which the police are seen as not trustworthy to refrain from repeatedly intruding upon the lives of community residents; and perceived underpolicing, i.e., the extent to which the police are seen as not trustworthy to ensure public safety. By doing so, I partly address the gap in the literature identified by Nagin and Telep (2017, 2020), who emphasised the lack of causal evidence on the relationship between police-citizen encounters and attitudes towards legal institutions.

Two caveats are worth highlighting. First, this is not an exhaustive list, there are several other aspects of police trustworthiness not considered (e.g., perceptions of police effectiveness or distributive justice). The goal of this study is not to be a comprehensive account of the impact of police stops (at gunpoint) on police trustworthiness broadly defined, but rather to evaluate the degree to which there is an impact on those three task-specific assessments of police conduct. Second, the focus of this study is on the impact of police stops on aspects of police trustworthiness, not on its theorised subsequent impact on police legitimacy. The idea is to estimate the degree to which the experience of being stopped by the police (at gunpoint, in particular) alters people's perceptions about how police officers tend to behave. While also estimating whether such effects are transmitted onto changes in legitimacy judgements could be of substantive interest, such endeavour is beyond the scope of this study – it is for future research to assess such causal pathways (see Pósch, 2019).

I estimate the effects of police stops on each aspect of police trustworthiness separately. Given the impossibility of random assignment, such effects need to be estimated with
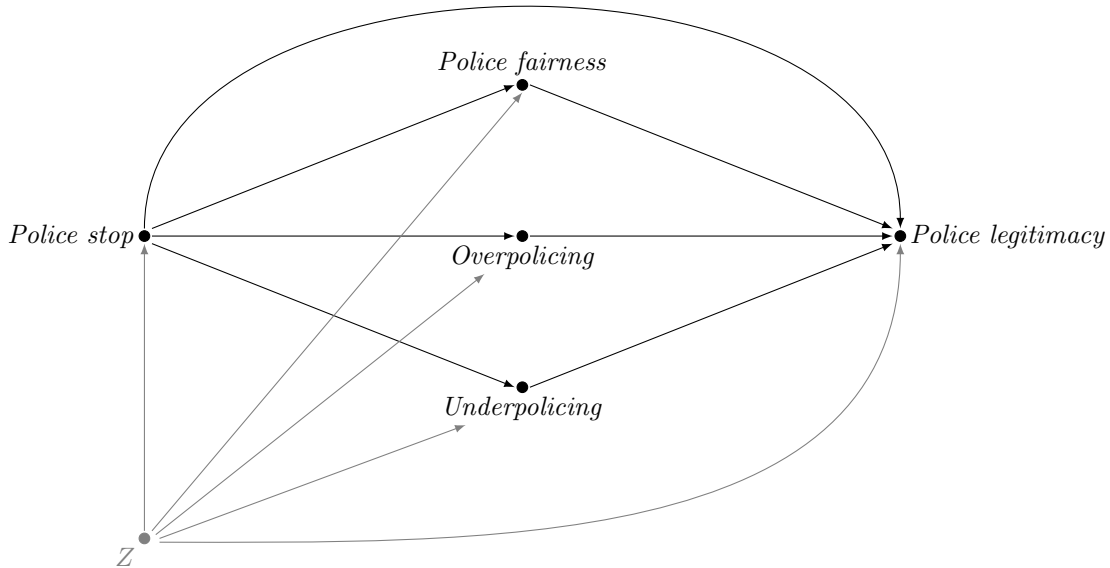
Figure 6.1: **Directed acyclic graph outlining the premised causal relationships between police stops, three aspects of police trustworthiness, and judgements about the legitimacy of the police**

Note: Nodes represent variables, edges (arrows) indicate the possible existence of causal relationships, and the absence of edges indicate the lack of causal relationships. My goal is to estimate the effects of police stops on each aspect of police trustworthiness (i.e,. police fairness, overpolicing, and underpolicing). Z represents a vector of confounders that need to be to be adjusted for in order to identify such causal effects. Police legitimacy acts as a collider, so it and the two other aspects of police trustworthiness do not need to be adjusted for in order to estimate each of the three causal effects.

observational data. Consider the causal graph depicted by a directed acyclic graph (DAG) in Figure 6.1; DAGs are used to graphically represent the premised structural causal model (assumed to contain all relevant variables), where arrows indicate the possible existence of causal relationships and the absence of arrows indicates the lack of causal relationships (Pearl, 2009). According to this DAG, all three measures of police trustworthiness mediate the effects of police stops on police legitimacy, as discussed above. The effects of police stops on each aspect of police trustworthiness can be identified without adjusting for police legitimacy or for the other two aspects of trustworthiness because legitimacy acts as a collider variable – i.e., a variable that is itself caused by the treatment and the outcome variables and that should not be conditioned upon as it generates endogenous selection bias (see Elwert and Winship, 2014). Therefore, different models for each dependent variable (perceptions of fairness, overpolicing, and underpolicing) can be specified.

However, according to the causal graph the effects of police stops on perceptions of police fairness, overpolicing, and underpolicing can only be identified if conditioning upon Z, which represents a set of observed and unobserved confounders. Unless the back-door paths connecting the treatment and each outcome via Z is blocked,[2] any association found between the experience of police stops and each aspect of police trustworthiness is biased. As correctly highlighted by Nagin and Telep (2017, 2020), studies that report correlations between perceived police contact and legal attitudes cannot claim causality because of a potential third common cause (i.e., Z). According to the authors, establishing a causal connection between the experience of police contact and attitudinal change remains an important gap in the literature. To quote Nagin and Telep (2017, p. 13), "in some circumstances, the addition of person and time fixed effects may resolve the third common cause problem, but no study that we have reviewed included such statistical controls" – the authors are making a reference to the difference-in-differences design, the standard way to leverage panel data for causal identification. This is the primary motivation of this study. I address this gap in the literature employing a multi-period difference-in-differences design, as this approach removes all confounding bias so that the the causal effects are identifiable under some assumptions. In the next section, I discuss how the literature often attempts to remove confounding bias using panel data.

Causal inference with panel data

Assuming a longitudinal data set of $i = 1, ..., N$ units and $t = 1, ..., T$ time periods (a balanced panel is assumed for the sake of notation simplicity, but the same implications apply for unbalanced panels), estimating the causal effect δ of a treatment variable D_{it} on an outcome Y_{it} essentially means removing all confounding bias that emerge from common causes of D_{it} and Y_{it}. Put in another way, all back-door paths from the treatment D_{it} to the outcome Y_{it} shown in the DAG displayed in Figure 6.2 need to be blocked – this causal graph depicts a structural model with three time points.[3] Some of those confounders might be observed variables, in which case they can simply be adjusted for using some matching or regression estimator, whereas others might be unobserved, in which case some

---

[2]That is, the paths *Police stop* ← Z → *Police fairness*, *Police stop* ← Z → *Overpolicing*, and *Police stop* ← Z → *Underpolicing*.

[3]This DAG assumes independence between treatments at various time points. While it is possible that being and stopped and questioned by police officers at one time point increases the likelihood of being stopped again – e.g., for getting on the "radar" of the police or for differential law enforcement behaviour (see Liberman et al., 2014) – I assume that observed and unobserved characteristics embodied by U_i and Z_{it} fully capture these scenarios and that there is no direct effect of the experience of a police stop itself on the probability or being stopped again.
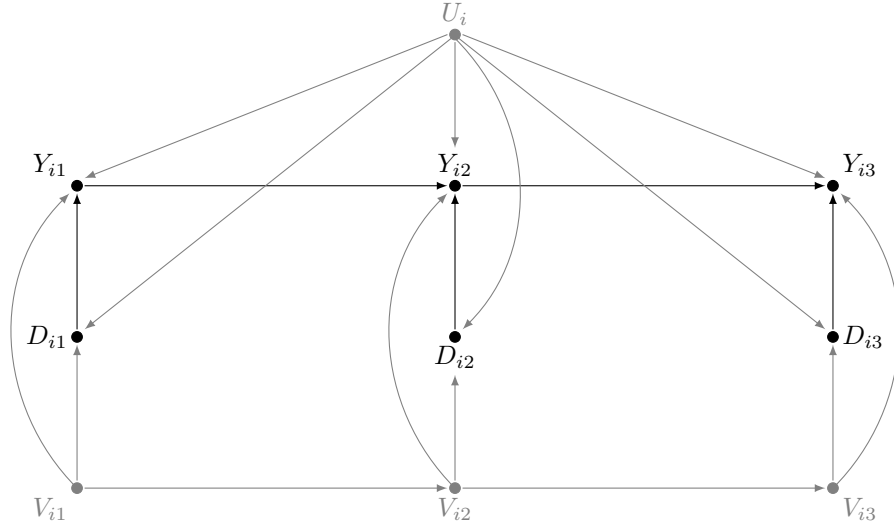
Figure 6.2: **Directed acyclic graph for panel data with three time periods**

Note: Black nodes represent observed dependent Y_{it} and treatment D_{it} variables, gray nodes represent time-variant V_{it} and time-invariant U_i confounders. Past outcome $Y_{i,t-1}$ is assumed to affect current outcome Y_{it} as it is reasonable to assume that trust is stable over time, whereas past treatment $D_{i,t-1}$ is assumed not to affect current treatment D_{it} as it is reasonable to assume that the probability of multiple police stops over time is entirely captured by confounders U_i and V_{it}. No further dynamic relationship (e.g., past treatment $D_{i,t-1}$ affecting current outcome Y_{it}) is assumed, though this discussion will be revisited.

alternative design is necessary to identify δ. Confounders can be further divided in two groups: time-constant confounders U_i, which are unit-specific and do not vary over time, and time-variant confounders V_{it}, which do.

Longitudinal data are usually very powerful at removing confounding bias that emerges from time-constant confounders U_i (Imai and Kim, 2019). The logic consists of using only within-unit variation (i.e., change over time). In the absence of dynamic relationships – e.g., past outcome affecting current treatment, and past treatment affecting current outcome – the family of regression models known as fixed effects models[4] can safely remove any confounding bias that emerges from time-invariant confounders. That is, the back-door path $D_{it} \leftarrow U_i \rightarrow Y_{it}$ is blocked by the inclusion of unit fixed effects.

Adjusting for time-variant confounders is a different story. Blocking the back-door path $D_{it} \leftarrow V_{it} \rightarrow Y_{it}$ as well and estimating the causal effect δ is equivalent to estimating the difference between the expected value of Y in the presence and in the (counterfac-

---

[4]Imai and Kim (2019) developed a non-parametric method based on matching that relaxes the linearity assumptions of unit fixed effects regression models.

tual) absence of treatment[5] (Morgan and Winship, 2015). The problem, of course, is that each unit i only has one observed outcome (they either received treatment or not); the counterfactual outcome had they (not) received treatment is missing (Holland, 1986). In this application, counterfactual scores of perceptions of police fairness, overpolicing, and underpolicing among individuals who experienced a police stop (at gunpoint) had they hypothetically not experienced that police stop (i.e., $\mathbb{E}[Y_i^0|D_i = 1]$) are not observed; and accordingly counterfactual scores among those who did not experience a police stop had they experienced such police stop (i.e., $\mathbb{E}[Y_i^1|D_i = 0]$) are not observed either.

Definitions of the causal effects of interest

My goal is to estimate the average treatment effect among treated units (ATT),

$$ATT = \mathbb{E}\left[Y_{it}^1|D_i = 1\right] - \mathbb{E}\left[Y_{it}^0|D_i = 1\right], \tag{6.1}$$

which stands for the average difference between the observed levels of each aspect of police trustworthiness (perceptions of police fairness, overpolicing, and underpolicing) among individuals who were stopped by the police (at gunpoint) and the counterfactual levels of trustworthiness among those same individuals had they not been stopped by the police. This implies that one counterfactual outcome ($\mathbb{E}[Y_{it}^0|D_i = 1]$) needs to be estimated.

In the absence of random assignment of treatment groups and making use longitudinal data, a common approach to identify the potential outcome of treated units in the absence of treatment involves assuming that selection bias is constant over time. The difference-in-differences (DiD) design is one of the most widely used analytic strategies to estimate causal effects in social science disciplines (Cunningham, 2021). Considering two time periods and that some units received treatment ($D_i = 1$) between time periods $t = 1$ and $t = 2$ while others did not ($D_i = 0$), the logic is to assume that the counterfactual change over time among treated units had they not been treated would on average have been the same observed change over time among non-treated units – i.e.,

$$\mathbb{E}\left[Y_{it}^0|D_i = 1\right] - \mathbb{E}\left[Y_{i,t-1}^0|D_i = 1\right] = \mathbb{E}\left[Y_{it}^0|D_i = 0\right] - \mathbb{E}\left[Y_{i,t-1}^0|D_i = 0\right]. \tag{6.2}$$

This is known as the parallel trends assumption (Angrist and Pischke, 2009). By focusing on within-unit change over time, time-invariant confounders U_i are removed; and by using the change over time among non-treated units as a *proxy* for the counterfactual

---

[5]That is, calculating $\delta = \mathbb{E}[Y|do(D = 1)] - \mathbb{E}[Y|do(D = 0)]$ (see Pearl, 2009).

change over time among treated units in the absence of treatment, time-variant confounders V_{it} are also (in expectation) removed. Under this parallel trends assumption, the ATT is identifiable as the difference between the observed change over time among treated and non-treated units.[6] By assuming that trust among individuals who were stopped by the police, had they not been stopped, would on average follow the same time trends as trust among individuals who were not stopped by the police in the same period, the impact of police stops (among those who did experience such interaction) can be estimated: it is the difference between their observed levels of trust and their estimated counterfactual levels of trust.

However, the causal estimand defined in Equation 6.1 only makes sense in the context of treatment implementation at a single time point (e.g., between time points $t = 1$ and $t = 2$) (Goodman-Bacon, 2018; Imai and Kim, 2020). In the context of exposure to treatment occurring at multiple time periods, the ATT needs to be explicitly defined in terms of change in treatment status over time (de Chaisemartin and d'Haultfoeuille, 2020; Imai et al., 2020; Callaway and Sant'Anna, 2020). This is the case in the current study, as people can report or not the experience of an aggressive police stop at either time period. I therefore define two slightly different causal effects that take change in treatment status into account. First, adapting from Imai et al. (2020), I define the ATT_{change} as the average treatment effect of change in treatment status among observations that did change their treatment status and were exposed to treatment between any two periods $t - 1$ and t,

$$ATT_{change} = \mathbb{E}\Big[Y_{it}^{(D_{it}=1,D_{i,t-1}=0)}|D_{it} = 1, D_{i,t-1} = 0\Big]$$
$$- \mathbb{E}\Big[Y_{it}^{(D_{it}=0,D_{i,t-1}=0)}|D_{it} = 1, D_{i,t-1} = 0\Big], \quad (6.3)$$

where the superscript $(D_{it} = 1, D_{i,t-1} = 0)$ corresponds to the potential outcome of exposure to treatment between any two periods $t - 1$ and t, whereas the superscript $(D_{it} = 0, D_{i,t-1} = 0)$ corresponds to the potential outcome of no change in treatment status.[7] This can represent the causal effect of a recent police stop on attitudinal change (i.e., between periods $t - 1$ and t).

Second, an alternative causal estimand of interest consists of the effects of a *first* exposure to treatment among individuals with no previous exposure to treatment – e.g., the potentially traumatic case of a first experience of a police stop at gunpoint among people

---

[6]That is, $ATT = \Big\{\mathbb{E}[Y_{it}^1|D_i = 1] - \mathbb{E}[Y_{i,t-1}^1|D_i = 1]\Big\} - \Big\{\mathbb{E}[Y_{it}^0|D_i = 0] - \mathbb{E}[Y_{i,t-1}^0|D_i = 0]\Big\}$.

[7]This causal estimand can be further refined to permit the inclusion the temporal lags and leads (see Imai et al., 2020). I return to this discussion below, but the definition of the causal effect of change in treatment status remains the same.

with no previous experiences of police stops at gunpoint in several years. Comparing the group of individuals who were first exposed to treatment at the same time period (e.g., $t = g$) with a counterfactual scenario of no change in the treatment status among the same group of individuals (e.g., no hypothetical exposure up until time point $t = g$), I then draw on Callaway and Sant'Anna (2020) and define the group-time ATT,

$$ATT(g,t) = \mathbb{E}\left[Y_{it}^{G=g}|G = g\right] - \mathbb{E}\left[Y_{it}^0|G = g\right], \tag{6.4}$$

where the superscript $G = g$ represents the potential outcome of a first exposure to treatment at time period $t = g$, and the superscript 0 corresponds to the potential outcome of no exposure to treatment (i.e., units hypothetically remain "never treated" up until period $t = g$). This implies that individuals who were first exposed to treatment at the same time period belong to the same group; e.g., individuals who report a first experience of being stopped by the police between $t = 1$ and $t = 2$ belong to group $g = 2$, those exposed between $t = 2$ and $t = 3$ belong to group $g = 3$, and so forth. The $ATT(g,t)$ is therefore *group*-specific and *time*-specific: for instance, an $ATT(2,3)$ corresponds to the causal effect at $t = 3$ among units who first reported being stopped by the police (at gunpoint) at $t = 2$.

Although slightly different, both the ATT_{change} and the $ATT(g,t)$ are of substantive interest; i.e., short-term effects of a recent police stop and long-term effects of the first experience of being stopped by the police in several years. This paper therefore explores two recently-developed estimators of these effects in the context of a multi-period difference-in-differences design (Imai et al., 2020; Callaway and Sant'Anna, 2020); I discuss estimation strategies in detail below. It is important, however, to discuss what these effects mean in the context of the relationship between aggressive police stops and trust in legal authority.

Causal effects of police stops on attitudinal change over time

What do the causal effects defined above mean in this context? Considering three waves of survey data, a gap of approximately 18 months between waves, and self-reported information on whether respondents experienced at least one police stop (including at gunpoint) between waves, the goal of this study is to assess the impact of the experiences of police stops and police stops (at gunpoint) on three aspects of police trustworthiness (perceptions of police fairness, overpolicing, and police effectiveness). This implies direct comparisons between people's observed levels of trust after the experience of a police stop and their counterfactual levels of trust in a hypothetical scenario where they were not stopped by the police. However, people can have multiple experiences with law enforcement over

time (Bradford, 2017; Jackson and Pósch, 2019). Considering three waves of data with respondents self-reporting or not a recent police stop at each time point, there are eight possible combinations of treatment statuses in the period covered by this study. Table 6.1 summarises the eight groups.

This means that not only are people treated at different periods, but treatment status itself can also change over time. For instance, a respondent can report an aggressive police stop at $t = 1$, then no aggressive police stop at $t = 2$, and finally another aggressive police stop at $t = 3$ (i.e., group $F : 1 - 0 - 1$ in Table 6.1). This is where the ATT_{change} is crucial. It refers to the causal effect of a recent *change* in treatment status among members of the public who reported being stopped by the police (at gunpoint) between $t - 1$ and t but who had not experienced a police stop between $t - 2$ and $t - 1$. The ATT_{change} therefore refers to the difference between observed levels of trust among individuals who did not experience a police stop (at gunpoint) at $t = 1$ but did experience a police stop (at gunpoint) at $t = 2$ (or, likewise, no experience at $t = 2$ but a reported experience at $t = 3$) and the counterfactual levels of trust among those same individuals in a hypothetical scenario where they do not experience a police stop at $t = 2$ (or, likewise, at $t = 3$).

Using the DiD logic, the counterfactual change in levels of trust among individuals who changed their treatment status can be estimated based on the observed change scores among respondents who remain in the control group in the same period (Imai et al., 2020); e.g., for individuals who were not stopped by the police at $t = 1$ but then were stopped by the police at $t = 2$, individuals who were not stopped by the police at $t = 1$ *nor at* $t = 2$ constitute the control group. This means that, for any two periods $t - 1$ and t (e.g., from $t = 1$ to $t = 2$ or from $t = 2$ to $t = 3$), only people who report no police-initiated encounter at $t - 1$ (and then either report a police stop or not at t) are used in this analysis. Respondents who reported being stopped by the police at the first two time points are removed as their levels of trust are not part of the definition of the ATT_{change}.

The ATT_{change}, therefore, implies the effect of a recent change in treatment status. While it is possible to define long-term effects depending on the inclusion of temporal leads (see Imai et al., 2020), this definition is particularly useful to immediate, short-term effects. However, previous knowledge about the causal impact of aggressive policing on attitudinal change is scarce, and the extent to which it can have varying duration and different patterns of decay is unknown. It is possible, for instance, that an aggressive police stop at gunpoint is such a traumatic event that the effects of a first exposure are sufficiently long-lasting even if people do not have future experiences with legal agents. In this context, if the effects of an aggressive police stop last the entire time span covered by this study (e.g., 4.5

Table 6.1: **Units considered in the definitions of ATT_{change} and $ATT(g,t)$**

Treatment dynamics ($t=1;t=2;t=3$)	Role in the definition of ATT_{change}		Role in the definition of $ATT(g,t)$
	$T1 \rightarrow T2$	$T2 \rightarrow T3$	
$A:0-0-0$ (Never treated)	Control	Control	Control
$B:0-0-1$	Control	Treated	$g=3$ (first treated at $t=3$)
$C:0-1-0$	Treated	–	$g=2$ (first treated at $t=2$)
$D:0-1-1$	Treated	–	$g=2$ (first treated at $t=2$)
$E:1-0-0$	–	Control	Removed
$F:1-0-1$	–	Treated	Removed
$G:1-1-0$	Removed		Removed
$H:1-1-1$ (Always treated)	Removed		Removed

years), it is plausible to consider a respondent who was stopped by the police (at gunpoint) at $t=1$ but not at $t=2$ as a treated unit at $t=2$.

This is why the group-time $ATT(g,t)$ defined introduced by Callaway and Sant'Anna (2020) is also interesting in this case. When members of the public report no police stop (at gunpoint) after previously reporting the experience of a police stop at an earlier point in time, they do not become "untreated"; they rather remain "treated" units, as they were previously exposed to treatment. It is therefore reasonable to assume a staggered treatment adoption, where treated units cannot become control units at future periods, and focus instead on the effects of a *first* exposure to treatment. The emphasis would then be on the impact of a first experience of an aggressive police stop on attitudinal change among people with no previous involuntary police encounters in several years.

As shown in Table 6.1, this implies that respondents who reported some police stop up to two years before the collection of the first wave (i.e., treated units at $t=1$) are removed from the analysis. Respondents who reported being stopped by the police between the first and the second wave constitute the group of individuals first treated at $t=2$ (i.e., group $g=2$), those who reported a first exposure between the second and the third waves belong to group $g=3$, and respondents who reported no single police stop across all three waves (i.e., the "never-treated" group) form the control group. Considering three time points, there are three effects of interest: $ATT(2,2)$ (immediate effects, at $t=2$, among respondents who reported a first police stop between $t=1$ and $t=2$), $ATT(2,3)$ (long-term effects, at $t=3$, among respondents who reported a first police stop between $t=1$ and $t=2$), and $ATT(3,3)$ (immediate effects, at $t=3$, among respondents who reported a first police stop between $t=2$ and $t=3$). Using Callaway and Sant'Anna's (2020) strategy to aggregate them, the average dynamic effect of a first experience of being

stopped and questioned by police officers (at gunpoint) on trust in legal authority can also be interpreted as a long-term impact of potentially traumatic experiences on attitudinal change.

This study focuses on both the ATT_{change} and the $ATT(g,t)$ as both causal effects are substantively interesting to understand the impact of aggressive policing on trust in the police. Using a multi-period difference-in-differences approach and recently-developed estimators (Imai et al., 2020; Callaway and Sant'Anna, 2020), I examine the short-term effects of a recent police stop and a recent police stop at gunpoint on changes in people's levels of perceived police fairness, overpolicing, and underpolicing, as well as the long-term effects of a first experience of being stopped by the police (at gunpoint) in several years on the three aspects of police trustworthiness.

This study

Does the experience of being stopped by the police have an impact on different aspects of police trustworthiness, such as the expectation that police officers often act with procedural fairness, repeatedly intrude upon the lives of citizens, and fail to ensure public safety? As Nagin and Telep (2017, 2020) correctly highlighted, the literature is yet to show evidence of a causal relationship between police-citizen counters and attitudinal change. Making use of longitudinal survey data from the city of São Paulo, Brazil, and focusing both on short-term effects of a recent police stop and on long-term effects of a first experience of being stopped and questioned by the police in several years, my goal in this study is to separately test two sets of hypotheses. First, I test hypotheses that suggest a negative impact of the experience of being stopped by the police on three aspects of police trustworthiness.

- **Hypothesis 1.1:** Police stops negatively affect perceptions of police fairness;

- **Hypothesis 1.2:** Police stops positively affect perceptions of overpolicing; and

- **Hypothesis 1.3:** Police stops positively affect perceptions of underpolicing.

Second, I test whether the experience *aggressive* police stops lead to attitudinal change. According to PJT, it is the style of public-police interactions that should affect legal attitudes, not just the experience of a police stop. Specifically, encounters where people perceive officers communicating procedural fairness are expected to boost police trustworthiness and legitimacy (Oliveira et al., 2021), while involuntary police-initiated interactions

that communicate suspicion of ongoing or future criminal conduct are expected to undermine attitudes towards legal authority (Tyler et al., 2015). In this study, I do not assess the degree to which *perceptions* of police contact impact changes in police trustworthiness (see Jackson and Pósch, 2019), but rather focus on the effect of objectively aggressive police stops. To operationalize this hypothesis, I consider the experience of a recent police stop at gunpoint, an undeniably aggressive interaction. While I do not measure how respondents evaluated the officer's conduct, pointing a gun during a police stop is a last resort which can only be employed when the legal agent feels threatened and suspects of some serious criminal activity according to the São Paulo Military Police bylaws. So, the second set of hypotheses are based on the potential impacts of aggressive police stops at gunpoint.

- **Hypothesis 2.1:** Police stops at gunpoint negatively affect perceptions of police fairness;

- **Hypothesis 2.2:** Police stops at gunpoint positively affect perceptions of overpolicing; and

- **Hypothesis 2.3:** Police stops at gunpoint positively affect perceptions of underpolicing (i.e., cynicism about police protection).

To test these hypotheses, I rely on estimators that identify the causal effects of interest using longitudinal data under some assumptions. The goal of this study is to estimate the average treatment effect among treated units (ATT) – i.e., the difference between the levels of trust among individuals who experienced a police stop (at gunpoint) and the levels of trust that those individuals would have in case they had not experienced that police stop (at gunpoint). Specifically, my goal is to estimate short-term effects of *change in treatment status* among individuals who reported a recent police stop after having reported no police stop at a previous time point (i.e., estimate the ATT_{change}), as well as long-term effects of a *first experience* of being stopped by the police (at gunpoint) after several years (i.e., estimate the $ATT(g,t)$). For each of the six hypotheses, I use a two-way fixed effects linear regression estimator of the ATT (de Chaisemartin and d'Haultfoeuille, 2020; Imai and Kim, 2020), a matching framework for panel data that estimates the ATT_{change} (Imai et al., 2020), and a doubly robust estimator of the $ATT(g,t)$ (Callaway and Sant'Anna, 2020). I discuss the plausibility of the assumptions and the implications of each estimation strategy below.

Data

To conduct the analysis I rely on longitudinal survey data from Brazil. I draw upon a three-wave population-based survey representative of adults who reside in eight selected neighbourhoods in the city of São Paulo, one of the largest cities in the Global South. The study was conducted by researchers based at the Centre for the Study of Violence of the University of São Paulo (NEV-USP).

Sampling procedures built on Nery et al.'s (2019) cluster analysis of nearly 20,000 census tracts in the city. Using information about tracts' urban, criminal, demographic, and structural conditions, the authors suggested eight urban patterns within the city of São Paulo, and argued that nonprobability survey designs sometimes misrepresent some of those clusters. Nery et al. also selected contiguous areas with approximately 30-60 census tracts each (all belonging to the same cluster) that were highly representative of each urban pattern, and referred to each of those as key areas. The population in each area ranges from 20,000 to 40,000 people. The current study was designed to represent adults living in each of the eight key areas.

In each area, a two-stage cluster sampling design was employed: first, census tracts within each key area were randomly chosen; second, respondents in the selected tracts were chosen following demographic quotas (gender, age, and education). The first wave of the survey was fielded in mid-2015 and had 1,200 respondents (150 respondents in each area). A new wave was fielded in early 2017, when 928 of those respondents agreed to take part in the study again; and once more in mid-2018, with 801 respondents ($N = 2929$).[8] The attrition rates at each point in time was lower than 25%, the threshold originally expected by the researchers. All interviews were conducted face-to-face, in Portuguese, at the respondents' place of residence using Tablet-Assisted Personal Interviewing (TAPI). The final sample is broadly representative of the population of the eight selected areas: 53% of the respondents are female, 56% are white, and the average age is 40.2 years. Several recent studies of police-citizen relations in Brazil have made use of this data set (see, e.g., Jackson et al., 2022; Oliveira, 2021).

---

[8]I assume dropouts to be missing at random. A binomial logistic regression model predicting dropouts at the second wave indicates no association between perceptions of police fairness at a$T1$, perceptions of overpolicing at $T1$, gender, race, social class, or age and the probability of dropping out at $T2$. The only significant predictor was perceived underpolicing at $T1$: an increase of one standard deviation in the scores of this variable was associated with a decrease of 4.6% in the probability of dropping out (marginal effects at the mean). If anything, respondents at $T2$ have slightly more negative views of the police. In terms of the probability of dropping out at $T3$, the only significant predictor was age, where every year was associated with a small decrease of 0.3% in the probability of dropping out.

Measures

The three dependent variables I use in this study correspond to perceptions of (1) police fairness, (2) overpolicing, and (3) underpolicing, each of which was measured based on several survey items adapted from previous research. To measure perceived police fairness, survey items based on Sunshine and Tyler (2003) and Jackson et al. (2012) were used: respondents were asked about the extent to which the police in their neighbourhood usually "explain clearly why they stop and question someone", "make impartial and just decisions", "pay attention to the information people provide them with", and "treat people with respect." All four indicators were measured using a five-point Likert scale ranging from 'never' (1) to 'always' (5).

The measurement of perceptions of overpolicing and underpolicing relied on the scales created by Oliveira (2021) using the same data set. Perceived overpolicing is defined as the extent to which the police are expected to repeatedly intrude upon the lives of neighbourhood residents. Empirical indicators involved asking respondents about the extent to which they believed that police officers in their neighbourhood usually "act as if they were above the law" and "follow and harass people." Survey items were measured using a five-point Likert scale ranging from 'never' (1) to 'always' (5).

Perceived underpolicing is defined as the extent to which the police are expected to fail to ensure public safety. The measurement strategy involved three survey items – again using the scales developed by Oliveira (2021). Respondents were asked (a) about the extent to which they believed "the police in their neighbourhood ensure their safety," measured using a five-point Likert scale ranging from 'always' (1) to 'never' (5); (b) how satisfied they were "with policing in their neighbourhood, considering both quantity and quality," measured using a five-point Likert scale ranging from 'very satisfied' (1) to 'the service does not exist' (6); and (c) how good a job police in their neighbourhood were doing "in relation to keeping the neighbourhoods safe", measured using a five-point Likert scale ranging from 'very good' (1) to 'very bad' (5). Descriptive statistics of all survey items can be found in Table 6.2. All survey questions were originally measured in Portuguese and translated by me; a table with the original items can be found in the Appendix.

I derive scores for each dependent variable using pooled graded response (IRT) models for polytomous data with logistic function links. Models were estimated using R's `ltm` package (Rizopoulos, 2006). Pooled IRT models ensure measurement equivalence and thus permits modeling change over time in latent variables. A full account of the measurement models can be found in the Appendix. Trait scores of perceived police fairness, overpolicing,

Table 6.2: **Descriptive statistics of survey items**

Survey question	"Mean" at $t = 1$	"Mean" at $t = 2$	"Mean" at $t = 3$
Police explain clearly why they stop and question or arrest people*	2.91	2.83	2.89
Police make impartial and fair decisions*	3.15	3.12	3.17
Police pay attention to the information people provide them with*	3.32	3.32	3.30
Police treat people with respect*	3.67	3.69	3.70
Police act as if they were above the law*	3.44	3.42	3.33
Police follow and harass people*	2.84	2.87	2.74
Police ensure my safety (reverse coded)*	3.01	3.11	3.04
Satisfied with policing in my neighborhood (quantity and quality)⁺	2.99	2.92	2.85
Police are doing a good job in keeping the neighborhood safe†	2.96	3.01	2.96

* Never (1) → Always (5); † Very good (1) → Very bad (5); ⁺ Very satisfied (1) → Service nonexistent (6).

and underpolicing are z-standardized and range from approximately -2 to approximately $+2$, with mean approximately 0.

The treatment variables in this study correspond to the self-reported experience of police stops and police stops at gunpoint. Respondents were first asked whether they "were stopped by the police (*over the last two years/since our last interview*) in the state of São Paulo"; response alternatives were 'yes' or 'no'. Those who answered 'yes' were then further asked whether during that stop "police officers pointed a gun" at them (again, 'yes' or 'no').[9] 38%, 24%, and 24% of respondents at each wave reported being recently stopped by the police, whereas 17%, 12%, and 12% reported being stopped by the police at gunpoint (i.e., 44%, 50%, and 50% of all self-reported police stops). I assess the impact of both police stops and police stops at gunpoint on perceptions of police fairness, overpolicing, and underpolicing. A brief discussion about the nature of the police stops at gunpoint can be found in the Appendix.

Treatment dynamics

38% of the respondents reported being stopped by the police up to two years prior to the first wave, then 24% reported being stopped at some point between the first and the

---

[9]First wave respondents were first specifically asked whether they had recently experienced traffic or pedestrian stops. 25% reported being stopped by the police at least once in the previous two years when driving a car, 11% reported when riding a motorcycle, 18% when walking on the streets, and 3% in some other circumstance. To construct the indicator of whether the respondent had recently been stopped by the police, I consider all respondents who answered 'yes' to any of these four questions. The follow-up question on whether the officer pointed a gun at them did not specify the type of police stop – those respondents who reported any recent police stop of any kind were simply asked: "considering the last time you were stopped by the police in the state of São Paulo, did the officers point a gun at you?".

Table 6.3: **Descriptive statistics: treatment dynamics**

Treatment dynamics *(T1 − T2 − T3)*	Police stops	Police stops at gunpoint
$A : 0 - 0 - 0$ (Never treated)	651 (54%)	938 (78%)
$B : 0 - 0 - 1$	35 (3%)	23 (2%)
$C : 0 - 1 - 0$	39 (3%)	28 (2%)
$D : 0 - 1 - 1$	17 (1%)	8 (0%)
$E : 1 - 0 - 0$	246 (21%)	108 (9%)
$F : 1 - 0 - 1$	45 (4%)	18 (2%)
$G : 1 - 1 - 0$	75 (6%)	32 (3%)
$H : 1 - 1 - 1$ (Always treated)	92 (8%)	45 (4%)

second waves, and 24% reported being stopped at some point between the second and the third waves. Accordingly, 17% of the respondents reported a police stop at gunpoint up to two years prior to the first wave, 12% reported so between the first and the second waves, and finally again 12% reported a police stop at gunpoint between the second ant the third waves. Given that each of these variables include two treatment groups (1 = experiencing a police stop; 0 = not experiencing a police stop) that can be implemented across three time periods, treatment dynamics consist of eight possible groups.

Table 6.3 shows the proportion of respondents in each group. Just over half (54%) and were never treated (group "$0 - 0 - 0$") in terms of experiencing a police stop; over three quarters (78%) when it comes to experiencing a police stop at gunpoint. A small proportion of respondents (8% and 4%, respectively) were always treated (group $1-1-1$), whereas all others reported some change in their treatment status during this period.

Modelling these treatment dynamics is not trivial as it depends on theoretical assumptions about treatment assignment and implementation over time. For instance, the ATT_{change} (which can be estimated using the matching framework developed by Imai et al., 2020) assumes a dynamic treatment adoption; i.e., units can switch their treatment status over time. This means that respondents who experienced a police stop before the first wave and between the first and the second waves (i.e., groups G and H) are not considered in the estimation of the ATT_{change}. On the other hand, the $ATT(g,t)$ (which can be estimated using the doubly robust estimator developed by Callaway and Sant'Anna, 2020) assumes a staggered treatment adoptions; i.e., no unit is treated at period $t = 1$ and once a unit is treated, that unit will remain treated in the next period. This implies that respondents who belong to groups E, F, G, and H do not contribute to the estimation of the $ATT(g,t)$.

Both scenarios are realistic in this case. Citizens can indeed be stopped by the police

or not at multiple periods. When examining short-term effects of a recent police stop (at gunpoint), the focus is on change in treatment status. At the same time, treated units cannot become untreated: even if a given respondent who reported a police stop at period $t-1$ reports not being stopped by the police at period t, they still remain treated and their levels of trust in legal authority at t might still be affected by the experience of a police stop at $t-1$.[10] When examining long-term effects of a first exposure to treatment, the irreversibility of treatment assumption is reasonable.

Estimation strategies

In order to estimate the effect of police stops, including aggressive police stops at gunpoint, on changes in police trustworthiness, I rely on three estimators that focus on slightly different average treatment effects among treated units in the context of a multi-period difference-in-differences design. I start with the two-way fixed effects linear regression estimator of the ATT. Second, I focus on short-term effects of a recent police stop (at gunpoint) and estimate the ATT_{change} using the matching framework developed by Imai et al. (2020). Finally, I focus on long-term effects of a first police stop (at gunpoint) after several years and estimate the $ATT(g, t)$ using the doubly robust estimator developed by Callaway and Sant'Anna (2020).

Two-way fixed effects linear regression estimator of the ATT

Under parallel trends, the difference between the average change scores of treated and control units (i.e., the difference-in-differences) constitutes the ATT. When treatment is implemented at multiple periods, one strategy consists precisely of comparing all pairwise comparisons between any two periods $t-1$ and t. One possibility in this direction involves fitting a linear regression model with unit and time fixed effects simultaneously; this is known as the two-way fixed effects (TWFE) regression estimator of the multi-period DiD (Cunningham, 2021):

$$Y_{it} = \alpha_i + \gamma_t + \delta \cdot D_{it} + \varepsilon_{it}, \tag{6.5}$$

where α_i is a fixed intercept for unit i, γ_t is a fixed intercept for time period t, and ε_{it} is a disturbance term for unit i at time period t. Under the same assumption of parallel trends, the TWFE estimator is believed to estimate the average treatment effect among

---

[10]Imai et al. (2020) solve this issue by the correct specification of temporal leads: by pre-specifying how many time points the treatment effect should last, it is possible to disentangle short-term from long-term effects.

treated units (i.e., $\delta_{TWFE} \sim ATT$). Outside of criminology, a survey conducted by de Chaisemartin and d'Haultfoeuille (2020) found that almost a fifth of all empirical studies published by the *American Economic Review* (AER) between 2010 and 2012 relied on linear regression models with unit and period fixed effects to estimate causal effects.

Considering the impact of police stops and police stops at gunpoint on perceptions of police fairness, overpolicing, and underpolicing, I fit six TWFE regression models to examine the potential impact of aggressive policing on attitudinal change. However, as noted above, the simple ATT as defined by Equation 6.1 does not explicitly handle change in treatment status.

Additionally, recent studies have shown some issues with the TWFE regression estimator. For instance, Imai and Kim (2020) demonstrated that, unlike the ability of unit fixed effects to remove of time-invariant confounders (assuming no dynamic causal relationships), the inclusion of unit and period fixed effects simultaneously does not configure a non-parametric, design-based strategy to estimate causal effects. TWFE models can only identify causal effects under the standard linear regression modelling assumptions – i.e., under the assumption that the data generating process corresponds to Equation 6.5. Even more crucially, recent econometric studies have shown that one further assumption of TWFE models is no treatment effect heterogeneity; when treatment effect is not constant over time, bias is introduced. Essentially, the comparisons between treated and non-treated units are not clearly defined, and the final TWFE estimate is a weighted average of all possible two-period DiD designs inscribed within the multi-period setup where some estimates have negative weights (Goodman-Bacon, 2018; Imai and Kim, 2020). Given that the combination of parallel trends, linearity, and effect homogeneity constitute very strong assumptions, the ability of TWFE models to estimate causal effects is often unrealistic in most applications.

Matching estimator of the ATT_{change}

To estimate the short-term effects of a recent police stop, or a recent police stop at gunpoint, on changes in trust in the police, I rely on the matching estimator recently developed by Imai et al. (2020). The authors developed a non-parametric approach that allows for comparisons between treated and non-treated observations with the same treatment history up to a pre-specified number of temporal lags. Under a conditional parallel trends assumption (similar to the one described in Equation 6.2, but conditioning on treatment history, lagged outcome, and time-varying covariates), this matching framework identifies the ATT_{change} while relaxing the linearity assumptions of the TWFE regression estimator.

Additionally, while they assume no spillover effects, their analytic strategy allows for some carryover effects up to the same number of pre-specified temporal leads.

This estimation strategy has three steps. First, treated observations are matched with non-treated observations that have the identical treatment history up to a pre-specified number of lags L. Second, this matched set is further refined by adjusting for other time-varying covariates (e.g., age, prior criminal activity, and prior moral values, and prior levels of fear of police); this step is conducted using the Mahalanobis distance measure. Third, the difference-in-differences is calculated in order to account for an underlying time trend and estimate the ATT_{change}.

Apart from specifying L, this method allows researchers to specify a number temporal leads F, which represents the outcome at F time periods after the treatment; e.g., $F = 0$ corresponds to contemporaneous effects, $F = 2$ corresponds to long-term treatment effects time periods after the treatment, and so forth. The choice of F and L should be substantively oriented. In this application, I am interested in estimating short-term effects of a recent police stop on attitudinal change considering three time periods. I therefore adopt $L = 1$ so that only one previous treatment history is taken into account and both changes from $t = 1$ to $t = 2$ and from $t = 2$ to $t = 3$ are used in the analysis. Accordingly, I specify $F = 0$ as the focus of this study is on contemporaneous effects after a recent police stop (at gunpoint).

I estimate six models, testing each of the six outlined hypotheses. In each case, after matching observations with the same treatment history, the matched set is further refined by adjusting for lagged outcome, prior criminal activity, and prior moral values, and prior levels of fear of police, and age – as older individuals are less likely to be stopped by the police and more likely to have more favourable views of legal authority (Bradford, 2017); matching is conducted using the Mahalanobis distance measure. Models were estimated using R's `PanelMatch` package (Imai et al., 2020).

Doubly robust estimator of the $ATT(g,t)$

Callaway and Sant'Anna (2020) developed an analytic strategy that estimates the group-time average treatment effect among treated units ($ATT(g,t)$). Focusing on the impact of a first exposure to treatment, one of the assumptions of this model is the irreversibility of treatment, which implies that no unit is treated at time period $t = 1$, and that once a unit becomes treated, that unit will remain treated in the next period. Unlike Imai et al.'s (2020) model, units are not allowed to become untreated after receiving treatment.

Although members of the public can have multiple experiences with law enforcement over time, this staggered treatment adoption is reasonable in this case considering that the focus is on the impact of a *first* experience of being stopped and questioned by police officers (at gunpoint) during the period covered by this study (among respondents who were not stopped by the police up to two years prior to the first wave).

As Goodman-Bacon (2018) showed, TWFE linear regression models with multiple time periods compare newly treated units to units that were (i) never treated, (ii) not yet treated, and (iii) already treated. Evidently, the third comparison should not be made as it only adds bias. The analytic strategy developed by Callaway and Sant'Anna (2020) makes sure that treated units are only compared with non-treated units – specifically with 'never-treated' units, although this assumption can be relaxed to include 'not-yet treated' units as well. Essentially, this ensures that comparisons are made based on *change* in treatment status over time and estimates the $ATT(g, t)$.

The $ATT(g, t)$ can be identified under a modified parallel trends assumption conditional on covariates. This is another strength of the estimator developed by Callaway and Sant'Anna, as it relaxes the classic unconditional parallel trends assumption and permits the adjustment for time-invariant covariates.[11] This is done by the estimation of propensity scores that, after normalised, serve as weights in the doubly robust estimator. Given that several $ATT(g, t)$ are being simultaneously estimated, Callaway and Sant'Anna offer various strategies to sensibly aggregate them.

In this application, in terms of the first treatment variable (i.e., police stops), 458 respondents who were treated at $t = 1$ were removed from the analysis; in terms of police stops at gunpoint, 203 respondents were removed. Parallel trends is assumed after conditioning on race (1 = white), social class,[12] neighbourhood of residence, and age.

Results

TWFE linear regression models

Figure 6.3 shows the results of six two-way fixed effects linear regression models estimating the impact of police stops and police stops at gunpoint on perceptions of police fairness,

---

[11]Formally, the parallel trends conditional on covariates assumption is defined as $\mathbb{E}[Y_t^0 - \mathbb{E}[Y_{t-1}^0|X, G_g = 1] = \mathbb{E}[Y_t^0 - \mathbb{E}[Y_{t-1}^0|X, C = 1]$, where X is a set of covariates and C is a dummy variable indicating whether the unit belongs to the 'never-treated' group. An alternative conditional parallel trends assumption based on 'not-yet-treated' groups is also possible (see Callaway and Sant'Anna, 2020, p. 5).

[12]Six ascending ordered groups based on consuming habits (see Oliveira, 2021).

overpolicing, and underpolicing. The figure displays point estimates and corresponding 95% confidence intervals based on clustered standard errors (clustered at the unit level) for all six models. There is little evidence that being stopped by the police affects police trustworthiness, as estimated coefficients from all three models are not statistically different from zero (e.g., the confidence interval includes both negative and positive predictions). Being stopped by the police at gunpoint, on the other hand, seems to affect changes in some aspects of police trustworthiness. The experience of such aggressive police stops undermine perceptions of police fairness (an estimated decrease in the scores of approximately 0.21 standard deviations) and enhance perceptions of overpolicing (an estimated increase in the scores of approximately 0.22 standard deviations). According to the TWFE regression model, police stops at gunpoint do not lead to changes in perceived underpolicing.

But the question here is: how confident can one be that these regression coefficients represent the causal quantity of interest (i.e., the *ATT*)? TWFE regression estimates can only represent causal effects under a number of relatively strong assumptions. First, unconditional parallel trends need to be assumed; that is, growth trajectories of trust in legal authority among all individuals need to have the same rate of change over time prior to some individuals being stopped by the police (or being stopped by the police at gunpoint). This assumption, described in Equation 6.2, is what permits the counterfactual change over time of trust in legal authority among individuals who were stopped by the police, had they not been stopped, to be estimated. However, this is an untestable assumption.

It is reasonable to assume that various factors influence trajectories of trust in the police among citizens who were and who were not stopped by the police simply because police stops do not occur at random; specific individuals in specific places and periods might have different probabilities of being stopped by the police (Gelman et al., 2007; Fagan et al., 2016). Presumably, this probability moderately correlates with prior levels of most aspects of police trustworthiness (Slocum and Wiley, 2018; Sargeant et al., 2018). As such, the parallel trends assumption would potentially only hold after conditioning on some pre-treatment covariates (Imai et al., 2020; Callaway and Sant'Anna, 2020).

Additionally, the ability of unit fixed effects to adjust for time-invariant confounders comes with the expense of no dynamic causal relationship (Imai and Kim, 2019). In this case, it is safe to assume that past outcomes do not affect current treatment: people's prior levels of police trustworthiness should not influence the likelihood of being stopped by the police[13], at least not after conditioning on pre-treatment covariates, as mentioned above. However, assuming that past treatment does not affect current outcome is not as much a

---

[13]But it can influence how people perceive the encounter; see Oliveira et al. (2021).
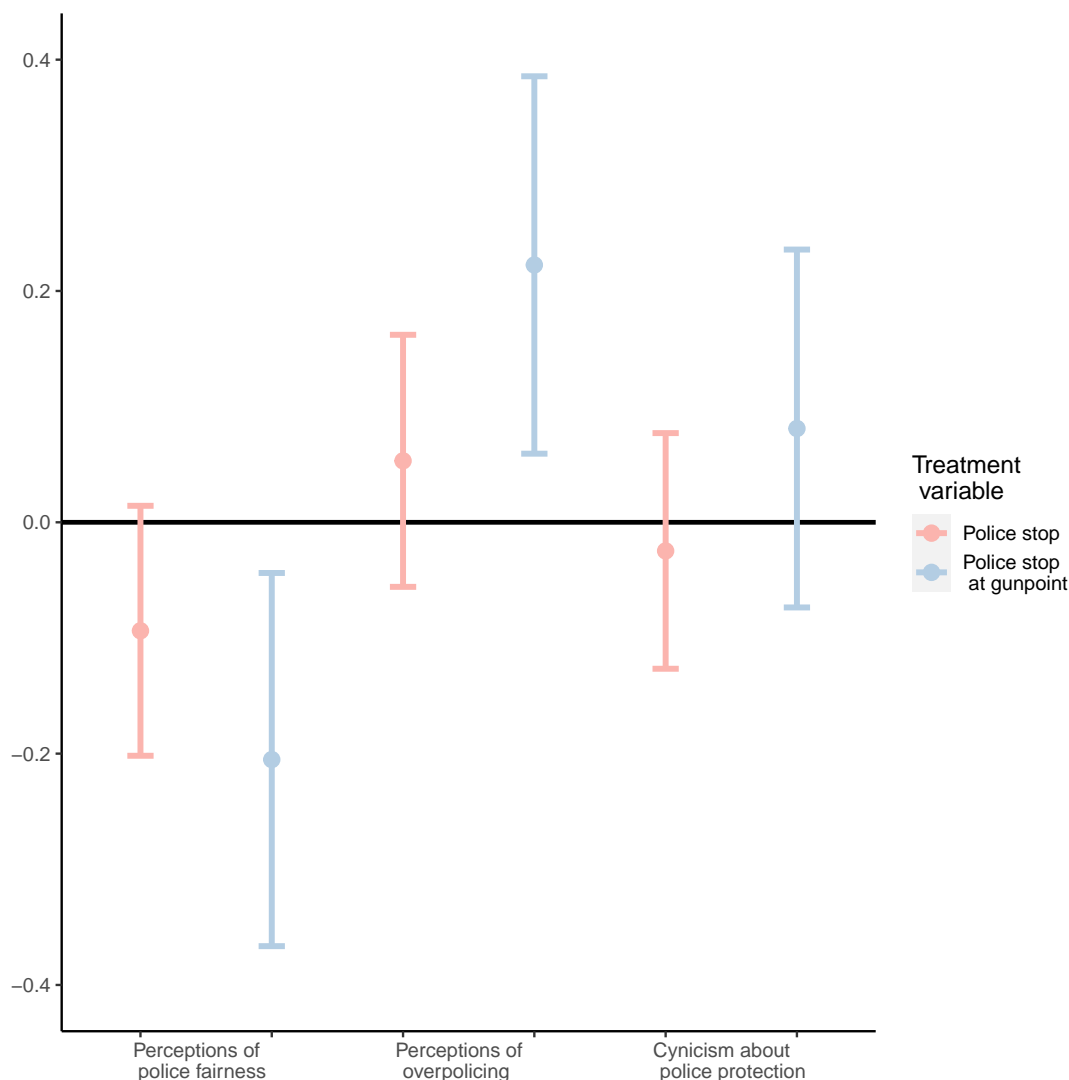
Figure 6.3: **TWFE regression models estimating the impact of police stops**
Note: Clustered standard errors estimated at the unit-level. 95% confidence intervals reported. Regression output can be found in Table 6.A4 in the Appendix.

safe assumption, since a traumatic police stop could affect one's attitudes towards legal authority for a period longer than the 18-month gap between waves.

Regardless of the no dynamic causal relationships assumption, Imai and Kim (2020) show that the inclusion of unit and period effects simultaneously does not consist of a design-based approach to estimate causal effects. TWFE estimates can only represent a causal effect if the data generating process corresponds exactly to Equation 6.5, which

is of course a very strong assumption. Non-parametric methods that relax the linearity assumptions of the TWFE models would be more appropriate (e.g., Imai et al., 2020).

Finally, Goodman-Bacon (2018) showed that a further assumption of TWFE regression models is no treatment effect heterogeneity over time. The multi-period DiD estimated by TWFE regression models consists of a weighted average of all possible two-group/two-period DiD estimators in the data. When the treatment effect changes over time, some weights may be negative (Imai and Kim, 2020), which means that the regression coefficient may be negative even when all ATTs are actually positive (de Chaisemartin and d'Haultfoeuille, 2020). Absence of treatment effect heterogeneity is a strong assumption in most applications. In this case, it is unrealistic to assume that the effect of police stops (at gunpoint or not) on police trustworthiness is homogeneous over time.

All in all, it is unrealistic to assume that the TWFE estimates displayed in Figure 6.3 represent causal effects of police stops and police stops at gunpoint on different aspects of police trustworthiness. Even though some results appear to make substantive sense – e.g., the direction of most estimates, in particular the effects of of police stops at gunpoint on changes in perceptions of police fairness and overpolicing – it would be too naïve to treat those regression coefficients as the ATT. I now explore two alternative estimators that estimate slightly different versions of the ATT in the context of a multi-period difference-in-differences (i.e., the ATT_{change} and the $ATT(g,t)$).

Short-term effects of a recent police stop (at gunpoint)

Six models assessing the impact of police stops and police stops at gunpoint on changes in perceptions of police fairness, perceptions of overpolicing, and underpolicing were estimated. Observations were first matched based on their treatment history ($L = 1$), then the matched sets were further refined by matching on observations with similar lagged outcome, prior criminal activity, and prior moral values, and prior levels of fear of police, and age using the Mahalanobis distance measure. Covariate balance was achieved. Given that few respondents reported being stopped by the police and, obviously, even fewer reported being stopped at gunpoint, treated observations were permitted three closest control units for police stops and one control unit for police stop at gunpoint. Difference-in-differences was then calculated with zero leads specified ($F = 0$), so that the focus is on short-term, contemporaneous effects. Figure 6.4 displays the results of the six effects estimated. To handle statistical uncertainty around the point estimates, standard errors were obtained with 1000 bootstrap iterations. 2.5% and 97.5% quantiles of the bootstrapped estimates are reported.
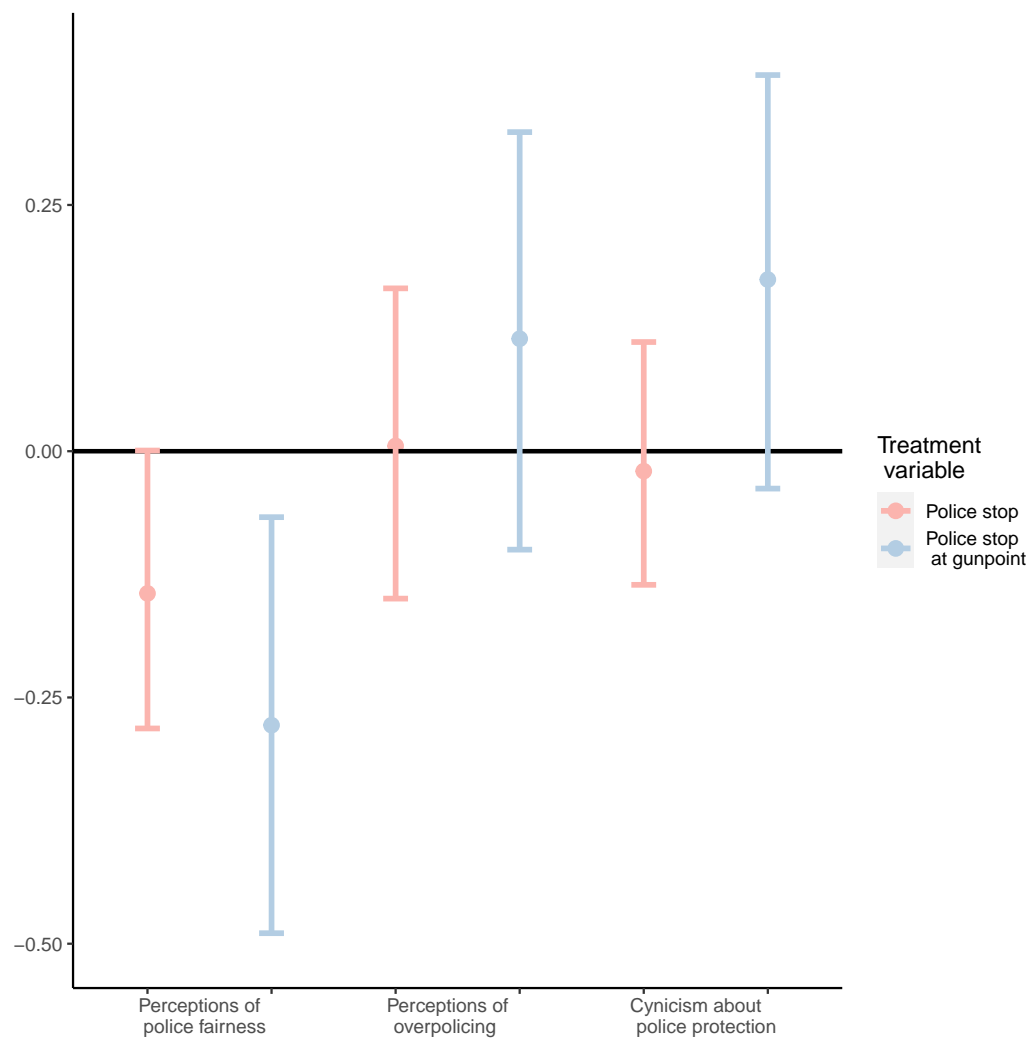
Figure 6.4: **Short-term effects of a recent police stop based on matched sets**

Note: Point estimates are ATT_{change} (contemporaneous effects). Standard errors obtained with 1000 bootstrap iterations. 2.5% and 97.5% quantiles of the bootstrapped estimates reported. Mahalanobis distance was used to create the matched sets (based on one lagged outcome, prior criminal activity, and prior moral values, and prior levels of fear of police, and age). Treated observations were permitted three closest control units for police stops and one control unit for police stops at gunpoint. Models were estimated using R's `PanelMatch` package (Imai et al., 2020). Output can be found in Table 6.A5 in the Appendix.

Similarly to TWFE estimates, there is little evidence that police stops affect perceptions of overpolicing or underpolicing. The recent experience of being stopped by the police, however, may affect perceived police fairness: an estimated decrease of 0.14 standard deviations, although some bootstrapped estimates are just over zero. In terms of

police stops at gunpoint, while the point estimates are relatively close to TWFE estimates, their uncertainty is wider. Being stopped by the police at gunpoint may not affect perceptions of overpolicing or underpolicing, as a considerable proportion of the bootstrapped samples yield negative estimates. However, a recent police stop at gunpoint do seem to affect perceptions of police fairness: an estimated decrease of 0.28 standard deviations, with estimates up to two standard errors distant still yielding negative effects.

Long-term effects of a first police stop (at gunpoint) in several years

Considering only respondents who reported no police stops (at gunpoint) during two years prior to the first wave, six models assessing the effects of a first experience of being stopped and questioned by police officers and a first experience of a police stop at gunpoint on changes in perceptions of police fairness, overpolicing, and underpolicing were estimated. Propensity scores were calculated based on respondents' neighbourhood of residence, self-reported race, social class, and age (at $t = 1$), and treatment effects were estimated using a doubly robust estimator that combines both outcome and propensity score regressions (Sant'Anna and Zhao, 2020). Group-time ATTs are then aggregated, and Figure 6.5 displays the average dynamic effects across all lengths of exposure to treatment (see Callaway and Sant'Anna, 2020). Standard errors were obtained with 1000 bootstrap iterations, and the corresponding 95% confidence bands are reported.

Mirroring previous results, the experience of being stopped by the police stops does not seem to affect changes in trust in the police, as all three 95% confidence bands include both positive and negative values. The experience of being stopped and questioned by the police at gunpoint, on the other hand, seems to have an effect. While treatment effects on perceived police fairness and underpolicing cannot be distinguished from zero, police stops at gunpoint increase public perceptions that police officers repeatedly intrude upon the lives of neighborhood residents – an average increase of 0.28 standard deviations. Crucially, this is the impact of a *first experience* of being stopped by the police at gunpoint among people with no previous recent aggressive police-initiated encounters with law enforcement.

Estimates displayed in Figure 6.5 are only causal if the assumptions outlined by Callaway and Sant'Anna (2020) hold. Two are worth emphasizing. First, as with any DiD design, estimates are only causal after assuming parallel trends. Callaway and Sant'Anna's approach assumes conditional parallel trends, which certainly relaxes the traditional unconditional assumption; it is indeed more realistic to assume parallel trends after adjusting for time-invariant covariates. But parallel trends remains an *untestable* assumption as it refers to a counterfactual time trend. Whether it is realistic to assume that levels of
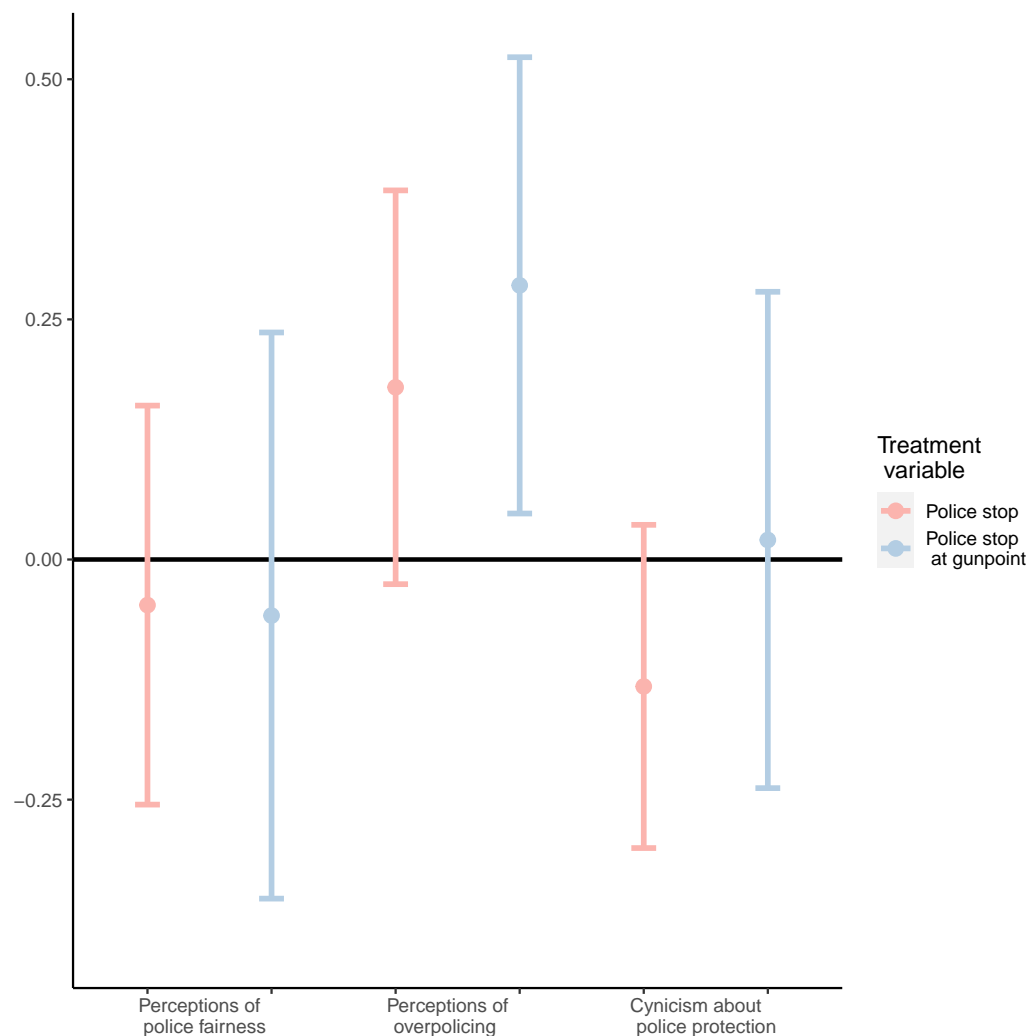
Figure 6.5: **Aggregated $ATT(g, t)$ estimates of the effect of police stops**
Note: Point estimates are the overall $ATT(g, t)$ as the average dynamic effect across all lengths of exposure to the treatment. Standard errors obtained with 1000 bootstrap iterations. 95% confidence bands reported. Propensity scores for covariates (neighbourhood of residence, self-reported race, social class, and age) were estimated and used as weights. Models were estimated using R's `did` package (Callaway and Sant'Anna, 2020). Output can be found in Table 6.A6 in the Appendix.

police trustworthiness among individuals who were stopped by the police (at gunpoint), had they not been stopped, would have followed the same rate of change as the levels of police trustworthiness among individuals who were never stopped by the police remains an open question, even after taking race, social class, neighborhood of residence, and age into account.

Second, consider the irreversibility of treatment. Callaway and Sant'Anna's model assumes a staggered treatment adoption, which means that once a unit is treated, it cannot become untreated in the next period. This is partly the case in the current application. Once an individual experiences a police stop (at gunpoint), they cannot un-experience such interaction. Considering the effects of the first time a member of the public is stopped and questioned by law enforcement agents (at gunpoint) in several years, the irreversibility of treatment assumption is reasonable. This is particularly useful to assess the degree to which the experience of being stopped by a police officer, especially when the officer is pointing a gun at the resident, is a traumatic event with potentially long-term consequences for people's attitudes towards legal authority; results suggest that police stops at gunpoint increases people's expectations that officers repeatedly intrude upon the lives of people.

Discussion

Countries like the United States and Brazil have increasingly adopted aggressive policing strategies that rely on stopping and questioning members of the public whenever police officers suspect of some ongoing or future criminal conduct (Fagan et al., 2016; Lima et al., 2016). Sometimes, law enforcement agents make use of stop-and-frisk powers even when they have no reason for suspicion (Rios, 2011). In the city of São Paulo, police stops also often involve direct threats of violence: in a context where police officers are constantly carrying firearms, almost half of all police stops self-reported by respondents in this study involved officers directly pointing a gun at residents. It is important to understand the impact of such practices on crime, but it is also crucial to understand the social costs of such aggressive practices by agents of the law. In this study, I considered the effects police stops and police stops at gunpoint on three aspects of police trustworthiness.

Nagin and Telep (2017, 2020) have recently highlighted that the literature is yet to demonstrate evidence of a causal relationship between police-citizen interactions and attitudes towards the law and the legal institutions. I have partly addressed some of these gaps in this study. I discussed the causal effects of the experiences of being stopped by the police and being stopped by the police at gunpoint on perceptions of police fairness, overpolicing, and underpolicing, which I frame as aspects of police trustworthiness (see Oliveira et al., 2021). Using three waves of data from a longitudinal survey representative of adults residing in eight neighborhoods in São Paulo between 2015 and 2018, I discussed the degree to which panel data can be exploited to overcome both methodological issues identified by Nagin and Telep (2017, 2020): the threats of reverse causality and third common causes. Crucially, this study showed that aggressive policing strategies that rely on

the use of police stops at gunpoint can implicate people's relationship with legal authority.

Given that police stops (at gunpoint) cannot be randomly assigned, the effects on trust need to be estimated using observational data. With longitudinal data, the most common strategy to make causal claims involves assuming that selection bias is stable over time (Cunningham, 2021) – e.g., assuming that the counterfactual change in levels of trust before and after a police stop in case no stop had happened would be on average the same as the observed change in levels of trust among members of the public who were not stopped by the police. Under this parallel trends assumption, one potential outcome can be estimated, and therefore the average treatment effect among treated units (ATT) can be identified.

Yet, this causal effect is not explicitly defined in terms of change in treatment status. Considering three periods and respondents being able to report or not a recent police stop (at gunpoint) at each time point, in this study I considered two slightly different variations of the ATT that focus on short-term and long-term impacts of the experience of being stopped and questioned by police officers. First, the ATT_{change} is defined as the causal effect of a change in treatment status – i.e., the short-term effects of a *recent* police stop (e.g., over the previous 1.5 year) among people with no previous police-initiated contact (e.g., over the previous 3 years). Second, the $ATT(g,t)$ is defined as the causal effect of a first exposure to treatment – i.e., the long-term effects (e.g., throughout the time frame covered by this study) of a *first* experience of being stopped and questioned by the police (at gunpoint) in several years. Table 6.4 summarizes the three causal effects, their estimators, modeling assumptions, substantive implications, and results.[14]

First, I assessed the impact of police stops and police stops at gunpoint on perceptions of police fairness, overpolicing, and underpolicing using the two-way fixed effects linear regression estimator, the most common estimation strategy found in the literature in the context of multi-period difference-in-differences designs (de Chaisemartin and d'Haultfoeuille, 2020). Results indicated that while there was little evidence of the experience of being

---

[14]For all three causal effects and all three dependent variables, I also estimated additional models with some slight alterations in the treatment variables. For instance, to assess the robustness of the effects of police stops on police trustworthiness, in additional models I dropped observations that reported an officer pointing a gun during the last stop so that the model would just compare changes in the levels of trust between people who were stopped by the police (but not at gunpoint) and people who were not stopped by the police. Accordingly, to assess the robustness of the effects of police stops at gunpoint on trust, in additional models I dropped observations who reported a recent police stop but not at gunpoint from the control group, so that the comparison made was only between police stops at gunpoint and no police stops at all. The problem of this strategy is the loss of statistical power. In every case, results were substantively the same, as expected all effect sizes were considerably larger, but also as expected all confidence bands were considerably wider.

Table 6.4: **Causal effects, estimators, assumptions, and results**

Causal estimand	Estimator	Modelling assumptions	Substantive interpretation	Results
ATT	TWFE linear regression	· Parallel trends (unconditional) · Linearity · Effect homogeneity	Causal (time-constant) effect of a recent police stop	Police stops at gunpoint: · Decrease perceptions of police fairness · Increase perceptions of overpolicing
ATT_{change}	Matched DiD (Imai et al., 2020)	· Parallel trends (conditional on time-varying covariates) · Dynamic treatment adoption	Short-term effects of a recent police stop	Recent police stops at gunpoint "immediately" decrease perceptions of police fairness
$ATT(g,t)$	Doubly robust (Callaway and Sant'Anna, 2020)	· Parallel trends (conditional on time-constant covariates) · Staggered treatment adoption	Long-term effects of a first police stop in several years	Being stopped by the police at gunpoint for the first time in several years increases perceptions of overpolicing

stopped by the police affecting either aspect of police trustworthiness I considered, police stops at gunpoint increased perceptions that police officers repeatedly intrude upon the lives of citizens and decrease perceptions that officers often act with procedural fairness. However, the estimand considered here is the time-constant causal effect of a recent police stop, which would only make sense if the impact of police stops on trust was the same for every two periods $t-1$ and t. Additionally, results are unlikely to represent the ATT because modeling assumptions are unrealistically strong: unconditional parallel trends (Angrist and Pischke, 2009), linearity (Imai and Kim, 2020), and effect homogeneity over time (Goodman-Bacon, 2018).

Second, I used the matching framework for panel data developed by Imai et al. (2020) to estimate the ATT_{change}. Assuming conditional parallel trends, this causal effect represents short-term effects of a recent experience of being stopped and questioned by police officers (at gunpoint). This non-parametric estimator involves matching observations with the same immediate treatment history, similar age, and similar previous levels of trust. Results indicated, again, that while there was little evidence that a recent police stop affected either aspect of police trustworthiness, a recent stop where the police officer pointed a gun at the member of the public had an "immediate" impact and decreased the

expectation that police officers tend to treat citizens with procedural fairness. The effects on perceptions of overpolicing and underpolicing could not be statistically distinguished from zero.

Third, I focused on the impact of a *first* experience of being stopped by police officers (at gunpoint) in several years and estimated the $ATT(g, t)$. I relied upon the estimation strategy developed by Callaway and Sant'Anna (2020). This approach assumes conditional parallel trends and a staggered treatment adoption, which means that units that were already treated cannot become non-treated in subsequent periods. Results indicated, as before, that the experience of being stopped by an officer, on average, may not affect change in levels of trust in legal authority. The experience of an aggressive police stop with a police officer pointing a gun at the citizen, however, can be such a traumatic event that it leads to long-term changes in people's expectations that police officers tend to repeatedly intrude upon the lives of citizens; the effect on perceived fairness and underpolicing about police protection cannot be distinguished from zero.

So, is it possible to state that there is a causal effect of aggressive police stops on changes in trust in the police? Yes, *probably*: it is a matter of time. While the experience of being stopped by the police does not seem to lead to attitudinal change over time, police stops at gunpoint appear to have different impacts on perceptions of police fairness and overpolicing. A police stop at gunpoint among members of the public who had not recently experienced such aggressive interaction, even if they already had previously been stopped by police officers at gunpoint, undermines people's expectations that law enforcement agents exercise police power with dignity and respect and make neutral and transparent decisions. Being stopped by police officers at gunpoint for the first time in several years can be a traumatic experience, as such members of the public develop beliefs that law enforcement agents repeatedly overstep their authority and intrude upon the lives of community residents. Such damages in police trustworthiness could potentially implicate people's beliefs in the legitimacy of legal authority (Sunshine and Tyler, 2003). While more research is still necessary to address the gaps in the literature identified by Nagin and Telep (2017, 2020), results of this study constitute a first response as they indicate the causal effect of one type of police-citizen interactions on attitudinal change of three aspects of police trustworthiness.

Conclusion

In conclusion, this study shows little evidence that the experience of simply being stopped by the police leads to changes in any aspect of trust in the police in this context. Police stops at gunpoint also seem to do little to alter pre-existing levels of perceived underpolicing, which are likely historically produced by neighbourhood structural conditions and the cumulative legacy of police mistreatment in some communities (see Kirk and Papachristos, 2011; Bell, 2017; Nagin and Telep, 2020). In terms of the impact of police stops at gunpoint on perceptions of police fairness and overpolicing, there appears to be different causal effects. It is a matter of time: recent police stops at gunpoint have a short-term effect on the expectation that police officers act with procedural fairness, while the first experience of being stopped and questioned by the police at gunpoint has a long-term effect on the expectation that police officers repeatedly intrude upon the lives of members of the public. This study therefore contributes to a growing list of empirical evidence on the social costs of aggressive policing strategies based on the extensive use of police stops, and in particular zero-tolerance strategies that treat most citizens as potential criminals.

Limitations should, of course, be acknowledged. Results presented in this study are only true in the context of eight neighbourhoods in the city of São Paulo, Brazil, between 2015 and 2018. This is a specific scenario where fear of both crime and police violence is high (Jackson et al., 2022). The extent to which results can be extended to other contexts is not clear. For instance, the fact that almost half of all self-reported police stops involved officers pointing a gun at the citizen does not relate to most Western contexts. Yet, if police stops at gunpoint can damage public attitudes towards legal authority even in a social setting where this threatening experience is not so uncommon, one could expect an even larger impact of other experiences of aggressive policing when people do not expected to be treated with aggression. More research about the relationship between aggressive policing and attitudinal change in other contexts are necessary, especially in other cities in the Global South and some high-crime, low-trust contexts in the United States.

Additionally, this was a relatively small survey design, with 1200 units and 2929 observations over three time points. Only 30% of the observations reported a recent police stop; only 14% reported a recent police stop at gunpoint. Larger survey designs would better depict the relationship between aggressive police stops and legal attitudes. Also, the longitudinal survey used in this study only had three waves of data collection. Panel studies that cover a longer period are welcome as they could more effectively disentangle short-term from long-term treatment effects. Specifically, research designs and analytic strategies that

allow for the identification of cumulative effects would be welcome (e.g., Schomaker et al., 2019). Legal socialisation is a process that occurs during the life course (Fagan and Tyler, 2005). Identifying the cumulative impact of multiple experiences with law enforcement, especially during childhood and adolescence, would permit a better characterisation of the social costs of aggressive policing approaches.

Finally, Nagin and Telep (2017, 2020) have correctly identified the lack of causal evidence in the procedural justice literature. As I argued throughout the paper, this study partly addresses some of those gaps. However, it did not address an important aspect highlighted by the authors: the impact of *perceptions* of police-citizen encounters on attitudinal change (Jackson and Pósch, 2019). While police stops at gunpoint constitute an undeniably aggressive use of power, it is possible that people had different perceptions about the power appropriateness (e.g., procedural justice) enacted by legal agents during those interactions. Future research should attempt to examine the causal effect of evaluations and perceptions of public-police contact on attitudes towards legal authority.

Appendices

Survey items used in this study

Table 6.A1: **Survey items and latent constructs**

Construct	Survey items	Response alternatives
Perceived overpolicing	· Police officers act as if they were above the law in my neighbourhood (*Os policiais no seu bairro agem como se estivessem acima da lei*) · Police officers follow and harass people in my neighbourhood (*Os policiais no seu bairro perseguem e intimidam as pessoas*)	
Perceived police fairness	The police in your neighbourhood: (*A polícia no seu bairro:*) · Explain clearly why they stop and question or arrest people (*Explica claramente por que revista ou prende as pessoas*) · Make impartial and fair decisions (*Toma decisões que são justas e imparciais*) · Pay attention to the information people provide them with (*Dá atenção às informações que as pessoas trazem*) · Treat people with respect (*Trata bem as pessoas*)	Never, rarely, sometimes, very often, always (*Nunca, raramente, às vezes, quase sempre, sempre*)
Perceived underpolicing	· Police in my neighbourhood ensure my safety (reverse coded) (*A polícia do seu bairro garante a sua segurança*) · Laws protect me (reverse coded) (*Sinto que as leis me protegem*) · Considering both quantity and quality, how satisfied are you with each of these services in your neighbourhood: policing (*Considerando a qualidade e a quantidade, o quanto o(a) sr(a) está satisfeito(a) com: o policiamento no seu bairro*) · How good a job are police in your neighbourhood doing in relation to: keeping the neighbourhood safe (reverse coded) (*Como o(a) sr(a) avalia o trabalho da polícia no seu bairro em relação a: manter as ruas do bairro tranquilas*)	Very satisfied, satisfied, little satisfied, unsatisfied, the service does not exist (*Muito satisfeito, satisfeito, pouco satisfeito, nada satisfeito, não existe o serviço*) Very bad, bad, neither good nor bad, good, very good (*Muito ruim, ruim, nem bom nem ruim, bom, muito bom*)

Measurement models

All three dependent variables used in this study – perceptions of police fairness, overpolicing, and underpolicing – consist of unobservable latent constructs whose measures need to be inferred rather than observed. I assumed a reflexive approach on measurement and employed measurement models that estimate latent constructs reflected rather than formed by empirical indicators. Because all indicators are ordinal (i.e., survey items measured using likert scales), I estimated measurement models that relied upon ordinal logistic functions to link the latent construct to the indicators – this is the family of measurement models known as item response theory (IRT) or latent trait models. Specifically, I used graded response models for polytomous data using Rs `ltm` package (Rizopoulos, 2006).

242

Table 6.A2: **Pooled graded response models measuring perceptions of police fairness, overpolicing, and underpolicing**

Survey items	*Police fairness* Discr.	*Overpolicing* Discr.	*Underpolicing* Discr.
Police explain clearly why they stop and question or arrest people	1.71	–	–
Police make impartial and fair decisions	2.25	–	–
Police pay attention to the information people provide them with	2.58	–	–
Police treat people with respect	2.13	–	–
Police act as if they were above the law	–	4.35	–
Police follow and harass people	–	1.44	–
Police ensure my safety (reverse coded)	–	–	1.97
Satisfied with policing in my neighborhood (quantity and quality)	–	–	1.15
Police are doing a good job in keeping the neighborhood safe	–	–	1.49

Note: *Discr.* = Discrimination parameter. Models estimated using R's `ltm` package (Rizopoulos, 2006).

Because each latent variable needs to be measured at three points in time, measurement models need to ensure there is measurement equivalence – i.e., the estimated scales need to be the same over time so that any change over time reflects actual change in the latent variable. In order to ensure measurement equivalence, for each latent variable I estimated a one-trait pooled graded response model, which is essentially the same as estimating a longitudinal three-trait model (with one latent trait for each time point) with all trait loadings and intercepts constrained to equality over time. I estimated separate measurement models for each latent construct because item response models are computationally unfeasible with too many latent traits.

Results of three pooled graded response models can be found in Table 6.A2. Perceived police fairness is mostly shaped by the extent to which people expect officers to make high-quality decisions, paying attention to the information people provide them with (latent loading of $\lambda_3 = 2.58$) and making impartial and fair decisions ($\lambda_2 = 2.25$), followed by their ability to treat people with respect ($\lambda_4 = 2.13$) and explain why they stop and question members of the public ($\lambda_1 = 1.71$). Perceived overpolicing is mostly a reflection of the degree to which people believe officers act as if they were above the law ($\lambda_1 = 4.35$), and to a lesser extent whether officers tend to follow and harass residents ($\lambda_2 = 1.44$). Finally, perceived underpolicing is reflect by people's perceptions that officers do not ensure their safety ($\lambda_1 = 1.97$), do not keep the neighborhood safe ($\lambda_3 = 1.49$), and to a lesser extent dissatisfaction with quantity and quality of policing in their neighborhood ($\lambda_2 = 1.15$).

Perceptions of police stops at gunpoint

Both treatment variables considered in this study refer to self-reported experiences, not to perceptions of such experiences, even though – according to PJT – it is the judgement about power appropriateness during resident-police interactions that could impact police trustworthiness and lead to attitudinal change, not simply the experience of being stopped by law enforcement agents. Yet, assessing the causal effect of perceptions of police-citizen encounters is not trivial (Jackson and Pósch, 2019; Nagin and Telep, 2017, 2020), and is beyond the scope of this study. The goal of this study is to assess the impact of police stops at gunpoint on police trustworthiness in order to better understand the costs of aggressive policing in terms of public attitudes towards the police. Rather than measuring perceived aggression during encounters, I rely on police stops at gunpoint as those are undeniably aggressive interactions – I do not claim this to be a comprehensive account of the effects of aggressive policing on trust, but rather an investigation on one particular dimension of aggressive policing.

But how did those interactions go? A limitation intrinsic to survey research on resident-police encounters, very little information about the police stops is available. For instance, the perspective of the police officer is not taken into account (e.g., why they decided to draw their guns in each specific case). Crucially, the study does not consider whether respondents who self-reported being stopped by the police at gunpoint actually perceived those encounters as an aggressive exercise of power – assessing the impact on trust of police stops at gunpoint is important on its own, as this study shows, but the extent to which such interactions are perceived as aggressive would deserve a study on its own.

The longitudinal survey with São Paulo residents does not permit a fully characterization of the police stops at gunpoint. For instance, while the survey asked respondents whether they had different experiences of police stops (e.g., pedestrian or traffic stops), it does not disentangle pedestrian police stops at gunpoint from traffic police stops at gunpoint. Similarly, the survey did not ask the exact same questions about respondents' most recent police stop over the three waves apart from whether officers had pointed a gun at them, but some initial examination is still possible. For instance, waves 2 and 3 respondents were asked whether they felt like the police officers treated them as if they were criminals (measured as a binary indicator with 'yes' or 'no' options). Respondents across all three waves were also asked about the degree to which they believed officers communicated procedural fairness during said police stop: they were asked the extent to which they satisfied with (a) how the officers treated them and (b) the decision-making

process during the interaction, both indicators measured using a four-point Likert scale ranging from "very dissatisfied" to "very satisfied." Table 6.A3 displays the mean of each indicator broken down by wave.

Table 6.A3: **Average scores of perceptions of police stops among respondents who were and who were not stopped at gunpoint**

	Recent police stop at gunpoint?	
	Yes	*No*
Recently stopped when driving a car (1 =yes)	0.60	0.67
Recently stopped when riding a motorcycle (1 =yes)	0.36	0.17
Recently stopped when walking on the streets (1 =yes)	0.65	0.28
Recently stopped in some other circumstance (1 =yes)	0.07	0.06
Treated as if you were a criminal (1 =yes)*	0.60	0.14
Satisfied with treatment†	1.89	2.74
Satisfied with the decision-making process†	2.09	2.85

* Waves 2 and 3 only; † Very dissatisfied (1) → Very satisfied (4).

On average, among respondents who self-reported being stopped by the police at gunpoint over the last two years (for wave 1 responses) or between two waves (for waves 2 and 3 respondents), 60% reported being recently stopped by the police at least once when driving a car, whereas among those who were recently stopped by the police but not at gunpoint, 67% were stopped when driving a car; 36% when riding a motorcycle, as opposed to 17% not at gunpoint; and 65% when walking on the streets, as opposed to 28% not at gunpoint. This cautiously suggests that most police stops at gunpoint were either pedestrian stops or stops against motorcycle riders.

Considering wave 2 and 3 respondents only, 55% of those who reported a recent stop at gunpoint felt like officers were treating them as if they were criminals, whereas only 15% of respondents who reported a recent police stop but not at gunpoint felt so, which could potentially indicate some level of perceived aggression when officers draw their weapons. Such respondents also had slightly different judgements about the procedural fairness communicated by officers during the interaction, as they had lower average scores on satisfaction with the treatment and the decision-making process.

Tables of all estimated models

Table 6.A4: **Two-way fixed effects linear regression models estimating the effect of police stops on police trustworthiness**

	Police fairness		Overpolicing		Underpolicing	
	Model A1	Model A2	Model A3	Model A4	Model A5	Model A6
Police stop	−0.09		0.05		−0.02	
	[−0.20; 0.01]		[−0.06; 0.16]		[−0.13; 0.08]	
Gunpoint		−0.21*		0.22*		0.08
		[−0.37; −0.04]		[0.06; 0.39]		[−0.07; 0.24]
Adj. R^2	0.50	0.51	0.37	0.38	0.51	0.51
Num. obs.	2927	2929	2927	2929	2927	2929
N Clusters	1200	1200	1200	1200	1200	1200

Note: Clustered standard errors estimated at the unit-level, corresponding 95% confidence intervals reported in square brackets. * indicates 0 is outside the 95% confidence interval.

Table 6.A5: ATT_{change} **based on matched DiD estimating the effect of police stops on police trustworthiness**

	Police fairness		Overpolicing		Underpolicing	
	Model B1	Model B2	Model B3	Model B4	Model B5	Model B6
Police stop	−0.14		0.00		−0.02	
	[−0.29; 0.00]		[−0.15; 0.16]		[−0.15; 0.10]	
Gunpoint		−0.28*		0.11		0.17
		[−0.51; −0.06]		[−0.10; 0.32]		[−0.03; 0.39]
Number of treated units	121	72	121	72	121	72

Note: ATT_{change} (contemporaneous effects) reported. Standard errors obtained with 1000 bootstrap iterations. 2.5% and 97.5% quantiles of the bootstrapped estimates reported in square brackets. Mahalanobis distance was used to create the matched sets (based on treatment history, one lagged outcome, and age). * indicates 0 is outside the 95% confidence bands.

Bibliography

An, W. and C. Winship (2017). Causal inference in panel data with application to estimating race-of-interviewer effects in the General Social Survey. *Sociological Methods & Research 46*(1), 68–102.

Angrist, J. D. and J.-S. Pischke (2009). *Mostly Harmless Econometric: An Empiricist's Companion.* Princeton: Princeton University Press.

Augustyn, M. B. (2016). Updating perceptions of (in)justice. *Journal of Research in Crime and Delinquency 53*(2), 255–286.

Bell, M. C. (2016). Situational trust: How disadvantaged mothers reconceive legal cynicism. *Law & Society Review 50*(2), 314–347.

Bell, M. C. (2017). Police reform and the dismantling of legal estrangement. *The Yale Law Journal*, 2054–2150.

Table 6.A6: **Dynamic $ATT(g,t)$ estimates of the effect of police stops on police trustworthiness**

	Police fairness		Overpolicing		Underpolicing	
	Model C1	Model C2	Model C3	Model C4	Model C5	Model C6
Overall ATT:						
Police stop	−0.05		0.18		−0.13	
	[−0.25; 0.16]		[−0.03; 0.39]		[−0.30; 0.04]	
gunpoint		−0.06		0.29*		0.02
		[−0.33; 0.21]		[0.06; 0.52]		[−0.24; 0.27]
Dynamic Effects:						
Police stop $t-1$	−0.24		−0.08		0.23	
	[−0.61; 0.13]		[−0.48; 0.32]		[−0.07; 0.53]	
Police stop t	−0.05		0.13		−0.13	
	[−0.27; 0.18]		[−0.12; 0.39]		[−0.33; 0.08]	
Police stop $t+1$	−0.05		0.22		−0.14	
	[−0.42; 0.32]		[−0.12; 0.56]		[−0.39; 0.11]	
Gunpoint $t-1$		0.05		−0.36		0.13
		[−0.33; 0.42]		[−0.01; 0.73]		[−0.22; 0.49]
Gunpoint t		−0.24		0.26		0.08
		[−0.56; 0.09]		[−0.02; 0.54]		[−0.20; 0.36]
Gunpoint $t+1$		0.12		0.31		−0.04
		[−0.33; 0.57]		[−0.06; 0.68]		[−0.44; 0.36]
Num. obs.	742	997	742	997	742	997

Note: Estimation method: Doubly robust. Standard errors obtained with 1000 bootstrap iterations. 95% confidence bands reported in square brackets. Propensity scores for covariates (neighbourhood of residence, self-reported race, social class, and age) were estimated and used as weights. * indicates 0 is outside the 95% confidence bands.

Bradford, B. (2014). Policing and social identity: procedural justice, inclusion and cooperation between police and public. *Policing and Society 24*(1), 22–43.

Bradford, B. (2017). *Stop and search and police legitimacy.* Routledge.

Bradford, B., J. Jackson, and E. A. Stanko (2009). Contact and confidence: Revisiting the impact of public encounters with the police. *Policing & society 19*(1), 20–46.

Braga, A. A., A. V. Papachristos, and D. M. Hureau (2014). The effects of hot spots policing on crime: An updated systematic review and meta-analysis. *Justice quarterly 31*(4), 633–663.

Braga, A. A., D. Weisburd, and B. Turchan (2018). Focused deterrence strategies and crime control: An updated systematic review and meta-analysis of the empirical evidence. *Criminology & Public Policy 17*(1), 205–250.

Callaway, B. and P. H. Sant'Anna (2020). Difference-in-differences with multiple time periods. *Journal of Econometrics.* Published online.

Carr, P. J., L. Napolitano, and J. Keating (2007). We never call the cops and here is why: A qualitative examination of legal cynicism in three Philadelphia neighborhoods. *Criminology 45*(2), 445–480.

Cunningham, S. (2021). *Causal inference: The mixtape.* Yale University Press.

de Chaisemartin, C. and X. d'Haultfoeuille (2020). Two-way fixed effects estimators with heterogeneous treatment effects. *American Economic Review 110*(9), 2964–96.

Elwert, F. and C. Winship (2014). Endogenous selection bias: The problem of conditioning on a

collider variable. *Annual Review of Sociology 40*, 31–53.

Epp, C. R., S. Maynard-Moody, and D. P. Haider-Markel (2014). *Pulled over: How police stops define race and citizenship.* University of Chicago Press.

Fagan, J., A. A. Braga, R. K. Brunson, and A. Pattavina (2016). Stops and stares: Street stops, surveillance, and race in the new policing. *Fordham Urb. LJ 43*, 539.

Fagan, J. and T. Tyler (2005). Legal socialization of children and adolescents. *Social Justice Research 18*(3), 217–241.

Geller, A. and J. Fagan (2019). Police contact and the legal socialization of urban teens. *RSF: The Russell Sage Foundation Journal of the Social Sciences 5*(1), 26–49.

Geller, A., J. Fagan, T. Tyler, and B. G. Link (2014). Aggressive policing and the mental health of young urban men. *American Journal of Public Health 104*(12), 2321–2327.

Gelman, A., J. Fagan, and A. Kiss (2007). An analysis of the New York City police department's "stop-and-frisk" policy in the context of claims of racial bias. *Journal of the American Statistical Association 102*(479), 813–823.

Goodman-Bacon, A. (2018). Difference-in-differences with variation in treatment timing. Technical report, National Bureau of Economic Research.

Gur, N. and J. Jackson (2020). Procedure-content interaction in attitudes to law and in the value of the rule of law. *Procedural Justice and Relational Theory: Empirical, Philosophical, and Legal Perspectives*, 111.

Hagan, J., B. McCarthy, D. Herda, and A. C. Chandrasekher (2018). Dual-process theory of racial isolation, legal cynicism, and reported crime. *Proceedings of the National Academy of Sciences 115*(28), 7190–7199.

Hagan, J., C. Shedd, and M. R. Payne (2005). Race, ethnicity, and youth perceptions of criminal injustice. *American Sociological Review 70*(3), 381–407.

Holland, P. W. (1986). Statistics and causal inference. *Journal of the American statistical Association 81*(396), 945–960.

Huq, A. Z., J. Jackson, and R. Trinkner (2017). Legitimating practices: revisiting the predicates of police legitimacy. *The British Journal of Criminology 57*, 1101–1122.

Imai, K. and I. S. Kim (2019). When should we use unit fixed effects regression models for causal inference with longitudinal data? *American Journal of Political Science 63*(2), 467–490.

Imai, K. and I. S. Kim (2020). On the use of two-way fixed effects regression models for causal inference with panel data. *Political Analysis*.

Imai, K., I. S. Kim, and E. Wang (2020). Matching methods for causal inference with time-series cross-sectional data. Working paper. Available at https://imai.fas.harvard.edu/research/files/tscs.pdf.

Imbens, G. W. and D. B. Rubin (2015). *Causal inference in statistics, social, and biomedical sciences.* Cambridge University Press.

Jackson, J., M. Asif, B. Bradford, and M. Z. Zakar (2014). Corruption and police legitimacy in Lahore, Pakistan. *The British Journal of Criminology 54*(6), 1067–1088.

Jackson, J., B. Bradford, M. Hough, A. Myhill, P. Quinton, and T. R. Tyler (2012). Why do people comply with the law? Legitimacy and the influence of legal institutions. *British Journal of Criminology 52*(6), 1051–1071.

Jackson, J. and K. Pósch (2019). New directions of research in fairness and legal authority. In A. Lind (Ed.), *Social Psychology and Justice (Frontiers of Social Psychology Series*, Chapter 9. Routledge.

Jackson, J., K. Pósch, T. R. Oliveira, B. Bradford, S. M. Mendes, A. L. Natal, and A. Zanetic (2022). Fear and legitimacy in São Paulo, Brazil: Police-citizen relations in a high violence, high fear city. *Law & Society Review 56*(1).

Kirk, D. and M. Matsuda (2011). Legal cynicism, collective efficacy, and the ecology of arrest. *Criminology 49*(2), 443–472.

Kirk, D. and A. Papachristos (2011). Cultural mechanisms and the persistence of neighborhood violence. *American Journal of Sociology 116*(4), 1190–1233.

Kirk, D., A. Papachristos, J. Fagan, and T. R. Tyler (2012). The paradox of law enforcement in immigrant communities: Does tough immigration enforcement undermine public safety? *The Annals of the American Academy of Political and Social Science 641*(1), 79–98.

Kubrin, C. E., S. F. Messner, G. Deane, K. McGeever, and T. D. Stucky (2010). Proactive policing and robbery rates across us cities. *Criminology 48*(1), 57–97.

Legewie, J. and J. Fagan (2019). Aggressive policing and the educational performance of minority youth. *American Sociological Review 84*(2), 220–247.

Liberman, A. M., D. S. Kirk, and K. Kim (2014). Labeling effects of first juvenile arrests: Secondary deviance and secondary sanctioning. *Criminology 52*(3), 345–370.

Lima, R. S. d., S. Bueno, and G. Mingardi (2016). Estado, polícias e segurança pública no brasil. *Revista Direito GV 12*(1), 49–85.

MacDonald, J., J. Fagan, and A. Geller (2016). The effects of local police surges on crime and arrests in new york city. *PLoS one 11*(6), e0157223.

MacDonald, J., R. J. Stokes, G. Ridgeway, and K. J. Riley (2007). Race, neighbourhood context and perceptions of injustice by the police in Cincinnati. *Urban Studies 44*(13), 2567–2585.

Morgan, S. and C. Winship (2015). *Counterfactuals and Causal Inference: Methods and Principles for Social Research*. New York: Cambridge University Press.

Nagin, D. and C. Telep (2017). Procedural justice and legal compliance. *Annual Review of Law and Social Science 13*, 5–28.

Nagin, D. and C. Telep (2020). Procedural justice and legal compliance: A revisionist perspective. *Criminology & Public Policy 19*(3), 761–786.

Nery, M. B., A. A. Souza, and S. Adorno (2019). Os padrões urbano-demográficos da capital paulista. *Estudos Avançados 33*(97), 5–36.

Oliveira, T. R. (2021). Violence and coercive policing: Dynamics and consequences of the overpolicing-underpolicing paradox in Brazil's largest city. Working paper. Available at https://osf.io/preprints/socarxiv/89jkv/.

Oliveira, T. R., J. Jackson, K. Murphy, and B. Bradford (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*, 1003–1045.

Pearl, J. (2009). *Causality*. Cambridge University Press.

Pósch, K. (2019). Testing complex social theories with causal mediation analysis and g-computation: Toward a better way to do causal structural equation modeling. *Sociological Methods & Research*.

Pósch, K. (2021). Prying open the black box of causality: A causal mediation analysis test of procedural justice policing. *Journal of Quantitative Criminology 37*, 217–245.

Rios, V. M. (2011). *Punished: Policing the lives of Black and Latino boys*. NYU Press.

Rizopoulos, D. (2006). ltm: An R package for latent variable modeling and item response theory analyses. *Journal of Statistical Software 17*(5), 1–25.

Sampson, R. J. and D. J. Bartusch (1998). Legal cynicism and (subcultural) tolerance of deviance: the neighborhood context of racial difference. *Law & Society Review 32*(4), 777–804.

Sant'Anna, P. H. and J. Zhao (2020). Doubly robust difference-in-differences estimators. *Journal of Econometrics 219*(1), 101–122.

Sargeant, E., K. Murphy, and N. S. Madon (2018). Is dissatisfaction with police inevitable? Testing an integrated model of motivational postures and procedural justice in police-citizen contacts. *Police Practice and Research 19*(2), 125–137.

Schomaker, M., M. A. Luque-Fernandez, V. Leroy, and M.-A. Davies (2019). Using longitudinal targeted maximum likelihood estimation in complex settings with dynamic interventions. *Statistics in Medicine 38*(24), 4888–4911.

Shedd, C. (2015). *Unequal city: Race, schools, and perceptions of injustice*. Russell Sage Foundation.

Skogan, W. (2006). Asymmetry in the impact of encounters with the police. *Policing and Society 16*, 99–126.

Slocum, L. A. and S. A. Wiley (2018). "Experience of the expected": Race and ethnicity differences in the effects of police contact on youth. *Criminology 56*(2), 402–432.

Stuart, F. (2016). *Down, out, and under arrest: Policing and everyday life in Skid Row*. University of Chicago Press.

Sunshine, J. and T. Tyler (2003). The role of procedural justice and legitimacy in public support for policing. *Law and Society Review 37*(3), 513–548.

Tankebe, J. (2009). Public cooperation with the police in Ghana: Does procedural fairness matter? *Criminology 47*(4), 1265–1293.

Tiratelli, M., P. Quinton, and B. Bradford (2018). Does stop and search deter crime? Evidence from ten years of London-wide data. *The British Journal of Criminology 58*(5), 1212–1231.

Trinkner, R., J. Jackson, and T. R. Tyler (2018). Bounded authority: Expanding "appropriate" police behavior beyond procedural justice. *Law and Human Behavior 42*(3), 280–293.

Tyler, T. (2006). *Why People Obey the Law*. Princeton University Press.

Tyler, T. and J. Fagan (2008). Legitimacy and cooperation: why do people help the police fight crime in their communities? *Ohio State Journal of Criminal Law 6*(1), 231–275.

Tyler, T., J. Fagan, and A. Geller (2014). Street stops and police legitimacy: Teachable moments in young urban men's legal socialization. *Journal of Empirical Legal Studies 11*(4), 751–785.

Tyler, T. R., J. Jackson, and A. Mentovich (2015). The consequences of being an object of suspicion: Potential pitfalls of proactive police contact. *Journal of Empirical Legal Studies 12*(4), 602–636.

Vaisey, S. and A. Miles (2017). What you can – and can't – do with three-wave panel data. *Sociological Methods & Research 46*(1), 44–67.

Zanetic, A., B. P. Manso, A. L. Natal, and T. R. Oliveira (2016). Legitimidade da polícia: Segurança pública para além da dissuasão. *Civitas – Revista de Ciências Sociais 16*(4), 148–173.

Chapter 7

In this concluding chapter, I summarise the main findings from each of the four papers that comprise this thesis and incorporate them into a more cohesive whole than would be possible had they remained entirely separate. I also discuss some limitations of this thesis and suggest future directions of research.

Summary of the findings

This thesis has addressed the matter of time in the relationship between perceptions of police (mis)conduct and public attitudes towards the law and the legal institutions. Each paper used a different longitudinal approach to tackle some aspect related to the dynamics of trustworthiness and legitimacy over time, from the development of legitimacy judgements during adolescence to the causal impact of police stops on trust in legal institutions. As outlined in Chapter 2, the theoretical framework I used in this thesis premises that perceptions of power appropriateness flow from task-specific evaluations about the exercise of legal power. People have normative expectations about the exercise of legal power, and to the extent that they perceive and experience (cumulatively throughout their lifetime) legal institutions behaving as they normatively expect, their legitimacy beliefs are enhanced (Sunshine and Tyler, 2003); likewise, when people expect agents of the law to behave in normatively inappropriate ways, their judgements about the legitimacy of legal authority are damaged.

From a policy perspective, it would thus make sense for legal institutions to explore people's normative expectations about the exercise of legal power and behave accordingly. However, police organisations worldwide have increasingly adopted aggressive policing strategies that focus on repeatedly stopping and questioning people deemed suspicious, especially in some cities in the US and the Global South (Fagan et al., 2016; Zanetic et al., 2016). It is possible that some of those strategies confront people's normative expectations about the use of police power, whether directly (they do not want the police doing this) or indirectly (overpolicing and underpolicing are associated with procedural injustice).

This was the issue addressed by the paper in Chapter 3. At least in the context of adults residing in selected neighbourhoods in São Paulo, Brazil, public perceptions that police officers often overstep their authority and repeatedly intrude in the lives of community residents seemed to undermine legitimacy judgements. This was true even after controlling for perceptions of police fairness and effectiveness. Similarly, public perceptions that police officers are unfit and disinterested in ensuring public safety to community residents also seemed to undermine police legitimacy judgements. Together, this suggests that people judge the exercise of police power based on overpolicing and underpolicing strategies to be normatively inappropriate.

Crucially, I showed that perceptions of overpolicing and underpolicing mutually feed each other over time, creating a type of vicious cycle. This relates directly to some ethnographic accounts of the overpolicing-underpolicing paradox (Rios, 2011; Carr et al., 2007). By persistently insisting on coercive policing strategies, legal institutions contribute to the reproduction of public distrust of legal authority over time and the undermine of judgements about the legitimacy of the police. This has important implications to people's recognition of the ruling power of the law, as increased perceptions of overpolicing and underpolicing are also associated with more tolerant views about personal use of violence. As I argued in Chapter 3, members of the public expect to feel safe in their neighbourhood; when legal institutions do not provide protection and police officers frequently overstep their authority, they lose faith in legal authority and increasingly reject its claim of power; as a consequence, they turn their expectations of safety and protection elsewhere and develop more favourable views about use of violence. Undermined legitimacy judgements may propel some people towards violence simply because they feel they cannot rely upon legal institutions to help them resolve grievances (Kirk and Papachristos, 2011).

People's expectations of safety and protection could be context-dependent. In some developed countries with low crime rates where public safety is the norm, members of the public could judge the exercise of legal power based on other normative criteria. However, in the context of São Paulo where the ability of the police to control crime is low and police officers are generally seen as "just another gang" (Jackson et al., 2022), the ability of legal authority to ensure public safety seems to add to the list of normative criteria people use to evaluate power appropriateness. This is a process that occurs during the life course (Nivette et al., 2019). As I showed in Chapter 4, exposure to neighbourhood and police violence during adolescence seemed to be a key factor in legal socialisation.

With a focus on the development of judgements about the legitimacy of the law among adolescents aged 11 to 14 who live in São Paulo, the second paper of this thesis showed

that legal orientations are formed throughout the life course and are conditioned upon cumulative experiences with legal agents and structural conditions. On average, adolescents developed more favourable views about the law until the age 13, when the scores decrease slightly. However, exposure to neighbourhood and police violence contributed significantly to legal socialisation, undermining the development of legitimacy judgements. Witnessing a case of police brutality, for instance, was associated with negative shits in scores of legal legitimacy. Similarly, the more exposed to neighbourhood violence the *context* the adolescent is embedded in is (e.g., the more exposed to violence students from the same school are on average), the more undermined was the development of legitimacy beliefs.

The results of the second paper connect directly to the discussion made in the first paper. Growing up with high levels of exposure to violence could speak to perceptions about the inability of legal institutions to ensure public safety, which, one could argue, is a potential normative expectation about the exercise of legal power (Bell, 2017). Frequent exposure to neighbourhood violence during adolescence could thus be related to a continuous experience of *lack* of appropriate police behaviour. Similarly, witnessing cases of police violence could be related to a continuous (vicarious) experience of police misconduct. The persistence of coercive policing strategies – which sometimes, in the case of São Paulo, include violence against parts of the population – that fail to ensure public safety seems to therefore undermine the life-course process of legal socialisation (see also Fagan and Tyler, 2005; Geller and Fagan, 2019).

As mentioned above, legal socialisation is a process that occurs throughout the life course, most notably during childhood and adolescence. However, as I demonstrate in this thesis, adults can update their update their views about the appropriateness of legal power and its authority to govern. Tyler and Fagan (2008) and Tyler et al. (2014) emphasise that every single encounter with a legal agent is a teachable moment where members of the public evaluate the normative appropriateness of the exercise of power and update their views about legal authority's claim of power. While single interactions might do little to alter pre-existing conceptions about legal institutions built during a lifetime of opposite experiences with legal agents (Nagin and Telep, 2017, 2020), in Chapters 5 and 6 I showed that public-police interactions could indeed lead to some attitudinal change.

I started the introductory chapter of this thesis discussing recent remarks made by Nagin and Telep (2017, 2020) about the procedural justice literature. Despite the large body of correlational evidence, the authors correctly highlighted the scarcity of established causal connections in the literature. Specifically, they mention two potential threats to the validity of the existing evidence: reverse causality and confounding bias. The third and

fourth papers of this thesis partly address the issues brought up by Nagin and Telep.

Chapter 5 addressed the issue of reverse causality – to the extent that it was possible. Actually removing the threat of reverse causality would require the modelling of reciprocal causal relationships. Yet, DAGs are by definition acyclic graphs, whereas reciprocal relationships form a cyclic structure (Morgan and Winship, 2015); to my knowledge, there are no statistical methods that can actually depict mutual causal relationships (VanderWeele, 2015). So, while this would still be susceptible to confounding bias, one possible strategy to deal with the threat of reverse causality in this case consists precisely of evaluating the role of pre-existing attitudes towards legal authority on the evaluation of encounters with the police (Skogan, 2012).

Using two waves of nationally representative data from Australia, in the third paper I modelled the association between a police-citizen encounter that happened between the two waves and changes in police trustworthiness and legitimacy. Even though people's pre-existing attitudes partly influence how they evaluate the procedural fairness and the outcome of an interaction with a legal agent, I showed that such pre-existing attitudes do not moderate the statistical effect of contact on attitudinal change – at least not in terms of trust in procedural fairness and duty to obey the police. In models predicting both these constructs after an encounter with a police officer, the fact that interaction terms between pre-existing trust in procedural fairness and outcome and process evaluations of the interaction, as well as between pre-existing duty to obey the police and outcome and process evaluations, were all non-distinguishable from zero indicates that the estimated effects of contact evaluations are the same for people with all levels of pre-existing attitudes.

This partly addressed Nagin and Telep's concern that people's views about legal authority would influence their judgements about encounters, and that the frequently found association between contact and confidence would be due to a causal effect in the opposite direction. Even though results in Chapter 5 cannot be interpreted as causal, the direction of the association was assessed; it seems that police-citizen encounters can indeed be teachable moments where people evaluate the normative appropriateness of the exercise of power and update their attitudes towards legal authority.

A more direct assessment of the causal effect of police contact on attitudinal change was conducted in the fourth paper. Nagin and Telep (2017, 2020) note that the biggest issue with the procedural justice literature is the threat of confounding bias, given that most of the evidence are just correlational. Given the difficulty in manipulating (perceived) police conduct, studies usually need to rely upon observational data, which make the ability to identify causal effects difficult. In Chapter 6, I discussed the necessary assumptions that

permit the use of panel data to draw causal inference.

Using a multi-period difference-in-differences design, I estimated the effects of experiencing a police stop, including at gunpoint, on changes in perceptions of police fairness, overpolicing, and underpolicing among adults residing in selected neighbourhoods of São Paulo. Addressing the matter of time explicitly, I used three different estimators that make different assumptions about the effects of aggressive police stops over time. Considering the experience of a recent police stop, the fourth paper showed that being stopped by the police at gunpoint had a short-term, negative causal effect on police fairness; considering just the first experience of police stop after several years with no previous aggressive interaction, being stopped by the police at gunpoint had a long-term, positive causal effect on perceptions of overpolicing.

This paper directly addressed some of the gaps in the literature identified by Nagin and Telep (2017, 2020). Even though I did not assess the impact of evaluations about police contact (e.g., procedural fairness), and only focused on measures of police trustworthiness (as opposed to measures of police or legal legitimacy), Chapter 6 is one of the first studies in the literature to report a credible identification strategy and report the causal effect of police contact on attitudinal change.

In the fourth paper, I assessed the negative impact of aggressive police stops on distrust of legal authority, rather than potential positive impacts of normatively appropriate interactions on trustworthiness and legitimacy. Yet, there is still room for improvement of public attitudes towards legal authority. In the third paper, considering the population of adults residing in Australian, I also examined the degree to which police-citizen encounters could either boost or damage police trustworthiness and legitimacy depending on how members of the public evaluate the appropriateness of the interaction. Scholars have long argued that legal attitudes are "hard to win" and "easy to lose" – i.e., the impact of negative contact on negative change should be greater than the impact of positive contact on positive change (Skogan, 2006). This is known as the asymmetry thesis.

Chapter 5 showed that, at least among those living in Australia, there is still a "good news" story: while negative evaluations of both process and outcome were associated negative attitudinal change, positive evaluations were associated with positive change, at least in terms of trust in procedural fairness and duty to obey the police. Even though this is not a causal conclusion, this study indicates that legal institutions can both improve and undermine people's attitudes towards legal authority. As long as people perceive legal agents to exercise legal power as people normatively expect (e.g., with procedural fairness and ensuring public safety), public trustworthiness and legitimacy can be enhanced. Un-

fortunately, coercive policing strategies that seek to deter people from engaging in criminal behaviour and end up promoting public detachment and alienation from the law seem to more common in most places, but especially in large cities in the Global South – such as São Paulo, Brazil.

Limitations

I should, of course, address some limitations of the thesis. First, while the general motivation of this thesis was to assess the matter of time on the relationship between police (mis)conduct and the dynamics of police trustworthiness and legitimacy, the paper-based format with four stand-alone studies means that the objectives of each separate study could dissonate, if only slightly, from the rest of the thesis. For instance, one could argue that Chapter 5 is the odd one out, considering that it draws on a Western, developed context while the other three studies rely upon data from the high crime, low trust context of São Paulo.

   While this is true, a similar argument could be made to every other paper in this thesis using other criteria. Chapter 3 is the only one not explicitly about legal socialisation – in the sense that it does not directly address the development of legal attitudes during the life course nor the extent to which people update their beliefs after police-citizen encounters. Despite my repeated emphasis on the importance of using a life-course approach to study legal socialisation, Chapter 4 is actually the only one that focuses on the development of legitimacy judgements among adolescents. Finally, Chapter 6 is the only paper that explicitly attempts to draw causal conclusions considering the potential outcomes framework, even though causal inference should be central in the procedural justice literature.

   The point is that this is one of limitations of the paper-based structure of this thesis. Each paper is a stand-alone study, which means that there will be some punctual divergence between each of them and the overall thesis. Yet, I would still argue that this thesis is coherent. All four papers address the matter of time on the relationship between police (mis)conduct and the dynamics of police trustworthiness and legitimacy, drawing on procedural justice theory with insights from the legal socialisation and legal cynicism approaches, and each using a different analytic strategy that relies upon longitudinal data.

   The second limitation refers to the degree to which this thesis addresses the issues raised by Nagin and Telep (2017, 2020). While Chapter 5 constitutes a starting point on the issue of reverse causality, Chapter 6 is the only one that explicitly addressed causal

256

inference using the potential outcomes framework. It is certainly one of the first responses to Nagin and Telep, but there remains several gaps in the literature first identified by the authors. For instance, I did not address the causal links between police trustworthiness and legitimacy judgements or between legitimacy judgements and compliant behaviour. I focused only on the causal impact of contact on attitudinal change, and even this causal link still needs to be assessed, as I only addressed the impact of a (self-reported) factual experience of police stops (e.g., officers pointed a gun at the respondent), not the evaluation of normative appropriateness inscribed in the use of police power. For instance, it is entirely possible that respondents had different perceptions about the procedural fairness communicated by police officers in those interactions. Estimating the causal impact of *perceived* evaluations of police contact on attitudinal change is more complicated (see Jackson and Pósch, 2019), and remains a gap in the literature.

Third, while the thesis generally addresses the matter of time, all four studies cover a relatively short period of time. The paper in Chapter 4 is the only one that explicitly adopted a life-course perspective when modelling the development of legitimacy judgements among adolescents aged 11 to 14, but longer-term studies – e.g., covering decades – are necessary for a proper evaluation of legal socialisation. Only with longer-term studies would it be realistic to address the cumulative impact of experiences with the law on the life course. Studies in this thesis cannot make conclusions about the extent which effects are durable. In Chapter 6 I argued for a long-term impact of aggressive police stops on perceptions of overpolicing, but in that context "long term" meant the four-year range of the São Paulo longitudinal survey. Actual life-course approaches are necessary, for instance, to understand the cumulative impact of aggressive police stops during childhood and adolescence on adults.

Similarly, while I emphasised the importance of structural conditions that produce people's normative expectations about the exercise of legal power, all four studies of this thesis focused on individual perceptions about the law and the legal institutions. Collective processes are important as well. For instance, the historical legacy of police mistreatment in some neighbourhoods might play an important role on the relationship between perceived police misconduct and legal cynicism (Bell, 2017; Nagin and Telep, 2020). Large-scale survey data that allows the disentangling of between-neighbourhood variation and within-neighbourhood variation, such as the Project of Human Development in Chicago Neighborhoods (PHDCN, see Sampson, 2012), are necessary to address collective processes that inform people's relationship with legal authority.

Future directions of research

This thesis has opened several future avenues of research. To conclude, I address a few lines of study I would potentially like to pursue, essentially tackling the matter of time on the relationship between police (mis)conduct and public attitudes towards legal authority. Most future directions of research flow directly from the limitations section above.

First, one obvious next step is to focus on advancements in the methodological literature on causal inference with panel data. This is a rapidly growing subdiscipline, with most of the papers I relied upon in Chapter 6 being published in the final year of my PhD (Callaway and Sant'Anna, 2020; Imai et al., 2020; Imai and Kim, 2020; de Chaisemartin and d'Haultfoeuille, 2020). The next few years will undoubtedly see an explosion of studies suggesting new strategies that make use of longitudinal data to draw causal conclusions, and I am excited to be at the methodological frontier applying recently-developed methods to the study of police-citizen relations. Specifically, I would be interested in applying new methods that permit the estimation of cumulative causal effects. Most existing approaches either assume an experimental design on require a selection-on-observables assumption (Schomaker et al., 2019); a framework that adapts the difference-in-differences design to allow for different combinations of cumulative effects over time would be essential to assess the enduring impact of policing strategies during the life course.

Second, another (related) next step is to focus on the long-term process of legal socialisation and understand the weight of the enduring legacy of overpolicing in some neighbourhoods. With decades-long survey data, it is possible to understand how people develop attitudes towards legal authority from early ages to adult life. One such survey is the above mentioned PHDCN. One branch of this project included the collection of longitudinal data on several birth cohorts in 1995 (Sampson, 2012), with a fifth wave of data being collected in 2021. With longitudinal data from a time span of over 25 years, this project would permit the evaluation of life-course processes such as legal socialisation. Specifically, it would allow the examination of the enduring legacy of police mistreatment in some disadvantaged communities.

Third, as suggested by Nagin and Telep (2017, p.21), one other line of research that directly addresses the matter of time would be the focusing on the Bayesian updating model or the adaptive expectation model. In a nutshell, this would involve modelling the impact of encounters with the law on legal attitudes in such a way that each new encounter is inversely related to the number of previously experienced interactions. Considering decades-long data on people's relationship with the law, this would entail a large weight on the impact of

police-citizen contact during childhood and a progressively smaller impact throughout the life course. With the possibility of including exceptionally traumatic encounters even during the adult life (e.g., an exceptionally aggressive interaction, or an unexpected experience of procedural fairness), this modelling strategy could help disentangle the immediate impact of police-citizen encounters from the life-course development of legal attitudes.

Finally, another future line of research involves more studies in Global South settings. The literature on police-citizen relations is heavily concentrated in Western contexts, and it could benefit from studies elsewhere. For instance, policing in Latin America is largely based on coercive and sometimes even violent strategies (Zanetic et al., 2016), and most countries have low levels of trust in legal authority (Nivette, 2016). The extent to which police conduct is partly responsible such undermined attitudes is not clear, but these are interesting stages to investigate the short-term and long-term social costs of aggressive policing strategies.

Bibliography

Bell, M. C. (2017). Police reform and the dismantling of legal estrangement. *The Yale Law Journal*, 2054–2150.

Callaway, B. and P. H. Sant'Anna (2020). Difference-in-differences with multiple time periods. *Journal of Econometrics*. Published online.

Carr, P. J., L. Napolitano, and J. Keating (2007). We never call the cops and here is why: A qualitative examination of legal cynicism in three Philadelphia neighborhoods. *Criminology 45*(2), 445–480.

de Chaisemartin, C. and X. d'Haultfoeuille (2020). Two-way fixed effects estimators with heterogeneous treatment effects. *American Economic Review 110*(9), 2964–96.

Fagan, J., A. A. Braga, R. K. Brunson, and A. Pattavina (2016). Stops and stares: Street stops, surveillance, and race in the new policing. *Fordham Urb. LJ 43*, 539.

Fagan, J. and T. Tyler (2005). Legal socialization of children and adolescents. *Social Justice Research 18*(3), 217–241.

Geller, A. and J. Fagan (2019). Police contact and the legal socialization of urban teens. *RSF: The Russell Sage Foundation Journal of the Social Sciences 5*(1), 26–49.

Imai, K. and I. S. Kim (2020). On the use of two-way fixed effects regression models for causal inference with panel data. *Political Analysis*.

Imai, K., I. S. Kim, and E. Wang (2020). Matching methods for causal inference with time-series cross-sectional data. Working paper. Available at https://imai.fas.harvard.edu/research/files/tscs.pdf.

Jackson, J. and K. Pósch (2019). New directions of research in fairness and legal authority. In

A. Lind (Ed.), *Social Psychology and Justice (Frontiers of Social Psychology Series*, Chapter 9. Routledge.

Jackson, J., K. Pósch, T. R. Oliveira, B. Bradford, S. M. Mendes, A. L. Natal, and A. Zanetic (2022). Fear and legitimacy in São Paulo, Brazil: Police-citizen relations in a high violence, high fear city. *Law & Society Review 56*(1).

Kirk, D. and A. Papachristos (2011). Cultural mechanisms and the persistence of neighborhood violence. *American Journal of Sociology 116*(4), 1190–1233.

Morgan, S. and C. Winship (2015). *Counterfactuals and Causal Inference: Methods and Principles for Social Research*. New York: Cambridge University Press.

Nagin, D. and C. Telep (2017). Procedural justice and legal compliance. *Annual Review of Law and Social Science 13*, 5–28.

Nagin, D. and C. Telep (2020). Procedural justice and legal compliance: A revisionist perspective. *Criminology & Public Policy 19*(3), 761–786.

Nivette, A. E. (2016). Institutional ineffectiveness, illegitimacy, and public support for vigilantism in Latin America. *Criminology 54*(1), 142–175.

Nivette, A. E., M. Eisner, and D. Ribeaud (2019). Evaluating the shared and unique predictors of legal cynicism and police legitimacy from adolescence into early adulthood. *Criminology 58*(1), 70–100.

Rios, V. M. (2011). *Punished: Policing the lives of Black and Latino boys*. NYU Press.

Sampson, R. J. (2012). *Great American city: Chicago and the enduring neighborhood effect*. University of Chicago Press.

Schomaker, M., M. A. Luque-Fernandez, V. Leroy, and M.-A. Davies (2019). Using longitudinal targeted maximum likelihood estimation in complex settings with dynamic interventions. *Statistics in Medicine 38*(24), 4888–4911.

Skogan, W. (2006). Asymmetry in the impact of encounters with the police. *Policing and Society 16*, 99–126.

Skogan, W. G. (2012). Assessing asymmetry: the life course of a research project. *Policing and Society 22*(3), 270–279.

Sunshine, J. and T. Tyler (2003). The role of procedural justice and legitimacy in public support for policing. *Law and Society Review 37*(3), 513–548.

Tyler, T. and J. Fagan (2008). Legitimacy and cooperation: why do people help the police fight crime in their communities? *Ohio State Journal of Criminal Law 6*(1), 231–275.

Tyler, T., J. Fagan, and A. Geller (2014). Street stops and police legitimacy: Teachable moments in young urban men's legal socialization. *Journal of Empirical Legal Studies 11*(4), 751–785.

VanderWeele, T. (2015). *Explanation in causal inference: methods for mediation and interaction*. Oxford University Press.

Zanetic, A., B. P. Manso, A. L. Natal, and T. R. Oliveira (2016). Legitimidade da polícia: Segurança pública para além da dissuasão. *Civitas – Revista de Ciências Sociais 16*(4), 148–173.